

Motivation and demotivation among health staff at facility and district levels

*A case study of the National Health Management Information
System of Malawi*

Gro Alice Hamre



Master Thesis, Department of Informatics

UNIVERSITY OF OSLO

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Abstract

This study addresses the current problems of utilisation of health management information systems in developing countries due to the critical shortage of qualified and motivated human resources. The aims and objectives of this study are to (1) understanding local HMIS related practices in order to understand if health worker motivation affects or is affected by these practices, (2) understand how motivational theory applies and can be adjusted to cater for computing work of supportive nature, and finally (3) to offer suggestions for practice that might improve motivation towards HMIS responsibilities.

The study employed qualitative research methods in an interpretive in-depth case study, including literature studies, semi-structured open ended interviews, observations of daily routines and meetings, and document analysis of policy guidelines and national and lower level reports. The study was carried out in Chikwawa district (August to September 2006) and Chiradzulu district (September to October 2006) in the South West region of Malawi.

Important positive findings in this study included observed positive value of: (1) HMIS training; (2) HMIS review meetings; 3) supervision targeting HMIS routines; (4) an incentive scheme awarding health facilities on the quality of HMIS reports; and (5) health workers that were interested and willing to learn. Important findings of concern included; (1) problems of lack of skills and understanding among mainly lower level staff on the importance of data; (2) national priority of HMIS was not reflected in all practices at superior levels resulting in a lack of understanding of this priority at lower levels, (3) considerable amounts of adaptation work was crucial to the functioning of the system due to a general slip in computing resources; (4) job context factors not directly related to the functioning of the HMIS hold considerable high potentials for demotivation in general.

Analyses of findings in this study are based on motivational theory, using the terms of motivation and demotivation described by Herzberg et al. (1993) and the six categories of good and bad critical motivational incidents defined by (Machungwa and Schmitt 1983). Gasser's (1984) definitions of primary, articulation, and adaptation work in relation to computing work are applied to address the supportive nature of HMIS work towards other work (management and patient care).

This research suggests that the motivational items identified by Machungwa and Schmitt (1983) are chiefly relevant to the Malawian context, but that values should be adjusted to the specific case of the health sector, as well as to the different values of workers at different levels within the sector. The different categories of personnel holding HMIS responsibilities of different natures are suggested to require different motivators. It is also suggested that the division of HMIS related work between HMIS staff and health worker is considered carefully, to improve the motivational potentials.

1. Introduction

1.1 Study background

There is a serious human resource crisis in the health sector in developing countries and a motivated and qualified workforce is crucial to increase productivity and quality of health services (Dieleman et al. 2006, Mathauer and Imhoff 2006, Rowe et al. 2005, WHO 2006, Wyss 2004). For decades it was assumed that poor performance of health workers in developing countries was due to a lack of knowledge and skills, and as a result most interventions concentrated on training (Rowe et al. 2005). This has however had mixed and sometimes disappointing long-term results and motivation has been considered a critical influence on performance (Dieleman et al. 2003, Rowe et al. 2005). The low level of health worker motivation is now seen as one of the most important health workforce problems, in addition to problems of recruitment and retention (Mathauer and Imhoff 2006, WHO 2006).

The last decade saw developing countries taking action to strengthen and modernise their health management information systems (Kimaro 2006, Simba 2004). Developing countries do however not get maximum benefit from these advancements due to the inadequacies in data quality and lack of data utilisation (Kimaro 2006). The potential of partly computerised systems to improve data quality through detection of errors and transmission of disaggregated data may not be realised because many of the challenges faced by health management information systems cannot be reversed by the mere computerisation (Simba 2004). Typically, information systems cannot deliver any benefits on their own unless they are supported and enhanced by skilled (Kimaro 2006) and motivated human resources.

This study addresses the need to understand problems of utilisation of HMIS in developing countries with the critical lack of human resources in general and the lack of qualified staff in particular, and motivation of health practitioners is the main focus of this thesis.

The main objectives of this study are to understand local practices of data collection, processing, dissemination, and use in a national health management information system in a developing country in order to understand if health worker motivation affects or is affected by these practices. Demotivation is associated with incidents that cause job dissatisfaction and low morale among workers (Herzberg et al. 1993), while motivation is associated with incidents offering opportunities for improved job satisfaction and motivation. The study attempts to offer insight and understanding of issues relevant to motivation and demotivation towards HMIS related work in the two districts in Malawi. Six categories of motivational themes (Machungwa and Schmitt 1983) assumed to be relevant to the cultural context of Malawi are used to inform the analysis of findings.

In order to achieve the above objectives the following specific objectives are identified:

- Understand how managers and health workers at district and facility level perceive their current HMIS practices.

- Understand how managers and health workers at district and facility level perceive both intentions and actual functioning of existing HMIS support structures.
- Identify practices and support structures that either positively or negatively affect health worker attitudes towards HMIS related work.
- Understand how motivational theory applies and can be adjusted to cater for computing work that support other work.
- Suggest solutions that might increase motivation or decrease demotivation among health workers towards HMIS related work.

My empirical studies were conducted in Malawi, where I conducted in-depth interpretive case studies in two districts. The study employed qualitative research methods, including literature studies, semi-structured open ended interviews, observations of daily routines and meetings in the two districts, and document analysis of policy guidelines and national and lower level reports. The study was carried out during eleven weeks from August to October 2006, in Chikwawa district (August to September 2006) and Chiradzulu district (September to October 2006) in the South West region of Malawi.

1.2 Motivation

The possibility of contributing to increased sustainability of HIS in developing countries to improve both health management and general development has been a personal motivation for me in this study. My intention has been to look for lessons to learn from HMIS implementation and use in a developing country, and to search for existing practices that works well in challenging surroundings. A main focus has been on health workers' own perceptions of their daily practices and the support they receive related to HMIS.

My area of interest has developed from my own experience with health-services related systems development and from having experienced several organisational change operations at work. I would like to contribute to better working conditions for health workers and health managers in developing countries in their daily work of managing limited resources and facing great organisational challenges.

1.3 Structure

The theoretical perspective presented in chapter 2 serve together with the analysis of HMIS related work in chapter 6 as a basis for the analysis of motivation and demotivation in chapter 7. The following discussion in chapter 8 addresses the relevance of the motivational analytical framework adopted, including aspects of cultural values and the specific nature of HMIS computing work that support other work.

2. Literature review and analytical framework

In this chapter I present literature and theory relevant for the interpretation of my research. I started my literature studies searching for theories on motivation and progressed to search for studies on motivation in developing countries. Upon identifying several recent studies on motivation among health workers in developing countries, I also become aware of studies looking at cultures' influence on theories on human resource management and motivation.

The analytical framework proposed here is based on the various literature reviewed and will together with my research findings form the basis for my analysis of motivation and demotivation towards HMIS work. Some literature on motivation among health workers in developing countries specifically is presented in some detail as reference for discussion of my analysis. To address the secondary nature of information systems work of health workers I also reviewed literature on information systems and computing work in organisations. The concepts identified help to understand and address this in relation to motivation.

2.1 Two Western theories on motivation

When reading about motivation in general there are some theories that are frequently cited. The frequency of mention of both Maslow's (1943) hierarchy of needs and Herzberg's two factor theory (Herzberg et al. 1993) in the literature suggests that this is a relevant place to start for someone new to the field of motivation.

2.1.1 Maslow's theory of human motivation

Maslow was a clinical psychologist who developed a theory of human motivation to help him understand the needs of his patients (Boddy 2005). Maslow proposed that individuals experience a range of needs, and will be motivated to fulfil whichever needs is most powerful at the time (1943). He referred to these needs as being arranged in a hierarchy, see Table 2.1.1.

Table 2.1:1 Maslow's theory of human motivation (1943).

Self-actualisation	Self-fulfilment and for realising potential.
Esteem	Self-respect (a sense of achievement, competence and confidence), and the respect of others (prestige, status, recognition and attention).
Belongingness and love	A place in the group or family, wanting to be part of a <u>congenial team at work</u> .
Safety	Security, stability, dependency, protection, freedom of fear, anxiety and chaos, order, law, and so on.
Physiological	Basic needs which must be satisfied to survive, like food and water.

According to Maslow (1943) the strength of a particular need will depend on the extent to which needs lower in the hierarchy have been met. Maslow (1943) did not claim that the hierarchy was a fixed or rigid scheme. Rather he proposed that most people are partially satisfied and partially unsatisfied with their needs, and a more accurate description of the hierarchy would be in terms of decreasing percentages of satisfaction at successive levels. The emergence of a new higher level need would not be a sudden event; rather a person would gradually become aware that a higher need could be attained (Maslow 1943).

2.1.2 Herzberg's two factor theory of motivation

The two-factor theory of motivation at the work place is based on the analysis of interviews with 200 engineers and accountants in Pittsburgh USA in the 1950s (Herzberg et al. 1993). Using the critical incidents technique respondents were asked about incidents when they felt exceptionally good or exceptionally bad about their jobs. The two factor theory suggests that the factors involved in producing job satisfaction and motivation are separate and distinct from the factors that produce job dissatisfaction (Figure 2.1:1).

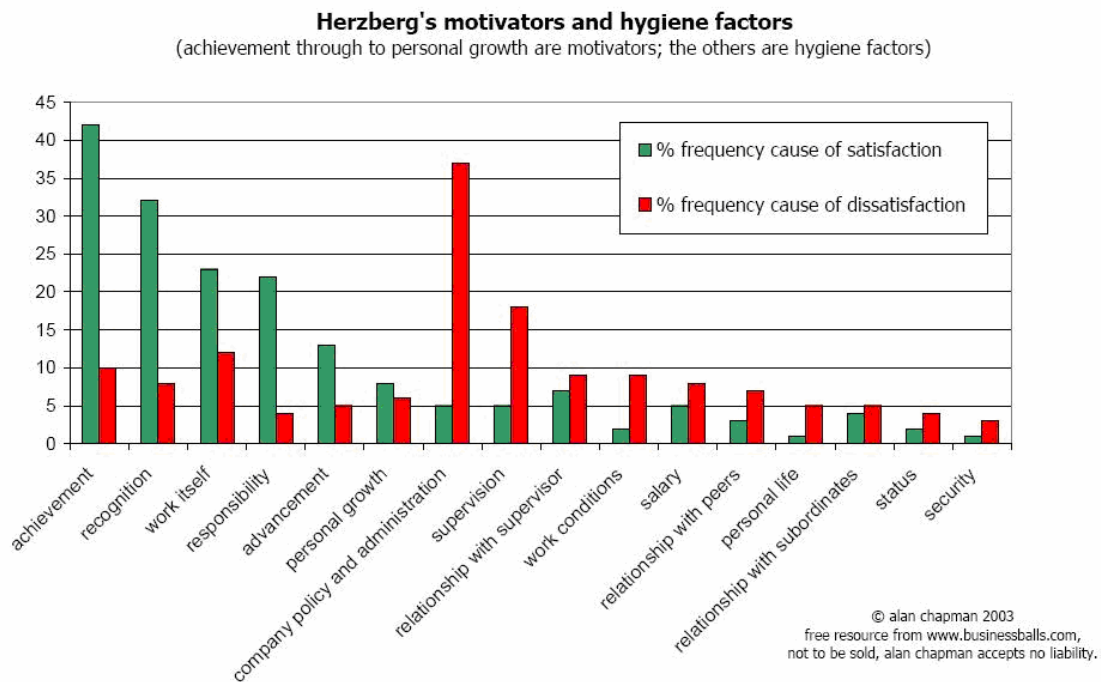


Figure 2.1:1 Frequency causes of job satisfaction and job dissatisfaction (Chapman 2003).

Herzberg et al. (1993) defined a list of Job-Attitude factors, and the empirical findings from their study showed that only a small number of these attitude factors were responsible for good feelings about the job. These motivators relate to the doing of the job itself, or to the intrinsic content of the job, rather than to the context in which the job is done. It is the job context factors, called the hygiene factors that appear as job-dissatisfiers (Herzberg et al. 1993). When the job context factors deteriorate to a level below that which the employee considers acceptable, it is argued that job dissatisfaction ensues. However, the reversal does

not hold true. When the job context is optimal, we will not get dissatisfaction, but neither will we get much in the way of positive job attitudes. It is only from the performance of a work task that the individual can get the rewards that will reinforce his aspirations (Herzberg et al. 1993).

Motivators and job satisfaction

Herzberg et al. (1993) identified a number of areas in which motivation to work could be strengthened by an emphasis on the greater fulfilment of goals, and where this was directly related to the doing of the work. People are not ‘motivated’ by addressing job context needs, they are only truly motivated by enabling them to reach for and satisfy the real motivators like personal growth and development which represent a far deeper level of meaning and fulfilment. The fewer the opportunities for the “motivators” to appear however, the better must the job context offered be in order to make the work tolerable (Herzberg et al. 1993). Absence of motivators does not lead to job dissatisfaction, but rather a neutral feeling about the job. Table 2.1:2 lists attitude factors defined as motivators.

Table 2.1:2 Herzberg’s two factor theory: Factors affecting job satisfaction and motivation (Herzberg et al. 1993).

Motivators	Description
<i>Achievement</i>	Successful completion of a job, a solution to a problem, vindication, and seeing the results of one’s work.
<i>Recognition</i>	Some act of recognition to a person, like notice, praise or blame. Recognition can come from many sources like supervisors, peers, customers or subordinates.
<i>Work itself</i>	Satisfaction or dissatisfaction related to the nature of the work, without achievement or recognition.
<i>Responsibility</i>	Factors relating to responsibility or authority and the derived satisfaction from being given responsibility or the lack of it.
<i>Advancement</i>	An actual change in status, like promotion.
<i>Possibility of personal growth</i>	A change in a situation that involves that the possibility of growth was increased or decreased. This could be a change in status, or personal growth by advance in new skills and in a new professional outlook.

Job context and job dissatisfaction

Herzberg et al. (1993) support the notion that good ‘hygiene’ or ‘maintenance’ in the work environment will prevent many of the negative effects of low morale. Good and fair company policy, leadership, supervision, and salary are important aspects to most employees. Yet, an overemphasis on such issues carries according to Herzberg et al. (1993)

seeds of trouble. If managers for instance attempt to motivate staff through monetary incentives, Herzberg et al. (1993) argue that it can lead to a greater and greater focus on the extraneous rewards that reside in the context of jobs. Managers could end in a situation where they can no longer 'afford' to motivate, as employees might start seeing such incentives as rights rather than rewards for good performance. All we can expect from satisfying the needs for hygiene is the prevention of job dissatisfaction and poor job performance due to this dissatisfaction (Herzberg et al. 1993). Table 2.1:3 lists job context factors that are described to affect the degree of job dissatisfaction. Again figure 2.1:1 shows how the absence of good maintenance has a higher frequency of causing job dissatisfaction, rather than their presence causing job satisfaction.

Table 2.1:3 Herzberg's two factor theory: Factors affecting Job dissatisfaction (Herzberg et al. 1993).

Hygiene factors	Description
<i>Company policy and administration</i>	Adequacy or inadequacy of company organisation and management. It also includes harmful or beneficial effects of company's policy.
<i>Supervision</i>	The technical aspects of supervision, the competence or incompetence, fairness or unfairness of the supervision.
<i>Relationship with supervisor</i>	The nature of the actual interaction between employee and supervisor.
<i>Working conditions</i>	The physical conditions of work, the amount of work or facilities available for doing the work.
<i>Salary</i>	Compensation for work.
<i>Relationship with peers</i>	The nature of the actual interaction between employee and peers.
<i>Factors in personal life</i>	Aspects of the job that affects the personal life, for instance risk for one's health.
<i>Relationship with subordinates</i>	The nature of the actual interaction between employee and his or her subordinates.
<i>Status</i>	Signs of appurtenance of status as being a factor in feelings about the job. For instance the benefit of getting a personal secretary, being allowed to drive the company car or being unable to use a company's eating facility.
<i>Job security</i>	Signs of presence or absence of job security like for instance company stability or instability.

It should be understood that both kinds of factors meets the needs of the employee; but is primarily the “motivators” that leads to motivation and improvement in performance. According to Herzberg (1987), job enrichment is the key to designing work that motivates employees. Good working environment still prevents many of the negative results of low morale, but cannot be an end in itself (Herzberg et al. 1993).

2.2 Culture and motivation

The interaction of Western and non-Western management practices is a growing issue in emerging economies through the world and several authors call for the need of an alternative or complementary approach towards leadership, human resource management and motivation in the sub-Saharan African context (AnAfro-CentricAlliance 2001, Beugré and Offodile 2001, Carr et al. 1997, Harvey et al. 2000, Jackson 2002). According to conventional western theories, people are expected to be intrinsically satisfied and value recognition, be goal-directed, and anxious to improve their performance for the sense of achievement (Blunt and Jones 1997, Harvey et al. 2000). What is argued to be at issue is the extent to which those expected values are relevant to a culture where satisfaction might be derived from prestige and position and where social approval is important in its own right as to override other matters in job performance (Harvey et al. 2000). I will in the following section look at different cultural dimensions argued to be of relevance to the management of people (Hofstede 1984).

2.2.1 Hofstede’s cultural dimensions in management

According to Hofstede (1984) organisational theorists were in the 1980s slowly realising that their theories were much less universal than they once assumed. He studied culture through answers to paper based questionnaires about values of managers and employees collected by psychologists in 64 national subsidiaries of the IBM Corporation. Hofstede (1984) argued that the differences in his material could not be due to either occupation or employer, but had to be due to nationality, as he always compared employers in similar occupations employed by subsidiaries in the same company. The differences between countries reflected the existence of four underlying value dimensions along which the countries could be positioned (Hofstede 1984).

- **Individualism versus Collectivism:** People’s self concept: “I” or “we”.
- **Large versus Small Power Distance:** The extent to which the members of a society accept that power in institutions and organisations is distributed unequally.
- **Strong versus Weak Uncertainty Avoidance:** The degree to which members of a society feel uncomfortable with uncertainty and ambiguity.
- **Masculinity versus Femininity:** A preference in society for achievement, heroism, assertiveness and material success stands for masculinity. Femininity stands for a preference for relationships, modesty, caring for the weak, and the quality of life.

Later these four dimensions were extended to include a fifth dimension, based on a study of the values of students in 23 countries conducted by Michael Bond (cited in Hofstede 1993, p. 90) in an attempt to counter the bias of the western researchers by including an Eastern bias. The four dimensions from the IBM study were confirmed, and the dimension of Long-term versus Short-Term was added.

- **Long Term versus Short Term Orientation:** Long term orients towards the future, through saving and persistence. Short term orients towards the past and present, like respect of traditions and fulfilling social obligations.

Hofstede (1993) acknowledge that these dimensions account for only a small part of the differences in cultural systems around the world, but argues that this small part is particularly important when it comes to understanding the functioning of work organisations and the people within them. Management deals with a reality that is man-made; people build organisations according to their values, and societies are composed of institutions and organisations that reflect the dominant values within their culture. Talking about a “Western”, “African”, “Asian,” or “Middle-Eastern” type of management is therefore not justified, and no management activity can be culture-free (Hofstede 1984).

Hofstede’s (1984) value dimensions in the developing/developed conceptualization are critiqued of failing to recognize other management systems operating in Africa (Carr et al. 1997, Jackson 2002). For the purpose of this research however it is not my intention to use Hofstede’s theory on national culture to analyse management practices. Hofstede’s (1984) four cultural dimensions will only serve as a relatively simple tool to organise and present some important cultural differences in an otherwise inherently complex reality. The limitations to my approach will be discussed in Chapter 8.

2.2.2 Some different features of Western and African Cultures

According to Hofstede (1984) culture is the collective programming of the mind which distinguishes the members of one group or society from those of another. It consists of the patterns of thinking transferred from parent to child, teacher to student, friend to friend, leader to follower, and follower to leader. Culture is also reflected in the meaning that people attach to various aspects of their life; what they consider as ‘good’ and as ‘evil’, ‘true’ and ‘false’, ‘beautiful’ and ‘ugly’. Management within a society is very much constrained by its cultural context, because it is impossible to coordinate the actions of people without a deep understanding of their values, beliefs and expressions (Hofstede 1984).

In his study on national cultures Hofstede (1984) gave relative index scores to fifty countries and three multi-country regions on each of the four dimensions based on each country’s local employees’ values. On a scale from zero to 100, the lowest country was situated around zero, while the highest would be around 100. Figure 2.2:1 shows the difference in score on these four dimensions between USA, East Africa and West Africa based on values reported by Hofstede (1984, p. 85) USA is included to show the values dominant in the place of origin of the reviewed management theories in section 2.1. In the following sections the four dimensions are presented along with description of the different aspects that according to Hofstede (1984) have several implications for the management of people. The fifth dimension is excluded in this section as values associated with East Africa to my knowledge

are not available.

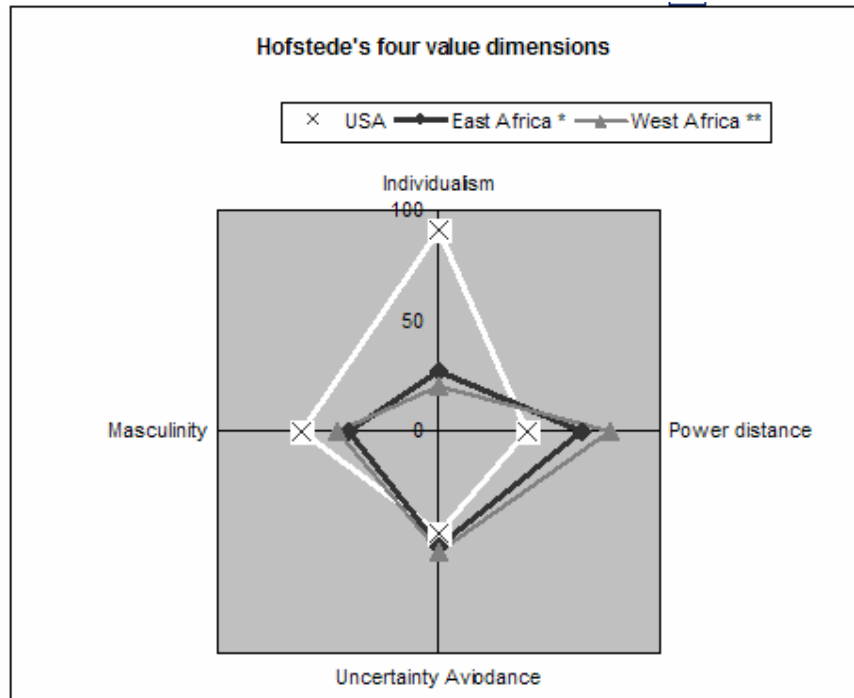


Figure 2.2:1 Value of the four dimensions for East Africa (Ethiopia, Kenya, Tanzania, and Zambia) and West Africa (Ghana, Nigeria, Sierra Leone) compared to USA (Hofstede 1984, p. 85).

Individualism versus collectivism

Aspects of importance due to differing values on the individualism versus collectivism dimension described by Hofstede (1984) are presented in Table 2.2:1. Figure 2.2:1 illustrates that there is a relatively big difference in degree of individualism between the USA and the included African countries. African countries score relatively low, indicating that these cultures are more collectivistic in nature.

Table 2.2:1 Some cultural differences with implications for management related to the individualism versus collectivism dimension (Hofstede 1984).

<p>The validity of economic theories based on self-interest.</p>	<p>In individualistic cultures each individual is motivated by self-interest.</p> <p>In a more collectivist culture self interest would not be the ultimate motive for economic behaviour as individuals who have a job will have to share their earning with needy relatives.</p>
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<p>The validity of psychological theories based on self-actualization.</p>	<p>In an individualistic culture the highest level of Maslow's needs hierarchy is self-actualisation, and refers to the individual realising his or her full potential in whatever field he or she chooses.</p> <p>In a more collectivist culture people will have a need for actualising their in-group by maintaining harmony with other people in their family, tribe etc.</p>
<p>The nature of the employer-employee relationship: whether this considered as calculative or as morally based.</p>	<p>In individualistic cultures this relationship is a business relationship of mutual advantage.</p> <p>In more collectivist cultures this relationship has a moral component that includes loyalty and protection.</p>
<p>Priority in business to the task or to the relationship.</p>	<p>In individualist cultures all people should be treated alike.</p> <p>In collectivist cultures people think in terms of 'we' and 'they' and it is normal and right to give better deals to one's in-group than to strangers.</p>
<p>The role of family in the work situation.</p>	<p>In individualist cultures it is objectionable to employ close relatives.</p> <p>In a collectivist society the domain of work and domain of society cannot be easily separated.</p>
<p>The importance of face and of harmony.</p>	<p>In individualist countries, openness and directness in working conditions is often considered a virtue.</p> <p>In more collectivist cultures when openness could lead to disharmony, it is preferable to maintain harmony and avoid anybody's loss of face.</p>

Power distance

African countries score higher on power distance than USA (Figure 2.2:1), indicating a somewhat higher acceptance of hierarchical order in which everybody has a place with less need for further justification (Hofstede 1984). Aspects relevant to the differences in power distance dimension are presented in Table 2.2:2.

Table 2.2:2 Some different cultural aspects related to power distance (Hofstede 1984).

<p>The need for subordinate consultation versus the acceptability of paternalistic management</p>	<p>Low power distance indicates that parents and teachers are likely to encourage independence in children, and it is often the norm that superiors consult subordinates.</p> <p>High power distance indicates loyalty, respect towards parents and teachers, and a good superior act more like a good father.</p>
<p>The meaning of status differences</p>	<p>With low power distance status differences are considered undesirable and should not be visible. Existing status tends to be achieved by personal merits.</p> <p>With high power distance both superiors and subordinates expect power distance to translate into visible differences in status.</p>
<p>Respect for old age</p>	<p>In low power distance societies age tend to be negatively evaluated.</p> <p>In high power distance societies the importance of paternal and maternal authority implies a respect for the older person.</p>
<p>Ways of redress in case of grievances</p>	<p>With low power distance it is generally felt desirable to maintain a system against power abuse.</p> <p>In higher power distance cultures the act of complaint to a third party about a superior may expose subordinates to reprisals from superiors, There are, however, often indirect ways of making grievances known that may result in considerable loss of face of the superior.</p>
<p>The feasibility of appraisal systems in general</p>	<p>In small power distance cultures appraisal of subordinate performance require an open two-way communication between superior and subordinate.</p> <p>In large power distance cultures an open two-way communication is more unlikely to occur with the strong concern for face-saving and harmony.</p>

Uncertainty avoidance

Differences described by Hofstede (1984) between societies that are low or high in uncertainty avoidance are presented in Table 2.2:3. In this category, African countries score similar to USA, both residing close to the middle of the scale (Figure 2.2:1), indicating medium uncertainty avoidance in both regions.

Table 2.2:3 Aspects of cultural differences in the uncertainty avoidance dimension (Hofstede 1984).

The emotional need for formal and informal rules to guide behaviour	<p>‘Law and order’ are important symbols in a society with high uncertainty avoidance and satisfy deep emotional needs in people.</p> <p>In cultures low on uncertainty avoidance there will be written and unwritten rules but are considered more a matter of convenience, and people are more prepared to change the rules.</p>				
Formalization, standardization, and ritualization of organizations	In high uncertainty avoiding cultures meetings, memos, reports, and experts often serve ritual ends as much as decision making ends.				
<p>Implicit models of organizations</p> <table border="1" data-bbox="264 1016 800 1314"> <tr> <td data-bbox="264 1016 532 1163">Less centralised and less formalised (Low PD/Low UA)</td> <td data-bbox="540 1016 800 1163">Centralised but less formalised (High PD/Low UA)</td> </tr> <tr> <td data-bbox="264 1173 532 1314">Formalised but less centralised (Low PD/ High UA)</td> <td data-bbox="540 1173 800 1314">Centralised and formalised (High PD/High UA)</td> </tr> </table>	Less centralised and less formalised (Low PD/Low UA)	Centralised but less formalised (High PD/Low UA)	Formalised but less centralised (Low PD/ High UA)	Centralised and formalised (High PD/High UA)	<p>Power distance relates to the degree of inequality with which people feel comfortable and in organisations this translates into more or less centralised decisions.</p> <p>The four possible combinations of power distance and uncertainty avoidance indicates that the way of organising depends on the surrounding culture.</p>
Less centralised and less formalised (Low PD/Low UA)	Centralised but less formalised (High PD/Low UA)				
Formalised but less centralised (Low PD/ High UA)	Centralised and formalised (High PD/High UA)				
Types of planning used	<p>In more uncertainty avoiding cultures short- and medium-term planning get more top management attention than in low uncertainty avoiding cultures.</p> <p>Strategic planning does however get more attention in less uncertainty avoiding cultures as it presupposes a tolerance for great ambiguity.</p>				
The meaning of time	<p>Uncertainty avoiding cultures tends to be more hurried than others.</p> <p>In traditional societies however, where time is not a resource, time is conceived as circular rather than linear.</p>				

Appeal of precision and punctuality	<p>In more traditional societies, the expected degree of punctuality depends on the social relationship; one is more punctual toward superiors than subordinates.</p> <p>Modern technology however demands precision and punctuality.</p>
The showing or hiding of emotions	<p>In more uncertainty avoiding cultures the expression of emotions is more easily tolerated because the urge to avoid uncertainty provokes a nervous tension for which society should provide outlets. Outlets may however be limited to certain situations.</p> <p>Becoming emotional may lead to complete loss of respect from others in less uncertainty avoiding cultures.</p>
Tolerance for deviant ideas and behaviour	<p>More uncertainty avoiding societies do not like deviants as it is considered dangerous.</p> <p>In less uncertainty avoiding societies deviant behaviour is less upsetting, but such tolerance may take the form of simply ignoring the deviant.</p>

Masculinity versus Femininity

Aspects related to the Masculinity-Femininity dimension (Hofstede 1984) are presented in Table 2.2:4. Also on this dimension, USA and the African countries score relatively similar, close to medium masculinity and medium femininity (Figure 2.2:1). USA does however score a bit over medium on masculinity and the African region scores below medium and is closer to femininity.

Table 2.2:4 Aspects of differences in the masculinity versus femininity dimension (Hofstede 1984).

Competitiveness versus solidarity, equity versus equality, sympathy for the strong or for the weak	<p>Masculinity is associated with a performance society and competitiveness among people is seen as a good thing, and the strong should win.</p> <p>Femininity is associated with a welfare society, and solidarity is seen as a good thing. The strong should help the weak, and social justice is an important value.</p>
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Achievement motivation versus relationship motivation	<p>Achievement motivation stands for a combination of little uncertainty avoidance and strong masculinity. This combination is argued to be found in Anglo countries and their former colonies.</p> <p>Femininity stands for a stress on relationships.</p>
Concepts of the quality of work life	<p>Cultures of feminine societies are more quality-of-life oriented. It can also be asserted that masculine and feminine societies hold different ideas about what represents work of high quality.</p> <p>In less developed countries concern for quality of work life is often considered luxury.</p>
Career expectations	<p>The symbolic meaning of career is greater in masculine societies, and fit a competitive, performance oriented system.</p> <p>In feminine societies a career is less important in people's self concept.</p>
Sex roles in the work place	<p>In some masculine countries woman are admitted to traditionally male work roles. Such women tend to adopt masculine values and behaviour.</p> <p>Only in more feminine societies are men admitted to traditionally female work roles. Which roles are considered appropriate for men and women is culturally determined.</p>

Hofstede's study is from 1984, and it is likely that the picture have change since then, the differences between USA and African countries might not be same now as indicated by (Hofstede 1984) and illustrated in Figure 2.2:1. More and more people in African countries live in big, urban cities, are increasingly influenced by the western world. However, many Africans still live in rural, poorer areas, where they are less influenced by other cultures. These people participate in working life as well, and in the following section I look at motivational theory that hopefully addresses better the values of a bigger share of the sub-Saharan African workers.

2.3 Motivational theory in sub-Saharan Africa

The two western theories on motivation presented in section 2.1 are both more than 50 years old, and have their origin from North America. They are in some literature still used as basis for analysis and supported as relevant (Dieleman et al. 2006, Mathauer and Imhoff 2006),

other times they are critiqued and accused of colonising Africa once more through western thought and assumed values (AnAfro-CentricAlliance 2001, Carr et al. 1997). In the following section I present a motivational theoretical framework that origin from Machungwa and Schmitt's (1983) research in Zambia.

2.3.1 Machungwa and Schmitt's six categories of motivational items

Machungwa and Schmitt (1983) argue that cross-cultural researchers often focus on validating a theory developed in one culture in other cultures. This approach risk missing out some of the motivational components in another culture, and in their research Machungwa and Schmitt (1983) addressed the need for studying motivation in developing nations by focusing on observing, examining, and understanding work behaviour in these countries. Their study was designed to investigate work motivation in Zambia by examining conditions, events, and processes that characterized highly productive and highly unproductive work behaviour.

To examine work motivation the study adopted a critical incidents technique requiring respondents to provide incidents that would make them work very hard or very little (Machungwa and Schmitt 1983). A semi-structured interview was developed on the basis of Herzberg et al. (1993) and targeted 341 Zambian employees. Employees included managers and senior administrators, technical personnel, secretaries, stenographers and typists, clerks, and semiskilled and general workers including labourers. Of 341 respondents, 55 were from government departments, 241 from joint government-private enterprises, and 45 from private firms. There was only a small portion of female employees (4), median age was 31.5 years, median years of education were 11.3, and a mean of 21.2 years of urban residence.

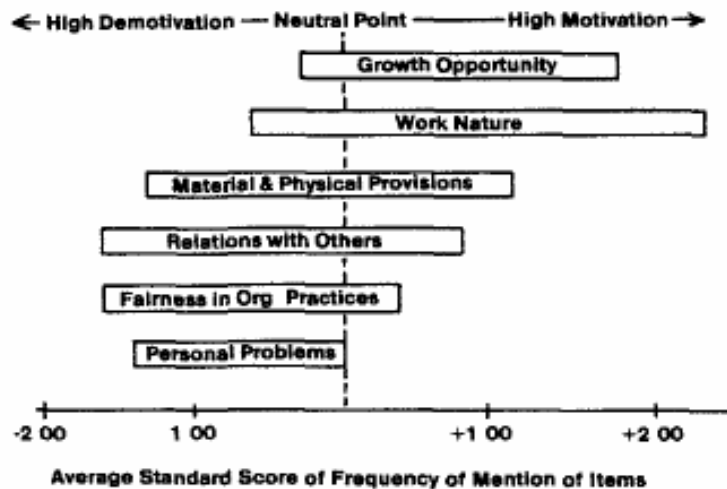


Figure 2.3:1 Diagrammatic representation of the degree of positive or negative impact associated with each clusters of motivation and demotivation themes (Machungwa and Schmitt 1983).

Based on content analysis, 23 themes or motives were identified from good critical incidents and 27 from the bad incidents (Machungwa and Schmitt 1983). Frequency counts were performed for each theme, representing the number of respondents who cited that theme as

having encouraged them to work very hard (motivating themes), or to work very little (demotivating themes).

Themes with a minimum frequency of nine respondents citing it (2.6 percent of the sample) were included in a quantitative study (Machungwa and Schmitt 1983). Here respondents were asked, based on their work experience, which of the themes would encourage or discourage their work behaviour. 80 employees that were not included in the original study responded to the questionnaire. The analysis of the questionnaire data justified perceiving theme frequency as an indication of a theme's impact on motivation.

Themes were grouped together into six clusters, based on that they expressed ideas that were related on content, conceptual, or theoretical basis (Machungwa and Schmitt 1983). The five themes clusters with potential for both enhancing and impairing motivation, plus the cluster of themes related to personal problems with only negative impact on motivation, are presented in Figure 2.3:1. In the following sections I present the results from Machungwa and Schmitt's (1983) content analysis based on the initial critical incidents interview study. Due to the cultural issues addressed in preceding sections the importance of these themes may vary across countries and for the purpose of my analysis it is therefore helpful to include all identified themes, and not leave out those with a frequency lower than 2.6 percent.

All six clusters and their motivation and demotivation themes are presented in the following section, including each themes frequency of mention, indicating the strength of the encouraging and discouraging potential of the theme.

Growth and advancement opportunities

Themes related to growth and advancement opportunity at work was quite frequently mentioned as motivating conditions among Zambian employees as indicated in Table 2.3:1 (Machungwa and Schmitt 1983). According to Machungwa and Schmitt (1983) themes in this category may be considered related to the concepts of self-actualisation (Maslow) and advancement (Herzberg). Promotion and learning were also mentioned as discouraging factors towards hard work, when judged to constitute inadequacy or absence of growth and advancement opportunity.

Table 2.3:1 Critical incidents items related to growth and advancement opportunities, with frequency of mention of each item indicated (Machungwa and Schmitt 1983).

Demotivators		Motivators	
Lack of fair chance for promotion	14.7%	Promotion or fair chance for promotion	16.0%
Absence of job rotation	0.6%	Chance to learn more about job and/or further training	15.0%

Interference in one's work by superiors or outsiders (e.g., politicians)	0.6%	Trust and confidence shown by supervisors and /or co-workers	2.3%
Lack of chance to learn more about job, and/or further training	5.9%	Job allowing you to take responsibility and the chance to be able to make decisions	7.0%
		Job conditions allowing autonomy	2.1%
		Proper placement by doing the work I was trained for	0.9%
		Receiving corrective feedback	1.2%

Work nature

Work nature relates to the nature, amount, and difficulty level of the work, and how such work is assigned (Machungwa and Schmitt 1983). Amount of work has the highest frequency of mention as cause for putting much effort into work, followed by work itself and work that has a deadline (Table 2.3:2). Poorly defined work duties have the highest frequency of mention as a discouraging factor.

Table 2.3:2 Critical incidents items related to work it-self (Machungwa and Schmitt 1983).

Demotivators		Motivators	
There is too much work or too little work, or work is too difficult or too easy	2.9%	There is sufficient amount of work or more, but not too much, as well as difficult, but not too difficult	68.6%
Work itself is boring, unimportant or uninteresting	3.5%	Work itself is interesting, challenging, important and has variety	44.0%
Work duties are poorly defined	6.7%	Work is urgent and/or has a completion deadline	40.0%
		Work allows achievement and proving oneself	8.0%

Material and physical provisions

This category relates to the amount and quality of material and physical provisions present in the job situation (Machungwa and Schmitt 1983). In this category some items have a higher frequency of mention as cause of putting less effort into work (Table 2.3:3), than the other

way around . Especially discouraging is low pay and little or no fringe benefits.

Table 2.3:3 Critical incidents items related to material and physical provisions (Machungwa and Schmitt 1983).

Demotivator		Motivators	
Pay is low, and increments, bonuses, merit increments and other financial incentives are unlikely to happen	24.0%	Pay is reasonable and there is possibility for increment, bonus, merit increment or financial incentives	14.7%
Being demoted, suspended or subjected to disciplinary action	7.0%	Job is secure, one is ensured being employed	10.0%
Job security threatened	5.3%	Physical conditions like work layout and available equipment	1.5%
Dangerous or unfavourable physical conditions	0.9%	Fringe benefits like housing, cafeteria, transport, loans and pay advances	0.9%
Little or no fringe benefits like housing, transport and loans etc.	10.0%		

Relations with others

In relations with others, bad relations have great potential for reducing efforts at work (Machungwa and Schmitt 1983). Good relations on the other hand have a lesser potential for causing increased effort, except for in the case of recognition (Table 2.3:4). This corresponds to Herzberg's theory that we are more inclined to be motivated by factors related to the performance of a task, but that good working environment has little potential for causing extra efforts.

Table 2.3:4 Critical incidents items related to relations with others (Machungwa and Schmitt 1983).

Demotivators		Motivators	
Superior or co-worker shows little or no recognition of hard work, receiving no compliments, praise or appreciation	13.5%	Chance for receiving recognition and to meet other's expectations, to show capability and receive praise from others	20.0%
Lazy and/or incompetent superiors and co-workers	12.9%	Hardworking and competent superiors, co-workers and subordinates	1.2%
Too close or too loose supervision	11.7%	Consultative and participative supervision	1.7%

Bad relations and misunderstandings between workers, quarrels or mistrust in the work group	26.0%	Good interpersonal relations with superiors, co-workers and subordinates	3.0%
Unjust suspicion or blame for error committed	2.1%	Supportive encouraging family and friends	1.5%
		Understanding organisation, superiors, co-workers and subordinates who listen to one's personal problems	0.6%

Fairness in organisational practices

Perceived fairness of organisational policies and practices has according to Machungwa and Schmitt (1983) little potential for motivating workers to increased efforts at work. The opposite seem however to hold considerable potential for causing demotivation (Table 2.3:5).

Table 2.3:5 Critical incidents items related to fairness in organisational practices (Machungwa and Schmitt 1983).

Demotivators		Motivators	
Tribalism (ethnicity), corruption in promotions, pay raises, work assignment or grievances, nepotism, racial discrimination	28.0%	Fairness in promotion, work assignment, pay raises and in handling complaints	0.9%
Bad organisational policies and procedures	3.8%	Organisation keeping promises	0.6%
Organisation, superiors and co-workers do not care for or listen to problems or welfare of employees	17.0%		
Failure of organisation to keep promises	5.6%		

Personal problems

The most frequently mentioned reasons for putting decreased effort into work in the sixth group is presented in Table 2.3:6 and relate to death or sickness in the family, an employee's feeling that he or she was not in the working mood, or a presence of domestic problems or quarrels (Machungwa and Schmitt 1983).

Table 2.3:6 Critical incidents items related to personal problems (Machungwa and Schmitt 1983).

Demotivators		Motivators
Death or sickness in family	15.8%	
Hunger	1.5%	
Feeling or mood, just doesn't feel like working	12.0%	
Drinking and hangover	1.7%	
Domestic quarrels or other personal problem	6.5%	

2.3.2 Machungwa and Schmitt (1983) versus Herzberg et al. (1993)

Vroom accused Herzberg et al. in a paper presentation at the American Psychology Association in 1966 of equating satisfaction with motivation (cited by Machungwa and Schmitt 1983, p. 32). Herzberg et al. asked respondents to talk about incidents when they (respondents) felt exceptionally good or exceptionally bad about their jobs, and then proceeded to infer the presence/absence of motivational constructs from their answers. In Machungwa and Schmitt's tried to address this by asking respondents to describe incidents where they worked "exceptionally hard", and when they put "exceptionally little effort" into their work. Working exceptionally hard and putting little effort into the work were assumed to be associated with high and low motivation, respectively. It is beyond the scope of this study to evaluate to the extent that the two approaches actually succeed in targeting real motivation. However there may be cause to keep this in mind when I in the following compare the two studies.

Machungwa and Schmitt applied the same critical incident technique as Herzberg et al. (1993) and all items reported in both studies reflect what is perceived to be important aspect of working life by employees at the time and place of study. Although Machungwa and Schmitt's study is conducted more than 20 years later than Herzberg's (1993) study it is likely that the differences observed can be attributed to more than just a difference in time. Figure 2.3:2 presents the frequencies of Machungwa and Schmitt's themes combined in categories similar to those of Herzberg et al. Some themes correspond directly to Herzberg's items, while some themes are combined to reflect the corresponding items of Herzberg (See Appendix A).

When looking at Figure 2.3:3 it is clear from this division of Machungwa and Schmitt's results that they do not correspond very well to some of Herzberg's factors, with intrinsic job content factors as dominating motivators and job context factors dominating as demotivators.

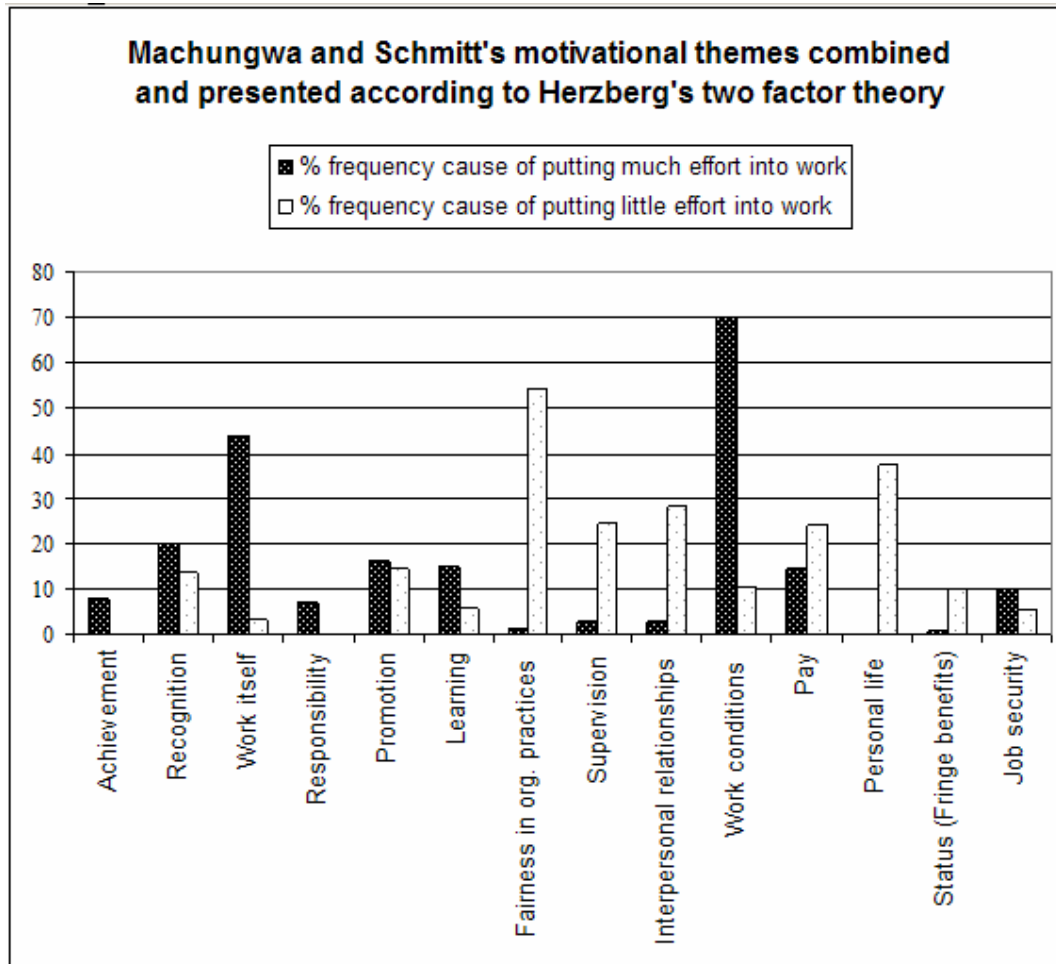


Figure 2.3:2 Themes reported by Machungwa and Schmitt (1983) combined according to the motivators and demotivators of Herzberg et al. (1993).

There are three things that are strikingly different; (1) first, as already mentioned; motivation does not seem to come mainly from what Herzberg et al. term intrinsic job content factors. Physical working conditions, combined with the amount of work and how well the work is defined, are the most mentioned causes for motivation. It should however be noted that this is mainly due to the amount of work that gave a frequency score alone on more than 68.6 percent as causing respondent to work exceptionally hard when they had a lot of work to do. It could be questioned whether this reflects the motivation towards work when they have much work to do, or if it reflects that respondents fulfil their work duties and that much work makes them work much. It is worth mentioning that pay and fringe benefits, as well as job security scores relatively high as potential motivators.

Second, some of the strongest motivators identified by Herzberg et al seem to have a considerable more moderate importance on motivation in Machungwa and Schmitt's study. Achievement, recognition and responsibility all score relatively low compared to the other study. Work itself however has a promising high frequency of mention as motivator, referring to work that is interesting, challenging, important, and has variety. Promotion and learning, corresponding to Herzberg's advancement and personal growth show similar patterns in both studies.

Third, the general picture of job context factors having a higher potential for causing less efforts at work as compared to a generally lower positive potential for job content factors to increase efforts at work is different from Herzberg et al. (See Figure 2.1:1 for comparison). As several of the themes reported by Machungwa and Schmitt have been combined in this presentation to reflect the similar items of Herzberg et al., the high frequency of mention reflects a wide range of different bad critical incidents to cause dissatisfaction at work. We see that company policy and administration, supervision and personal relationships at work show similar patterns as demotivators. However, lack of fair pay and fringe benefits, as well as personal problems are seriously discouraging factors. We also see that the relatively low motivational potential of recognition and promotion is paired with an almost as high demotivational potential for the lack of both.

According to Hofstede (1984) the most important cultural difference between USA and African countries can be found in the individualism collectivism dimension, as depicted in Figure 2.2:1. The more collectivist nature suggests that self-interest is not an ultimate economic goal, individuals have a greater need to actualise their in-group by maintaining harmony than to actualise personal goals, it is harder to distinguish between the domain of work and society, and the business relationship includes components of moral and loyalty. It can be argued that some of these values are reflected in the different pattern observed and described in the previous paragraphs. Less value on achievement and responsibility might indicate the lesser importance of this as compared to harmony in one's group. The importance of this harmony can also be reflected in high degree of demotivation related to bad interpersonal relationship. This in turn can also be related to the moral and loyalty components of business relationships and the fact that social life is not easily detached from working life. Finally, this last collectivist value of moral in business might also reflect the high demotivation potential of unfairness in organisational practices.

Demotivators reported by Herzberg et al. score in general below 10 percent, while most demotivators reported by Machungwa and Schmitt (1983) score between 20 and 50 percent. These demotivating potentials seem very important, and the high frequencies indicate that these are demotivating to a larger share of workers. This probably reflects many generally poor job context issues. Motivators also have generally lower frequencies than demotivators in Figure 2.3:2. That might confirm Herzberg et al. (1993), as it might indicate that hygiene is in a poor state and represent the most pressing concerns. Job security is motivator in stead of demotivator.

Machungwa and Schmitt (1983) argue that their data are roughly supportive of Herzberg's two-factor theory in that Herzberg's hygiene variables are more frequently mentioned as demotivators by their respondents and, likewise, their motivating items were also among those Herzberg identified in his set of motivators.

Machungwa and Schmitt (1983) choose to categorise their findings into six groups of themes. These categories, moreover, tend to have a differential positive/negative impact on motivation, that is, any given factor tends to have greater potential to increase than to decrease motivation or vice versa (See Figure 2.3:1). These results however shows that both "motivators" and "hygienes" can affect motivation and demotivation and are, in their opinion contradictory to Herzberg's two-factor notion (Herzberg et al., 1993). This is however in my opinion a too strict interpretation of Herzberg's theory, as his findings shows a similar potential for both motivators and hygiene factors to cause both job satisfaction and job dissatisfaction to varying degrees. It is rather in the interpretation of their results that the two

studies are different, as Herzberg (1993) concludes that some factors are more important as motivators and some more important as demotivators. Machungwa and Schmitt (1983) on the other hand conclude that their six categories have both motivational and de-motivational potentials, although they too argue that these groups of themes tend to have a greater potential for one direction over the other (Figure 2.3:1).

2.3.3 Implications for my analysis

I find that a combination of the results from the two studies compared above provides to my knowledge the most meaningful analytical tool for my findings. First, I find it useful to distinguish between factors with a higher potential for motivation and a higher potential for demotivation. Distinguishing aspects of importance to working life into these two categories offers a way to illustrate differing values across both national and organisational cultures. It also nicely illustrates what factors discourage workers to the degree that they choose to put exceptionally little effort into their work, which in any case would be important information to any manager. On the other hand it illustrates what factors could be addressed if one wants to encourage workers to put an additional effort into their work, beyond what can normally be expected from someone with a neutral position towards their work. More important than the nature of these motivating and demotivating factors, is their capacity to illustrate the work values of the workers.

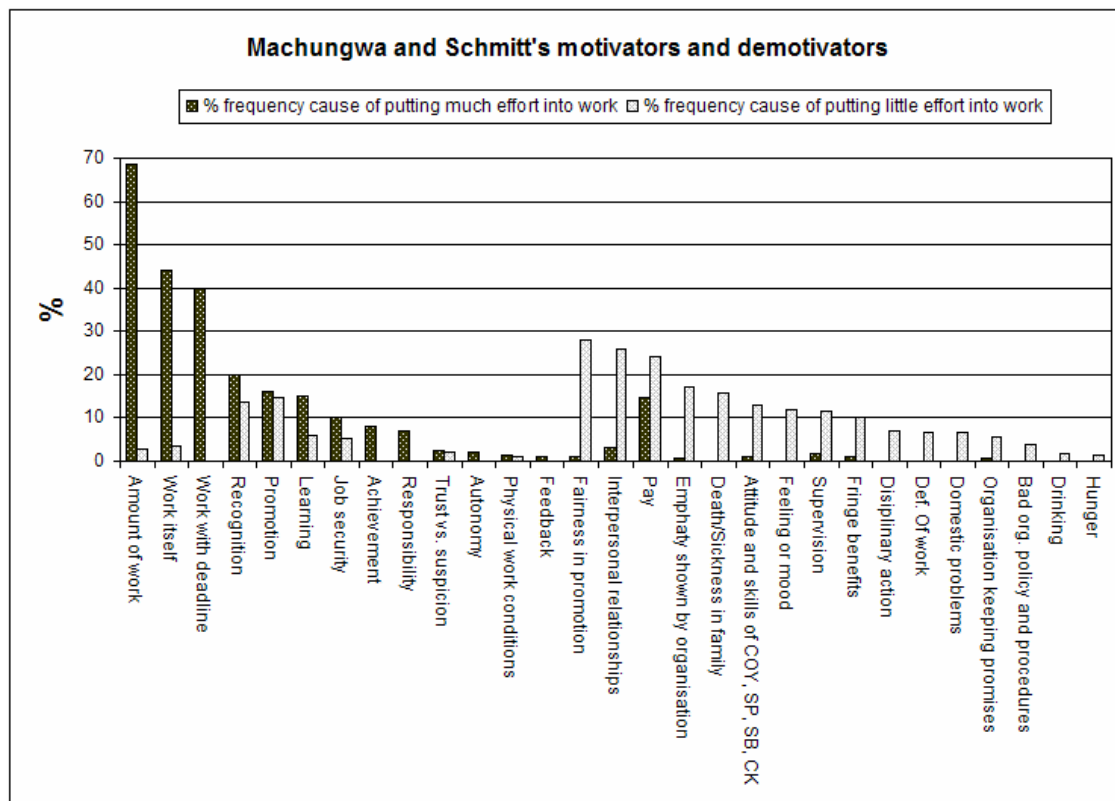


Figure 2.3:3 Machungwa and Schmitt's (1983) items sorted by frequency of mention of items, shows similar pattern as Herzberg et al. (1993) used, but different items appear as motivators and demotivators.

Second, given the cultural discussion in section 2.2 I find reason to believe that, although Machungwa and Schmitt's (1983) themes may not completely apply to the Malawian setting, they are likely to apply better to these themes, than to the items defined by Herzberg et al. (1993) Figure 2.3:3 shows Machungwa and Schmitt's (1983) themes by frequency of mention, organised according to their higher or lower potential for causing motivation or demotivation. This presentation shows similar patterns to Herzberg et al. (1993) but with their different items appearing as motivators and demotivators. This pattern may reflect some of the culturally different features of the USA and the African setting.

Third, I also find it useful for the analysis and presentation of items to use the six categories defined by Machungwa and Schmitt (1983). Although the presentation in Figure 2.2:3 show you at a glance what factors belongs to the one or the other category of motivational potential, many of these items appear with both potentials. I find that grouping them according to Machungwa and Schmitt's (1983) categories gives me the opportunity to discuss these items potentials for both motivation and demotivation in a more meaningful way when discussed together.

2.4 Health worker motivation in developing countries

It is not only Machungwa and Schmitt who have studied work motivation in developing countries and there is a growing body of qualitative studies looking at health worker motivation in particular (Dieleman et al. 2003, Dieleman et al. 2006, Kimaro 2006, Manongi et al. 2006, Mathauer and Imhoff 2006, Muula and Maseko 2006, Rowe et al. 2005, Wyss 2004). Many of these studies are however not as thorough and relevant as the study of Machungwa and Schmitt. I will however in this section introduce some of the most relevant studies that address health worker motivation, and that focus some key factors identified to cause motivation and de-motivation in developing countries. Although this will not form the main basis for my analysis, I will use these studies as reference to support similar findings in my research.

Low and middle income country overviews

Rowe et al. (2005) present an overview based on 11 review articles of research undertaken in low and middle income countries centred on public-sector workers in health facilities. The overview included five systematic reviews of studies from low and middle income countries, four non-systematic reviews of studies from industrialised and low and middle income countries, one systematic review of studies from industrialised and low and middle income countries and one included studies from low and middle income countries that were part of a larger review. The overview aims at addressing issues of achieving and maintaining high quality performance of health workers in low resources settings. The review concludes that; (1) simple dissemination of written guidelines is often ineffective, (2) supervision and audit with feedback is generally quite effective, and (3) that multifaceted interventions (e.g. training plus supervision) might be more effective than single interventions (Rowe et al. 2005). The article makes a special point about health worker motivation as a determinant of performance in that theorists suggest that motivation can both influence performance directly, but also mediate the effect of other factors. Thus, motivation and interventions that

improve motivation and job satisfaction are likely to be important determinants for performance (Rowe et al. 2005). Supervision as an intervention is also given special attention, because if correctly done evidence suggests a wide range of advantages including improving health workers job satisfaction and increasing motivation. Most policy makers and managers already think supportive supervision is valuable, and with decentralisation supervisors are increasingly the only human contact between health workers in remote villages and the rest of the health system (Rowe et al. 2005).

Wyss (2004) explores constraints related to human resources in the health sector for achieving the Millennium Development Goals in low-income countries. Wyss' analysis drew on information from a variety of publicly available sources and principally on data presented in published papers in peer-reviewed journals. Health workers are according to Wyss (2004) motivated by both a feeling of responsibility and technical and financial achievement. Working in an environment of mutual reliance in which differences are dealt with in a team spirit, as well as good procedures for staff assignment, also affect motivation positively. Offering workers a decent physical working environment may improve performance, as it has been shown that motivation to work in rural areas is linked to the presence or absence of suitable health facilities in Pakistan (Wyss 2004). Salary levels are according to Wyss (2004) strongly linked with both motivation and retention. The experience of countries that have used monetary incentives to address motivation and imbalances in the geographical distribution of health workers indicates however that non-monetary incentives are as important. With regard to continuous education and in-service training Wyss (2004) stresses the importance of not only making available the funding for these activities. There is a need to develop and implement corresponding policies to maintain and improve skills of health staff and to address motivation and performance, especially in rural areas.

Asia

Dieleman et al. (2003) looked at the relationship between the implementation of various human resource management tools in Viet Nam and the perception of health workers of these tools on their motivation. This exploratory qualitative study was conducted in two provinces in North Viet Nam, one well developed and one less developed province. Fifty-three semi-structured interviews and eight group discussion were conducted. The aim was to determine the major motivating factors for staff motivation to develop strategies that improve staff performance in rural areas. The study concluded that motivation was influenced by both financial and non-financial incentives, the main motivating factors being; (1) appreciation by managers, colleagues and the community, (2) a stable job, income, and training (Dieleman et al. 2003). The main discouraging factors were related to low salaries and allowances, as well as difficult working conditions. The lack of updated information was an especially discouraging factor at district level. Activities that should have been associated with appreciation were not. Health workers perceived the provided supervision as control of their work plan with no feedback given, that not all staff had equal access to training programs, and that the performance appraisal was mainly an administrative process and not very useful (Dieleman et al. 2003).

Africa

Factors motivating and de-motivating health workers have also been described by Dieleman et al. (2006) in a study conducted to identify the match between motivation and the range

and use of performance management activities in Mali. The research consisted of one exploratory qualitative study with 28 interviews and eight group discussion, followed by a cross-sectional survey where 370 health workers were interviewed. Health workers were represented from eight professional groups. Issues related to responsibility, training and recognition scored above average as motivating factors, next to salary. Health workers and managers at all levels expressed that they were especially encouraged by getting results from their work, being useful to society and taking care of people. They mentioned lack of equipment and lack of recognition as de-motivating, as well as lack of transparent selection criteria for training. Staff at community level complained about poor management: for example they were not allowed to take leave, and rules and regulations were not always clear (Dieleman et al. 2006).

Manongi et al. (2006) explored the experiences of health workers in the primary health care in Tanzania in terms of their motivation to work, satisfaction and frustration. The participants in this qualitative study ranged from different cadres of skilled health staff in governmental facilities. Six focus group discussions were followed by in depth interviews with the district respective district medical officers. The primary issues arising was the complexities of multitasking in an environment of staff shortage, a desire for more structured and supportive supervision from managers, and improved transparency in career development opportunities (Manongi et al. 2006). The article refers to similar findings from Uganda, where professional identity and recognition by both employer and members of the community were found to be important motivating factors for health staff (Manongi et al. 2006).

Mathauer and Imhoff (2006) assessed the role of non-financial incentives for motivation among doctors and nurses in Benin and Kenya. Semi structured in-depth qualitative interviews were conducted, 37 in Kenya and 60 in Benin, with respondents from both public, private, and NGO facilities in rural areas. Results were backed up through focus groups discussions. When asked what would boost their spirit and willingness to perform, the health workers in Benin emphasised to be able to do one's work by having the materials and means available, as well as further training and supervision (Mathauer and Imhoff 2006). In both Kenya and Benin health workers were de-motivated and frustrated because they were unable to satisfy their professional conscience due to lack of means and supplies (Mathauer and Imhoff 2006). It was also reported that health workers appreciated small benefits as relevant to their motivation, like unpaid holidays or free tea for staff on night duty. Some core human resource management tools that may affect motivation are according to Mathauer and Imhoff (2006) supervision schemes, recognition schemes, performance management, training and professional development, leadership, participation mechanisms, and intra-organisational communication processes. Greater awareness is needed among superiors in relation to their role as leaders; good leadership is a fundamental and cross-cutting element interrelated with the style of participation, supervision, feedback, performance management and quality improvement activities (Mathauer and Imhoff 2006).

Malawi

Mkandawire and Muula (2005) set out to determine motivating factors for community care givers in Malawi. In-depth interviews were conducted with 27 consecutive community health volunteers and four traditional leaders. Mkandawire and Muula (Mkandawire and Muula 2005) found that intrinsic motivating factors included feelings of empathy, altruism and religious convictions. Extrinsic motivators were rarely mentioned but included expected

opportunities for loans to start businesses, recognition by the community and eventual employment. The desire to help others in much greater need than themselves was reported by many of the participants as the reason they accepted to work as unpaid, voluntary community care givers (Mkandawire and Muula 2005).

Muula and Maseko (2006) studied the work and domestic situations of those health professionals continuing to serve in their posts in stead of out-migrating. This exploratory qualitative study used focus group discussions and in depth interviews with key informants. A total of 145 participants were included, ranging from health professionals, administrators and technical support staff from health centres, district level and the Ministry of Health. The objective of the study was to determine challenges faced by health professionals and administrators in Malawi, what coping strategies they resort to, and their perception towards those coping strategies. Challenges identified included inequitable, poor, and discriminatory remuneration, overwhelming responsibilities with limited resources, lack of stimulating work environment, inadequate supervision, poor access to continued professional training, limited career progression, lack of transparent recruitment. In order to survive some health professionals are involved in ethically and legally questionable activities such as receiving 'gifts' from patients and pilfering drugs. Health professionals in this study recognize the efforts made by the Malawi government and the international community to retain health workers in Malawi, but Muula and Maseko argue that there is a need to evaluate the human resource retaining strategies to see if they are having the desired effect.

2.5 Primary and secondary work activities

In the preceding sections I have looked at literature on motivation to work in general and the motivation of health workers in developing countries specifically. Health worker are in many cases reported to have a strong professional conscience and motivation is often related to the results from their work by being useful to society and taking care of people. The primary concern of health workers is to care for patients, and it is likely, and presumably both right and rational, that work related to HMIS receives less attention. It is therefore in this study presumed that this different nature of HMIS related work to health workers is relevant for motivation.

Information systems are usually a secondary activity supporting the primary work of an organisation (Gasser 1986). Strictly speaking, the majority of health workers do not need information technology to perform any of their work. I will in the following present some concepts to help addressing these different types of work.

2.5.1 Gasser's primary, articulation, and computing work

Gasser studied the long-term, routine use of computing in organisations with the aim of understanding the low-level dynamics of computing use and how computing fit into the work ecology within organisations (Gasser 1986). Gasser defined computing use to be:

... any employment of computer-based information or analysis in the performance of other tasks.

Gasser (1986) argues that computing itself is usually a resource which supports other tasks, namely the *primary work* of the computer user, again embedded in a context of many other tasks.

The work situation is by Gasser explained to have a basic unit of analysis, a *work task*, with some *agenda*. The task requires *resources* like information, time, attention, skilled personnel and a budget. The task is then carried out by some *person or group*, taking place *over time* and in some *place* (Figure 2.5:1). The organisation of computing tasks is the division of labour of computing work in an organisation at a given time.

Coordination of activities according to the division of labour requires commitments, and Gasser argues that work organisations can be seen as a complex structure of organised commitments that serve to coordinate work tasks and *task chains* in a *production lattice* (Figure 2.5:2).

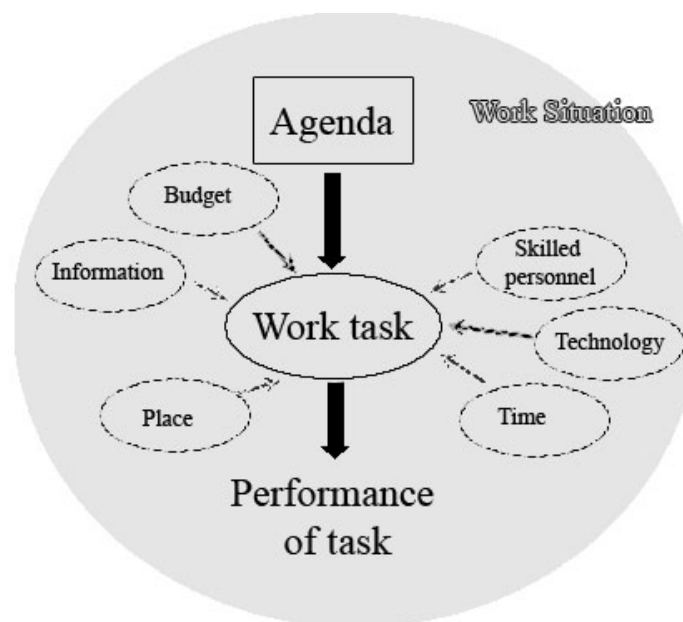


Figure 2.5:1 Work situation; a work task depends on resources like people, budget, technology, time, and a place for the performance of the task to take place (Gasser 1986).

Orderly flow of work depends upon the consistent alignment of resources and commitment in the workplace. When resources are oversupplied Gasser term this '*slack*', while an undersupply in resources is referred to as '*slip*'. When slip or slack occurs in the computing resource which is supporting some primary work, we can say that computing is '*misfit*' to the work it is intended to support.

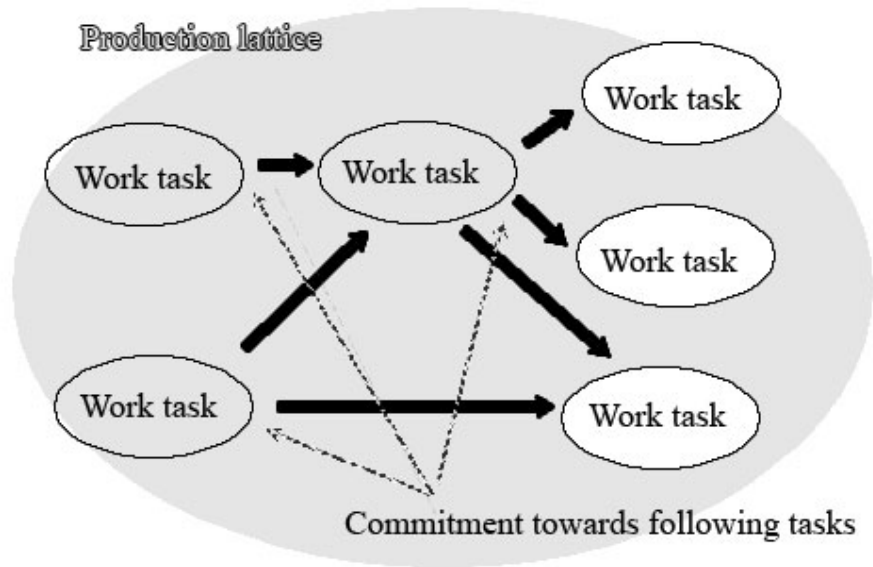


Figure 2.5:2 Production lattice; complex, coordinated structure of intersecting task chains. Unfulfilled commitment in the performance of a task has consequences for following tasks, and intersecting task chains (Gasser 1986).

Gasser distinguished work found in the production lattice of computer-using organisations into three types, namely primary work, articulation work, and computing work. All three types are defined in Table 2.5:1.

Table 2.5:1 Types of work (Gasser 1986).

Type of work	Description
<i>Primary work</i>	Addresses the specific agendas of the work situations.
<i>Articulation work</i>	The work of reorganising and maintaining the production lattice to stabilise commitments and iron out conflicting forces between intersecting task chains.
<i>Computing work</i>	Comprise any activities that are part of the task chains that produce computing, or activities which computing or computer-based information is employed as a resource.

It must be understood that by primary work Gasser do not necessarily refer to the primary work duties of a specific worker, but rather he refers to the primary reason and objective for the performance of a specific task.

Figure 2.5:3 illustrates possible combinations of the three types of work. Articulation work may be the primary work of some workers, one example is managers. Computing work may also be the primary work of some, for instance computer specialists. On the other hand, primary work does not necessarily take the form of either articulation or computing work. In that case the primary work may be supported by articulation work or it may be supported by computing work. Finally, articulation work may be computing work, or articulation work may be supported by computing work. In that case if computing work is primary work, computing work may also be supported by articulation work.

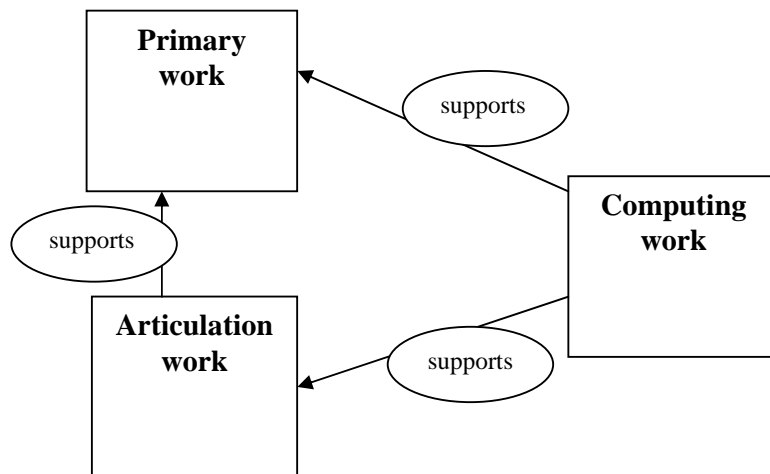


Figure 2.5:3 Three types of work and the possible relationship between these types (Gasser 1986).

2.5.2 Adaptation work

As stated above slip and slack refers to either under- or oversupply of computing resources, a misfit between computing and the work it is supposed to support. Any unmet *agenda* involving computing has the potential for causing disruption, because it leaves *commitment* unfilled and work elsewhere in the *production lattice* may be affected.

Some examples of computing slips may include inaccurate data, late reporting, reports produced too seldom, technical inadequacy of the information system, lack of personnel skills. Gasser argues that not all slip is critical or even problematic for the organisation or the individual, but that each type of slip entails some readjustment of work to accommodate it, called adaptation work.

Fitting

Fitting work is the activity of changing computing or changing the structure of work to accommodate for computing misfit. It can include making planned or ad-hoc changes in computing, or adjusting work schedules and commitments. Fitting work is not random but is a function of complex negotiations between those who control resources and those who face misfit.

Augmenting

Augmenting work is undertaking additional work to make up for misfits, and include adding additional tasks to a chain and thereby complicating the production lattice and increasing the need for articulation work. It can include verifying and revising data, assessing causes and effects of misfits, consolidating data sources, and in-service training.

Working around

Working around means intentionally using computing in ways for which it was not designed or avoiding its use and relying on an alternative means of accomplishing work. This is typically ad-hoc strategies to solve immediate and pressing problems. Workarounds often conflict with the formal ideology of system use.

Adaptation work as Organised Work

Each of the above described strategies takes work. In many cases adaptation work like fitting, augmenting and working around are so important to the integration of computing that, without them, computing services would not function at all. Over time accommodation work may comprise both primary and articulation work as well and be work in itself.

2.6 Motivation and commitment in information systems use

Information and Communication Technologies (ICT) may be used as tools and become part of health information systems, but people will remain the cornerstone for understanding the significance of the information collected (Kimaro 2006). Lack of adequate human resource capacity to support computer based HMIS is reported by several writers (Kimaro 2006, more refs.). Data that is produced untimely and of doubtful quality ends up not being adequately used, and there is also a danger that the use of ICT may expedite the dissemination of poor quality data that does not represent the actual situation (Simba 2004). User commitment and motivation are critical not only for the adoption of new information and communication technologies, but also for their sustained use (Kimaro 2006, Malhotra and Galletta 2004).

There are not any studies to my knowledge that address motivation related to motivation in use of HIS in developing countries. Most literature on the subject of IS and motivation address highly technical and automated systems. There are however some general assumptions about motivation and IS use that are likely to also apply to the context of developing countries where a large part of the IS is paper based.

According to Malhotra and Galletta (2004) users with high commitment and motivation to the end goal of the intended system-use tend to make a great effort to master such a system. In contrast; users who are detached from these goals are less likely to make that effort, and the system might simply not be used, unless the users are not motivated to do what the system enables them to do (Malhotra and Galletta 2004). It is also argue that staff affected by new information systems will assess whether the effort they put into adapting to the new system is matched by rewards that they value (Boddy et al. 2005). It is therefore necessary to create conditions in which those affected by information systems see the system as being in their interest in order for them to be willing to make the effort (Boddy et al. 2005).

HMIS and motivation in Malawi

Moyo (2005) assessed data quality in terms of completeness, accuracy and timeliness of the HMIS in 21 randomly selected health facilities in Lilongwe district in Malawi. Data was collected through a questionnaire to all facility In-Charges, and through observations and focus group discussions. In his study he reports that respondents expressed the need to be motivated in order to improve data quality. The introduction of incentives like a floating trophy was suggested, as well as supervision and feedback by the District Health Office. Demotivating factors identified included lack of team work, and inability to get encouragement from their co-workers at the facility and this contributed to low morale. Moyo suggests that perhaps one of the most effective motivating factors would be to show health workers that the data they collect are actually used (Moyo 2005).

Chunda (2006) conducted a descriptive survey in all health facilities in Chiradzulu, asking 130 employees representing most health cadres on most levels what factors contribute to untimeliness and incompleteness of reported HMIS data. Chunda reports that many health workers did not see the importance of HMIS due to lack of training and understanding of its functions, and as a result they only saw HMIS as an extra workload to other routine duties. Respondents also expressed dissatisfaction with the feedback system, as no feedback made them feel like they were 'out of' the system. Chunda also reports on inadequate supervision often due to supervisors spending no more than 10 to 30 minutes on their visits.

3. Study Context

Co-authors of this chapter: Marlen Galimoto, Jon Sandvand and Gro Alice Hamre

This chapter presents the context in which the research was carried out. It presents the general profile of Malawi, the health system, the health management information system in addition to details on the two districts in which case studies were conducted. The chapter gives an extensive and detailed background to the context, due to the fact that it provides the background for three different thesis works.

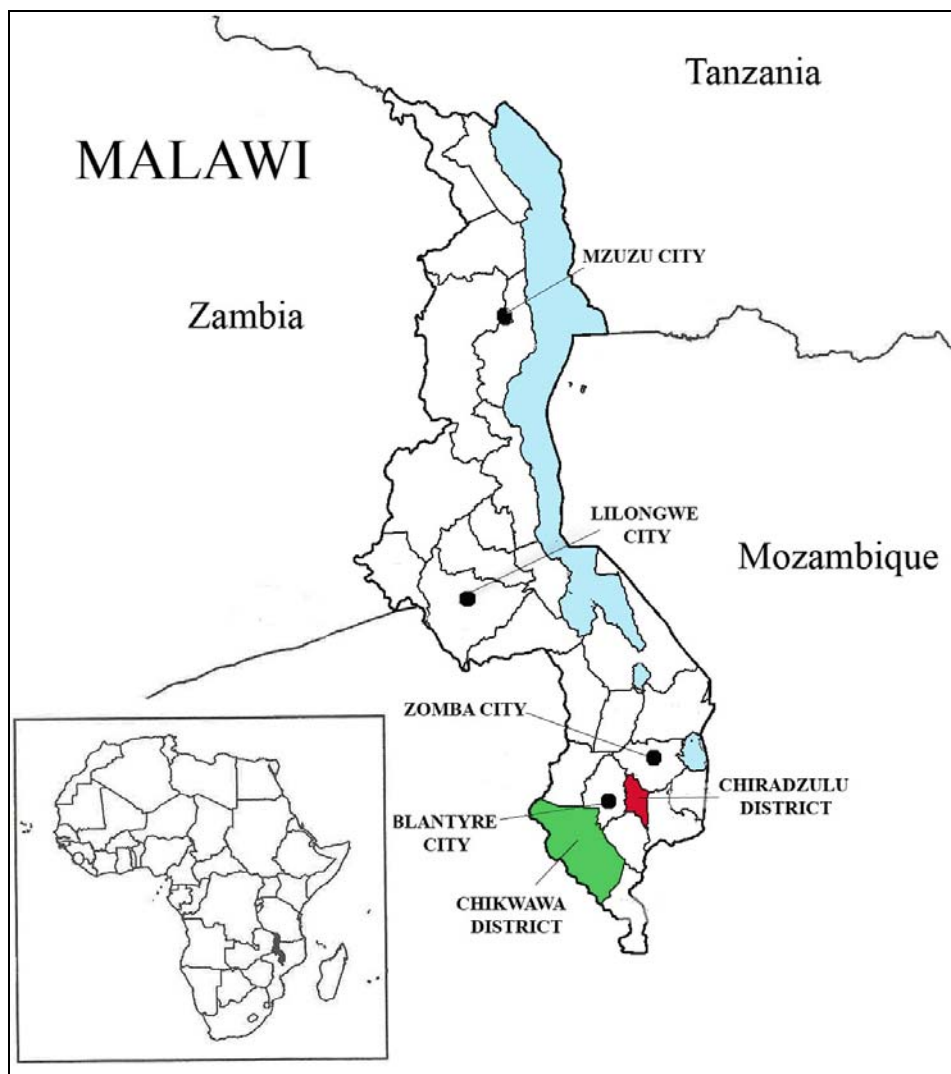


Figure 2.6:1 Malawi map (SAHIMS 2003 - 2005)

3.1 Malawi Country Profile

Malawi is a small landlocked country in Sub-Saharan Africa covering 118,484 square kilometres of which 20 percent is Lake Malawi. The country is 901km long and shares its borders with Tanzania, Zambia and Mozambique (Figure 3:1).

The country is administratively divided into three regions namely North, South and Central. These regions are further divided into 28 districts countrywide. The case studies were conducted in two districts, Chikwawa and Chiradzulu, located in the southern region of the country (see Figure 3.1:1 above).

Malawi's most striking feature is the Rift Valley, which runs the entire length of the country from Lake Malawi in the Northern and Central regions, to the Shire Valley in the Southern Region. The country has a sub-tropical climate, which varies in three main seasons: a dry cool season from May to July; a dry hot season from August to November; and a warm rainy season from November to April. The low-lying areas such as Lower Shire Valley are usually vulnerable to floods during the rainy season.

Malawi is densely populated with a population estimated at 12.7 million for the year 2006 and a growth rate of 3.32 percent (NSO). Around 47 percent of the population are aged between 0-14 years, 52 percent are aged between 15-64 years, and only around 4 percent over 65 years (ONSD 2005). The southern region of the country is the most densely populated followed by the Central and Northern region. The population is predominantly rural with only 13 percent estimated to live in the four major urban centres; Blantyre, Lilongwe, Mzuzu, and Zomba (See map in Figure 3:1).

There is no dominant ethnic group in Malawi but there is a dominant indigenous language, Chichewa, which shares the status of official language with English. However, all official records in public administration are in English only.

Malawi has different tribal, linguistic and cultural groups and varying customs, beliefs, and traditions have strong daily influence on Malawians. This helps to determine the acceptability of modern practices or ways of life such as agriculture, education, family planning and modern health care as opposed to traditional customs, e.g. use of traditional healers (MoH 2001).

3.1.1 Political history

Malawi gained independence as a nation in 1964 after 73 years of British rule. After another 30 years of one-party rule under Dr Hastings Banda, a multi-party democracy was introduced in 1994 (ONCF 2005, Lawton et al. 2002) and in 1995 a new constitution that provided for human rights and the rule of law was adopted (Lawton et al. 2002). The new democratic dispensation brought with it a flurry of non-governmental activity, as well as free press and the pursuit of gender equality, but the speedy deregulation and liberalisation proved traumatic for the Malawian economy (Lawton et al. 2002).

The new political team that has evolved following the 2004 elections has set out a strong economic growth and anti-corruption agenda but President Dr. Mutharika and his government faces great challenges in developing a democratic culture, political institutions,

policy decision-making and implementation capacities, efficient delivery of public services, and in coping with exogenous shocks (ONCF 2005).

3.1.2 Socio- Economic Profile

With more than 10 years of national multiparty democracy, Malawi remains relatively stable, but is still one of the poorest countries in the world with some 65 percent of the population living below the poverty line (ONCF 2005, TheWorldBank 2006). The country ranked 83 out of 95 on the United Nations Development Program's Human Poverty Index scale in 2005 and had the 4th lowest Gross Domestic Product (GDP) in the world (WHO 2005).

Poverty reduction efforts face many challenges that need to be overcome and achieving the health Millennium Development Goals (MDGs) remains a major challenge due to the poor macroeconomic environment, the increasing levels of poverty, and the critical shortage of human resources in the health sector (ONSD 2005).

Agriculture is the mainstay of the economy and accounts for more than 90 percent of its export earnings, contributes 45 percent of gross domestic product (GDP), and supports 90 percent of the population (TheWorldBank 2006). It is estimated that less than 15 percent of the labour force is employed in the formal sector of the economy and that more than three quarters of the labour force are small-scale subsistence farmers (ONCF 2005). High population density in rural areas generates pressure on the best lands and ongoing rural out migration adds to already crowded urban areas bringing additional strain on urban facilities and services (ONCF 2005).

As a landlocked country, Malawi depends greatly on connections to neighbouring countries for the overland movement of exports and imports and since independence, the road system has expanded to around 15,000 km, of which around 3,000 km are tarred (ONCF 2005). The low number of tarred roads hampers the free movement of goods in and around Malawi as many dirt roads become impassable in the rainy season.

Malawi's electricity supply is unreliable and power cuts and fluctuating power levels are a major problem for manufacturers and act as a disincentive to new investment (ONCF 2005). The water and sanitation sector is characterised by an uneven distribution of resources, poor coordination and fragmented institutional arrangements. It is estimated that 51 percent of the rural population and 69 percent of the urban population have access to clean water.

High illiteracy rates and poverty have led to environmental degradation of all resources. A large portion of Malawi's biomass is burned each year, and this has resulted in large areas of land becoming deforested and degraded, which has led to soil erosion, which in turn has reduced the quality of water resources (ONCF 2005).

Malawi is characterised by low political empowerment of women, despite women's large contribution to the economy (ONCF 2005). Early motherhood reduce women's educational and employment opportunities, further worsening their social and economic vulnerability and exposing them to HIV/AIDS. The adult illiteracy rate among women stood at 54 percent in 2005, compared to 77 percent for men (NSO 2006).

3.1.3 Health Status

The average life expectancy in Malawi has declined from 40.2 years (1998) to 37.5 years (2002), the maternal mortality rate has risen from 620 to 1,120 deaths per 100,000 live births (2000) in a few years and 50 percent of children under five years in are chronically malnourished (ONSD 2005). Communicable diseases, food insecurity and insufficient health services makes large parts of the population very vulnerable.

The African Development Fund reports on evidence indicating that the HIV prevalence has stabilised over recent years at around 15 percent (ONCF 2005). The social and economic effect of the pandemic is huge: family structures are dissolving, and children are being orphaned. At the economic level, AIDS-related illnesses are removing large numbers of otherwise active workers from the labour pool. In response to the epidemic, the government launched a National HIV/AIDS Strategic Framework (2000–04) and established the National AIDS Commission in 2001 to coordinate the national response, provide support to implementing agencies, mobilise resources, and monitor progress.

In addition to HIV/AIDS, Malaria and Tuberculosis are the other main killer diseases in Malawi. But malnutrition, Sleeping Sickness, Bilharzias, Hepatitis and Typhoid are also long-standing major health problems (ONCF 2005).

3.1.4 The Public Sector

There are two systems of government administration in Malawi, namely Central and Local Government. The Central Government is organized through a central coordinating office, the Office of the President and Cabinet (OPC), while Local Government is a single tiered system of 28 rural districts subdivided into Traditional Authorities, and 11 urban councils subdivided into wards.

The Office of the President is responsible for public service delivery, including District Administration and Civil Service Personnel management. The central government consists of ministries and non-ministerial departments with their headquarters located in the Capital City, Lilongwe. The ministries and governmental departments also have field services organised at regional and district levels. The District Assemblies are the local governmental structures headed by District Commissioners who are directly responsible to the Office of the President and Cabinet, while the other field staff is responsible to their heads of ministries and departments.

In Malawi the government has introduced structural reforms with implications for the public sector (Durewall 2003). The wage compression that resulted from the Africanization of the civil service has remained at the core of the incentive problems in Malawi's civil service. In the early 1990s, Malawi was one of the countries in which the civil servants were paid fairly decent salaries but since 1994 the situation changed. Progressive depreciation of the national currency resulted in significant erosion of salaries that could not be increased to compensate for the reduction in the currency value (Adamolekun and Mvula 1999). The health ministry provides an example of the consequences of low salaries and wages, as there have been large-scale resignations from the ministry. By 1999, up to 50 percent of the employees had left, mostly doctors, nurses and other clinical staff, and most vacancies remain unfilled (Durevall 2003).

In 2002 the Government produced its first Malawi Poverty Reduction Strategy (MPRS) paper, aimed at identifying the obstacles to equitable, sustainable economic growth and strategies for overcoming them. The MPRS is based on four pillars:

1. Promoting sustainable, pro-poor growth
2. Developing human capital
3. Improving the quality of life for the most vulnerable
4. Establishing good governance

Among the specific issues the MPRS highlighted were the needs to increase agricultural production and marketing, improve financial management, stop the spread of HIV/AIDS and provide treatment for those affected, reduce environmental degradation, and obtain debt relief (TheWorldBank 2006).

Adamolekun and Mvula (1999) point to main weaknesses and strengths of the Malawian public administration:

... Three areas of strength of the Malawi public administration system are noteworthy: (1) the importance attached to management education and skills upgrading, (2) the efforts aimed at transforming public financial management, and (3) the conscious linking of public administration reform to democratization and economic reform. Although the democratization process in Malawi is still in the transition stage, the manner in which it is linked closely both to public administration reform and to economic reform is likely to enhance the country's chances of moving to the democratic consolidation phase. Four main weaknesses in Malawi's public administration system in 1997 stand out: (1) poor policy management, (2) weak implementation capacity, (3) the problem of corruption, and (4) the existence of three de facto capitals. (Adamolekun and Mvula 1999, pp. 287-288)

3.2 The Malawian Health System

3.2.1 Goals and objectives of the health system

The challenges faced by Malawi have justified the development of a Sector Wide Approach by the Ministry of Health and its Development Partners aiming at improving the availability of quality healthcare for poor and vulnerable populations (ONSD 2005). The Sector Wide Approach is based on the reorganization of the health sector based on the principle of decentralization of health services to District Assemblies. The strategy for the implementation of a 6-Year Programme of Work (POW) for the period 2004-2010 based on the Sector Wide Approach (SWAp) was agreed upon in November 2002 and outlines how the Ministry and their partners will implement an Essential Health Package (EHP) over a period of six years. The goal is to strengthen the health systems through equitable health financing, increased human resources, reliable pharmaceutical and supplies logistics, and effective monitoring and evaluation. The program will also enhance the capacity of the

Ministry of Health for stewardship and policy development, and strengthen the systems for planning, budgeting, and delivery of quality health services in the districts. Finally, it will expand communities' participation in the delivery of essential health interventions

The Government has made a policy decision that all services within the Essential Health Package will be delivered free-of-charge.

3.2.2 Structure of the health system

Health Providers

The Health Sector has a plurality of health service providers as is the case in most low-income countries and the providers can be separated into the traditional and modern sectors (ONSD 2005). A large number of people use the two systems simultaneously or consecutively, and they compliment each other.

Traditional providers

Traditional health providers exist in most communities and they can be divided into two main categories: traditional healers who deal with diseases/spirits, and traditional birth attendants (TBAs). The TBAs have more established links with the modern health sector as they have been trained to support primary health care since 1992, and they deliver approximately 25 percent of the pregnant women (MoH 2001).

Controlling Agency	Unit Type									Total
	Central Hospital	District Hospital	Hospital	Health Centre	Dispensary	Maternity	Mental Hospital	Rehabilitation Centre	Rural Hospital	
Admarc					1					1
Army			2	2						4
CHAM			21	113	19	4	1	1	3	162
Department of Forestry				3	3					6
Islamic					1					1
Local Government				14	6	11				31
MoH	4	22	2	239	59	2	1		15	344
MoH/CHAM				2						2
MoH/ Local Government				39	2				1	42
Police			1	1	2					4
Private				2	5					7
Total	4	22	24	414	103	17	2	1	19	606

Figure 3.2:1 Health facilities by Type and Ownership in Malawi 2005 (HMIS Bulletin 2005 referred in Appendix C).

Modern health sector

There are three main categories of health service providers in the modern sector; the public sector, non-profit private sector and for-profit private sector. Health facilities by type and ownership are presented in Figure 3.2:1.

The public sector

The Ministry of Health provides about 60 percent of public health services, mostly for free. Government District Health Offices (DHO) are responsible for the provision of public services at district level. The Ministry of Local Government, through District and Urban Councils, provides different types of health services, about 1 percent of total. The Ministries of Agriculture and Education also provide health services, and there are services for specific target groups such as armed forces, prisons and police.

Non-Profit private sector

The Christian Health Association of Malawi (CHAM) provides a large proportion of services at variable charges. The Association is made up of independent church-related and other private voluntary agency facilities. It operates autonomously about 160 health units in the rural areas. Though primarily curative in orientation, most units also provide primary health care services. Most of these health institutions provide training for nurses and other health personnel. The quality of services provided at Christian Health Association of Malawi facilities is considered to be better than those at Ministry of Health facilities.

Some private companies provide health services to their employees and people in their catchments areas in particular estates. Some national and international non-governmental organisations (NGOs) also support scattered small-scale community based vertical health projects, but most integrate their activities with the existing health system (MoH 2001). To a lesser extent there also exists Community-Based Distribution Agent for family planning commodities, Drug Revolving Funds provided by community volunteers, Home Based Care volunteers and Faith Healing groups.

Private-for-profit

Some grocery shops sell drugs in rural areas and there is growth of private practitioners running clinics in the urban areas.

Levels of Health Care

Health services are provided at three levels: primary, secondary and tertiary (ONSD 2005).

- At the primary level, services are delivered through health centres, health posts, and outreach clinics.
- The secondary level provides mainly back up services to those provided at the primary level including surgical services, mostly obstetric emergencies, and general medical and paediatric in-patient care for common acute conditions. District hospitals

and Christian Health Association of Malawi hospitals, although some have specialist functions, provide secondary level health care services.

- At present, tertiary level hospitals provide services similar to those at the secondary level, along with a small range of specialist surgical interventions.

A recent assessment of health facilities indicated that a significant number of them need rehabilitation and upgrading in order to be able to provide the full Essential Health Package (ONSD 2005). Most of these facilities have serious shortages of essential drugs as well as essential medical diagnostic equipment and surgical supplies.

Administrative organisation

The Ministry of Health has overall responsibility for developing policies, planning strategies and programmes, and also ensuring that all providers follow the national policies and standards so that quality health services are provided to the population. It has a Secretary for Health and Population who is responsible for the financial and administrative affairs of the ministry. The ministry has seven technical divisions, see Figure 3.2:2 for more details (MoH 2001, ONSD 2005).

Below the central level, the MoH is divided into 27 districts and each district's District Health Officer (DHO) is accountable to the Principal Secretary. The District Health Officer, assisted by the District Health Management Team (DHMT), is responsible for the dissemination of national policies, overall coordination of health services and programs, and provision of services at district level. Although the DHMT has the mandate to supervise all health facilities and services within the district, the full extent of authority is unclear. The District Health Office is mainly based at the Ministry of Health District Hospital, and manages and supervises both hospital and peripheral government facilities (health centres, dispensaries and mobile clinics). Therefore the team has direct control over MoH units only. The Christian Health Association of Malawi hospitals supervise only their peripheral clinics and the central hospitals report directly to the Principal Secretary as well. (MoH 2001, ONSD 2005)

However, with the policy direction to decentralize health services to District Assemblies, the DHO will have the responsibility for the management of all health services in the district and will be accountable to the District Assemblies for decisions on financial planning and expenditures (ONSD 2005).

Until 1999 the MoH had an explicit regional level, but these Regional Health Offices were abolished due to that no tangible decisions were taken at the Regional Health Offices and therefore they did not add any value to the delivery of health services at district level.

The abolishment of the regional level created however difficulties in the supervision of the district health services from the centre. This led to the formation of 'zones', with MoH Directors allocated the task of general supervision of the districts within their assigned zone. This arrangement has worked less than satisfactorily, because the MoH Directors have serious time constraints. In view of this deficit in support to the districts, the MoH have established Zonal Health Support Offices to facilitate the management and coordination of

the health services at the operational level by reducing the management distance between the MoH headquarters and the District Health Offices. The Zonal Support Office's functions include technical advice and facilitation support of decentralization, Essential Health Package (EHP) implementation, and inter-district collaboration. (ONSD 2005).

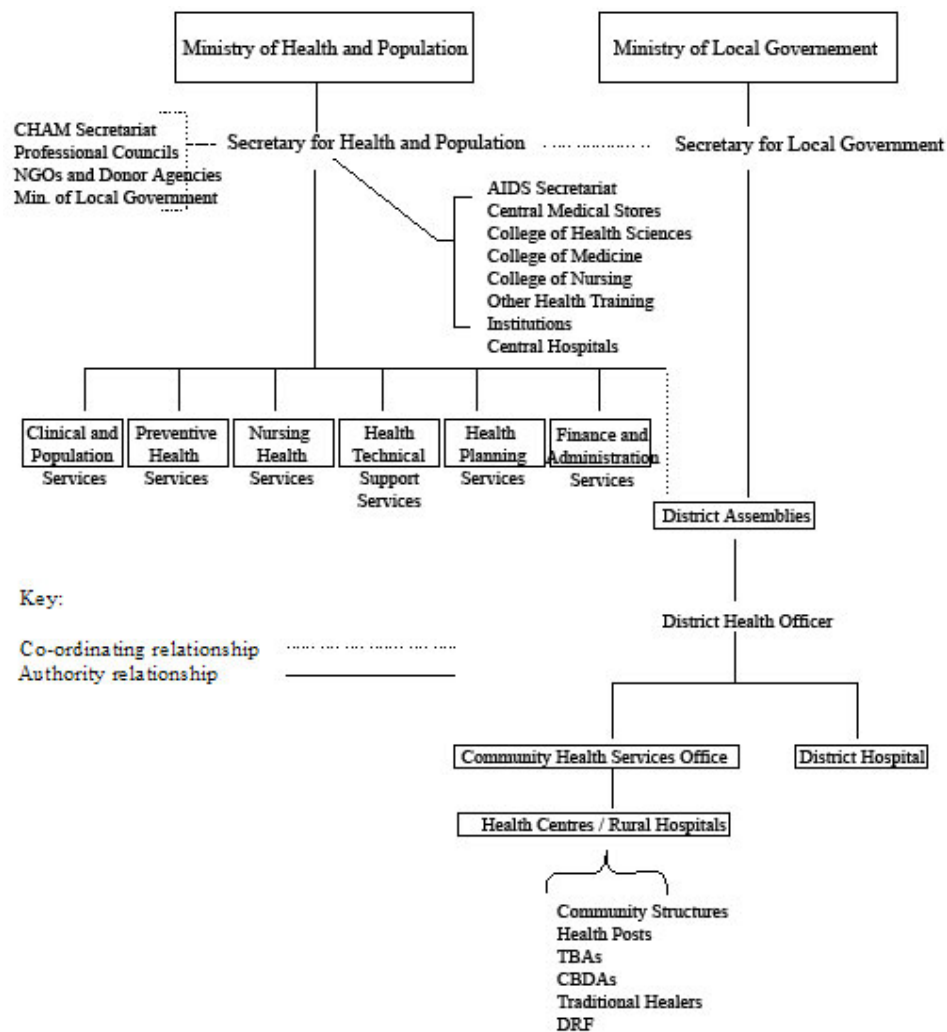


Figure 3.2:2 Organogram of the Ministry of Health and Population (Conticini 2004)

3.2.3 Functions and Performance of the Health System

Health Financing

Health care financing in Malawi has five sources (MoH 2001):

1. Ministry of Finance, which uses funds collected from general tax revenue and distributes them through voted expenditure.

2. Local Government – the funds are collected from utility taxes.
3. Donors - the donor support is provided through Government’s development budget, commodity aid and direct support to programs and to other providers.
4. Employers- these include firms for-profit and parastatals. They finance health care services through contributions to health insurance to organisations such as Medical Aid Society of Malawi; or direct provision of health care services for the junior employees or through direct payment of medical expenses on behalf staff members and the their beneficiaries.
5. Households who pay direct out-of pocket contribution to providers when seeking care or through contributions to Medical Aid Society of Malawi. The poor households were identified as the main purchasers of health care goods and services using out-of-pocket payment mechanisms.

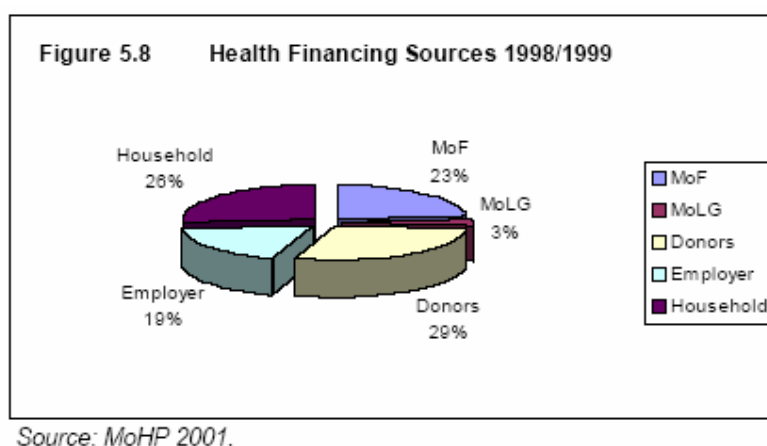


Figure 3.2:3 Health financing sources 1998/1999 (Conticini 2004)

The overall per capita expenditure on health is only US\$ 14 and the financing is mostly private (ONSD 2005?). In 1998/99 the public expenditure on health was 2.30US\$ per capita, raising to 4.93UD\$ in 2002/03 (Conticini 2004). Government accounted for 26 percent, and donors for around 30 percent (See Figure 3.2:4). Putting Malawi Government and donor sources together, public funds accounted for 56 percent of health expenditure, the total of which was estimated at 7 percent of GDP. Private sources accounted for the remaining 44 percent, of which 26 percent came from out-of-pocket expenditures by households. There is no social security system in place for health care and out-of pocket payments amounts to almost half the private expenditure on health (WHO 2005).

Although the budgetary allocation to the Ministry of Health approved by Parliament has been rising, this has not met the increasing needs of the health sector. In the past decade, economic difficulties (devaluation and inflation) have led to a decline in the real value of health expenditure, both from the recurrent budget and the government contribution to the development budget (ONSD 2005).

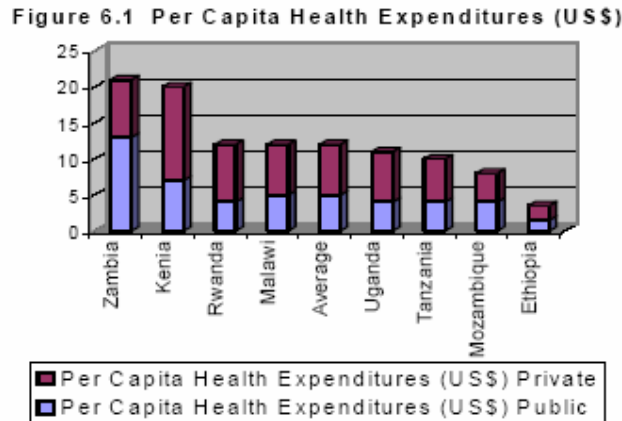


Figure 3.2:4 Per Capita Health Expenditure in US\$ in 1998/99 (Conticini 2004)

The adoption of the Sector Wide Approach is expected to strengthen the financing of essential health care services. An average of USD 10.3 per capita per year will be required to implement the planned Programme of Work (ONSD 2005). This amount includes the cost of Essential Health Package and non – Essential Health Package tertiary services. The majority of finance for the Programme of Work will need to come from donors. Agreement has been made between the Ministry of Health and a core group of partners pooling all or at least a part of their resources into a basket fund (DFID, NORAD, World Bank and UNFPA) to use common implementation arrangements for planning and budgeting including procurement, financial management and technical assistance.

Overall development assistance to Malawi totals about \$400 million per year, excluding debt relief (TheWorldBank 2006). Malawi was approved for relief under the World Banks programme for Heavily Indebted Poor Countries in 2000 (TheWorldBank 2006, WHO 2005).

Health service provision and resource generation

The Malawi health service delivery is focused on the provision of the Essential Health Package (EHP). The EHP consists of a cluster of cost-effective interventions delivered together in order to reduce the total cost of the interventions by reducing the cost to patients obtaining the services as well as the costs of providing services (ONSD 2005). The EHP addresses the major causes of morbidity and mortality among the general population and focuses particularly on medical conditions and service gaps that disproportionately affect the rural poor. Its objectives are to improve technical and allocative efficiency in the delivery of health care; to ensure universal coverage of health services; and to provide cost-effective interventions that can control the main causes of disease burden in Malawi (ONSD 2005).

Human resources

One of the crucial factors affecting the quality of delivery of the Essential Health Package (EHP) is human resources. The workforce in the health sector as a whole is estimated at 15,700 persons (ONSD 2005). This does not include an estimated 3,600 traditional birth attendants and 2,300 community-based distributor agents for contraceptives. Sixty eight

percent (68 percent) of the workforce are employees of the Ministry of Health. The Christian Health Association of Malawi employs some 26 percent with the remaining 6 percent divided among local government, police, army and non-governmental organizations (NGOs).

In terms of staff, numbers of health personnel per head of population show large differences from the WHO-recommended norms (ONSD 2005). The total number of physicians in the country is 219, being one doctor per 45,662 Malawians, well below the WHO average ratio of 1 to 10,000. The College of Medicine produces about 20 doctors per year. Considering the population, this figure is extremely low and this has resulted in heavy reliance on other categories of health professionals such as clinical officers and nurses to carry out some of the work for doctors (ONSD 2005).

Tab. 2.2 Established Posts and Vacancies within MoHP, 2004

Category	Established Posts / Required	Filled posts	Vacancy (%)
Nurses	6,084	2,178	64%
Clinical Officers	356	212	40%
Medical Assistants	692	327	53%
Doctors:			
Generalists	356	212	40%
Surgeons	115	17	85%
Ob-Gyn	126	11	91%
Medicine	65	3	95%
Paediatrics	60	5	92%
Anaesthetists	14	4	71%
Pathologists	22	0	100%
All Categories	7,890	2,969	62%

Sources: *Human Resources in the Health Sector (draft) April 2004 MoHP, and WHO 2004.*

Figure 3.2:5 Established posts and vacancies within MoH 2004 (Conticini 2004).

There is also a severe shortage of nurses, having a 64 percent of the 6,084 establishments vacant during the implementation of the 4th National Health Plan (1999-2004). The current training outputs are too low to fill the large number of vacant posts. Furthermore, most of the skilled health workers are leaving the public services mainly due to poor salaries and working conditions. Thus there is a collapsing human resource capacity and this has negatively affected the performance of the health systems as the health personnel are required to work beyond their limit (Mtonya et al. 2005, ONSD 2005).

In response, the government is implementing a Human Resource Programme, under the Programme of Work (PoW), which aims to address the critical shortage of human resources required to deliver the EHP. The programme activities include financing the recruitment of more health workers to filling the vacant posts, ensuring retention of all trained health workers, and providing in-service training. (ONSD 2005)

Material resources

In addition to human resources, another crucial factor is the material resources such as drugs and medical supplies. WHO surveys from 2002-2004 show that almost half of all facilities are short of drugs, have inadequate means of communication and inadequate transport and there is a lack of emergency drugs in zonal warehouses and the cholera preparedness system

is weak (WHO 2005). This has been attributed to the shrinking of the drug budget in the face of the local currency devaluation and increased pilferage of drugs. This in turn has hampered government's effort to minimize morbidity from treatable diseases such as malaria, tuberculosis thus affecting the overall performance of the health system in delivering services (Mtonya et al. 2005, ONSD 2005).

To address this problem, the Pharmaceutical and Medical supplies programme will be implemented under the Programme of Work to strengthen national procurement, distribution and stock management systems for medical and non-medical consumables. The programme will finance an adequate volume of pharmaceutical and medical supplies at service delivery points. The overall objective is to enable the health system deliver drugs and medical supplies for the EHP. (Mtonya et al. 2005, ONSD 2005)

Education

The National Health Account from 1998/1999 (MoH 2001) reported that the educational levels in Malawi were very low. 48 percent of women and 22 percent of men had never attended school at all and only around 3 percent of women and 9.5 percent of men had completed secondary school. Moreover, the quality of education was poor, primarily as a result of high teacher to pupil ratios (1:70 in 1997) and lack of basic teaching materials, since exacerbated by the introduction of free primary education in 1994 (MoH 2001).

It is estimated that almost all primary school age children are attending primary education, but the quality of the education provided is very poor (due to a large number of poorly trained teachers and inadequate teaching resources) (ONCF 2005). Only 30 percent of those who start school complete the final year of the primary cycle, and while the school drop-out rate for girls has increased the rate for boys has been reduced. At the secondary level, access and quality remain major concerns. In 2004, only 18 percent of the relevant secondary age group was enrolled in secondary schools, one of the lowest secondary enrolment ratios in sub-Saharan Africa (ONCF 2005). Secondary education quality is also low.

Since 1998 the World Bank Group has been supporting the Government of Malawi in its efforts to improve access to education. The Secondary Education Project has supported construction of around 20 new secondary schools, as well as efforts to improve school management and curricula and to develop materials to address the problem of HIV/AIDS through the school system. Over the project period (1997–2004), the rate at which students have passed the Malawi School Certificate Exam (MSCE) has increased from 23 percent to 50 percent (or 27 percentage points), and the completion rate of girls has increased from 17 percent to 39 percent.

Inter-sectoral advocacy

Several donors have entered into delegated cooperation agreements in Malawi, e.g., on country program (Norway and Sweden; Switzerland and the Netherlands), education (UK and the Netherlands), health (Norway and Sweden; Canada and Japan) water development (Canada and Japan), and energy (Germany and the Netherlands).

The Poverty Reduction Strategy (PRSP) has contributed to improving donor coordination (TheWorldBank 2006). Major donors and sectoral donor working groups in the areas of economic management, poverty reduction, water and agriculture meet regularly. Work is

ongoing towards common conditionalities and joint financing arrangements (including pooled funding), joint reviews and single reporting. Donor harmonization work is expected to be focused on the health sector, where the Sector Wide Approach is being conducted.

3.3 Management Sciences for Health

Management Sciences for Health is a US AID funded programme of the Ministry of Health supporting systems strengthening in different health programmes, including the Health Management Information System. The programme is supporting eight districts, namely Mzimba, Kasungu, Salima, Ntcheu, Balaka, Mangochi, Mulanje and Chikwawa, as well as the two Central Hospitals of Malawi.

In 2003 the Management Sciences for Health conducted an assessment on the implementation status of the Health Management Information System. Although implemented in all districts, the Health Management Information System was facing some problems that were affecting the quality of the collected data in the system (MSH 2003 referred in Appendix C). The assessment revealed that in many cases untrained staff was used for data recording in daily routine data registers. The registers were also often found to contain problems of missing data, incorrect data, mathematical errors, and duplicate data among others. Timeliness of reporting was not adhered to, and there was little evidence of use of data to monitor performance. Targets to support performance monitoring were also lacking, and a general lack of managerial support, supervision and feedback to HMIS work was identified.

Based on this assessment different performance assessment and supervision tools are being piloted and implemented interventions in the eight supported districts include:

- Support to the orientation of personnel to HMIS
- Support to the orientation of District health Officers and District Nurse Officers to DHIS
- Support to the orientation of Assistant Statisticians to DHIS
- Support to the dissemination of the national HMIS policy
- Support to the development of job aides to support health workers in executing HMIS work
- Piloting a monthly reporting system
- Support to the orientation of Sub District level Cluster Supervisors on HMIS which has so far been integrated into the routine supervision of the District Health system
- Support to HMIS supervision and HMIS reviews at facility, sub district cluster and district levels
- Emphasis has also been made on linking HMIS to District Implementation Plan development and monitoring

- Introduction of a HMIS Recognition Scheme (currently in three of the eight supported districts; Chikwawa, Balaka and Mulanje)
- Linking up with the Zonal Support Offices –capacity building through orientation of Officers in DHIS

The responses to these interventions are reported by Management Sciences for Health to be very positive in the districts but the pace of implementation has been at different levels. Where there has been proper management support and dedicated Health Management Information System teams, one can easily detect the results. Evaluation of the interventions are in progress and some of the reported perceived benefits of these interventions are improved timeliness and completeness of data, improved data quality that result in more confident users that are increasing the demand for data (Moyo 2006). There is improved supervision and performance reviews using health data are bringing a culture for information use.

3.4 Malawi Health Information System

In January 2002 the Ministry of Health and Population (MoH) started the implementation of a comprehensive and integrated routine Health Management Information System (HMIS) throughout the country. The introduced system was guided by the principles of; integration of all routine information systems; decentralisation in information generation and use; information for action; and being simple to establish and maintain. For the first time Malawi would have access to continuous monthly data on all agreed indicators for each health facility, district and the nation. It was also the first time that each public health facility and district health office would know the catchments area and the population size to be served.

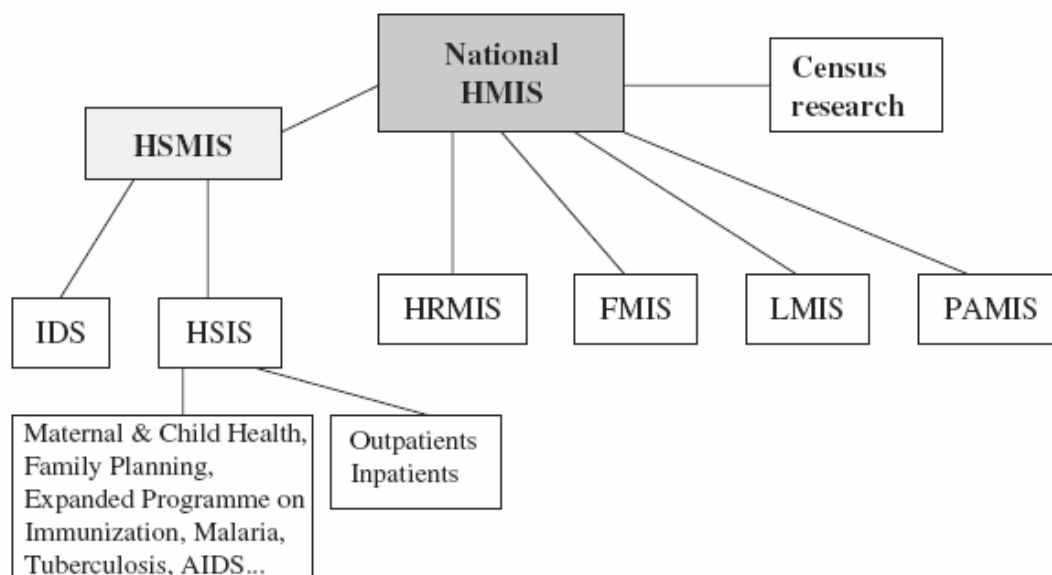
The integrated HMIS is designed to provide programme managers and staff with reports on how well each programme is functioning and to alert the service providers and programme managers to take timely necessary corrective actions (MoH 2003). MoH officially endorsed a limited set of core health sector indicators (Chaulagai et al. 2005).

3.4.1 Overall Structure of the HIS

The Ministry of Health recognises that the HMIS can never be fully integrated into a single entity in any setting. Therefore, logically grouped, a number of sub-systems have been identified as interdependent components of the national HMIS as seen in figure 3.4:1 below.

These sub system are: (a) the financial management information system (FMIS), (b) human resource management information system (HRMIS), (c) logistic and supply management information system (LMIS), (d) physical assets management information system (PAMIS), and (e) integrated health services management information system (HSMIS).

HMIS design and implementation



Abbreviations:

HMIS = Health management information system
 HSMIS = Health services management information system
 HRMIS = Human resource management information system
 FMIS = Financial management information system
 LMIS = Logistics management information system
 PAMIS = Physical assets management information system
 IDS = Integrated disease surveillance
 HSIS = Health services information system

Figure 3.4:1 Integration Model of the national health management information system (Chaulagai et al. 2005).

The integrated health services management information system is at the core of this structure and derives information from all other sub-systems to serve as a comprehensive health and management information system. Malawi has fully integrated all service-related information systems and the disease surveillance system into a single entity of a health services management information system. The programme-specific logistics and supply components have been integrated into a broader logistics management information system.

3.4.2 Objectives of the Information system

The main mission of the national health management information system is to improve the health status of the people by providing reliable, relevant, up-to-date, adequate, timely and reasonably complete information for health managers at community, facility, district and national levels and through increased effectiveness and efficiency of health services. Increased efficiency should be achieved through rational management and policy decisions that should be rationalised through appropriate use of information (MoH 2003).

Objectives intended to be achieved through this IS

According to MoH (2003) there are three main objectives intended to be achieved through the HIS, these are:

1. To ensure that the required health and management information is available to all users in the health sector to meet each of their predefined needs.
2. To ensure that the required information is accessible to all concerned users.
3. To ensure that the intended primary users of the information are informed about the information. (The individual and organisations involved in delivering and managing health services and providing support to this effect are the primary users of information).

Principles guiding the design of the HMIS

The design of the health information system has been guided by the principles of:

1. Data for decision-making
2. Integration of management of health service specific routine information systems into a single system
3. Data collection for local analysis and use
4. Data collection, analysis and use by the same health and support personnel who are responsible for the management/delivery of health services
5. Complete information available at a single repository
6. Strong links between all data collection systems in order to avoid duplication and produce synergy in data analyses and dissemination

3.4.3 Data Sources

The health system obtains required information from several direct sources as well as other systems within and outside the health sector. The most important sources are; (1) the census; (2) the registration of vital events; (3) health facility based records; (4) community monitoring reports; (5) population surveys and research; (6) records from central ministries and institutions.

The information is used to: (1) measure the health status of the people; (2) quantify the health problems; (2) quantify the medical and health care needs; (3) formulate health policies, plans and strategies; (4) set priorities to allocate resources; (5) design health interventions; (6) monitor trends and changes; (7) assess progress; (8) evaluate effectiveness and efficiency of health services.

Data collection

Health data is collected/compiled from both the primary and secondary sources. Data is converted from information to knowledge and stored in appropriate forms at all levels of the health service management and delivery.

The HIS provides information in: (1) demography; (2) vital events; (3) health status: morbidity, mortality, disability and quality of life; (4) utilisation of health services: service coverage, attendance, admission etc.; (5) health resources: facilities, beds, human resources, transport, communication etc.; (6) health financing; (7) environmental health; (8) supplies: drugs, vaccines, medical equipment etc.

Primary sources

Each health and support personnel collect data while delivering services and undertaking other management functions. The same person aggregates data in the prescribed format.

Secondary sources

Data required for planning and management of health services, but not collected directly from primary sources, are gathered from all available secondary sources.

3.4.4 Information flow

The main responsibility of recognising disease outbreaks, low coverage of health services and adverse environmental conditions weigh upon local health staff. The main response and actions take place at facility level followed by district level. The transmission of information is designed to elicit help from higher levels, and not merely to find a place in an archive (Figure 3.4:2)

A facility generates quarterly reports on each predefined indicator for use by the concerned health programmes and other stakeholders. Each facility compiles data from its entire catchments area. The District Health Offices compile data from all facilities and perform comparative analysis and send feedback to each health facility. The Ministry headquarters compile data from all districts and central hospitals, perform necessary analysis and provide feedback to all reporters.

The Health Management Information Unit at headquarters sends reports to national programme managers and provides general feedback to the District Health Offices and central hospitals. The Programme managers at the national level also respond to the district and the Central hospital based on the report received. In this way, technical feedback by higher levels becomes as important as the bottom-up reporting.

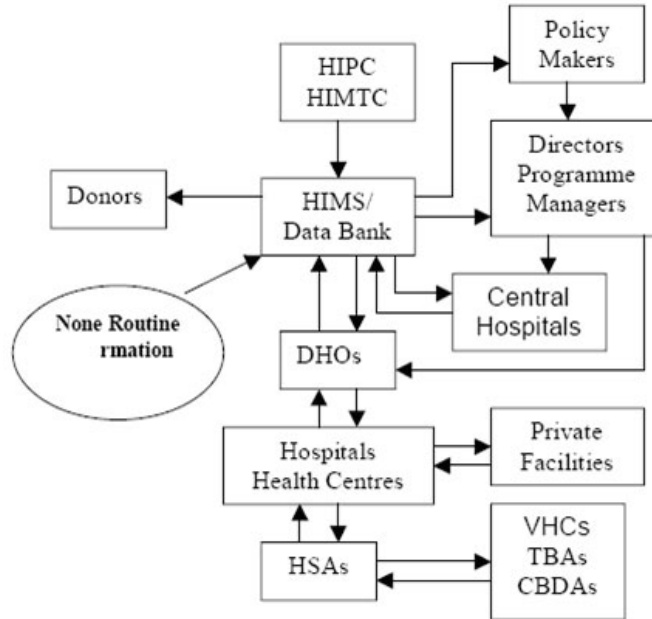


Figure 3.4:2 shows how information is communicated between the levels of the health organisation (MoH 2003).

Besides the bottom-up reporting and top down feedback mechanism as described above, the Health Management Information Unit in headquarters compiles data on core indicators from all reliable secondary sources and sends to districts and central hospitals for their use in planning and management of health services (MoH 2003).

3.4.5 Data processing

All health personnel involved in managing and delivery of health services collect, aggregate and analyze information using paper, pencil and a simple calculator and make immediate use in their daily work. This concept will remain as a basic fundamental principle of design of a routine information system in the country for many years to come.

3.4.6 Dissemination of data

Facility level

At the end of every quarter each facility aggregates data from all the registers into a quarterly report and submit it to the district health office. The facilities also report through various program specific reports (MoH2003). See Figure 3.4:3 for more details.

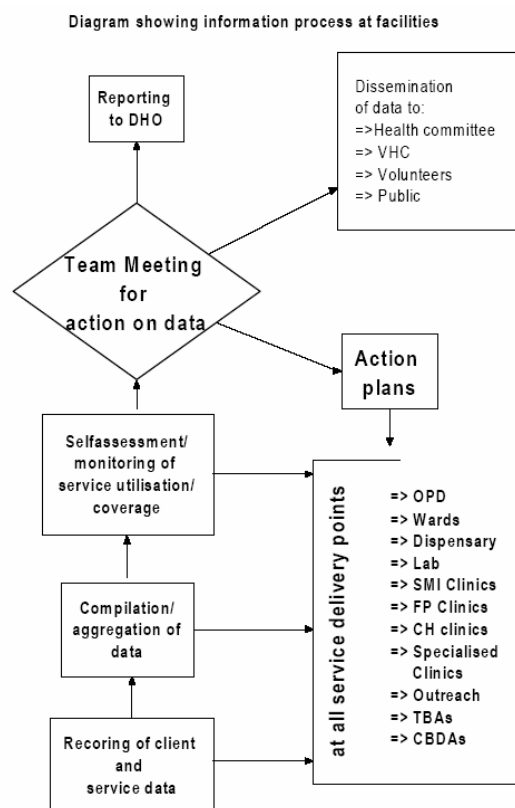


Figure 3.4:3 Information process at health facility level (Chaulagai et al. 2001).

District level

Each district compiles a report each quarter based on the quarterly reports they receive from the facilities in the district. This report is submitted to the MoH, information is also fed back to the health facilities and other stakeholders who are partners in health service management in the district.

Each district also conducts an annual review meeting with its facility in-charges and other stakeholders and produces an annual performance report with the following contents:

1. District at a glance: Maps, facts and figures.
2. Current health status in the district: analysis of routine indicators.
3. Organisation of health services: types of services, delivery points and frequencies.
4. Quality assurance, monitoring and supervision.

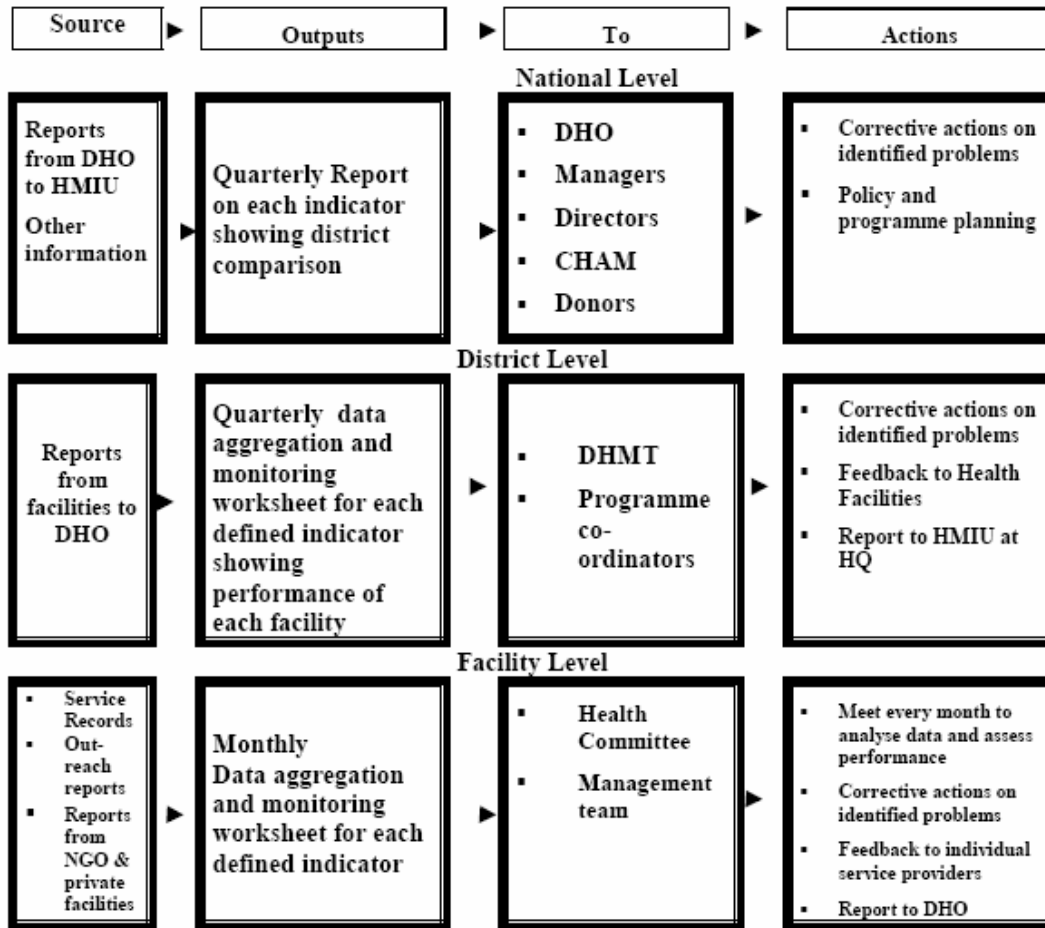


Figure 3.4:4 Routine actions within each level (Chaulagai et al. 2001).

Central hospital

Each central hospital produces quarterly monitoring reports on tertiary care indicators. Annually, performances are analysed and comprehensive report is produced covering the area of service delivery, human resources, financial management, physical assets, drugs and supplies, etc.

National level

Each quarter the MoH compiles data from all districts and central hospitals and produces quarterly monitoring aggregated and comparative reports for use of different national programmes and other stakeholders. A copy of this report is sent back to district health offices and central hospitals for their self-assessment, comparative analysis and actions. Details about routine monitoring functions at different levels are provided in Figure 3.4:5.

District health offices have established computerised systems to process data of each catchments facility including the district hospital (MoH 2003).

3.5 District Profiles

3.5.1 Chikwawa

Chikwawa district is situated in the Lower Shire valley in the Southern region of Malawi, 48 km south west of Blantyre city (Figure 3:1). The population is estimated at 450, 609 for the year 2006 (NSO).

The district is served by one district hospital, two rural hospitals and 17 health centres. 16 facilities belong to the MoH and four belongs to The Christian Health Association of Malawi (CHAM) and all 20 facilities in the district report through the HMIS. Only 65 percent of the facilities have a functioning water system, while 60 percent has functioning electricity (Figure 3.5:1). The Programme of Work (PoW) target for 2010 is to reach 90 percent and 80 percent coverage respectively. A more encouraging 85 percent of the facilities have access to a functioning telecommunication system and already reach the target of 80 percent coverage.

Percentage of Health Facilities with Functioning Utilities (SW Zone, July 2006)						
Utility (PoW Target 2010)	BT	CK	CZ	MW	NS	TO
Water (>90%)	68% (15/22)	65% (13/20)	69% (9/13) ^a	88% (14/16)	100% (13/13)	29% (5/17)
Electricity (>80%)	59% (13/22)	60% (12/20)	62% (8/13)	69% (11/16)	62% (8/13)	35% (6/17)
Telecommunication (>80%)	91% (20/22)	85% (17/20)	85% (11/13)	81% (13/16)	54% (7/13)	82% (14/17)
a : due to unreliable water supply from Blantyre Water Board						

Figure 3.5:1 Facilities with percentage of functioning utilities compared to targets of the Programme of Works (CK – Chikwawa, CZ – Chiradzulu)(SWZHSO 2006).

Shortage of staff affects the delivery of health services and only 20 percent of the facilities have the established minimum staff norms of two nurses, one clinical officer and one medical officer (Figure 3.5:2). Chikwawa is the worst affected district in the South West Zone with severe human resource shortage, and only 59 percent of the facilities have at least one nurse. The district has 22.7 nurses per 100.000 population (Figure 3.5:3) and only 5.4 clinicians (Figure 3.5:4), both far from the targets for 2010. The severe shortage of staff is attributed to the unfavourable high temperatures and the seasonal flooding and poor housing conditions in the district.

The coverage status of health indicators in programmes such as Maternity and Child Health for the last nine months (July 2005 – March 2006) shows decline compared to the same period last year. Malaria, Pneumonia, Skin and Eye infections and Diarrhoea are major disease problems in the district.

The district is being supported by Management Sciences for Health and different performance assessment and supervision tools are being piloted in the district. As part of

these pilots the district is divided into six sub-district clusters.

Health Centers with Minimum Staff Norms (South West Zone July 2006_a)						
Staff Norm	BT	CK	CZ	MW	NS	TO
2 nurses	0%	24% (4/17)	80% (8/10)	46% (5/11)	60% (6/10)	40% (8/20)
at least 1 nurse	88% (14/16)	59% (10/17)	90% (9/10)	100% (11/11)	80% (8/10)	85% (17/20)
1 clinical officer	13% (2/16)	6% (1/17)	0%	18% (2/11)	0%	0%
1 medical assistant	69% (11/16)	47% (8/17)	60% (6/10)	55% (6/11)	50% (5/10)	65% (13/20)
2 nurses + 1 clinical officer + 1 medical assistant (PoW target 2010: >50%)	0%	0%	0%	0%	0%	0%
a: data adapted from "Survey on the distribution of medical personnel within the health system of Malawi" conducted by Dr. Roland Hogenschurz, TA ZHSO CW, 11th May - 19th July 2006						

Figure 3.5:2 Health Centres with Minimum Staff Norms as compared to targets of the Programme of Works (CK – Chikwawa, CZ – Chiradzulu) (SWZHSO 2006).

3.5.2 Chiradzulu

Chiradzulu is a small district situated 23 km east of Blantyre in the Southern west part of Malawi taking up an area of 767 square kilometres with a population estimated at 290 780 for 2006 (NSO).

The district population is served by one district hospital, one rural hospital and 10 health centres. Nine facilities are run by the MoH, two by the Christian Health Association of Malawi (CHAM), and one by the Islamic Bilal association. In Chiradzulu 69 percent of the facilities have a functioning water system and 82 percent have functioning electricity (figure 3.5:1). As in Chikwawa, 85 percent of the facilities in Chiradzulu have a functioning telecommunication system.

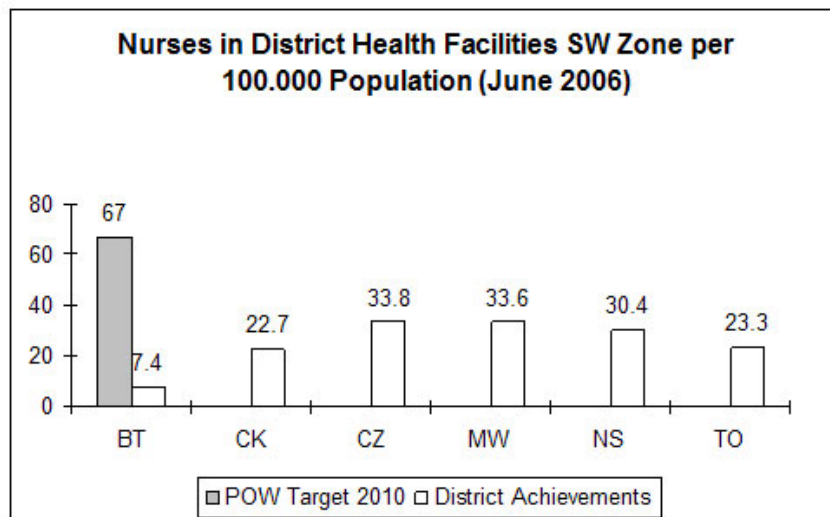


Figure 3.5:3 Nurse to population ratio in districts in South West Zone compared to Programme of Work target for Malawi by 2010 (CK – Chikwawa, CZ – Chiradzulu) (SWZHSO 2006).

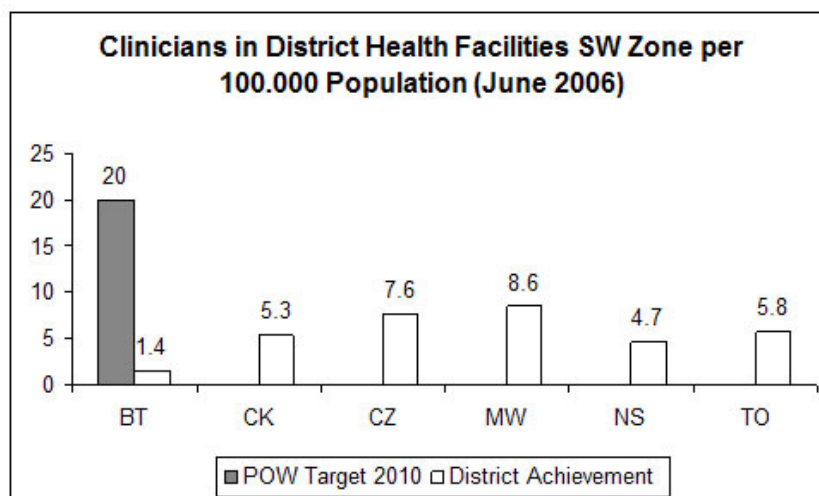


Figure 3.5:4 Clinician to population ratio in districts in South West Zone compared to Programme of Work target for Malawi by 2010 (CK – Chikwawa, CZ – Chiradzulu) (SWZHSO 2006).

Chiradzulu also experience a shortage of staff in the governmental facilities but is considered better off than Chikwawa as it has reached about 50 percent of the required number in some staff categories such as nurses (Figure 3.5:2). The district have respectively 33.8 nurses (Figure 3.5:3) and 7.6 clinicians (Figure 3.5:4) per 100.000 population, but is still far from the target set in the Programme of Work of 67 nurses and 20 clinicians per 100.000 people. There are various NGOs operating in the district in various developmental areas including health and these include MSF, OXFAM, Concern Universal, DAPP and World Vision.

4. Research Approach

Co-Authors of this chapter: Jon Sandvand and Gro Alice Hamre

4.1 Research team

The field studies reported in this thesis was conducted in a team of two, sometimes three, master students. Although all interviews and observations were performed as a team, we prepared questions individually and have had different focus of analysis throughout the field studies. We did however discuss our findings and make plans for whom to talk to further as a team. Working in a pair during our field studies proved helpful both related to the interpretation of findings, but also in practical matters. We wanted to spare our participants from wasting their time by arranging interviews together as we were both interested in many of the same issues. We shifted between asking the questions quite frequently and whenever it felt natural during the interviews. We see our approach as a strength in our field work because it enabled us to touch upon several issues we might have overlooked if we had done the interviews individually. We also believe that our notes and transcripts from the interviews improved when working together, as one could focus on taking notes while the other one could ask questions. Working in pair also proved helpful as we were both new to the Malawian context. The native language in the areas we visited is Chichewa, but English is used as the official language. Most of the people we collaborated with spoke fairly fluent English and we did not encounter too many language problems. Sometimes however, it was a bit difficult to understand the English accent and again we could discuss our interpretations of what had been said.

In some instances we also joined a third fellow master student, Marlen Stacey Galimoto, when we realised we had interest in the same people and issues, or when we knew that language could be a problem. Galimoto is a Malawian citizen and speaks both English and Chichewa fluently. This arrangement was also practical related to transport as we had access to a vehicle in parts of our field study period. And planning of our work also needed coordination among the three of us for that reason.

4.2 Research origin

This research was enabled through the EU funded project known as BEANISH, proposed by EU-African partners and IFIP (International Federation for Information Processing) and building upon another existing global research and development network called HISP (Health Information Systems Program). HISP was initiated in 1994 by researchers from Norway in collaboration with the University of Western Cape and University of Cape Town as an action research HIS project in post-apartheid South Africa (Braa et al. 2004). This is now a collaborative research and development programme with partners in South Africa, Norway, Mozambique, Ethiopia, Tanzania, India, Malawi and Nigeria that seeks to strengthen the HIS through efforts in three areas: (1) the design, development and implementation of free and open source software; (2) training and support to field level

health facilities; and, (3) research and education through doctoral and Masters studies. The case of Malawi as a HISP partner is a bit different from most partners, as Malawi is a self initiated node in the network (Braa et al. 2004) and the HISP software, the DHIS, was implemented nationally in 2001 on the initiative of the Ministry of Health.

BEANISH seeks to involve various institutional actors (government, universities, private sector and NGOs) to strengthen and extend an existing Europe-Africa collaborative network to support the application and sharing of ICT application development so as to support cooperation, learning and innovation in mutually beneficial ways. The BEANISH project in Malawi is established at the College of Medicine in Blantyre and at the Ministry of Health in Lilongwe.

This study is a partial fulfilment for the degree of Master of Science in information systems and part of the research and education part of HISP. Being accepted as a self funded student under this programme and also the collaborative partners available in Malawi through the establishment of the BEANISH project, enabled us to conduct this research in Malawi within the domain of health information systems.

We now present the research approach of this study by describing the research setting, the research team, research design and process, and finally the data collection methods. There is also a discussion of the ethical considerations used to conduct the research, and the limitations of this study.

4.3 Research design

This study has been an interpretive in-depth case study in which “*the researcher enters a social setting without any a priori constructs but with a good understanding of the literature*” (Jones and Hughes 2001). Information Systems (IS) as a field of study developed in response to the increasing necessity of organisations to improve their capabilities to process and manage data (Elliot and Avison 2005) and Interpretive research in IS is by now a well-established part of the field (Walsham 2006). According to Klein and Myers (1999) IS research can be classified as interpretive if it is assumed that our knowledge of reality is gained only through social constructions such as language, consciousness, shared meanings, documents, tools and other artefacts. Interpretive research focuses on the complexities of human sense making as a situation emerge, and interpretive methods of research in IS are “aimed at producing an understanding of the context of the information system, and the process whereby the information system influences and is influenced by the context” (Walsham 1993). Interpretive research can help IS researchers to understand human thought and action in social and organizational contexts and has the potential to produce deep insights in to information systems phenomena (Klein and Myers 1999). In this instance the aim was to understand what is perceived to be good working routines and practices related to a health management information system by the perception of different levels and categories of professionals in the health sector in the developing country context.

Due to the general shift in IS research away from technological to managerial and organizational issues there has been an increasing interest in the application of qualitative research methods. Qualitative research methods were developed in the social sciences to enable researchers to study social and cultural phenomena. Examples of qualitative methods

are action research, case study research and ethnography. Qualitative data sources include observations and participant observations, interviews and questionnaires, documents and texts, and the researcher's impressions and reactions (Myers 1997). The IS discipline examines more than just the technological system, or just the social system, or even the two side by side, it investigates the phenomena that emerge when the two interact (Elliot and Avison 2005), and qualitative research methods are designed to help researchers understand people and the social and cultural contexts within which they live (Myers 1997). In this study, qualitative case studies were the selected method.

Our main focus has been to understand the functioning of the official health management information system (HMIS) in Malawi, including the established routines and practices and the meanings and values attributed to these routines and practices by the participants in this study. We focused also on structures and mechanisms that were introduced to support the functioning of the HMIS and aimed to understand the origin and intentions of these structures and how they were perceived to function by the different actors.

We chose two health districts based on the recommendations from the Health Management Information Unit and Management Sciences for Health in Malawi. Chikwawa is the best performing district of the six district supported by Management Sciences for Health, especially in terms of timely and accurate reporting on HMIS. As we were looking for good working practices Chikwawa district seemed like a relevant and good recommendation.

We decided to look at one more districts, one that did not get the same degree of support and that did not perform as well in terms of HMIS activities. Looking at two districts offered the opportunity for us to understand more about the diversity of the Malawian context than what only one district could offer. Chiradzulu district was recommended and chosen for the above described reasons, in addition to its relative proximity to both Chikwawa and Blantyre as this would allow travelling between the two districts if necessary.

4.4 Research Process

During our field studies we have talked to health managers, supervisors, health workers responsible for HMIS activities, and clerks responsible for data collection. Knowledge of whom to talk to were developed through what we learnt from our interviews, starting at the Ministry of Health and working our way down through the different levels of the health system (Table 4.4:1). The participants in our studies were chosen based on their responsibilities or involvement related to HMIS activities of our interest in addition to geographical location and availability.

The first point of contact in Malawi had been established by our supervisor at the University of Oslo with the Health Management Information Unit at the MOH in Lilongwe. The Health Management Information Unit supported us through the process of getting our research proposals accepted, introduced us to the health management information system in Malawi, and helped us establish contact with Management Sciences for Health. After our first introductory discussions at the MOH, we were invited to participate in an annual HMIS review meeting for the South West Supervision Zone, to which zone both our selected districts belong. In this meeting we were introduced to all district representatives by the MOH who encouraged everybody to welcome us and help us during our studies.

Table 4.4:1 Organisational levels of the Malawian health system

National level	Sub-national level	District level	Cluster level	Health Facility level
Health Management Information Unit, MOH	South-West Supervision Zone Office	Chikwawa District Health Office	Cluster Supervisors	The District Hospital Three Health Centres
		Chiradzulu District Health Office Programme Coordinators	<i>Not Applicable</i>	The District Hospital Four Health Centres

Apart from our official approval to perform our studies by the Research Unit at the MOH we were not required any other formal approval to access our chosen districts other than the agreement of the district representatives present in this meeting. We established contact with the Technical supervisor in the South-West Supervision Zone office and representatives from Chikwawa and Chiradzulu districts. The two HMIS Officers in these two districts became our main point of contact throughout the remainder of our studies.

The first case study: Chikwawa

We started off in Chikwawa district, and being relatively new to health management information systems and the health sector in general, we spent quite some time with the HMIS Officer to understand how information is handled, how information flows and who is involved. We also spent time at the district hospital talking to health workers involved in data collection to understand their routines on collection, analysis and use of information. Concurrently we revised official policy documents and guidelines to understand the intentions of the system and what was expected at the national level.

After some time we started to focus on HMIS related activities in the district. First we observed quarterly HMIS cluster review meetings. The intention of this was threefold; (1) to establish contact with cluster supervisors, (2) to understand the dynamics of these review meetings, and (3) to look for and establish contact with well performing health facilities in terms of HMIS. Of the six planned review meetings we chose three that were within a fair distance from where we were based, and also accessible by public transport. One of these meetings were however postponed on short notice and ended up being conducted at a time when we could not attend. We also observed a biannual Task Force meeting for the

Recognition Scheme where quarterly HMIS reports from the two preceding quarters from all health facilities were assessed and the best ones awarded. Following these observations our focus was directed to the understanding of what kind of support was provided from district to the health facilities. We interviewed cluster supervisors and were invited to observe cluster supervision. Again we consulted guidelines and policies to get an understanding of what was intended and expected from these routines at the national level. We were also invited to observe a quarterly meeting where cluster supervisors report on district supervision to the district health management team and other stakeholder. This meeting was however moved twice and ended up being conducted without our knowledge.

After spending some time with district level representatives we decided to visit health facilities to learn more about their HMIS routines, and to understand how they perceived the quality of their routines, their data quality, and the quality of the cluster supervision, the quarterly HMIS cluster review meetings and the recognition scheme. At the facilities we met with either the facility In-Charge or the HMIS focal person. We talked to health workers who were responsible for filling the quarterly HMIS report if he or she was present, as well as other health workers involved in data collection. Usually these visits developed into group interviews.

At the end of our stay in Chikwawa we were able to observe the districts annual review of the District Implementation Plan and the HMIS.

The second case study: Chiradzulu

In Chiradzulu we started by talking to the HMIS Officer to understand the HMIS routines and who were involved in HMIS activities in the district. As we now knew more about the intentions and requirements of the national system, we decided to start our studies in the health facilities this time. Our intention was to look for similarities and differences in facility staff's perception of their HMIS routines, their data quality, and the support provided by district level representatives. Again we talked to the people responsible for reporting, but also people filling registers and the in-charges, often all in a group. The main issues that were raised by these facility staffs were related to training on HMIS and supervision.

At the district management level we then talked to those responsible for training and supervision related to the HMIS. This included members of the district health management team including the district health officer, and health program coordinators. We joined and observed both monthly HMIS specific supervision, and the district health management team's integrated monthly supervision. We also observed a training session on cholera prevention and handling at the district hospital where facility representatives were present.

4.5 Data collection methods

Data has been collected using qualitative research methods in this study. A major strength of case study data collection is the opportunity to use many different sources of evidence. The use of multiple sources of evidence in case studies allows an investigator to address a broader range of historical, attitudinal, and behavioural issues (Yin 2002). In addition we conducted an action research experiment with pair reporting at one health centre. Each of the data collection tools used is described in the following sections

4.5.1 Interviews

The interview technique, especially the semi-structured interview, is an essential technique for many knowledge acquisition methodologies and semi-structured interviews combines a highly structured agenda with the flexibility to ask subsequent questions (Milton 2003). In open ended interviews you can ask key respondents about the facts of a matter as well as their opinion about events (Yin 2002).

In total we have conducted 35 interviews, some of which were group interviews, and made a total of 13 direct observations of different meetings over a period of 11 weeks. Table 4.5:1 shows the numbers of respondents at different levels of the health organisation hierarchy.

Table 4.5:1 Aggregated list of performed interviews and observations.

Performed Interviews and Observations		
National level Observations	-	
National level Interviews	3	
Sub national level Observations		
Annual HMIS review meeting in SE Zone	1	
Sub national level Interviews	1	
District level Observations	Chikwawa	Chiradzulu
Annual HMIS/DIP review meeting	1	-
Supervision	2	4
Cholera training	-	1
Recognition Scheme Task Force	1	Not Applicable
District level Interviews		
District Health Office staff	2	3
Programme Coordinator	2	3
Management Sciences for Health	1	Not Applicable
Health facility level observations		
Annual Cluster HMIS Review meeting	2	Not Applicable
Pair Reporting Experiment	-	1
Health facility level interviews		
District hospital	10	4
Health facility level group interviews		
Health centre	2	4

All our interviews were open-ended, semi-structured interviews. When we first arrived in Malawi we didn't know much about their health management information system. Therefore we found that using semi-structured interviews gave us the opportunity to get a broader understanding of how health staff worked with information. Basically we prepared most of the questions in advance, but to be able to go deeper into interesting issues we were always on alert to ask follow up questions. See Appendix B for initial interview guide.

Our introductory interviews were focused on our understanding of how the system was supposed to work, and whether the system functioned as intended. This was important for us to be able to understand if good practice was observed or communicated by respondents and also if this practice supported the intention of the system.

When our understanding of the system increased we started asking the respondents to propose their own insights into certain issues that were mentioned and we used such propositions as the basis for further inquiry. The data quality was such an issue that had direct relevance to the routines we investigated and comments about what affected quality led us to follow up on perceived data quality by the respondents. We asked how they thought quality could be improved, whether or not they thought the quality was good enough, and what they perceived to be good quality. That way we also gained a better understanding of what they saw as potentially better practice and how better practice could be achieved.

As most case studies are about human affairs, these human affairs should be reported and interpreted through the eyes of specific interviewees, and well-informed respondents can provide important insights into a situation (Yin 2002). However, the interviews are subject to the common problems of bias, poor recall and poor or inaccurate articulation. One such example was how we through interviews with different district level and health facility representatives often got different answers related to both intentions and expected outcome of certain routines, as well as related to what was actually carried out of described practices. This cross checking of information revealed interesting differences in perception, expectations and performance of the respondents.

Before starting our studies we had considered the possibility of recording the interviews. However, those interviewees who were asked refused or appeared clearly uncomfortable with the prospect of being recorded. As the main intention of our studies was to understand the overall dynamics of the HMIS related routines, rather than to investigate specific details, there was no plan for transcribing or systematically listening to the contents of such recordings other than for a refresher of memory. During our studies we were always 2 or 3 investigators present during interviews, and through conversations and comparison of notes and transcripts from the interviews we felt that this provided the necessary memory to be able to record our findings satisfactory.

According to Yin (2002) respondents in a case study can suggest other persons for you to interview as well as other sources of evidence. The more that a respondent assists in this manner, the more the role may be considered one of an “informant” rather than a respondent (Yin 2002). The HMIS Officers in both districts took the role as informants and they were both crucial to the success of our case studies. Not only did they provide us with great insight into the health management information system and its intended functions and routines in their respective districts but they also suggested key people to talk to and helped us establish contact on several occasions. They arranged for us the opportunities to observe important meetings, and made us aware of, and when possible gave us access to, written documentation.

On a few occasions it was hard for us to carry out planned interviews. Sometimes interviewees showed up very late and on one or two occasions they didn't show at all. Still, after a couple of attempts we were able to conduct all our interviews and the interviewees were always helpful and shared valuable information with us.

4.5.2 Observations

Observational evidence is often useful in providing additional information about the topic being studied (Yin 2002). Observation can lead to deeper understandings than interviews

alone, because it provides a knowledge of the context in which events occur, and may enable the researcher to see things that participants themselves are not aware of, or that they are unwilling to discuss (Patton 1990).

The observations can range from formal to casual data collection activities that can involve observations of meetings or less formally including those occasions during which other evidence is collected.

The intention of our observations was to understand the dynamics of the event observed. Table 4.5:1 presents the nature of the observed events and the organisational level in which the event took place. We wanted to investigate whether what we observed reflected the same impression of value, content and form as had been expressed through interviews with key people involved. We used these observations as a source to corroborate and sometimes contradict information and understanding achieved through interviews.

According to Yin (2002) more than one single observer increase the reliability of observational evidence. We were always 2 or 3 investigators present when we made direct, planned observations and we discussed our interpretations of the observed upon writing the documentation of the events.

4.5.3 Documents

We have collected and analysed a total of 18 documents on policies, guidelines, reports and minutes from meetings. The most important use of documents is to corroborate and augment evidence from other sources (Yin 2002). Table 4.5:2 contains an aggregated list of the number of documents we obtained from different levels of the health organisational hierarchy.

Table 4.5:2 Aggregated list of documents used as background information

DOCUMENTS			
National level	Policies, guidelines and annual reports	10	
Sub national	Reports and	3	
District level		Chikwawa	Chiradzulu
	Reports	10	3
Health Facility	Feedback		2

The introductory questions in our study were based on what we identified as important issues for the HMIS based on official guidelines and policy documents, mainly supervision checklists and job aids for different positions, on HMIS activities (see Appendix C for further details). The aggregation of an extended list of questions based on these documents was crucial for our understanding of what is expected of the different people at different levels, and also what is expected of the performance of the system.

Minutes from meetings were collected to enable comparison of content and focus of previous meetings of the same nature as those we observed. Minutes from meetings we observed was also collected whenever possible to offer an interesting reference for

comparison of our own interpretations of the same event. National and district reports concerning or with relevance to the HMIS has been identified along with official policy documents, that served as background information to the study context.

4.5.4 Action research

In action research, the researcher wants to try out a theory with practitioners in real situations, gain feedback from this experience and modify the theory as a result of this feedback (Avison et al. 1999).

We never had the intention of using action research as a method for data collection. However as our knowledge of the HMIS in Malawi grew, it felt natural to do an action research experiment to further investigate the activity of writing HMIS quarterly reports.

Cockburn and Williams (2000) describe pair or collaborative programming as a process/situation where two programmers develop software side by side at one computer.

Our action research experiment was conducted using the principles of pair programming while compiling an HMIS quarterly report at one health centre. Our intention was to see if using these principles would lower the amount of defects done while compiling the report and to investigate whether working in a pair would apply more satisfaction to the working process.

4.6 Ethical statement

Ethical considerations were made throughout our study and we did our best to protect privacy among our respondents. The following is a list of issues that were considered.

- Formal research clearance was given by the MOH in Malawi (Appendix F). Access to the districts was arranged by being introduced by the MOH to the district HMIS Officers who in turn clarified their participation and assistance in our research with their District Health Officer.
- All participants were informed about the nature and purpose of our study and all participation in our research was voluntary and based on oral informed consent (Appendix D).
- All transcripts of interviews and observations excluded name of participants.
- All photographs, of people, figures or other written material, were only taken after consent from those affected.
- All planned meetings were conducted at a time and place chosen by the respondent. When meetings had not been planned ahead, we waited until the respondent had finished other duties.

-
- We tried our best not to conflict with the respondents daily duties. We (the three master students) coordinating for instance our plans and arranged meeting together when we wanted to talk to the same people.
 - In our reporting of findings we do not relate them to specific facilities or persons. In some cases, as in the case of people in key positions some findings are related to this position. However whenever any findings could compromise this person, findings is reported with out reference to position.
 - In our preliminary report to the districts and the MOH in October we aggregated findings for the two districts together as to not display problems or issues as originating from one specific district. We summarised findings and proposed general recommendations.
 - In many cases respondents associated us with international aid organisations and sometimes wished to focus on lack of material and money in the hope that we could perhaps help them. In these cases we always spent time explaining that we were self-funded students and that our research was mainly for our own academically purpose, but that we hoped the HMIS in Malawi could benefit from our research.
 - All participants were informed that they would not receive any personal benefits from participating, apart for the possibility to learn something new, but that important issues would be addressed as recommendations to the superior level as to attempt some contribution of the time spent. In a few cases we did provided feedback to facility staff on how we perceived the quality of their data collection and reporting. This was only done upon request.

4.7 Limitations to this study

We have already described some limitations to this study, like some meetings being moved on short notice and conducted without our knowledge. Sometimes we also had to spend a lot of time waiting for meetings. In addition to these practical issues during our research there were however other general limitations. A list of these limitations is provided below.

- Given the time frame of the master programme we could not spend more than 3 months of field studies to allow enough time for analysis and writing. We wanted to do in-depth interpretive case studies but we also wanted the opportunity to observe different practices. Three months is a short time and we decided to settle for two cases. Still this prohibited us from visiting all health facilities in both districts.
- It is likely that because we are not from Malawi, and did not speak the local language we might have missed some aspects in our findings. It is our hope however that the assistance and support by Marlen Galimoto has helped us in this matter at least to some extent.

4.8 Data Analysis

Author of this section: Gro Alice Hamre

My thesis work started with literature studies on implementation and use of HIS in developing countries in general, followed by literature studies on the national introduction of a new HMIS in Malawi in 2001 and the accompanying new national HMIS policy. National guidelines for HMIS supervision as well as job aid descriptions for supervisors and HMIS related personnel helped illuminate what were the intended functions and the expected outcomes of the new system.

Based on these studies I started out in Malawi by looking for potentially well working practices related to the HMIS. As my study proceeded I realised that health worker attitudes were an important factor affecting the functioning of HMIS routines and support structures. To capture what I perceived to be the ‘overall picture’ of my findings, according to what I found to be most important, I have focused my analysis on health worker motivation. Relevant themes for this analysis was identified through new literature studies and included motivational theories and their applicability in the cultural context in question, health worker motivation studied in developing countries, and also general literature on commitment and motivation in IS use. Based on these studies the theoretical framework that was considered to be the most relevant identified was used as basis for the analysis. The types of material used for the analysis in this study are illustrated in Figure 4.8:1.

	Research subject's statement	Researcher's statement
Cognitive	Motivation	<i>Results of Analysis</i>
Inter subjective	Behaviour	Observation

Figure 4.8:1 Model of the material used for analysis

Research subject statements about own behaviour in combination with researcher's observations served as the main material for analysis. Motivation, based on the research subjects' own cognition, was not studied directly although some statements were expressed as a result of related topics studied. However, based on literature review on motivation among health workers in developing countries in general, combined with observations and inter subjective research subject statements on own behaviour, some assumptions were deduced and used as basis for analysis.

5. HMIS in Chikwawa and Chiradzulu districts

In this chapter I present findings related to the functioning of the HMIS in Chikwawa and Chiradzulu district. The main objective of this chapter is to present my understanding of: (1) the local practices in each district on data collection and reporting, (2) what HMIS support structures existed in the districts and how they functioned, (3) and finally whether, and to what extent, signs of use of HMIS data and information could be found locally.

5.1 HMIS in Chikwawa district

In this section my general findings and observations about Chikwawa and the local functioning of the HMIS are presented.

5.1.1 Data collection

Health facilities are the sources of data within the HMIS and data collection at this level was done using paper based registers. All patients in Malawi carried a personal Health Passport serving to track the treatment of the patient between visits, as not many clinics kept individual patient records. Registers were then filled according to what was recorded in the patient's health passport. In some clinics the health worker who provided the service also entered this information into the register. In those clinics where a clerk was available, this clerk filled the register according to what had been written in the health passport by the person providing the medical service.

Clerks reported that they sometimes had problems filling registers. Hand writing could be hard to interpret, but important information like diagnosis could also be missing. Other problems could include that the clerk also did not recognise the diagnosis and had trouble understanding what would be the associated disease code. All these problems affected the quality of data as the record could either reflect wrong information or information could simply be missing. A long line of patients were usually waiting to get their information registered by the clerk and it is likely that this affected the clerk's effort to resolve any uncertainties in data registration. The practice of patient's having to have their data registered before they could get their prescribed medicine in the pharmacy was introduced to ensure that patient's actually did wait around to get their visit recorded.

At the district hospital there was a computerised MS Excel based system replacing the official register books in the hospital wards. The hospital only had one ward clerk responsible for collecting all admission and discharge forms from the wards and entering these data into the computer system. Sometimes he collected these forms daily, but he was often too busy with other duties and there could sometimes be weeks before he collected them. The ward clerk was also assisting the district HMIS Officer on HMIS duties, and travelled for around the district regularly in HMIS related business. When he was absent from the district hospital there was no one to take over his duties as ward clerk.

The local Management Sciences for Health (MSH) office reported that Chikwawa was the best district of the MSH supported districts on reporting and data quality. There were however different opinions among district managers on whether health facility staff in general understood the value of data collection and reporting. One supervisor said for instance that data quality in her cluster was generally good and that most staff understood the value of data collection. She said that it however used to be a problem, but that this had been improved through motivational talks during HMIS review meetings, and through incentive schemes. Another supervisor said however that documentation in her cluster was poor in most cases. Health workers could either forget to register data or fill the registers wrong, and the reports would not always give a true reflection of the situation. In lack of qualified health workers Health Surveillance Assistant could for instance diagnose a patient wrong and in that case it didn't help if that person knew how to fill the registers correct.

“Sometimes when I look at the reports, what I see does not seem right according to my knowledge of the area.” (Supervisor)

Examples of gaps observed in the registers included missing page and month summaries, missing dates and missing disease code.

5.1.2 Reporting Routines

There were two systems for HMIS reporting in Chikwawa. In addition to the official routine quarterly reporting to the Ministry of Health, monthly HMIS reporting was piloted in the district. Monthly reporting included health facilities reporting to the District Health Office, but the district did not report these data further.

Monthly reporting

Monthly reporting from all health facilities to the District Health Office was being piloted in Chikwawa. The reported data were however not sent to the Ministry of Health. The monthly HMIS reporting was a separate system from the official quarterly system; a smaller set of data elements were collected and the data was stored in a separate database in the DHIS software. The monthly reporting had been piloted by Management Sciences for Health for almost a year in 3 districts in Malawi, but it was reported to be big gaps in reporting.

The facilities visited in this study did not appear to report monthly on HMIS. The HMIS Assistant usually collected reports quarterly, but sometimes if he visited facilities for other reasons more often, he collected monthly reports as well. It did not appear that the monthly reporting happened regularly however. It was expressed by staff at the District Health Office that the smaller set of data collected for this monthly reporting was not necessarily the most important data to monitor for Chikwawa. The data set was decided at the Ministry of Health and they felt they had not been invited to contribute to the selection. According to Management Sciences for Health however, some district representatives were present when these data elements had been selected, but it was not clarified whether any of these representatives came from Chikwawa district.

Quarterly reporting

Chikwawa district had 20 reporting health facilities that reported aggregated data quarterly to the District Health Office. During the fiscal year 2005/2006 the reporting status was 90 percent on timeliness and 100 percent on completeness. The HMIS Assistant collected data from the health facilities that had problems submitting on time. He travelled on motorbike and if the reports were not ready when he arrived, he completed them. The routine of supporting facilities in collecting reports was introduced by Management Sciences for Health.

The HMIS Officer entered all reported data into the DHIS software when he had received a good portion of the reports. Usually he had to reserve 2 or 3 days for this work. It also required that he was not busy with other duties because he had to concentrate on validating the data. He generated a district report that was sent in text format by email to the Ministry of Health. There was an internet connection in his office. The reports were checked for gaps, extreme values and inconsistency. If problems were identified he either made a call or visited the facility. When there was a change of staff with responsibility in reporting in health facilities it often resulted in bad reporting, and that reporting was not always taken seriously.

Official HMIS reporting forms were provided by the Ministry of Health, but sometimes they did not have sufficient supplies. The District Health Office had received an edited electronic version from another district and this enabled them to print when they ran out of official forms. This unofficial reporting form had been extended with some new fields by the other district, and as staff in Chikwawa had not been oriented about this new form it resulted in some gaps in reporting. From the changes in this form however, the HMIS Officer in Chikwawa had got the idea to extend the electronic version even further. He wanted to facilitate collection on some important data that were not covered in the official report form. Pneumonia was for instance the 2nd most common disease in Chikwawa. The official form collected total number of admissions to wards but admissions were not associated with disease, and this made it impossible to distinguish those admissions caused by Pneumonia. The District Health Office awaited the orientation of staff until the reporting form had been modified to the district's needs.

5.1.3 Support structures

There were five different mechanisms in place in Chikwawa that were for one thing intended to support the functioning of the HMIS. These were; supervision, HMIS review meetings, HMIS training, feedback, and finally the incentive scheme.

Supervision

There were three main sources of supervision in Chikwawa. Supervision was provided by (1) the District Health Management Team, (2) the cluster supervisors and their integrated supervision, (3) HMIS specific supervision. The integrated checklist supervision was introduced by Management Sciences for Health and was piloted in the district.

District health management team

Supervision provided by the District Health Management Team (DHMT) in Chikwawa was reported to be scanty, and only 50 percent of the scheduled supervision and follow up was provided. It was also argued by some district managers that the DHMT supervision served mostly as a moral boost at the health facilities, as staff liked to show their need for maintenance and supplies to the district managers.

When Management Sciences for Health introduced the cluster supervision it was because they started to look at why supervision activities failed in Malawi. Problems identified related to lack of transport, mismanagement of funding and misuse of funds. Cluster supervision was introduced as a more cost-effective supervision; instead of different Program Coordinators travelling at different times, one person should give integrated supervision to a smaller number of health facilities. The zone supervision was introduced as a pilot to replace or at least supplement program specific supervision in eight districts

Integrated checklist - cluster supervision

Sub-district Cluster Supervisors were supposed to go on monthly supervision visits to all health facilities in their cluster, using predefined integrated checklists as the basis for supervision. They had a series of different checklists (e.g. Family Planning, Traditional Birth Attendants, Chronic Care, and HMIS). The district's team of supervisors selected three topics for supervision each quarter; one topic for each month of the quarter, and each programme specific list was supposed to be used once a year. In addition to the selected program specific topic the supervisors had a Regular Checklist that covered staff management, clinic management, information reviews and clinic care issues. They also had a Red Flag checklist that covered issues like drugs out of stock, refrigerators not functioning, and staff not on duty, broken equipment and visits to the facilities. These check lists were supposed to be brought to each supervisory visit. The red flag list was used to screen the clinic for any problems and covered some issues that were also raised in other checklists. The supervisors were supposed to look for critical issues or problems at the facility, and their goal was through interviews and observations to check whether the facilities conducted services according to guidelines. Based on any problems identified in either the Red Flag or Regular checklists supervisors were supposed to leave a written action plan with the facility. They were also supposed to teach staff how to make such a plan if necessary.

All health centres, dispensaries and rural hospitals was covered by this supervision. When the supervisor discovered problems, he or she reported to the responsible district officer on the relevant area. Environmental issues were for instance reported to the District Environmental Health Officer and HMIS issues were addressed to the district HMIS Officer. On the next supervisory visit the supervisor was supposed to follow up on issues discussed during last visit and ask if any improvements had been made.

It was the responsibility of the District Health Management Team and the supervision focal person in the district to ensure that the supervision and feedback took place. The District Nursing Officer was also the focal person for supervision as well as supervisor in one of the district zones. It was however expressed a concern that not all supervisors took their responsibility serious enough. Transport for cluster supervision was the responsibility of the District Health Office and this had been a strategic decision by Management Sciences for Health in order to make the District Health Office consider supervision to be their baby and

by this try to make the arrangement sustainable. If the district had problems providing fuel, they were however assisted by the MSH.

According to guidelines from Management Sciences for Health the supervisor should also assist facilities in timely collection of monthly and quarterly reports and ensure that core set indicators were monitored every month. Support should be given on data analysis, presentation and interpretation and in linking performance to service delivery. The supervisor should also act as a link between the District Health Management Team and health facilities to inform and provide feedback to both sides. It was however uncertain to what degree this kind of support was given. It seemed that most cluster supervisors concentrated on health issues and that they perceived HMIS to be the responsibility of the HMIS Officer in the district. The HMIS Officer had delegated the responsibility to serve as a communication channel between facilities, supervisors and the HMIS Office to the HMIS Assistant.

District level - cluster supervision review meeting

When all cluster supervisors had conducted their quarterly supervisory visits they met to write a district report. Each supervisor prepared a report for each facility before the meeting. In the meeting they generated a district report according to a standard reporting format. This was an electronic copy that already contained the background for the district. They reported on strengths, weaknesses and problems discovered and they suggested solutions and recommendations. The group of cluster supervisors was supposed to present the results to all stakeholders and also provide the facilities with the report. The latter did not seem to happen, although one facility mentioned getting such a report a while ago.

The last report was produced in September 2006, and before that there was a report from February the same year.

HMIS supervision

The district HMIS Officer was not involved in the cluster supervision but gave HMIS specific supervision to all health facilities quarterly. This supervision was based on the HMIS checklist developed by Management Sciences for Health (MSH) in addition to a checklist the HMIS Officer had developed himself. The checklist from MSH was the same as the cluster supervisors used once a year.

On supervision the HMIS Officer spent the morning going through registers in a facility, and in the afternoon he convened a meeting with the facility In-Charge, the senior Health Surveillance Assistant and medical officer to discuss. He did not meet with all facility staff because it was difficult to keep them away from other duties. He did however report that the representatives he met had the capacity to orient other staff on important issues that came up during supervision. The systematic follow up was reported to have improved performance as facility staff eventually learned after being corrected on the same issues over and over.

Last supervision was conducted in May 2006 and it was reported that although data quality had improved, gaps still occurred in the registers. Examples included that N/A (Not Applicable – used to indicate that a service is not provided) was not used correctly, revisits was not related to same diagnosis, and dates were not always properly filled.

HMIS Performance Reviews

HMIS Performance reviews were conducted in Chikwawa both at the facility level, one review in each cluster, and at district level. Again the cluster review meetings were introduced by Management Sciences for Health.

Cluster HMIS review meetings - facility level

Quarterly HMIS review meetings in each cluster were scheduled by the District Health Office. Two representatives from each facility were invited, usually the In-Charge and the senior Health Surveillance Assistant. The district HMIS Officer (or substitute) and the district HMIS assistant also attended these meetings in addition to the Cluster Supervisor. Each facility was expected to have their own review meeting before the cluster meeting to inform and discuss with all staff, and to make sure the representatives going to the meeting understood, and knew how to explain, their data.

Cluster review meetings were conducted in the six zones respectively during two weeks of August when we were present in the district, and we were invited to observe these meetings. The goal of these review meetings was to monitor some priority indicators in the district, but also to check that facilities understood the data and were able to use information for decision making. In addition it gave facilities practice in presenting and interpreting data and indicators. Each facility was allowed to present the indicators they perceived to be the most important in their area. They were supposed to analyse quarterly or annual data and present graphically. Presented data should serve as a basis for discussions and feedback.

The two meetings observed in August were supposed to have been annual reviews. The facilities did however only present quarterly numbers. In both meetings the facility staff complained that they had been given notice about the meeting only two days in advance and had not had time for preparing graphs. Out of the total of six facilities represented in these two meetings only one facility presented annual data, two presented graphically (one with annual (Figure 5.1:2) and one quarterly data (Figure 5.1:3).

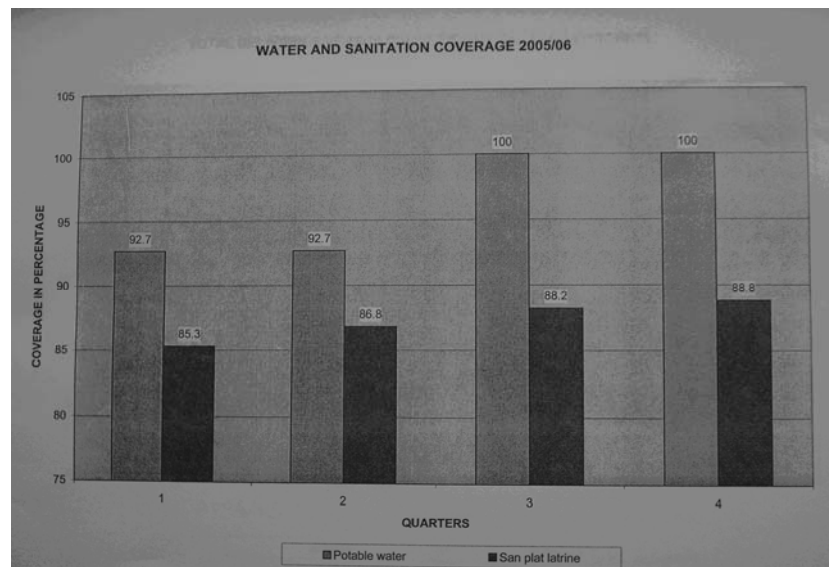


Figure 5.1:1 Graph presented in cluster HMIS review.

Two facilities presented their analysed quarterly indicators in writing on a blackboard during their presentations, while the last two facilities simply read aloud all reported numbers on all data elements in their quarterly report.

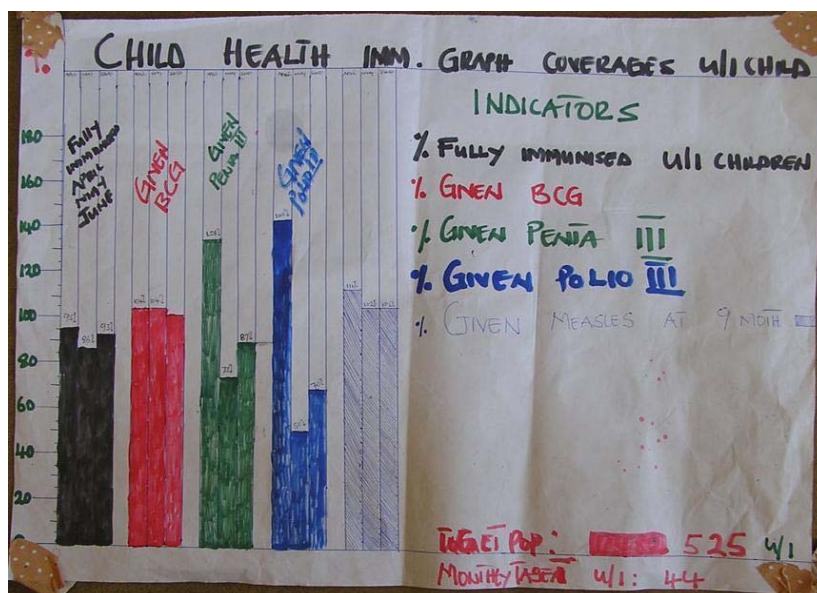


Figure 5.1:2 Graph presented in cluster HMIS review meeting.

District Health Office representatives reported that they intend to be mainly observers and aim at not participating in these cluster HMIS review meetings in the future. It was expressed that Health Facilities should take the responsibility to meet, discuss, and compare performance. The District Health Office representatives argued that they already knew the numbers presented, as it was reported in quarterly reports already, so they didn't really need to listen to the presentations. What they got in addition was the narrative part, explanations on gaps or drop/peak in numbers and this was acknowledged to sometime be useful.

Management Sciences for Health supported these meetings by paying lunch allowances to the attendants and by providing transportation to the meetings. In one of the two meetings observed there were trouble at the District Hospital with arranging transport and we ended up giving the district representatives a ride, while the facility staff had to arrange their own vehicles. This trouble resulted in the meeting being more than 2 hours delayed. Soft drinks and biscuits were served during the meeting.

District level HMIS performance review

After all the facility level reviews were conducted in all clusters, a one day district level HMIS review was conducted quarterly. In this forum, the District Health Management Team, Programme Coordinators, Cluster Supervisors and other stakeholders were required to attend. Attendants to the review meeting also include representatives from the District Assembly and responsible nurse or medical officer from all health facilities. Facilities without either nurse or medical officer were not invited as their services were limited.

In Chikwawa these HMIS reviews were combined with District Implementation Plan (DIP) meetings and the district annual review was conducted from August 28 to August 30 in

2006. The district HMIS Officer presented indicators, plans achieved, and goals for the whole district. Program Coordinators presented achieved and new plans for their respective programs. A general issue reported by many in this meeting was problems of transport due to mismanagement of resources and overspending according to approved budgets.

This annual review meeting had received a lot of attention in advance because not many other districts combine their DIP and HMIS review meetings in Malawi. Some observers from other districts were present, as well as representatives from the sub-National Zonal Support Office and the national Management Sciences for Health office. One observer commented however that not many program managers actually used HMIS data as a basis for the plans presented.

HMIS Training

Chikwawa district planned for HMIS each year in the District Implementation Plan and targeted all individuals involved in data collection and reporting.

Lack of HMIS training did not come up as a pressing issue with the facility staff interviewed in Chikwawa. This was probably partly due to that we were focused on visiting facilities that performed well on HMIS duties, and these findings would therefore not give the full picture of the situation. There was however some instances where lack of training was mentioned. In one facility for instance all staff filled the registers in turn but not all were trained in doing it and they were concerned about the quality. They felt the quality could be better if one person was properly trained and could be the responsible for filling registers and aggregating reports. Staff in another facility expressed a need for training on how to analyse and present data in a universal way as everybody did it differently in the cluster review meetings. In some wards in the District Hospital some staff members who were not meant to fill registers ended up doing it to a varying degree and with a varying success because the ward clerk was often too busy with other duties.

Annual training on HMIS in the district included orientation of new staff and refresher for other staff and all individuals involved in data collection were targeted for training. When district plans were approved by the Ministry of Health they received monthly allocations. Training was partly funded by Ministry of Health and Management Sciences for Health.

The Ward Clerk functioning as HMIS Assistant did not have any formal training on HMIS but had one week of briefing by the district HMIS Officer. The ward clerk was however not officially a part of the HMIS office and could be assigned to other duties without the HMIS Officer being consulted. The HMIS Officer had a background in statistics. In addition he was trained on the DHIS software about two years ago by someone from Mozambique. In Malawi there was only one person at the Ministry of Health that could provide support on this software, and there was no local capacity for this in Chikwawa.

Feedback

Written feedback in Chikwawa was received and produced to a varying degree.

The district received annual national reports on HMIS from the Ministry of Health, and sometimes semi-annually. The production of these reports was however delayed essentially

due to delays in receipt of reports from districts and central hospitals. The last report, produced in September 2006, covered the period from July to December 2005.

A few years ago Programme Coordinators and health facilities used to get quite extensive feedback from the District Health Office based on their quarterly reporting. At that time the HMIS Officer was spending a lot of time assessing district performance and provided reports for the facilities to follow their own performance and compare with other facilities. Now the Programme Coordinators were given the pivot tables to monitor their own program performance. Health facilities were also supposed to monitor their own performance based on their own quarterly reports. At the district hospital no clinics or wards received any feedback on the reported data.

It was also established that staff at the hospital had not heard about the Recognition Scheme, and if they had they said it did not include departments at the hospital, only health facilities. It was expressed differing views on who had the responsibility of informing staff about this, but there was agreement to the importance of district hospital staff being included in the incentive scheme.

All facilities were supposed to receive feedback based on supervision. Both the In-Charge and the HMIS focal person at the facility should get a copy. When asking at the facilities, staff said that feedback was usually given on the spot of supervision, but not in writing. It was however a desire to get this information in writing as it could sometimes be difficult to remember all the details.

Recognition Scheme

The Recognition Scheme was introduced by Management Sciences for health to motivate health personnel to improve the quality of the reported HMIS data.

A Task Force with the objective of assessing the quality of quarterly HMIS reports from all the facilities in the district was supposed to meet quarterly. Their assessment was the basis of which the Management Sciences for Health used to recognise good performing facilities. The Task Force for the Recognition scheme in Chikwawa met biannually and the last meeting was scheduled for August 26th – 27th 2006 to assess reports from the 3rd and 4th quarter of the fiscal year 2005/2006. Participants of the Task Force in Chikwawa included the HMIS Officer, the HMIS Assistant and 5 invited In-Charges from health facilities. We were invited to observe the meeting. The HMIS Officer was unable to attend the meeting in August due to other duties and a clinical officer from a private hospital was chairing the meeting in his place. The group used a draft guideline from Management Sciences for Health to guide the assessment. When all reports had been assessed two lists of the 10 best reporting facilities in each quarter were compiled. The reports were ranged based on the Task Force members perceived importance of the different mistakes. The chair of the meeting explained that the most important score was on consistency as it was most important that the reported data made sense, and that gaps could have reasonable explanations. It wasn't really clear how they ranged the reports according to timeliness, signatures and gaps but they compiled the two top-ten lists into one. One criterion used for the combination of the two lists however was that a facility appearing on both lists scored better than one facility being high up on one of the lists. Unfortunately this approach did not allow the monitoring of facility performance over time.

According to both the District Health Office and the Management Technical Assistant in Chikwawa MSH these meetings help improve data quality. They experienced that attending the Task Force meetings functioned as an ‘eye opener’ for facility staff, and that the importance of timeliness, completeness and accuracy made sense when staff got back to their facilities. This had led to the fact that participation to these meetings was rotated among the facilities and that the meetings were perceived to have educational value. Poor reporting facilities were especially encouraged to attend these meetings to learn why they were not among the rewarded facilities. The chair of the meeting we observed did however seem to expect the participants to know how the assessment should be conducted. He divided the participants into two groups; one group assessing reports from third quarter and one group assessing reports from fourth quarter. To save time they also decided to stop looking for inconsistencies in the reports after identifying 5 mistakes. From observation it seemed that one group was more skilled and experienced than the other, and it didn’t seem like the assessment of the reports was equal for the two quarters. It was also confusing as to how they actually identified the winners when they compiled the two top-ten lists into one.

Both district managers and facility staff were all pleased with the recognition scheme. Facility staff was motivated to work together to improve, and they tried really hard to win the award.

5.1.4 Data analysis and use of information

In general when asking about data collection, analysis, and use of information in Chikwawa, most respondents understood the relation between registers, quarterly reports, and data presented in graphically.

The district HMIS Officer generated pivot tables for the whole district for analysis of district performance as preparation and background for discussions at quarterly district review meetings. Pivot tables for each facility were also generated to enable feedback to the facilities on their performance. The districts Health Program Coordinators receive pivot tables to do analysis of specific data of interest for assessment of program performance. Program Coordinators were also supposed to present relevant health indicators for their programmes at the district HMIS review meetings.

The HMIS Officer analysed data and prepared graphs of key district indicators each quarter comparing them to the same quarter last year. He used excel for these calculations as he didn’t really trust the calculations made in the DHIS software. He had realised that some calculations in DHIS were simply wrong, while the selection of calculations available was also not really relevant to the district’s needs. Most indicators showed poorer performance for the fiscal year 2005/2006 than the previous year and such analyses were used as basis for discussion on quarterly and annual district review meetings. Targets for performance assessment were produced by comparing calculated indicators to the same period last year, or to the expected/preferred result. District management discussed and decided on targets according to available resources. They also looked for mechanisms to improve as well as reasons for poor performance.

Examples of use of information at Health Facilities were that they followed trends on important indicators and invited local leaders in order to inform and discuss important issues with them. Some facilities also shared information with the community by talking to mothers

who brought their children to the clinics, as well as who came for antenatal care. In one clinic they counted the top three diagnoses each quarter and used this as basis for talks to the mothers to create awareness on important issues. In the conference room at the hospital graphs relevant for the hospital wards were displayed. Most facilities had prepared graphs from either 3rd or 4th quarter as this was required for the HMIS review meetings.

5.2 HMIS in Chiradzulu district

In this section general findings and observations on the local functioning of the HMIS in Chiradzulu district are presented.

5.2.1 Data collection

Like in Chikwawa health facilities were the sources of data within the HMIS and data collection at this level was done using registers. All Health Facilities were supposed to have a dedicated HMIS focal person, and some facilities did while others were reported to rotate this responsibility. The HMIS focal person was however according to the District Health Office often overburdened with many other duties. All facilities collected data in official registers on a daily basis. They were supposed to aggregate page totals in all registers as well as monthly and quarterly totals. The benefit of doing this was clear, as if all totals were calculated at the same time for 3 months it was both extremely time consuming and very prone to mistakes.

At rural health facilities it was often a Health Surveillance Assistant who filled the registers after the medical responsible had seen the patient. At the district hospital there was one designated ward clerk who filled all ward registers based on admission and discharge forms. This ward clerk was also responsible for the aggregation of monthly and quarterly totals in these registers. The observed ward registers seemed up to date and correctly filled. In the different hospital clinics it was either the health workers themselves or a clerk who filled the register and aggregated totals.

According to the District Health Office the data in the district was reliable, but the quality was not good enough. Almost 70 percent of staff related to health in Chiradzulu were non-professionals. Health Surveillance Assistants were not trained to handle data, had too many responsibilities in different health programs, and were overburdened.

Examples of problems and mistakes described and observed in registers in the district included: missing date, missing disease code, patient registered but no treatment indicated (still included in aggregated total based on guess work), registers hard to read (bad handwriting), revisits were not always registered (took too much time to check the patient's health passport).

5.2.2 Reporting Routines

In Chiradzulu district HMIS data were reported quarterly to the District Health Office and further to the Ministry of Health.

Chiradzulu district had 12 reporting facilities that reported quarterly to the District Health Office on the official quarterly HMIS form. During the fiscal year 2005/ 2006 the reporting status was on average at 65 percent timeliness and 85 percent completeness. Problems of timeliness were due to facilities sometimes delivering up until one week late. This used to result in untimely reporting to the Ministry of Health, but the district had started to rather report on time, but then reporting from the district was not complete. When facilities were late in reporting the District Health Office reminded them both in writing and on radio or telephone.

All aggregated data in clinics and wards were collected quarterly by the district HMIS Officer who also generated the quarterly report for the District Hospital. There was no regular routine for the delivery of reports from Health Facilities to the District Health Office. If someone at the facility had business at the District Hospital they brought the report, traveling by minibus, foot or by a motorbike, if they have one and, if fuel was available. In other cases an employee who lived close to the district hospital might bring the report. This ended however sometimes with the report getting lost.

Quarterly reports should be filled by one person, checked by another and finally approved by the facility In-Charge. All three persons' signature should appear on the report before it was submitted to the District Health Office. Some facilities said the procedure of double checking the report against registers was time consuming and that the task was taken serious. Others however admitted that sometimes the person signing the report was in no position to check it as he or she did not have the required skills to do so. Sometimes the signatures were missing altogether, indicating that no checking had taken place.

The district HMIS Officer entered the quarterly data into the DHIS software and generated a district quarterly report that was sent in text format by email to the Ministry of Health. He checked the reports for odd data that for instance differed from regular time trends. If he had questions on the reported data he contacted the responsible person at the facility. Sometimes when facilities were asked about odd numbers they confirmed what they had reported. When these data were compared to data reported within other programs that had their own reporting forms, it was however sometimes discovered that the facility has reported something different in these reports.

Problems with reports observed included: Odd numbers (e.g. number of households with safe drinking water was differing between months; they reported numbers only from the areas visited that month), confusion related to the use of '0' (cero) and '-' (dash) (both refer to either 'service not provided' or 'no patients seen'), lack of reporting forms, some numbers on community issues were copied from quarter to quarter and not really checked.

5.2.3 Support Structures

In Chiradzulu there were four support mechanisms in place that for one thing was supposed to support the HMIS function. These included; supervision, HMIS-review meetings, HMIS training and feedback. There were no incentive schemes in the district similar to what we found in Chikwawa. The District Health Office did however plan to introduce competition similar to the recognition scheme. They wanted to encourage competition among nurses, among clinical officers, and among facilities to encourage improved performance on several levels.

Supervision

Supervision in Chiradzulu was mainly consisted mainly of integrated supervision by the District Health Management Team and HMIS specific supervision. Programme Coordinators were providing health related supervision only and are not included here.

Integrated checklist– District Health Management Team

The District Health Management Team reported to supervise two health facilities each Wednesday. At the beginning of each year they distributed a schedule so that the facilities were aware of when they would receive a visit. All health facilities were supposed to be supervised by this team twice every three months. The supervision team used the official integrated supervision checklist in addition to a checklist they had developed themselves. The integrated checklist covered some HMIS issues, but supervision on HMIS was reported to be given by the district HMIS Officer in more detail.

The team split up during supervision; the District Health Officer went with the medical responsible, the District Nurse Officer with the responsible nurse, and the District Environmental Officer went with the responsible Health Surveillance Assistant. At the end of the visit the whole team met with all available facility staff to discuss issues that had come up during their visit.

The District Health Office (DHO) planned to introduce cluster supervision as some program coordinators were too busy to go on program specific supervision. Members of the District Health Management Team had been inspired by a visit to Mulanje district where cluster supervision was reported to have been introduced successfully.

HMIS supervision

The HMIS Officer is supposed to supervise all health facilities monthly. He goes through the quarterly HMIS reports before he goes on supervision to prepare questions based on problems identified. On the supervision visit he goes through all registers with the person who is responsible for filling it. He looks for gaps, inconsistencies and checks that all data is filled correctly. When he discovers problems on a visit to a facility he checks for the same on his next visit to look for improvement.

Usually there is however not much improvement between visits. It is suggested that maybe the people he talks to inform their friends (colleagues) about what needs to improve, or they don't bother to improve. Sometimes when the same mistake is repeated between visits some health workers excuse themselves by not having been there on the last supervision. Others use lack of training as an excuse.

HMIS Performance Review

The district was supposed to conduct quarterly HMIS reviews but, because of lack of funding for transport and accommodation for participants, these meetings were only conducted annually. They did however conduct quarterly District Implementation Plan (DIP) meetings. The annual HMIS review meeting in the fiscal year of 2005/2006 was for the first time combined with the annual DIP review. The DIP review is supposed to focus on planning and review of achieved plans, while the HMIS review focus on the reaching of targets on specific indicators. The DIP planning should be based on HMIS data.

Representatives from all 12 facilities participated in addition to the district's Programme Coordinators, Heads of Departments, stakeholders, the District Commissioner and some of his Officials. The main objective of the meeting was to review the activities that were planned for the year, and to evaluate the achievements, strengths, weaknesses, challenges and way forward for the next financial year. The District has 17 Programme Coordinators and Heads of Departments and 11 Health Facilities In-charges who were all asked to present their planned activities in the meeting.

HMIS Training

In Chiradzulu HMIS training was planned by writing proposals to the District Health Officer when there was perceived to be a need for upgrading skills among staff. The District Health Office reported to keep an eye on the quality of registers and reports. When they felt there was a need for either training of new staff or refreshment of existing staff they wrote proposals for training. Because of lack of funding the proposal were often turned down or the target not achieved when plans were approved.

Last training on HMIS reported was provided a year ago. Health facility In-Charge and some key people dealing with registers at the facilities were invited to participate. The aim of the training session was to make the participants aware of the HMIS and teach them how to fill the registers. They also focused on page, day and monthly summaries, how to aggregate the data, and enter the data into the quarterly reports. They reported to train 29 people on their last training event, but the target was 60. The duration of training had also been shortened due to lack of funding.

Feedback

As Chikwawa, Chiradzulu district receive annual or sometimes semi-annual HMIS reports from Ministry of Health, but there was no routines for written feedback to facilities..

The District Health Management Team gives feedback on the spot after supervision. They also meet after supervision visits to discuss responsibilities and to write individual reports for each facility. These reports are however not yet provided to the facilities, but the District Health Officer intends to change this practice. It was however commented by District Health Management Team members that they often end up training staff rather than supervising, and it makes it difficult to actually write a supervision report.

No written feedback is given to the health facilities based on neither the HMIS quarterly reports nor the specific HMIS supervision. When asked about feedback one facility said they had received feedback maybe two or three times. This turned out to be letters from the District Health Office addressed to all facilities in the district requesting missing reports.

District managers also said that facilities ought to get written feedback from the HMIS review meetings but that this did not happen. It was a general observation that the new District Health Officer very much felt the importance of providing facilities with written feedback and he reported that the lack of such feedback had the result that the facilities did not see the importance of HMIS.

5.2.4 Data analysis and information use

The trend in Chiradzulu was that when we asked about data and use of information most health workers related this to the filling of registers. Few were used to discuss quarterly reports and indicators. When asked about registers on the other hand they had plenty of opinions and suggestions for improved use and support. It seemed that most facilities discussed routines related to data collection in registers in monthly meetings at the facility.

The district conducts quarterly District Implementation Plan reviews, and HMIS data are supposed to form the basis for the planning. Most do however not look at data for planning. The district HMIS Officer produced graphs that were meant as background for discussion at quarterly district HMIS review meetings. These meetings were however usually only conducted annually, but he still prepared these graphs for his own use. He monitored key indicators in the district and said he tried to encourage health workers to improve their performance. He also presented his analyses to the District Health Officer and health Program Coordinators who showed interest in his quarterly analyses. Sometimes people got confused when presented with figures, and graphs were produced as they were perceived as easier to interpret.

At the District Health Office they said that HMIS data was sometimes used when there was for instance a disease outbreak. Then they could look for possible explanations, like how many latrines there were in the area etc. Some wards in the District Hospital reported to use their data to assess performance. Some health facilities also monitored selected indicators, for instance trends in Malaria cases to plan for prevention. Up to date graphs on key indicators displayed in health facilities were however rarely observed.

5.3 Job position and HMIS responsibilities

Workers in different positions and in different levels of the health system have different responsibilities related to HMIS. Based on the presentations from the two districts above, some of the most important HMIS duties have been identified. Table 5.3:1 presents my understanding of the responsibilities of different categories of professionals at district level. Similarly, Table 5.3:2 presents responsibilities of different categories of staff at facility level.

Table 5.3:1 Different job positions at district level and their responsibilities related to the HMIS.

<i>Category</i> (job position)	HMIS responsibilities
<i>District Health Managers</i> (District Health Officer, District Nursing Officer, Environmental Health Officer)	<ul style="list-style-type: none"> ▪ Use HMIS data for planning and decision making <ul style="list-style-type: none"> ▪ Facilitate district HMIS review meetings
<i>District Health Programme Manager</i> (Programme Coordinators of specific health programmes, e.g. Tuberculosis, HIV/AIDS)	<ul style="list-style-type: none"> ▪ Use HMIS data for planning and decision making ▪ Monitor health programme performance at district level based on reported HMIS data ▪ Present programme specific analysis based on HMIS data in district HMIS review meetings ▪ Provide supervision to facilities, including on HMIS related to their health programme
<i>HMIS Manager</i> (HMIS Officer)	<ul style="list-style-type: none"> ▪ Enter quarterly reported HMIS data into the DHIS software and report quarterly data to the Ministry of Health ▪ Analyse and monitor key indicators quarterly based on reported HMIS data for the whole district ▪ Provide district managers with quarterly HMIS data ▪ Present district performance on key indicators in district HMIS review meetings <ul style="list-style-type: none"> ▪ Provide HMIS supervision to facilities

Table 5.3:2 Different job positions at health facility level and their responsibilities related to the HMIS.

Position <i>(Category)</i>	HMIS responsibilities
<i>Facility Health Manager</i> (Facility In-Charge)	<ul style="list-style-type: none"> ▪ Responsible for approving the quarterly HMIS reports ▪ Analyse HMIS data as basis for local planning and decision making. ▪ Targeted by HMIS training, supervision and HMIS reviews
<i>Facility Clinic Manager</i> (Nurse, midwife, or Health Surveillance Assistant responsible for maternity or Child Health services in the facility)	<ul style="list-style-type: none"> ▪ See patients and filling the relevant registers if no clerk is available. ▪ Analyse HMIS data to monitor performance of service delivery. ▪ Usually responsible for aggregating daily, monthly and quarterly totals in the registers if no clerk is available (quarterly totals sometimes aggregated by the HMIS focal person). ▪ Targeted by HMIS training and supervision.
<i>HMIS Focal Person</i> ((Senior) Health Surveillance Assistant, clerk)	<ul style="list-style-type: none"> ▪ Aggregate and report quarterly health facility data to the District Health Office. ▪ Analyse and monitor facility performance on key indicators ▪ Targeted by HMIS training, HMIS supervision and HMIS reviews.

<p style="text-align: center;"><i>HMIS staff</i></p> <p style="text-align: center;">(Ward Clerk, Clinical Clerk)</p>	<ul style="list-style-type: none"> ▪ Register information from health passports or ward admission and discharge forms into the corresponding HMIS register. ▪ Usually responsible for aggregating daily, monthly and quarterly totals in the registers they fill (quarterly totals sometimes aggregated by the HMIS focal person). ▪ Targeted by HMIS training and supervision.
<p style="text-align: center;"><i>Health Staff</i></p> <p style="text-align: center;">(Nurse, Health Surveillance Assistant)</p>	<ul style="list-style-type: none"> ▪ No formal HMIS responsibilities ▪ Not targeted by HMIS training, supervision or HMIS reviews.

Most managers in both Chikwawa and Chiradzulu districts were involved with patient care in addition to their management duties. At district level the District Health Officer attended rounds each morning at the district hospital, and the District Nursing Officer stepped in when there was shortage of staff in clinics or wards at the hospital. At facility level, patient care probably even took up more time for facility In-Charges than management duties. To all managers, HMIS related work was supposed to support their management duties of planning and decision making. Health workers responsible for either ward or clinics had similar responsibilities as facility managers as they would both collect data, and monitor performance of that specific facility, clinic or ward.

Some health workers had as their only duty to attend to patients. HMIS related work was in these cases only conducted when there was a lack of other qualified personnel and mostly included filling registers to document patient encounters. It is difficult to see how this HMIS related work could directly support the work of those health workers, as the data collected were mainly supposed to be reported upwards to support management activities. But plans and decisions made by managers based on the collected information would of course eventually affect the health workers' work of patient care.

HMIS Officers, ward clerks, and clinic clerks had HMIS responsibilities as their primary work duties. As with health workers, this work was still in support of the work of managers, but these duties were the primary focus of people in these positions. Usually the HMIS focal person was a health worker with additional responsibilities related to HMIS, but this responsibility was also sometimes given to a clerk at a rural health facility.

6. Analysis of HMIS related work

In this section I analyse the different types of HMIS related work duties described in chapter 5.3. The reviewed theories on motivation to work, as well as the reviewed literature on health worker motivation, address motivation related to a worker's primary work duties. The primary work of a health worker is for instance to care for patients. Information systems and most computing work serve however usually as a tool or resource to support other work (Gasser 1986). In some cases HMIS related work are a worker's primary duties, while in most cases they are secondary routine duties performed to support the work of others workers, mostly managers. In order to analyse motivation towards HMIS related work, it is necessary to know more about the kind of work this is.

I have adopted Gasser's analytical framework for analysing computing and routine work. Central concepts in this framework include task chains, production lattices, and work situations, fitting, augmenting, and working around. In the following section I use Gasser's definitions of *primary work*, *articulation work*, and *computing work* to define the different nature of the different HMIS related work duties.

6.1 Type of Work

Although not all HMIS routines in the districts were computer based, Gasser's definition supports the fact that HMIS related work can be defined as computing work by including any activity that contributes to producing computing or activities in which computing or computer based information is used as a resource. In Table 6.1:1 I defined some shared characteristic of some of the different categories in their relationship to the HMIS.

Table 6.1:1 Categories of workers with HMIS responsibilities, and the nature of their relation with the HMIS

Job Category	Nature of HMIS responsibilities
<i>District Manager</i>	HMIS responsibilities support their work as managers
<i>HMIS Manager</i>	HMIS responsibilities both support their own work as well as supporting Health Managers' work
<i>Facility Manager</i>	HMIS responsibilities support their work as care providers as well as supporting HMIS-, and Health Managers
<i>Health Staff</i>	No formal HMIS responsibilities
<i>HMIS Staff</i>	HMIS responsibilities support HMIS-, Health-, and Facility-Managers' work

In Table 6.1.2 and 6.1:3 I attempt at identifying the relationships between HMIS tasks, and Gasser's type of work, for each task of the different categories of workers. In summary it can

be said that the HMIS responsibilities take different forms for different categories of workers.

Table 6.1:2 District level HMIS tasks associated with category and Gasser's types of work.

Work tasks (HMIS task chain)	District Manager	HMIS Manager
<i>Planning and decision making based on HMIS data</i>	Primary (articulation) work that includes computing	
<i>Participate in HMIS review meetings</i>	Articulation work	Primary articulation work
<i>Supervise on HMIS activities</i>	Articulation work	Primary articulation work
<i>Provide in-service training on HMIS</i>		Articulation work
<i>Provide managers with HMIS data</i>		Primary (articulation) work
<i>Analyse HMIS data to monitor performance on key indicators</i>	Articulation work that includes computing	Primary work that includes computing
<i>Report quarterly district HMIS data to the Ministry of Health</i>		Primary work that includes computing
<i>Verify reported HMIS data at the district level before submitting to the Ministry of Health</i>		<i>Augmenting work</i>
<i>Enter quarterly reported HMIS data into the DHIS software</i>		Articulation (computing) work

Table 6.1:3 Facility level HMIS tasks associated with category and Gasser's types of work.

Work task (HMIS task chain)	Facility Manager	Health Staff	HMIS Staff / HMIS Focal Pers.
<i>Local planning and decision making based on HMIS data</i>	Primary (articulation) work that includes computing		
<i>Participate in HMIS review meetings</i>	Articulation work		Primary (articulation) work that includes computing
<i>Participate in in-service HMIS training</i>			Articulation work
<i>Provide managers with HMIS data</i>			Primary (articulation) work
<i>Analyse and monitor facility performance on key indicators</i>	Articulation work that includes computing		Primary work that includes computing
<i>Submit quarterly report to the District Health Office</i>			Primary (articulation) work
<i>Approve the quarterly report at the facility before submitting to the District Health Office</i>	Articulation work that includes computing		

<i>Verify quarterly report at the health facility</i>	Articulation work that includes computing	Augmenting work that supports articulation work of managers	Primary work that includes computing
<i>Enter quarterly data into the HMIS report at the health facility</i>			Primary work that includes computing
<i>Aggregate quarterly register data at the health facility</i>	Computing work that supports articulation work	Augmenting computing work that supports articulation work of managers	Primary work that includes computing
<i>Aggregate daily and monthly totals in the registers.</i>	Computing work that supports articulation work	Augmenting computing work that supports articulation work of managers	
<i>Enter patient information into the HMIS register.</i>	Computing work that supports articulation work	Augmenting computing work that supports articulation work of managers	

6.1.1 District Managers

Primary work

To most managers articulation work is their primary work, like coordinating the work of others and to plan how to distribute resources etc. No HMIS routines are primary work of Health Managers, but the idea of the HMIS is to:

...improve the health status of the people by providing reliable, relevant, up-to-date, adequate, timely and reasonably complete information for health managers at community, facility, district and national levels and through increased effectiveness and efficiency of health services. (HMIS Policy Malawi 2003)

The primary work of planning was supported by computing when HMIS data was employed as a resource for decision making.

Articulation work

As explained by Gasser managers' primary articulation work may sometimes need the support of other articulation work. This articulation work may consist of resolving conflicts among subordinates, or computing work like analysing data as basis for planning. Other examples include Health Managers participating in HMIS review meetings to support other workers in the understanding of their HMIS responsibilities to improve quality of HMIS data.

Adaptation work

Due to the in many cases poor quality of data, the incompleteness of reporting, and reporting not being often enough Health Managers had to resolve to working around HMIS. In most cases Health Managers at district level relied on parallel systems to monitor performance and make plans. These systems were usually supported by vertical health programmes funded by non-governmental organisations, and thereby had a better fit between computing resources and the work they were intended to support. Health Surveillance Assistants had in many cases received training to perform the needed documentation, and money was allocated for resources required for better quality and higher frequency of reporting by these organisations. The issues of parallel reporting systems are discussed in Miss Galimoto's thesis.

In some cases however, managers district level avoided employing data as a resource for planning and decision making altogether due to a lack of understanding.

6.1.2 Facility Managers

Primary work

Primary work of facility managers included both patient care and some articulation work of managing resources and people.

Articulation work

Articulation work of facility managers would include monitoring facility, clinic or ward performance. They were also often responsible for filling registers corresponding to the services they provide in the ward of clinic, and this could be defined as articulation computing work supporting the articulation work of monitoring performance. Articulation work supporting this articulation computing work would include participating in in-service training and receiving supervision and possibly attending HMIS review meetings if the health worker was also the HMIS focal person.

Adaptation work

Facility managers also sometimes avoided employing data as a resource for planning and decision making due to a lack of understanding.

6.1.3 HMIS Manager

Primary work

To the HMIS Manager most HMIS responsibilities were primary computing work like analysing performance on key indicators. Primary articulation work included reporting to the Ministry of Health and providing managers at district level with HMIS data.

Articulation work

Entering quarterly HMIS data into the DHIS software could be seen as articulation computing work as it supported the work of analysing indicators that was primary work for the HMIS Manager. Articulation work also included supervising facility staff on HMIS and facilitating HMIS review meetings.

Adaptation work

Many of the routine activities performed by the HMIS Manager could be termed augmenting work as verifying and revising the consistency of reported data, consolidating data source in the case of odd numbers, and conducting in-service training of unqualified staff takes up much time. The HMIS Manager does in Gasser's terms do additional work to make up for the misfit between the actual HMIS computing in the district and the work that the HMIS computing is supposed to support.

HMIS data quality, as reported earlier, is in many cases quite poor and reported data do sometimes not match data reported in parallel systems. There are also high numbers of staff that has no pre-service training or adequate in-service training on how to conduct their HMIS responsibilities satisfactorily. The augmenting work of the HMIS Manager is with no doubt extremely important to the functioning of the HMIS.

6.1.4 HMIS Focal Person / HMIS Staff

Primary work

HMIS Staff in the districts included facility HMIS focal persons, ward clerks and clinical clerks. Their primary work was filling registers and aggregating daily and monthly totals. Usually the HMIS focal person, if one existed, aggregated the quarterly totals and was responsible for filling and submitting the quarterly HMIS report.

Articulation work

Articulation work supporting this primary work would include participating in in-service training and HMIS review meetings, and receiving HMIS supervision. Articulation work supporting managers included providing them with analyses of performance on key indicators important in the catchments area.

Adaptation work

Clerks reported that sometimes it was difficult to read Health Passports filled by the person seeing the patient. Sometimes the diagnosis was missing in the health passport or the clerk didn't recognise it and didn't understand what disease code would be correct. Often this resulted in clerks guessing what was written or what disease code it belonged to. In other cases they simply omitted registering all details on each patient. Another example was that some HMIS staff didn't register revisits as they thought it took too long to check the patient's health passport to see if it was a revisit on the same diagnosis. They also very often omitted aggregating daily and monthly totals. These strategies to work around the system could be due to a lack of understanding of the importance and usefulness of the data collection but it also reflect lack of computing resources like lack of medical understanding, lack of computing skills, too heavy workload. All these issues justified dealing with the situation in what might be argued to be rational under the circumstances.

There were also examples where false data was entered into the HMIS quarterly reports. Very often numbers on environmental issues were simply being copied from the last report as they did not understand or know where these numbers were retrieved in the first place. In other instances numbers were just made up for the sake of reporting, as they did not really think the reporting was important. One Health Programme Manager actually said that he did not trust reported data from facilities because facility staff only saw district managers as fault finders and did not care to report truthfully. In some cases however, reporting odd numbers seemed to make sense. Again on some environmental issues, they were supposed to report for instance number of functioning 'san plat latrines'. One clinic only reported the number of latrines checked that quarter, resulting in very different numbers reported each quarter. The reporting did simply not reflect the total situation in the catchments area at any given time. The rationality of the action is however obvious, as the only other option would be to report numbers they did not know to be correct as they did not have the resources to check every latrine every quarter.

6.1.5 Health Staff

Primary work

Health staff, that were neither HMIS focal person nor responsible for a ward or clinic, usually had no formal responsibilities on HMIS. Primary work included providing health services.

Articulation work

Health staff that was not formally involved in HMIS routines was not targeted by HMIS in-service training, HMIS supervision, or HMIS review meetings.

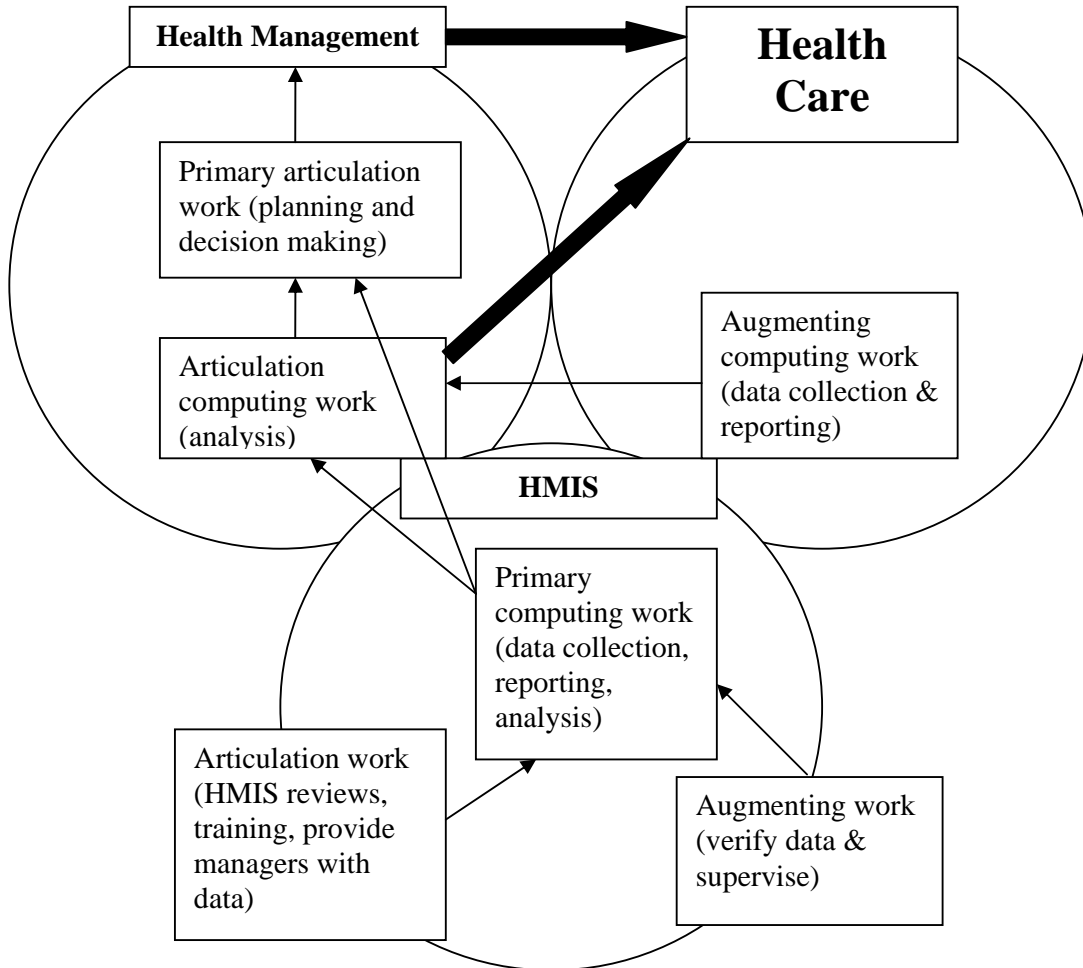


Figure 6.1:1 Nature of relationships between HMIS, Health Management and Health Care at facility and district level. Arrows indicate the work supported, the bigger arrows indicate the main goal of work.

Adaptation work

Health staff without any formal responsibilities on HMIS did in many cases have to fill registers anyway. If a clerk for instance was intended to fill registers in a clinic or ward, health staff had usually not been targeted for training. In the absence of this clerk however, either due to 'being on leave', being sick, being overburdened with other duties or having left the position, untrained health staff would have to fill the registers. In other cases health staff with no training or understanding of analysis and use of HMIS data also had to replace the duties of facility health managers in their absence. In both cases this resulted in

augmenting work of health staff by taking on additional work to make up for undersupply in computing resources, namely qualified staff.

Undersupply of trained personnel was the most important problem, but also the lack of understanding of the purpose of the system among staff that had some computing skills. Examples of working around the filling of registers included avoid filling registers at all because they did not understand how or why. Others could fill some information but leave out for instance diagnosis and treatment making the recorded information useless. There were also examples of the aggregation of totals in register where information that was not entered into the register was included based on 'memory'.

Verification of reports was often omitted because nobody was in the position to actually verify the report. Very often however, the signature indicating that the report had been verified was added anyway.

7. Analysis of motivation and demotivation

In this chapter empirical finding related to motivation and demotivation in this study are presented and analysed according to the proposed theoretical framework. Related findings identified through literature studies are included to support my analysis. Both empirical evidence and findings based on document analysis are included, and findings from both Chiradzulu and Chikwawa districts are combined. The intention is not to compare the two districts, but rather to benefit from the differences observed as a wider base for analysis.

I draw upon motivational theory for my analysis, more specifically the terms of motivation and demotivation from Herzberg et al. (1993) and the themes within the six categories of good and bad critical incidents described by Machungwa and Schmitt (1983). The following presentation is arranged according to these six categories, and for each category the frequency of mention of the associated themes is presented graphically. Graphs are prepared based on the frequencies reported by Machungwa and Schmitt (1983) as presented in chapter 2.3.1.

7.1 Growth and advancement opportunities

In this section issues related to growth and advancement opportunities are presented and analysed. Figure 7.1:1 illustrates the frequencies of mention of themes related to this category as reported by Machungwa and Schmitt (1983).

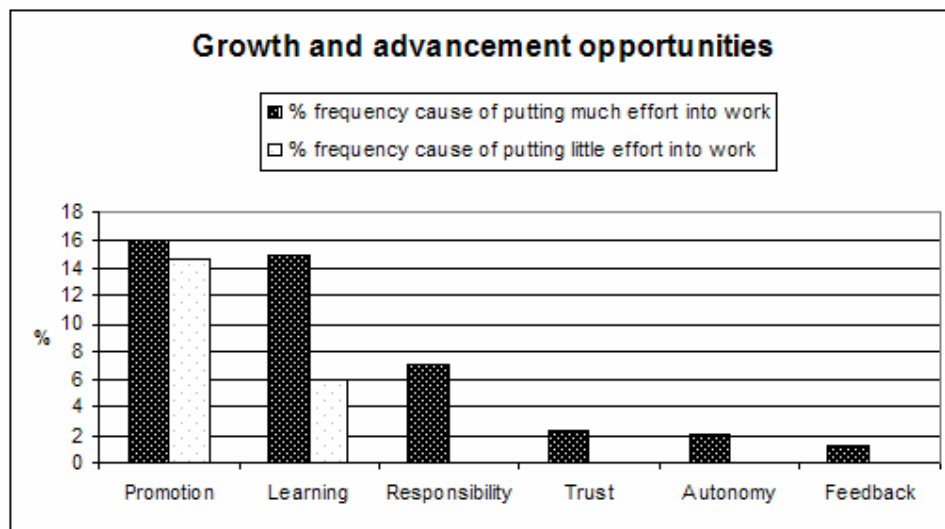


Figure 7.1:1 Issues related to growth and advancement opportunities mentioned as critical incidents for employees to put much or little effort into their work (Machungwa and Schmitt 1983)

7.1.1 Promotion

The motivating aspect of promotion relates to being promoted or having a fair chance for promotion (Machungwa and Schmitt 1983). When chances for promotion are very unlikely this is considered demotivating and can result in decreased efforts at work.

Issues of promotion were reported by the South West Zonal Health Support Office (SWZHSO 2006) as being a consistent problem in the zone's district hospitals (Figure 7.1:2). Many staff members were overdue for promotion and the zonal office heard on several occasions about how this caused frustration and dissatisfaction with the job.

Staffing Issues	CK	CZ	MW	NS	TO
Is staff in uniform, clean & presentable	X	√	√	√	X
Is there a file that contains all JDs of staff	√	X	?	X	√
Are JDs up to date	√	X	?	X	√
Is there a staff training plan	√	√	X	X	X
Is there an up-to-date nursing duty roster	√	√	√	√	√
Is there an up-to-date clinician duty roster	X		√	√	√
Is there a performance appraisal system	X	X	X	X	√
Are staff returns for the district up-to-date	X	√	?	X	√
Is any staff overdue for promotion	√	√	?	√	√

√ Means "YES"
 X Indicates "NO"
 ? No data available

Figure 7.1:2 Staffing issues reported by the Zonal Health Support Office in the South West Zone (SWZHSO 2006) (CK – Chikwawa, CZ – Chiradzulu).

Muula and Maseko (2006) reported from Malawi that although access to further training could be a motivating factor, health professionals that had acquired additional qualifications required appropriate recognition for their achievement by being promoted. In several instances this expected recognition was however not met and frustration and resentment could result in the health professional leaving the sector. Mathauer and Imhoff (2006) also reported from Benin and Kenya that professional progress ranked high among the professional objectives of health professionals. Both training and professional progress was argued to nurture health worker's personal objectives and their value systems, and could be important motivational determinants.

In addition to the demotivating effect of being overdue for promotion, it is of relevance in this study however that promotion of health professionals with HMIS responsibilities often seemed to lead to a loss in competence on HMIS. The majority of workers involved with HMIS work were primarily health workers. With the lack of pre-service HMIS training and the high number of unqualified staff in the sector chances were that less qualified personnel

would take over the HMIS responsibilities, as HMIS work was presumably not a priority under these circumstances. It was expressed by the Health Management Information Unit at the Ministry of Health in Malawi that a career path for HMIS staff was necessary in the health system. In the case of promotion of health workers with key responsibilities on HMIS work it seems the need for some stability towards HMIS related work could be ensured by having some dedicated HMIS staff in all facilities.

From Figure 7.1:1 we can see that according to Machungwa and Schmitt (1983) lack of promotion has a high potential for causing workers to put extremely low efforts into their job. The corresponding high positive potential for increasing efforts at work, if being promoted or at least having a fair chance for promotion should make this a priority issue in the human resource management of both health staff and HMIS staff. It is likely that in the case of promotion the motivating and demotivating effects would be similar for both HMIS workers and health workers, as both categories are likely to appreciate recognition and achieving a higher status through a fair chance for promotion.

The current lack of a fair career path for HMIS staff might potentially lead to a demotivation towards HMIS duties as there was no where to go from there if effort was put into improving HMIS related skills. In one district for instance a clinical clerk was promoted to messenger and did no longer have responsibilities related to HMIS.

7.1.2 Learning

The chance to learn more about the job or the chance for further training is associated with motivation (Machungwa and Schmitt 1983). Lack of such opportunities is associated with demotivation, although to a lesser degree. At facility level in both districts in this study the desire to learn more was the most frequently mentioned issue related to HMIS.

The existing mechanisms present in the districts that could support learning included training, review meetings, supervision and recognition scheme task force meetings. These structures seemed to hold key potentials to increase motivation towards HMIS work through the opportunity to learn new skills and gain new knowledge and understanding.

HMIS training

Formal HMIS training in Chikwawa was more regular than in Chiradzulu, usually reaching the targets for number of staff trained. HMIS training was rarely mentioned when Facility Managers and HMIS Staff were asked about how data quality and reporting could be improved, reflecting what in retrospect could be perceived as close to sufficient amounts of training. In facilities where there was a lack of staff however, and where health staff not targeted by training had to perform HMIS duties, the problem of lack of training was present.

It was not until arriving in Chiradzulu however that the importance of HMIS training became truly evident. The high frequency of mentioning lack of training as a problem included both Facility Managers and HMIS staff. This was further illustrated in the general differences in level of understanding of HMIS issues between the two districts and it was evident that the lack of training in many cases resulted in low moral towards HMIS duties.

Most HMIS Workers and Health Staff in Chiradzulu expressed a need for both basic training and refreshment on HMIS. Facility Managers found it difficult to orient new staff on their own, as some of them refused to be oriented when they had not received formal training and allowances.

“I am worried about my friends (staff) because they have not received any training, (...) I am the one training them but I need more help.” (Facility Manager)

Another Facility Manager who had received training reported similarly that other staff was not motivated to aggregate reports since she was the one that had received the training.

“They say ‘you are the one who went for training so you should do it!’”

In Chiradzulu Health Staff also expressed a need to learn how they could use collected data in order to understand why data was collected. One HMIS focal person expressed that:

“The others (health staff) are not interested in the (quarterly HMIS) reports.”

A health staff member responded that the lack of interest was:

“(...)because we do not understand how we can use it!”

These issues are further illustrated by Chunda (2006) who showed that only 36.4 percent of the respondents in his study had knowledge about HMIS from formal training in Chiradzulu district. 6.2 percent of these respondents had no knowledge about HMIS at all, while 31.8 percent had learned about HMIS through meetings, and 14.7 percent through their own personal effort (Chunda 2006). In Lilongwe district 52 percent of the respondent in Moyo’s (2005) study had taken part in the initial HMIS training that took place in 2001, but no organised refresher course was given since.

District Managers acknowledged that one problem with only training a few people at each facility (usually two or three) was that often these individuals either didn’t share their new knowledge with the others at the facility or they left the position.

HMIS review meetings

In addition to formal HMIS training, respondents in Chikwawa said that cluster HMIS review meetings were very helpful.

In HMIS review meetings Facility Managers and HMIS staff could get helpful feedback, and discussing with other facility members was perceived to be helpful. When asking respondents if these meetings could be improved, they expressed a need to discuss more details about the quarterly reports with district level representatives to clarify how to fill some of the data elements correctly. It was also expressed a desire for feedback on gaps etc. in the reported data, in order to learn from their mistakes.

District Managers in both districts expressed that the HMIS review meetings had the potential to function as on-the-job training and as an ‘eye-opener’ to health workers, and that participating was encouraging especially to new staff members.

Supervision

Supervision in Chiradzulu and Chikwawa suffered from many shortcomings, but despite this most respondents said that supervision was still helpful, and requested in general more frequent visits.

To the extent that supervision is used to communicate a facility's goals and that it takes into account of health workers' personal goals and needs, supervision is reported in the literature to strengthen goal coherence and motivation among health workers (Mathauer and Imhoff 2006). Randomised trials have also shown that supervision can improve performance, at least in the short term (Rowe et al. 2005) and if correctly done, it could be a mechanism for providing professional development and thereby improve health workers' job satisfaction (MSH 1998, Rowe et al. 2005). And even despite shortcomings, health workers in Kenya and Benin considered supervision useful and desirable to the extent that it helped improve personal performance, helped to avoid making mistakes and it helped to update knowledge (Mathauer and Imhoff 2006). As argued by Rowe et al. (2005) supervisors are increasingly becoming the only contact that rural health workers have with the decentralised health system, and Malawi is no exception. That is why the HMIS review meetings also seem to serve as an important forum for meeting supervisors for discussion and learning.

Lack of shared information

Respondents at facility level in both Chikwawa and Chiradzulu districts seemed to appreciate meetings where health information was discussed. Facility staff reported however that district managers usually only met with a few individuals on their visits to the facility and information about what had been discussed was usually not shared with the other staff members. This was expressed to be very discouraging.

There were also examples of facility representatives going away on meetings and not sharing new knowledge when they returned to the health facility. For instance in one facility one Facility Manager had attended two task force meetings for the recognition scheme, but new knowledge about how to fill quarterly reports correctly in order to be rewarded had not been shared with other staff members. In this case both HMIS staff and other health staff who were motivated by the prospect of winning a reward for good reporting, was however frustrated with the lack of knowledge about how to achieve this.

Any meeting where HMIS data were discussed seemed to offer an important opportunity for transfer of knowledge and personal motivation in this study. It was also expressed that meetings were appreciated as a forum for health workers to report challenges and problems to the district level, and to get advice from district management.

The majority of health workers in the reviewed literature are reported to highly appreciated training opportunities (Dieleman et al. 2003, Dieleman et al. 2006, Mathauer and Imhoff 2006). In Mali training scored above average as a motivating factor for health workers (Dieleman et al. 2006) and nearly all health workers asked in Kenya and Benin mentioned that they felt more comfortable and confident with their work after training (Mathauer and Imhoff 2006). Some 20 percent of the respondents in Kenya and Benin also mentioned increased interest and work commitment and this suggest considerable effects of training courses on motivation (Mathauer and Imhoff 2006). Most participants in the study in Viet Nam (Dieleman et al. 2003) said that they were not interested in changing position, but that

they found upgrading their knowledge regularly through training very important. Muula and Maseko (2006) also reported that many health professionals in Malawi valued access to further training.

Increased training opportunities seem to have the potential to motivate health workers also related to HMIS. To what extent training can motivate to increase efforts is uncertain, but it seems that it will help prevent low morale towards the HMIS. Findings from Chikwawa compared to Chiradzulu seem to support this assumption. In Chiradzulu there were problems of conducting training regularly, and they reported to only reach half their target for numbers trained on the last training session. The majority of respondents in Chiradzulu expressed the need for formal training as the most important measure to facilitate improved performance on HMIS in the district.

In Chiradzulu respondents did not refer to briefing on the job as training. They expressed a need to go somewhere outside the clinic for proper training. This could both have to do with a general need for formality and seriousness, but also the fact that if you go away for training you will get allowances that is an attractive way of complementing low salaries. In Viet Nam Dieleman et al. (2003) found similar attitudes that continuing education was by both managers and health personnel translated into “training”, and that updating knowledge was only really considered when it was through formal training (Dieleman et al. 2003).

The need for training in Malawi is extensive due to the large amount of unskilled health workers with no formal degree or diploma (Hornby and Ozcan 2003). The short term solution to the staff shortage problem in the country has been to introduce large numbers of new staff with limited training and skills (Health Surveillance Assistants) to fill the gap left by losses of more skilled staff (Hornby and Ozcan 2003). The difficulty of managing and supervising these staff is argued to be magnified with a likely diminishing drop in actual staff activity and performance (Hornby and Ozcan 2003).

Hornby and Ozcan (2003) suggests that identification for training needs in Malawi should be provided by the districts on annual basis and should be determined by annual planning objectives (Hornby and Ozcan 2003). This seems to be the reason for success in Chikwawa where annual training on HMIS is planned for in the District Implementation Plan, and equally important, these plans are realised. In contrast, the problem in Chiradzulu seemed to be the inability to realise approved plans for training within the provided budget.

According to Machungwa and Schmitt (1983), learning has a greater potential for increasing efforts at work than the lack of training has for decreasing efforts (Figure 7.1:1). Findings in this study may suggest that in the case of HMIS work, particularly for health staff that is not targeted by training, the potential for demotivation as a result of lack of training seems high.

7.1.3 Responsibility

The motivating aspect of responsibility is associated with the job allowing you to take responsibility and the chance to be able to make decisions (Machungwa and Schmitt 1983). A lack of chance to take responsibility is however not identified as a cause for decreased effort at work.

Respondents in Chikwawa reported that they benefited from increased focus on data collection and reporting, as it made them more aware of monitoring trends and detecting problems. This indicates that they acknowledge a responsibility for their own performance on service delivery. In meetings observed in this study it was encouraging to see that some Facility Managers and HMIS staff had put considerable work into analysing data and preparing graphs. It was however reported by HMIS Managers that some facility staff did not feel that it was their duty to report. They didn't understand the importance of collecting data and report and they thought it was only for the Ministry of Health. As a result they didn't feel responsible. Based on observations in this study this lack of a feeling of responsibility towards HMIS duties presumably reflects a lacking opportunity to learn.

Moyo (2005) reported from his study in Lilongwe that 33 percent of the respondents were motivated to use HMIS to generate data that helped them identify issues and problems in service delivery. Another 25 percent were motivated by the availability of data for decision making Moyo (2005).

Issues related to responsibility are in some literature reported to score high as motivating factors for health workers (Dieleman et al. 2006). There are arguments for institutionalising participation of health workers, e.g. by holding regular meetings in which health workers not only share ideas and suggestions for improvements, but in which health workers ultimately participate in decision making on issues that concern their work and their immediate work environment (Mathauer and Imhoff 2006). Respondent's in Kenya and Benin indicated for instance that the relevance of participation in meetings consisted in sharing one's views and knowledge of a situation or of a problem oriented solution, and to be involved in decisions that concern oneself or to react where necessary in order to avoid frustration (Mathauer and Imhoff 2006). According to Mathauer and Imhoff (2006) this appealed to their need to be taken seriously and had important implications for motivation.

The desire expressed to be included in meetings where HMIS was discussed with district management might also indicate a concern for being deprived of important information and insights. It could also indicate a desire to participate and be able to express opinions that could be of importance in decision that concerned their work. The issue of a feeling of responsibility seems to be worth attention for its potential for motivation (Figure 7.1:1) and increased efforts at work.

7.1.4 Trust

Trust and confidence shown by supervisors and co-workers can be associated with increased motivation (Machungwa and Schmitt 1983). Although not discussed specifically with any of the respondents in this study, related issues are covered in chapter 7.4 on relations with others.

7.1.5 Autonomy

Motivation is associated with the job conditions allowing some autonomy (Machungwa and Schmitt 1983).

The decentralising of the public health service in Malawi puts new demands on the management of health service and requires district health staff to have management skills that has earlier not been important (Hornby and Ozcan 2003). It is argued that the dispersal of responsibility to provinces and districts will require enhancement in the training of existing managerial staff as well as the introduction over time of professional managers to train within the health service.

7.1.6 Feedback

Although not very frequently mentioned, corrective feedback can be associated with increased efforts on the job (Machungwa and Schmitt 1983).

Supervision was reported by respondents in both districts in this study to function as corrective feedback as it created awareness of where they needed to improve. Facility staff perceived this as positive when they also learned how to improve. Written feedback based on supervision was rare, although respondents said they were supposed to get it. Most respondents reported however that they got oral feedback on the spot after supervision sometimes, and that specific issues were discussed. It was expressed a wish to also receive such feedback in writing as it was easy for them to forget some details after the supervisor had left.

According to Moyo (2005) a facility who had submitted a quarterly report to the District Health Office expected feedback, either written or verbal. 95 percent of the respondents in Lilongwe reported that they had not received written feedback from the District Health Office, and 67 percent of those did expect such feedback (Moyo 2005). Chunda (2006) reported from Chiradzulu that 57 percent of the respondents said they didn't get feedback on reported HMIS data while 33 percent said they did. 80 percent of those who didn't receive feedback also reported to be negatively affected by not receiving any feedback (Chunda 2006). In Chunda's (2006) study 43.6 percent said that feedback was mainly provided through supervision.

The problem of not giving feedback was acknowledged by District Managers in this study, and was reported to result in staff not seeing the value and importance of information.

Health workers need feedback to see the importance of the HMIS and to be encouraged to report. (District Health Manager)

Instead health workers were being pressed to report without getting any feedback. As in the case of supervision it is likely that the importance of feedback was related to the possibility to learn, as well as receiving recognition for work done. Findings in this study suggest that corrective feedback may have a higher potential for motivation than what is suggested by Machungwa and Schmitt (1983). Again the high number of unqualified health workers and the lack of real learning opportunities might be possible explanation for this.

7.2 Work nature

In this section issues related to work nature are discussed. Figure 7.2:1 illustrates that themes related to work nature according to Machungwa and Schmitt (1983) have a much higher frequency of causing motivation to work hard, than decreasing efforts at work.

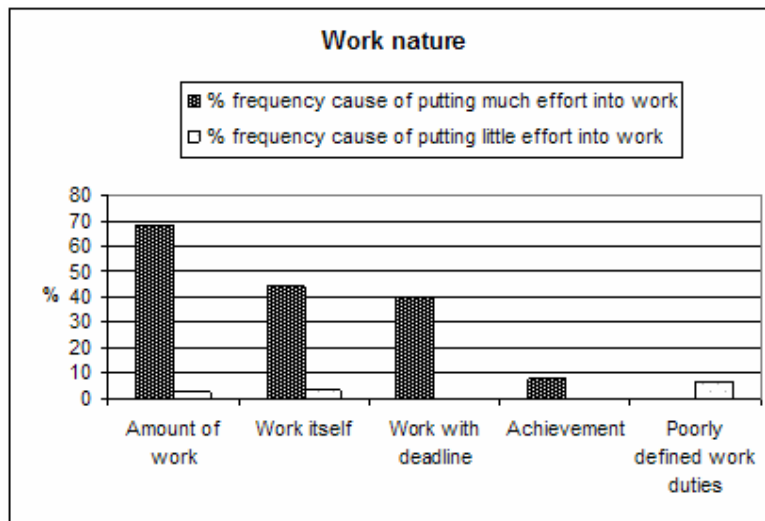


Figure 7.2:1 Themes related to work nature based on findings reported by Machungwa and Schmitt (1983).

7.2.1 Amount of work

Positive incidents related to amount of work includes to have a sufficient amount of work to do that is difficult but not too difficult (Machungwa and Schmitt 1983). Demotivation occurs if one is assigned too much or too little work that is either too difficult or too easy. From findings in this study issues related to amount of work came up as a problem of too much, and sometimes too difficult, work.

Too much work

One District Manager reported that data in his district was reliable but not good enough due to overburdened health workers. Health Surveillance Assistants, who often had Facility Manager responsibilities related to child health services, was argued to have too many responsibilities within different health programs, in addition to not having been properly trained to handle data. It was also argued that HMIS focal persons in health facilities should not be overburden with too many other duties if data quality was to be improved.

Respondents in health facilities also reported to have difficulty filling register when there was not enough staff on duty. HMIS staff also reported that in their absence untrained health staff would have to fill the registers.

In one hospital ward it was observed a pile of admission and discharge forms that had not been collected due to that the ward clerk was too busy with other duties. According to health

staff in this ward forms had not been collected for the last two months. This meant they could not refer to any register if they needed data for their own planning and they had therefore started to fill the paper based registers themselves. Staff was however not trained in data collection, and they acknowledged that there were a lot of mistakes and gaps. They needed however these data to plan for ordering of medicines and other medical supplies for the delivery of their services.

Problems of reporting from facilities were also by district management argued to sometimes be because facility staff had too many other duties and did not have time to give priority to reporting. This is supported by how much time the compilation of a report was reported to require in this study. A Facility Manager, who had received 3 days of HMIS training and refresher courses later and who expressed no problems in filling registers and compiling quarterly reports, reported however that it was very time consuming. She said she spent two to three days every quarter aggregating all the numbers. Similar findings appeared in both districts in this study, and are supported by findings from Lilongwe. Moyo (2005) reported that 38 percent of the facilities spent one or two days preparing quarterly reports, while 33 percent of the facilities indicated that it took at least five days.

These findings reflect the fact observed that while registers were filled during patient encounter, daily and monthly summaries of the data were mostly aggregated quarterly. This left a tedious and fault prone process to the end of each quarter. Again findings from Lilongwe showed that only 33 percent of the facilities had page summaries in their outpatient registers and only five percent had aggregated monthly totals (Moyo 2005). The majority (63 percent) of the respondents in Chunda's (2006) study in Chiradzulu also reported that data collection was a burden, mainly due to shortage of staff. In Lilongwe 35 percent of the respondents also indicated that they found it demotivating that the HMIS was too involving because of too many and long reporting forms (Moyo 2005). In Muula and Maseko's study (2006), health professionals in Malawi also reported to take up responsibilities that were beyond what their training and/or experience had equipped them for and this was reported to easily lead to frustration and burn out.

HMIS Managers also had to delegate work to other District Managers or HMIS staff due to too many responsibilities. Often these duties were delegated to HMIS staff that were already overburdened and as a result failed to perform duties at facility level. District Managers who were also cluster supervisors had decided to only go on quarterly supervision visits in Chikwawa due to an already heavy workload. Two cluster supervisors also reported not to attend cluster HMIS review meetings because of too many other duties, although at least one of them acknowledged the importance of supervisors attending these meetings.

Too difficult work

An example of work that was sometimes too difficult relates to the verification of quarterly reports at the facilities before submitting to the district. In some facilities respondents admitted that the reports were not always really verified, although signed, as the one verifying the report sometimes didn't even know how to fill the report in the first place. Moyo (2005) reported similar findings from Lilongwe where 25 percent of the facility In-Charges indicated that the facility did not undertake quality checks of reports due to lack of appropriate training and procedures to carry out such checks.

Health care workers working at primary health care facilities experiencing heavy workload paired with staff shortage is reported by other authors (Manongi et al. 2006) and is not unique to Malawi. According to Manongi et al. (2006) multitasking by unqualified primary health care workers was a major problem for the quality of service delivery in Tanzania. Similarly it can be argued from the findings in this study that what I in Chapter 6 termed ‘augmenting work’ of health staff, which had not been trained in HMIS routines, results from lack of qualified HMIS staff. This leaves too much and too difficult work for health staff on duty. District Managers even reported that staff in some facilities sometimes just collected data without even knowing where to send it, so they just kept it.

Heavy workload coupled with lack of qualified staff and a generally poor understanding of the usefulness of the system is not a fortunate combination for the quality and functioning of any information system. Literature on motivation and commitment in information systems use reports that the immediate pressure of daily tasks will tend to dominate workers decisions on how they allocate their time (Orlikowski 1992). When this in addition relates to work that is either supposed to support other work, or even the work of other staff, the problem of motivation get even more complicated. Boddy et al. (2005) argue that it is necessary to create conditions in which those affected by information systems see the system as being in their interest for them to be willing to make the effort to use it.

Findings in this study suggests that in the case of health workers motivation towards HMIS duties, amount of work is rather a bad critical incident on motivation, as opposed to positive as presented in Figure 7.2:1 (Machungwa and Schmitt 1983).

7.2.2 Work itself

Good critical incidents related to work itself refers to work that is interesting and challenging, or work perceived as important and offering variety (Machungwa and Schmitt 1983). Work associated with negative incidents relate to work being boring and unimportant.

Most District Managers and Facility Managers in this study realised the importance of the HMIS and used to varying extent the collected information to monitor performance of service delivery. In health facilities where there was a general understanding of how aggregated data could be useful locally there was also usually a better understanding of the importance of quarterly reporting. In these cases HMIS staff proudly showed us their graphs and was eager to discuss the reporting forms and how they could be improved.

It was however on several occasions obvious there were exceptions. One Facility Manager, who had been 3 months in service, had never seen the quarterly report before our visit. Although HMIS register data was discussed at the facilities’ monthly meetings, the aggregated data from quarterly reports had never been mentioned. The Facility Manager responded ‘no’ when asked as to whether or not she thought the aggregation of the report was useful to the facility.

Moyo (2005) reported that 60 percent of the facilities in Lilongwe never discussed quarterly reports in their management meetings. This indicates that the work of aggregating reports in many facilities was not seen as important to the planning of their services. Chunda (2006) reported similar findings from Chiradzulu where more than half of the respondents (54.5 percent) said that they did not have HMIS review meetings at their facility, and of those with

no such meetings 70 percent said they were negatively affected by not having such reviews (Chunda 2006). This lack of perceived importance of HMIS related work was also reported by the Zonal Health Support Office that reported that HMIS trained staff members were often assigned to other duties, and untrained personnel were regarded as sufficient to capture data (SWZHSO 2006).

Muula and Maseko (2006) reported that health workers in the public sector in rural Malawi reported to work in isolation due to the low number of other health professionals in the same locality. In many cases this professional isolation implied an environment that was not challenging due to a lack of peer support and sharing of ideas and resulted in frustration. The lack of academically and professionally challenging environment was exacerbated by the absence of any requirement for continued professional development or professional medical education (Muula and Maseko 2006). This implies a general demotivation that is likely to further diminish any motivation related to HMIS work that is only meant to support the work they are already not motivated to do.

Gasser (1986) argues that organizational participants always negotiate acceptable levels of computing (data accuracy, timeliness, service, etc.) which are socially agreed upon, but not necessarily technically or formally perfect. According to Gasser (1986) these anomalies result from misalignment in the production lattice of computing, and from conflicts among locally rational actions.

There were several examples of what could be argued to be rational local actions that still compromised data quality. For instance, it could be considered rational to only aggregate totals in the registers quarterly, if the aggregated information was not perceived useful for any other purpose than quarterly reporting. In many cases facility staff lacked the appropriate understanding of the usefulness of data and omitting the aggregation could save valuable time when a lot of patients were waiting. Reporting odd number could also in some instances be considered quite rational, for instance related to the reporting on environmental issues. In one facility they had the practice of only reporting the number of households with access to safe drinking water according to the wells they had actually checked that quarter. In the HMIS system however these reported numbers turned out to be odd numbers, as it never really at any given time reflected the actual amount of functioning wells in the catchments area. There is a possibility that late reporting might also have been socially acceptable in some facility if the numbers were not used locally, and if it was perceived that no one really used the data at higher levels either.

In this matter it seems particularly important that superiors reflect the priority of certain work. If reporting was important then work that was supposed to support reporting routines would have to reflect that. This means that feedback on reported data should be provided to health facilities, supervision should be conducted as planned, and HMIS review meetings should be conducted regularly. Reporting forms should be available, and the amount of data reported should be realistic in respect of staff available.

Gasser (1986) called for the need to better align the social contexts of people involved in system use so that their interests, agendas and resources match, indicating the need to continually paying attention to the evolving ecology of working relations surrounding the system. In Malawi this probably means acknowledging that the health sector is packed with staff with limited skills and training, and making sure HMIS data are valid and useful probably requires realistic expectations to the system. A system that is too involving and

complex might end up not serving any of the intended function, and a less involving and less extensive system could potentially be more useful under the circumstances.

Related to motivation this means that you cannot expect workers to be motivated to do work they don't perceive to be useful and important, and that might not even be perceived rational in a given situation. In Figure 7.2:1 we saw that the frequency of work itself for causing motivation was much higher than the frequency of causing demotivation. From this study it seems however possible that this was different when the work in question was not the primary work, and was sometimes also work that these health workers were not properly trained for.

Chunda (2006) supports this by reporting that in some facilities where specific data focal persons were recruited respondents reported that the days with headache with tedious work of data entry and data analysis were gone. There was no more compromising data quality in the pretext of being "busy doing real work" (Chunda 2006), indicating that HMIS routines was by some health workers not really considered really important work.

7.2.3 Work that is urgent and/or has completion deadline

Presence of urgently required work or tasks with a completion deadline is associated with increased work efforts according to Machungwa and Schmitt (1983).

The deadline for reporting was probably the main reason why most facilities collected data regularly. Perhaps if introduced in a reasonable way monthly reporting could be an incentive for more importance and priority given to data collection. However, with the situation at hand with quarterly reporting barely functioning as intended this seems like something that would have to wait. Although the quarterly reporting resembles a practice of making an all-out effort at the end of each quarter the work is at least more often than not completed. Before staff in general understand the importance of HMIS data, beyond the mere reporting function, that same all-out effort will probably continue.

7.2.4 Work that allows achievement and proving oneself

Work that allows a sense of achievement and opportunity to prove one self can also be associated with increased effort at work (Machungwa and Schmitt 1983).

In this study Facility Managers and HMIS staff prepared for cluster HMIS review meetings by analysing data and making graphs of selected key indicators. They reported that this made them aware of their own performance, and it was perceived to be important to them to be able to compare their own performance to other facilities' performance. It is likely that this was motivated by the interest to see how they were doing compared to others, in addition to the opportunity to get feedback and advice. Being able to compare performance was also reported as relevant by Moyo (2005) where 29 percent of the respondents in Lilongwe reported that they were motivated to use HMIS because it enabled them to show their performance.

Professional identity and conscience has also been reported in other literature to be important motivating factors for health staff (Manongi et al. 2006, Mathauer and Imhoff

2006). Likewise professional satisfaction were frequently mentioned (Mathauer and Imhoff 2006). It is likely that motivation through achievement might be stronger for health workers towards their primary work of taking care of patients. However, presenting performance through indicators on service delivery HMIS computing serves as articulation work towards the goal of proving one has done well on health related issues. For HMIS staff it is likely that meetings where their work was presented had a considerable motivational potential, both in proving one's work was good, but also through the recognition that the work they do was of importance. It is likely however that this motivational potential related to the perceived status of HMIS work among health workers, and whether or not it was perceived to be important work.

7.2.5 Poorly defined work duties

Work duties that are poorly defined are associated with workers putting less effort into their work (Machungwa and Schmitt 1983).

There were few examples of findings directly related to the definition of work in this study, but the Zonal Health Support Office reported that at least in one of the districts up to date job description were missing (Figure 7.1:2) (SWZHSO 2006). There were also a few examples where the responsibility on some HMIS related issues seemed unclear. One example included that upon the finding that staff in one facility had not heard about the recognition scheme there was differing answer as to who actually had the responsibility of informing staff about such issues.

Based on findings from this study it is however difficult to indicate what potential importance the lack of properly defined work duties had on motivation towards HMIS work. What can be said, however, is that if the work that formed the basis for the whole HMIS was performed by workers who lacked a clear definition on how to collect and aggregate data this risk compromising the whole system.

7.3 Material and physical provisions

In this section issues related to material and physical provisions in the work place are presented and analysed. Figure 7.3:1 illustrates that themes in this category have a mix of motivating and demotivating potentials (Machungwa and Schmitt 1983).

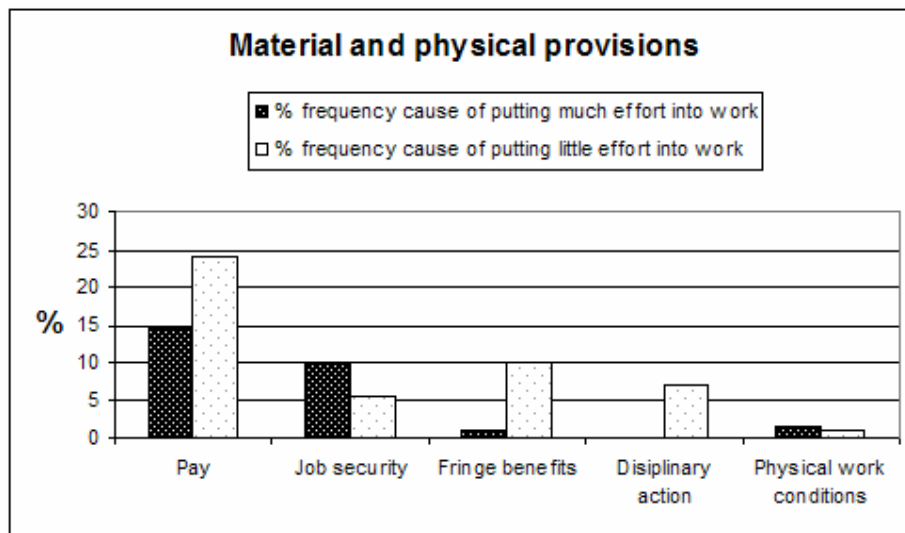


Figure 7.3:1 Items related to material and physical provisions based on findings reported by Machungwa and Schmitt (1983).

7.3.1 Pay

Pay is associated with demotivation when pay is low, and increments, bonuses, merit increments and other financial incentives are unlikely to happen (Machungwa and Schmitt 1983). On the other hand reasonable pay and possibility for increment, bonus, merit increment or financial incentives is also reported to motivate to improved efforts at work.

Low pay and few monetary incentives

There were a few examples of monetary incentives identified in this study, especially in Chikwawa where these practices were supported by Management Sciences for Health. Participants to cluster HMIS review meetings and recognition scheme task force meetings received lunch allowances. Cluster supervisors also got lunch allowances in addition to logistical benefits for their extra responsibilities as supervisors, and this was regarded as a motivation by the supervisors interviewed. As an additional benefit these cluster supervisors also went somewhere nice, to a hotel or similar, when they generated the quarterly district supervision report.

One District Manager argued that Malawi had generally bad working conditions in the health sector and that this was the main reason for lack of staff and high staff turnover. The salaries were low and it was possible to get better salaries in some non-governmental organisations.

*“Staff at the facilities can work year after year without any incentive to perform well. They receive no training, no refreshment or motivation.”
(District Health Manager)*

In facilities in Chiradzulu several Facility Managers reported to find it difficult to orient new staff on HMIS on their own. Some health staff simply refused being oriented because they had not received training and the accompanying allowances. One HMIS focal person explained:

“They don’t want to learn how to fill the registers or reports because I was the one who went for training. I received allowances, and because I did not share with them they say I should do it“. (HMIS focal person)

Although lack of training in itself can be demotivating it was clear that staff wanted access to training as a means of adding allowances to their low regular pay.

In many countries salaries of the governmental health sector are too low to cover basic needs (Dieleman et al. 2003, Mathauer and Imhoff 2006, Wyss 2004). Training by vertical health programs often provide payment per diems, and many health workers perceive participation as an income generating activity (Dieleman et al. 2003, Kimaro 2006) and participation in training is thereby influenced by economic motivation rather than learning purposes (Kimaro 2006).

The significant erosion of salaries in the 1990s in Malawi has proved traumatic to the health sector (see chapter 3.1:4), and still there are high numbers of vacancies that remain unfilled. Due to these problems the government of Malawi has had to resort to non-wage complements of various types to keep its labour force motivated (Durewall 2003). They have invented a variety of employment benefits including housing and transport allowances. Top civil servants travel abroad at frequent intervals which enable them to generate extra income via per diem and related allowances. Training workshops and conferences, where allowances are paid for attendance, are also common, and in many cases sponsored by donors (Durewall 2003). All this has resulted in a reward system that is neither transparent nor equitable.

While the civil service managed to attract highly qualified staff in the past this may have become increasingly difficult due to the private sector’s ability to offer better salary packages (Lawton et al. 2002). According to Durewall (2003) employees often also attempt to supplement their incomes by 'privatizing' public property. Medicines are stolen from hospitals, and government vehicles are used for private businesses, and some individuals simply abscond from duty while continuing to draw salaries from the government. In the collectivist culture it is according to Hofstede (1984) expected that a persons’ salary is shared with the extended family. Carr et al. (1997) studied the meaning of work in Malawi and reported that it was often the security that money could buy, rather than money itself that was the central motivating concern.

In the case of salaries being too low to cover basic needs it must be considered rational to be motivated by allowances that add to the regular pay. In such a system however, more or less organised around these monetary incentives, it may also be argued that it complicates any

effort of trying to direct employees' actions through motivation towards job content and self actualisation as described by Herzberg et al. (1993). According to Maslow's hierarchy of needs it would be rational to seek to satisfy physical needs before the needs for self-actualisation becomes important. An Afro-Centric Alliance (2001) argues however that economic life in Malawi was inherently capricious, and that people knew the wisdom of always being prepared for the worst. A Malawian adage says "Rich once, but begging now" and signals a fundamental and continuing financial insecurity – a fact of life for many Malawians, even for relatively privileged managers (AnAfroCentricAlliance 2001). In such an insecure economic setting there is no real possible foundation for Maslow's idea of an orderly and linear progression of need salience according to An Afro-Centric Alliance (2001). In stead they argued that people were more likely to be motivated "in parallel" both by material and by non-material concerns, with neither ever becoming predominant over the other.

It is also argued that for most jobs in the civil service, it is difficult to establish a clear link between human resource inputs and the quantity and quality of the service provided (Durewall 2003). But even when the latter is possible, incentives based on outputs could go wrong. If health facilities for instance are compensated for the number of vaccinations carried out, they might neglect other aspects of primary care and treatment (Durewall 2003). The success of a system based on salary enhancement rests according to Durewall (2003) on the ability to design a credible system of performance evaluation.

Maslow (1943) indicated that most people are partially satisfied and partially unsatisfied with their needs, and did not claim that the hierarchy was a fixed or rigid scheme. The emergence of a new higher level need would not be a sudden event; rather a person would gradually become aware that a higher need could be attained. The degree to what a person become 'aware of' potentials for satisfying higher needs might be of relevance here. With the increasing differences between rich and poor in developing countries it only takes a visit to the financial capital of Malawi to see what the rural poor miss out on compared to the middle class in Malawi. This might explain some of the motivational pluralism referred to by An Afro-Centric Alliance (2001) towards both material and non-material concerns.

7.3.2 Job security

Motivating effects related to job security relates to being secured to be employed, while if job security is threatened and there is a chance of being fired this can cause demotivation (Machungwa and Schmitt 1983). Issues related to job security was not discussed in this study, but it is likely that the extreme shortage of qualified health workers made jobs in the health sector in Malawi quite secure and the risk of being fired was not very likely. Muula and Maseko (2006) reported that almost all health professionals were guaranteed employment into the public sector when they graduated from the training institutions in Malawi. Students in the health professionals most often were identified for work stations before they received their final examinations results. The public sector was therefore the natural first employer of potentially all health workers in the country (Muula and Maseko 2006).

7.3.3 Fringe benefits

Little or no fringe benefits like housing, transport, loans etc is associated with far more negative feelings resulting in decreased efforts at work, than the presence of such benefits being associated with increased efforts (Machungwa and Schmitt 1983).

In light of the discussion in the section of pay, the issue of fringe benefits in Malawi is tied to the official incentive structure that attempts at compensating for otherwise low salaries. The most obvious issue of concern observed in this study related to fringe benefits and motivation, was the allowances given for training and meetings. Those workers who seldom had the opportunity to participate and receive these allowances was clearly demotivated and even denied performing duties that others had been trained for if they had received allowances when participating.

This was observed as a serious issue due to the problem of the districts to target all involved staff in HMIS training. Also, when asking for training health workers said they would like to go somewhere nice outside the clinic. It was expressed that on-the-job training for the sake of gaining new skill was not what they wanted. According to Muula and Maseko (2006) per diems and reimbursements for real and potential expenses incurred or expected to be incurred for attending workshops, seminars and conferences were important sources of extra-salary income for health professionals who had the opportunity to participate in such meetings.

Muula and Maseko (2006) reported several coping strategies of health workers to compensate for low pay. The possibility of getting extra money from attendances at meetings was perceived to be the reason why some senior cadres were continually travelling from one meeting to another even when the agenda would have been more applicable to another health professional. This resulted in a perception among the junior cadres that they were only sent to the less lucrative meeting while their seniors were monopolizing attendance of out of station, better paying meetings.

This relates to Herzberg's argument that monetary incentives, while serving as a motivation in the beginning, end up being seen as rights rather than rewards. However, these incentives were not introduced in Malawi as rewards for good performance but rather to compensate low pay. Due to the lack of transparency and equity in this type of incentive scheme the resistance to accept the lack of opportunities for training and allowances can be argued to be rational. Again this leaves a challenge as to how workers might be motivated towards meetings and training for other reasons than allowances.

7.3.4 Disciplinary action

Disciplinary actions in the form of being demoted, suspended or subjected to disciplinary action have a potential for demotivating workers and lead to decreased efforts at work (Machungwa and Schmitt 1983).

No issues of disciplinary actions were discussed in this study. Correction and discussion of health workers' conduct in the presence of patients is however reported in the literature to be particularly de-motivating (Mathauer and Imhoff 2006). The demotivating aspect might correspond particularly to the importance of loyalty and the avoidance of lack of face and

harmony in collectivist cultures. The importance of a social identify through earning community respect, as well as professional conscience might add to the demotivating potential.

7.3.5 Physical provision

Favourable physical working conditions related to work layout and equipment can be associated with motivation (Machungwa and Schmitt 1983). Dangerous or unfavourable physical work conditions on the other hand serve as potentially demotivating conditions.

Reporting on time was sometimes difficult in the districts because of lack of fuel or available vehicle. Some facilities had a motorbike, but breakdowns were not unusual. One facility also reported that lack of reporting forms was sometimes a problem. The problem of submitting the report from district level to the Ministry of Health was also reported to be a problem in on district due to lack of email connection. The report would have to be sent either from some one else's office or from an Internet café in the closest city, some 20 km away. Transport problems, due to lack of vehicles and fuel, was also reported to be a problem for the provision of supervision.

Similar findings are reported in other developing countries where transportation is often a problem and health workers often have to use their own motor bikes for supervision and outreach activities (Dieleman et al. 2003). Lack of equipment and supplies is also reported to be a common problem (Dieleman et al. 2006, Mathauer and Imhoff 2006)

In the case of HMIS computing it was also reported that stocks of both registers and reporting form were not always adequate. Both register books and reporting forms were provided from the national level. It is possible that problems with physical provisions were of relevance for motivation to some degrees; but that it more indirectly was affected by a common feeling that lack in physical provisions possibly reflected a lack of priority to the task.

7.4 Relations with others

In this section, issues related to interpersonal relations will be addressed. It appears from Figure 7.4:1 that cases of bad relations have greater potential for reducing efforts at work than good relations' potential for increasing efforts (Machungwa and Schmitt 1983). One exception however is in the case of recognition that is associated with potential for motivation.

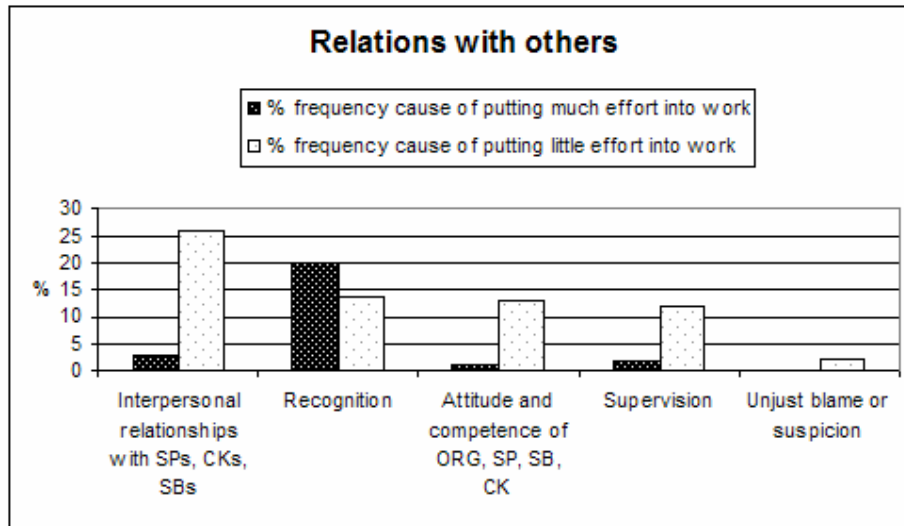


Figure 7.4:1 Items related to relations with others based on findings reported by Machungwa and Schmitt (1983).

7.4.1 Interpersonal relationships with supervisors, co-workers or subordinates

Demotivation related to interpersonal relationships at work can occur when there exist quarrels or mistrust in the work group, or bad relations and misunderstandings between work group members (Machungwa and Schmitt 1983). The general impression in this study was that there was a respectful tone between people and respondents usually referred to their colleagues as their 'friends'. There were however examples of problems of communication and cooperation.

From the perceptions of different professionals at different levels of the health system it became evident that some of the main challenges related to communication between the different levels in the health hierarchy, as well as the transparency of practices. Staff at health facilities did for instance have a different perception of the intention of the HMIS review meetings than what was expressed at the district level. Staff in both districts was not always oriented on decisions made at district level that affected them, for the instance the decision to change the frequency of supervisory visits.

Subordinates

District Managers reported to experience that health workers sometimes only saw supervisors as fault finders, and it was a concern how to make these health workers understand that the supervisor wanted to cooperate. One supervisor also reported that there was usually not much improvement on HMIS issues between supervision visits. It was suggested that maybe the people they talked to during supervision didn't inform their friends (colleagues) at the facility about what needed to improve. It was however expressed a concern that they sometimes simply didn't bother to improve.

“If they are informed and hear it from me then it will be more difficult for them not to improve, as they have no excuse. Otherwise they just say that they have not received training and don't know how to do it.”(District Manager)

Co-workers

It has already been indicated that staff members didn't always have the capacity or will to orient their co-workers or subordinates about what had been discussed in meetings. On the other hand, staff didn't always accept being oriented by those who had participated in training or meetings where they received allowances.

Through focus group discussions in Lilongwe district Moyo (2005) found that some respondents felt there was a lack of team work in their facility and that they missed moral support from co-workers. Moyo (2005) concluded that the inability to get encouragement from co-workers at facility level contributed to low morale among staff. These examples correspond to similar findings in similar settings. Dieleman et al. (2003) reported from Viet-Nam that health workers participating in meetings didn't always distribute the information to their co-workers or subordinates and this results in some people feeling ill informed and this was an especially discouraging factor at district level (Dieleman et al. 2003). There are also reports in the literature about examples of envy among colleagues that impedes individual efforts (Mathauer and Imhoff 2006).

Superiors and supervisors

Some respondents in this study reported to receive regular visits from district level staff that came to see if they could assist. On HMIS issues it was also reported by facility representatives that they received reminders on the phone or over radio if they missed important deadlines and they reported to feel comfortable asking for support from district managers. In some cases however supervisors were reported to mostly come and check what went wrong in the facility and then leave.

In the literature there are also reports on health workers complaining that supervision was not positive and supportive when provided (Manongi et al. 2006). Top-down approach and a feeling of being neglected by superiors or the health administration was reported to have a strongly de-motivating effect, as well as leaders' inadequate communication and bad treatment of staff (Mathauer and Imhoff 2006).

There were also some concerns at district level in this study. One district had for instance a history of problems with district management. The third district health officer within one year had just started, and in the past new managers with their own ideas had proved to be a

challenge to the district. New managers often aimed at implementing their own ideas and activities, rather than following what had already been planned for in the district.

"We have yet to see if the management will be a challenge to us. Sometimes they have their own ideas that are not so good."(District Manager)

Issues related to interpersonal relationships holds according to Machungwa and Schmitt (1983) a considerable potential for demotivation with decreased efforts at work as the result. It seems that empirical findings in this study together with the reviewed literature support this indication. It is also likely that motivation in this category is not related to the kind of work in question, but that this is a more universal issue. We have already seen that problems in interpersonal relations can stem from several of the issues discussed in other categories discussed in this chapter. It can be caused by feelings of neglect, unfair treatment, lack of loyalty, unequal access to monetary incentives and thereby envy to mention some.

7.4.2 Recognition

Motivation is associated with a chance of receiving recognition and meeting other's expectations, to show capability, and receiving praise from others (Machungwa and Schmitt 1983). Demotivation on the other hand occurs as a result of superior or co-workers showing little or no recognition of hard work, and when workers receive no compliments, praise or appreciation.

Recognition Scheme

The motivational potential of recognition in the two districts seemed considerable and the shared opinion among respondents in Chikwawa towards the positive effects of the recognition scheme was especially encouraging. Motivating aspects of this scheme included awarding facilities with high quality HMIS reports and arranging award ceremonies in HMIS review meetings at district level. The award given consisted of stationery that was useful to the HMIS related work at the facility.

There were however more opportunities to nurture the feelings of recognition. Especially HMIS review meetings and supervision targeting HMIS seemed to hold particular potential to enhance workers' efforts towards HMIS. As argued by Rowe et al. (2005) supervisors are increasingly the only contact between rural health workers and the health system, and supervision thereby provides one of few opportunities for health workers to enjoy professional exchange and to receive praise and recognition for work done. The same goes for HMIS review meetings, where HMIS serves as a tool to document performance, and where performance can be compared to that of others. Muula and Maseko (2006) also reported that health professionals working in rural facilities were discouraged by the lack of opportunities for professional exchange and support the impression of this as an important motivational determinant in Malawi.

All respondents at all levels in Chikwawa said that the Recognition Scheme was very motivating to staff at facilities and that they worked hard to win. It was expressed by one HMIS focal person that the recognition scheme created a spirit of data collection.

It was also perceived to be very important that the award was given to the whole facility and not to any particular individual. This individual might quit and take the gift with him/her. One supervisor also reported to find it very motivating to be rewarded as the best zone supervisor as it meant her work was acknowledged as important.

Supervision and meetings

Supervision provided by the District Health Management Team was by some district managers perceived to serve mainly as a moral booster to facility staff, as they liked to show the District Health Officer their need for maintenance etc. Respondents at facility level expressed that monthly visits by the District Health Management Team ought to include all staff in the facility, and that discussions should be encouraged.

Problems of motivation among staff towards HMIS were reported by one District Manager to have been resolved through training and motivational discussions in one district. It was argued that this had helped health workers understand the HMIS system and the value of data collection.

Lack of recognition, no praise nor compliments

Most respondent at facility level reported to have received the last HMIS supervision six months ago, and this was perceived to be too rare. In one district it was expressed frustration supervision only targeted a few individuals and that other staff was not oriented afterwards by those meeting the supervisor. Respondents expressed that it would be better if supervisors met with all staff as it was argued not those who met with the supervisor did not have the capacity or will to orient other staff.

The fact that facility management in many facilities never discussed reported HMIS data in their management meetings was likely to affect the perceived importance of reporting among staff. Failing to understand the importance of data and analysis as basis for planning and performance assessment probably contributed to a lack of recognition of the person actually performing this work.

In several other studies recognition by both employer and members of the community were found to be important motivating factors (Dieleman et al. 2006, Manongi et al. 2006, Mathauer and Imhoff 2006). When personal needs and concerns are taken seriously, supervision provides the feeling of being cared for and of appreciation and this aspect appears particularly important for health workers posted to remote facilities with little contact with other professionals (Mathauer and Imhoff 2006). Feedback is also one way to show appreciation by managers and colleagues, which was the most motivating factor for the health workers in Viet Nam (Dieleman et al. 2003).

Public ranking and public congratulations appear to have a strong effect as it creates competition and provide motivation to perform (Mathauer and Imhoff 2006). Recognition and awards, which do not have to be financial, also appear to be highly appreciated (Mathauer and Imhoff 2006). Competition among facilities has also been reported as promising, provided that the ranking process considered not only absolute scores, but also took into account efforts and improvements over time (Mathauer and Imhoff 2006). It was however also mentioned that the public ranking exercise could be very frustrating for those at the lower end of the scale.

7.4.3 Attitude of supervisor, co-worker of subordinate

Being surrounded by lazy or incompetent supervisors or co-workers can demotivate workers and decrease their work efforts, while the opposite does not seem to have the same potential to affect motivation (Machungwa and Schmitt 1983).

Some supervisors were in this study perceived to just show up and tell facility staff how to do new things, and not really provide supportive supervision. Chunda (2006) reported similarly that most of his respondents (45 percent) said that supervision usually lasted 10 to 30 minutes, and that 10 percent actually reported supervision to last less than 10 minutes. In Lilongwe Moyo (2005) found that 18 percent reported limited supervision from the District Health Office as demotivating (Moyo 2005).

Poor management skills are acknowledged by Hornby and Ozcan (Hornby and Ozcan 2003) and probably accounts for much of this frustration.

7.4.4 Supervision

Poor supervision show a considerable potential for causing demotivation among workers and relates to a boss supervising too close (breathing on your neck) or hardly looking at your work at all. In other words; too close or too loose supervision (Machungwa and Schmitt 1983).

It was reported by the District Health Office in Chikwawa that regular supervision, as achieved through the integrated checklist supervision scheme, had improved service delivery and that facilities tried really hard to improve. Regular supervision was also reported to create awareness among district management about for instance shortage of equipment and needs for maintenance in rural facilities. Facilities were supposed to get program specific supervision every month, but on one district it was reported that some supervisors never showed up.

“When they come they usually just come to check how we are doing or teach us something new.” (Health Staff)

Most respondents in this study perceived supervision to be helpful, although several expressed that supervision would have to be monthly for it to be really helpful. It was also argued strongly that supervision should follow up from training and that training was needed first. Supervision or briefing on the job was not perceived to be enough to perform well on HMIS responsibilities. Both increased supervision frequency and access to training was reported by respondents to be a potential incentive for improved data quality.

Approximately half of the respondents (55 percent) in the study of Chunda (2006) reported to receive supervision, and 49 percent of those said this was quarterly supervision. 29 percent reported to be supervised once a month. 43 percent of the respondent in Chiradzulu said that no supervision was given and 87 percent said they were negatively affected by not getting supervision (Chunda 2006).

Supervision was according to Muula and Maseko (2006) perceived to be a motivating factor by health workers in Malawi, but workers in their study reported they were either poorly or

inadequately supervised. Those that were supervisors reported that lack of resources and especially transport to rural remote areas coupled with other commitments and responsibilities prevented them from making supervisory visits. Lack of supervision, resulting in workers feeling unappreciated, de-motivated and frustrated, was an acknowledged reason for health workers in Malawi who were not interested to work anymore within the public health sector (Muula and Maseko 2006). Other examples from the literature include health workers who felt that supervision was just conducted to control their work and that was not supportive (Dieleman et al. 2003, Mathauer and Imhoff 2006). There are also several reports about complaints that supervision is not being systematic (Manongi et al. 2006) and that no feedback is given (Dieleman et al. 2003, Mathauer and Imhoff 2006). Too often supervisors lack skills, useful tools and transportation. Rowe et al. reported that supervisors and health workers often missed planned supervision visits because of their superiors' priorities, donor's financial incentives to attend workshops and training, and the perception that no one seemed to care whether supervision was done (Rowe et al. 2005).

Consultative and participative supervision has according to Machungwa and Schmitt (1983) (Figure 7.4:1) a relatively low potential to increase efforts at work. This is however questionable as the contact with supervisors (as discussed before) is increasingly the only contact rural health workers have with the otherwise decentralised health system. The supervision is important through its potential for learning and for recognition shown by supervisors.

7.5 Fairness in organisational practices

Issues related to fairness or unfairness of organisational policy and practices are presented. Themes in this category appear to have little potential for motivating workers while the opposite hold considerable potential for causing demotivation (Machungwa and Schmitt 1983), as indicated in Figure 7.5:1.

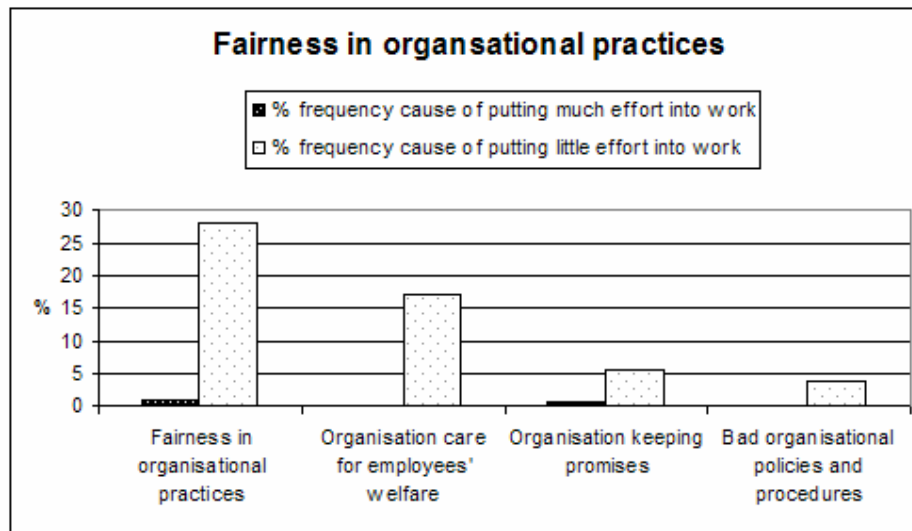


Figure 7.5:1 Themes related to fairness in organisational practices based on findings reported by Machungwa and Schmitt (1983).

7.5.1 Fairness in organisational practices

Demotivating effects related to unfairness include tribalism (ethnicity), corruption in promotions, pay raises, work assignment or grievances, nepotism, or racial discrimination (Machungwa and Schmitt 1983).

In this study issues of perceived fairness in organisational practices were not explored except for one Facility Manager who expressed that the District Health Office was helpful and that problems of support were mainly due to problems of funding.

Muula and Maseko (2006) however report from Malawi about a perceived lack of transparency in the recruitment of health professionals. Health professionals in their study reported that even in some public institutions there were no public advertisements for posts but rather that a process of headhunting had occurred, and this was perceived as very demotivating. Muula and Maseko (2006) also reported on practices were experienced personnel felt bypassed by less qualified or less experienced colleagues. The practice of assigning newly qualified doctors upon completing their internships as District Health Officers was perceived particularly demotivating and unfair by long-serving doctors. Nurses were also found to feel marginalized by the Ministry of Health and other employers in favour of medical doctors, clinical officers and medical assistants (Muula and Maseko 2006).

Lack of transparent career goals is reported in the literature to cause frustration among health workers (Mathauer and Imhoff 2006). Many health workers also report that not all staff has equal access to training and that the selection processes should be more transparent (Dieleman et al. 2003, Dieleman et al. 2006, Mathauer and Imhoff 2006).

7.5.2 Organisation, supervisors or co-worker do not care for or listen to problems of welfare for employees

Demotivating factors include a lack of willingness of organisation to listen to, or care about, employee problems, and welfare, such as for instance death or sickness in the family, or housing problems (Machungwa and Schmitt 1983).

In this study this was an issue that never came up but related issues might be touched upon in other sections.

7.5.3 Organisation keeping promises

Demotivating factors included unfulfilled promises made to employees regarding such things as promotion, pay raises, transfer and time off Machungwa and Schmitt (1983).

Again there is no findings directly related to the issues described by Machungwa and Schmitt (1983), but issues addressed in the following section do seem relevance also to the capability of the organisation to keeping promises.

7.5.4 Bad organisational policies and procedures

Demotivating issues in this category include policies and procedures being vague and not uniformly applied or so long and cumbersome that excessive time is needed for complaints, problems or cases to be resolved (Machungwa and Schmitt 1983).

Supervision and feedback

Most facilities visited in this study reported to receive some kind of supervision at least quarterly. Most respondents were however convinced that they were supposed to receive monthly supervision. Similarly respondents at both facility and district level acknowledged that written feedback was supposed to be provided, but that it happened rarely.

Similar findings are reported in the literature where health workers criticize the low frequency and irregularity of supervision (Dieleman et al. 2003, Mathauer and Imhoff 2006). Supervisors are also reported to be frustrated by unrealistic supervision plans, but no one challenges them and planners are seldom held accountable for failed plans (Rowe et al. 2005).

HMIS reviews

According to facility staff in Chikwawa, facilities were supposed to get advice from the district managers in their quarterly cluster HMIS review meetings. The last meeting was however reported to lack seriousness and to not provide helpful feedback. This was suggested to be due to that district representatives had perhaps not been properly prepared for the meeting.

Facility Managers and HMIS staff also complained that they had not been notified of the annual cluster HMIS review meeting more than 2 days in advance. This was argued not to be sufficient in order for them to prepare proper analysis and graphs for their presentations. In the two meetings observed in this study, only 2 facilities had prepared graphs, two presented calculated indicators on a blackboard, while another two read all the reported data elements from the quarterly report. All facilities but one reported on quarterly data only, although this was supposed to be an annual review. In Chiradzulu where HMIS reviews were only conducted annually due to lack of funding, many respondents expressed a need for more frequent reviews.

Training

Proposal on HMIS training in Chiradzulu was reported to be turned down often, due to lack of funding. When proposals were approved, the targets were often not met.

"We trained 29 last year, but we had planned to train 60. The duration of training was also shortened due to lack of funding." (District Manager)

The problem of funding was explained to be due to the district management never knowing how much money would get allocated from the Ministry of Health each month. Allocated money was explained to not always be according to the approved budget and it made it difficult to plan.

Recognition Scheme

The recognition scheme was by all respondents in Chikwawa reported to be motivating. From observations in this study the procedure for assessing reports and ranking facilities according to performance did however not seem to be uniformly and clearly applied. There is a risk that the positive effect of this promising scheme could be lost if it is not carried out with uniform and transparent rules. It was also discovered that HMIS staff was not always aware of how the reports were actually assessed, and that Facility Managers attending task force meetings did not always share their new knowledge with other facility staff.

One of the great motivational potentials of the scheme was the possibility of monitoring the trend of each facility over time and thereby tracking the progress in quality of reporting. The advantage of this potential did however not seem to be utilised in the task force meeting observed. There is a danger that the recognition scheme might lose credibility if action is not taken to clarify procedures. It also seemed necessary to ensure that qualified professionals took the responsibility for the implementation of the scheme according to guidelines in order to preserve the seriousness and motivational potential.

It may be argued that issues included in this section also relate to section 7.5:3 concerning organisation keeping promises. The relevance of the issues described above related to motivation seems to lie in Health Managers' capacity to reflect a degree of seriousness and priority on issues that are in fact a priority of the health sector.

7.6 Personal problems

Personal problems that can affect efforts at work are by Machungwa and Schmitt (1983) reported to include death and sickness in the family, a feeling or mood, domestic problems, drinking and hangover and hunger as illustrated in Figure 7.6:1. Naturally these items relate to workers putting less effort into their work.

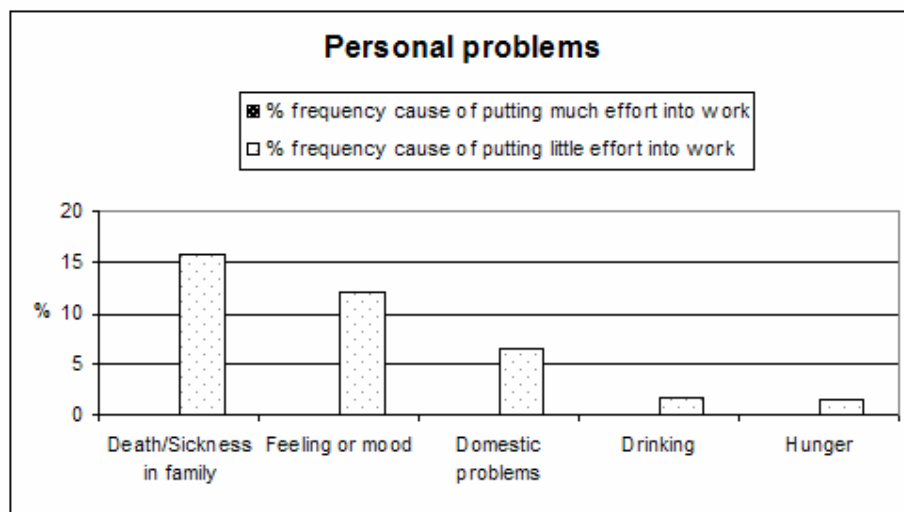


Figure 7.6:1 Items related to personal problems based on findings reported by Machungwa and Schmitt (1983) are presented by frequency of mention as cause for employees to put much or little effort into their work.

Even during the relatively short period of time spent in the two districts during this study, there was on more than one occasion talk about funerals of either a member of staff who had passed away, or of staff members' relatives. Although most of the themes in this category are beyond reach of influence from human resource management at the work place, they remind us about the many aspects of life relevant to the motivation to work.

8. Discussion

In this chapter I discuss my analysis related to the proposed theoretical framework. I discuss the validity and fit of the selected theoretical perspective on motivation, the motivational perspective in relation to culture, and finally the relevance of looking at the secondary nature of HMIS work as a special case related to motivation of health workers.

The relevance of the proposed analytical framework that addressed the need for a cultural fit of the motivational theory will be assessed in section 8.1. This framework was developed through a combination of concepts and findings from Herzberg et al. (1993) and Machungwa and Schmitt (1983) attempting to reflect cultural values identified by Hofstede's (1984). A discussion of Hofstede's (1984) cultural value dimensions follow in section 8.2 in order to address whether findings in this study seem to support the indicated different work values between African and Western countries. Gasser's (1984) theory on integration of computing and routine work has served as a basis for identifying the different nature of HMIS work among the different categories of staff. In section 8.3 I assess the relevance of this distinction in relation to health worker motivation.

8.1 The value and fit of the theoretical framework

Machungwa and Schmitt (1983) did partly agree with Herzberg et al. (1993) in that some incidents at work seem to have a greater potential for causing either motivation or demotivation among workers, thus support the distinction between motivators and demotivators. However, findings in Zambia indicated that motivation and demotivation was not divided distinctly between job content and job context factors as proposed by Herzberg et al. (1993). Instead Machungwa and Schmitt (1983) identified six categories of critical incidents related through content, conceptual, or theoretical basis with potentials for both positive and negative motivational effects.

I will in the following discuss how the motivational potentials of some of the most important motivational issues identified in this study seem to correspond to the potential positive and negative effects proposed by Machungwa and Schmitt (1983).

Growht and advancement opportunities

There were indications in this study that the lack of learning related to HMIS had considerable demotivating effects, and were perceived to be among the most serious incidents leading to low moral towards HMIS work. According to Machungwa and Schmitt (1983) learning was reported to be more important as a motivator than as a demotivator, but findings in this study indicates however the possibility that lack of learning related to HMIS work can potentially be even more demotivating than the opposite's potential for motivation.

In the case of promotion, findings in this study seem to confirm the findings of Machungwa and Schmitt (1983), both in the case of positive and negative impact on motivation. If a career path was available to HMIS staff, this could encourage staff to improve their HMIS skills for their own personal career objectives. This could seem to hold an especially

important positive potential, as it would ensure that HMIS skills were given priority, but could also ensure more stable access to HMIS skills in facilities. When this is not a possibility the only other option for promotion often leads personnel with HMIS responsibilities to focus on improving skills in other areas. In these cases HMIS skills are potentially lost at the facility upon promotion, especially because there is a risk that this person might be the only one possessing the required HMIS skills.

The motivational potential of responsibility did not seem to be utilised in the districts studied in Malawi. There were indications however that satisfying feelings related to responsibility might hold potential for increased motivation towards HMIS comparable to the positive potential proposed by Machungwa and Schmitt (1983). Being able to take responsibility and to make decisions requires information and insights, and health workers feeling deprived of access to such information were however also perceived to be discouraged. This indicates a demotivating potential associated with being unable to take part in activities that would enable the opportunity to take responsibility.

The desire to participate in meetings and training sessions was often grounded in a desire to participate in activities that would provide allowances. However, on several occasions a desire to be included in discussion with district managers was expressed. Also when allowances would not be an issue there were strong indications that there was an interest in the prospect of gaining new information and knowledge. This was also indicated by health staff that often had to cover for absent facility managers and HMIS staff. On several occasions there was expressed a need by those not targeted by training to learn how to conduct the responsibilities of the qualified staff absent from work.

In the case of corrective feedback however, the general indication was that the lack of feedback holds considerable potential for low morale as opposed to what was suggested by Machungwa and Schmitt (1983). If availability of feedback would in fact encourage workers to increase efforts towards HMIS work is difficult to predict. But it seems that of feedback was an important factor contributing to the lack of understanding of the importance of the HMIS. This in turn contributed to a generally low morale towards HMIS related work. The difference in importance of corrective feedback indicated in this study compared to Machungwa and Schmitt (1983) may be attributed to the different nature of the HMIS related work. Corrective feedback may not be as critical related to primary patient care, but related to HMIS data collection and reporting it seems important. Lack of feedback on reported data might indicate that the work done is not a priority to those who receive the report. This seems especially discouraging when work conducted to support the work of superiors is not acknowledged.

In summary it can be argued that while issues related to promotion seem to correspond well to Machungwa and Schmitt (1983), issues related to learning and feedback was in this study perceived to be associated with relatively higher degree of negative feelings. This indicates that these themes possess a higher potential for demotivation among health workers in Malawi than what was proposed by Machungwa and Schmitt (1983). It is however possible that these negative feelings were amplified due to negative feelings towards related issues. Lack of learning was expressed as discouraging, but was usually mentioned in combination with lack of access to allowances. Negative feelings expressed in relation to lack of opportunity to participate in meetings, and possibly also to lack of feedback, could possibly related to a lack of recognition of work done.

Work nature

Achievement and work that allows proving one self seems to carry a relatively higher potential towards motivation in this study than what was indicated by Machungwa and Schmitt (1983). As a motivating factor for HMIS work this has a dual potential in that it can both serve to prove achievement of primary computing work as well as increasing motivation towards articulation computing work as a means of documenting performance and achievements of other primary work.

On issues related to work nature it seems that the motivating effect of having much work to do but not too much as well as difficult but not too difficult, seemed irrelevant in the Malawian health sector. The high number of vacancies in health staff positions and the high number of unqualified staff indicates quite the contrary that too much work and too difficult work is a more likely reality that often result in considerable demotivation.

Machungwa and Schmitt (1983) suggest considerable motivational effects from work that is perceived to be interesting and important. This seems to be supported in this study related to work in general. In the case of HMIS work however, the observed practices of working around HMIS routines seemed partly to be due to that this work was not perceived as important. This indicated a considerable potential for decreased efforts and demotivation, compared to what is suggested by Machungwa and Schmitt (1983). It is however difficult on the basis of this study to decide whether these practices were mainly due to the work being perceived as unimportant, or mainly due to the general slip in computing resources.

Poorly defined work duties as a demotivating factor seems to be supported, although it is again difficult to decide whether or not the effect of poorly defined duties is especially increased due to high numbers of unqualified staff in this study. Properly defined duties might not make much difference when large shares of these workers are often not properly trained to perform many of their duties in the first place. However, related to the considerable potential for demotivation due to bad organisational policy and procedure the effect of having a proper job description could contribute to decrease low morale in general.

In summary it can be argued that Machungwa and Schmitt (1983) report relatively high frequencies in this category compared to the other categories. As indicated earlier it is reason to question the importance of these themes related to the way the critical incidents questions were framed, by asking for incidents that made respondents work extremely hard. The motivational potential is therefore not supported to the same degree, while the demotivating potentials seem to be higher in this study than what is suggested by Machungwa and Schmitt (1983).

Material and physical provisions

The relevance of fair and sufficient pay related to motivation is definitely well illustrated in this study. This is perhaps most evident through the strong feelings related to fair access to fringe benefits due to salaries being generally low. Findings in this study seem to support the levels of both positive and negative potentials of pay and fringe benefits as proposed by Machungwa and Schmitt (1983).

The case of job security appears to show significantly different features in this study as opposed to what was reported by Machungwa and Schmitt (1983). In general, the security of being employed did not seem to be a problem. This is presumable due to the relatively

privileged position of health workers in a sector that is highly deprived of human resources. Physical work conditions did however seem to have moderate motivational and demotivational effects similar to what was proposed by Machungwa and Schmitt (1983).

Issues of disciplinary actions were not addressed in this study, but findings especially from literature studies indicated that the demotivating effect could be high due to the indicated importance of recognition and earning community respect. This corresponds to what was reported by Machungwa and Schmitt (1983). There was no indication as to whether or not ways of handling disciplinary actions were perceived to a problem in this study. It seemed rather the rule that people were polite and followed indicated cultural values of maintaining harmony and avoiding the loss of face among colleagues.

In this category the importance of fringe benefits seem to be the only issue very different from what was reported by Machungwa and Schmitt (1983) and that was inequity of monetary incentives available.

Relations with others

The motivational potential of recognition in the two districts seemed considerable, supported by the unisonant opinion among respondents in Chikwawa towards the positive effects of the recognition scheme. Expressed needs and desire for both supervision and meetings also indicated that opportunities to show capability and to receive praise from others hold considerable potential to increase positive feelings towards work in general. These findings support the proposed potentials (Machungwa and Schmitt 1983) for both considerable positive and negative effects associated with recognition.

In the case of Supervision it is indicated in this study, and also supported by studies on health worker motivation in similar settings, that supervision is one of few opportunities where rural health workers actually have contact with representatives from the health system. The demotivating aspect of lack of supervision reported by Machungwa and Schmitt (1983) seems supported as lack of professional exchange and lack of opportunities to learn seems critically relevant. It is however likely that the positive effects of regular supervision also hold a considerable potential for positive encouragement. This aspect of positive effects of supervision is however possibly inseparable from the aspect of recognition described in the previous section.

Good interpersonal relations seemed in general to be just as important as indicated by Machungwa and Schmitt's (1983). Good relations do not seem to be motivation, but bad relations are associated with high potentials for demotivation. In summary in this category it is only the perceived importance of the positive potentials of supervision that differs from the proposed analytical framework.

Fairness in organisational practices

Organisational practice seems, as suggested by Machungwa and Schmitt (1983), to hold serious potentials for demotivation. Several issues reported in this study and other literature (Muula and Maseko 2006) supports that the transparency, fairness and consistency of practice among managers and stakeholder need to reflect the priorities of the sector. Especially in the case of the large numbers of unqualified staff there is a serious need for

good role models among superiors in order to address these problems. Findings in this study seem to support the findings reported by Machungwa and Schmitt (1983).

Personal problems

Demotivating effects caused by personal problems are also likely to correspond to findings reported by Machungwa and Schmitt (1983). In all above categories the potentials of the themes are only discussed related to their effect on efforts at work. In this case perhaps there should be reason to consider that work that is perceived to be important and challenging might serve as motivation, and provide a positive contribution to workers that in other ways find themselves in difficult personal situations.

The above discussion of the relevance of the applied analytical framework illustrates in many ways that it did prove useful. Several issues have been identified to be important motivational problems and opportunities among health workers in Malawi based on this analysis. All identified issues that related to positive or negative feelings about HMIS work in this study could be meaningfully associated with one of the themes identified by Machungwa and Schmitt (1983).

It can be argued that the organisation of motivational items in the six categories was mostly useful for the presentation the analysis in an organised and comprehensible manner. Presenting more than 50 motivational items requires some structure and the six categories defined by Machungwa and Schmitt (1983) offered a framework for combination of related motivational items in relevant categories. This also offered the opportunity of presenting frequencies in each category graphically. This graphical presentation provided in a glance what issues would potentially be the most important as opposed to the more complicated and detailed presentation in Figure 2.3:3.

The practical benefits of using the concepts of motivators and demotivators are also argued to be useful. With limited resources it makes sense to distinguish between issues that have a greater potential for either motivation or demotivation. Efforts can then be targeted at either decreasing low morale of increase motivation according to what is perceived to be the most critical action.

The limitations of my discussion is however important. I did not look for motivation in particular when conducting my field studies, and did not ask respondents to rate the importance of the issues reported. It was in retrospect that I found issues of attitudes towards the routines and practices of the HMIS that I became aware of motivational potentials specifically. This leads to the limitation in this discussion that it only offers insights into issues perceived to be relevant to motivation in these two districts in Malawi. There is no quantitative measure of the frequency of mention of these issues to support the indicated relevance and importance of the issues I include. These indications are based on the interpretation of the researcher. The themes discussed are however all contributed by the respondents in this study based on questions on what they perceived to be important issues related to the HMIS in general, to it's functioning, and to the quality of data. This supports the relevance and importance of this discussion.

In the next section I will address whether some of the observed differences identified between my findings and the analytical perspective can be due to culturally different values.

8.2 Motivation and Culture

Motivational themes and frequencies identified by Machungwa and Schmitt (1983) were used as basis for analysis because work values in Malawi were assumed to resemble work values in Zambia more than values reported by Herzberg et al. (1993) from North America. In the following section the differences between Machungwa and Schmitt (1983) and findings indicated in this study are discussed related to Hofstede's value dimensions. A discussion is also offered on the critiques on Hofstede's (1984) cultural dimensions in the literature.

Some of the assumed differences between culturally more individualistic or more collectivist societies seem to be supported in my findings. In individualistic societies, recognition is related to self-actualisation (Hofstede 1984), while in collectivist societies recognition can be related to social achievement through group efforts and improved social identity. Findings in this study strongly suggest the importance of social recognition of group efforts that seem to hold considerable potential for motivation.

According to AnAfro-CentricAlliance (2001) there is a Malawian saying:

“One head does not hold the roof”

It is argued that this saying attempt at capturing what Malawian work groups themselves perceive to be the fundamental rules of engagement in their workplaces. In Malawi, as in other East and Central African communities, tradition places social achievement above personal achievement and societal norms concerning interpersonal and inter-group conduct are impossible to separate from working life (AnAfroCentricAlliance 2001). Phrases like “Who does he think he is?” are also argued to signal the social disapproval of the individual who places himself/herself above his or her fellow human beings, for example through self-promotion in business or at work. These attitudes were reported to be even more dramatic among experienced managers indicating one should not encourage others to do better than oneself, because the same others could then become a threat later (AnAfro-CentricAlliance 2001). Reasons for such reactions were attributed to traditional factors like (power distance) and the reserving of encouragement for family and friends (collectivism). Harvey et al. (2000) indicates further that in the Sub-Saharan Africa setting the motivating factor of recognition might not refer to the recognition of one's work as a way of proving one self, the motivating power of recognition might rather be attributed to the display of visible symbols of recognition, and thereby indicating the importance of recognition as strengthening the social identity. This offers another explanation towards the success of the recognition scheme and place perhaps importance on the public awarding ceremony.

Despite the above described traditional inhibitions, however, AnAfro-CentricAlliance (2001) reported that individuals in Malawi were competitive. Such ambivalence about self-promotion was further argued to suggest a dynamic conflict between individual and social motivation, possibly fuelled by globalisation pressures. One indication of the relevance of individual achievement was the motivational potential of career paths with chances for promotion. The motivation potential was however moderately important compared to other motivational potentials. Introduction of individualistic “performance management” systems are strongly suggested to be inappropriate and could unwittingly promote organisational cohesiveness and prosperity, but also social division and workplace stress (AnAfro-CentricAlliance 2001).

The relatively high demotivating potential of a series of job context factors reflects generally poor work environments in Malawi. Low pay; focus on fringe benefits to compensate; personal problems that affects work due to poor health status in general are examples of important problems. One demotivator that seems to reflect the moral component of business relations is related to the failure of organisation and colleagues to care for or listen to personal problems. It is possible that the high frequency of mention of unfairness as demotivating can be related to this same expectation of protection and loyalty in the employer – employee relationship.

One issue that seems to be especially important is what can be perceived as a preference of face to face interaction. All findings related to situations where people meet, discuss, and give corrective feedback face to face, indicates motivational potentials to such meetings. The importance of interpersonal exchange is further illustrated by the considerable demotivating power of bad interpersonal relationships. Both issues might reflect the collectivist values of maintaining harmony among one's in group as well as the moral and loyalty components of business relations.

Harvey et al. (2002) argue that there is more than likely no other issue of similar significance for developing effective Human Resource Management programmes in Africa than culture. There are over fifty countries on the African continent and some of these have twenty or more different ethnic groups living within their boundaries. Most of these inhabitants are of African origin but in some countries there are a substantial number of Arab people who have emigrated through time from northern Africa. In addition, in some of the nations there is a small, yet a powerful group of Europeans, who have been influential in the development of these nations since colonial times. In addition the basic legal, education and religious institutions that were imported into each country upon colonisation and, for the most part, remain the basic operating systems of these countries today, are strong influences that may have a lasting impact on the fundamental political and cultural/social infrastructure Harvey et al. (2002).

Relevant to this is that staff that has not been trained in institutions influenced by western thinking may be more inclined to be motivated by traditional values in Malawi. According to Hofstede (1984) Great Britain, the former colonial power in Malawi, share equal values on the four value dimensions as USA. This indicates that managers and health professionals influenced by western thought through several years of training may be more likely to be motivated by similar values as western colleagues. This might suggested an important challenge in that managers and workers in rural areas have different work values, and might separate social and working life to different degrees.

Harvey et al. (2002) argue however that intrinsic rewards to African managers are less likely to include job satisfaction or autonomy but would instead include status, prestigious position and pride. It is further suggested by AnAfro-CentricAlliance (2001) that the outcomes of obtaining commitment and employees' identification with organisational goals may be less easily obtained by reliance on motivators such as those traditionally related to job satisfaction and self-fulfilment and that the inherent value of work is less important than it's status. Linking high performance with enhanced status, at least partly through recognition in visible ways, is suggested to be necessary, but assuming further that increased status would necessary lead to increased performance is however not expected (Harvey et al. 2000). Similar to the prediction of Herzberg (1993) such symbols of status might be perceived to be a right rather than a reward (Harvey et al. 2000) indicating reason to take caution that

motivating through job context factors would lead to a situation where the employer can no longer afford to motivate.

There seems to be agreement in the literature that culture plays an important role in the management and motivation of people at work. Some authors take the cultural dimensions defined by Hofstede (1984) into account and try to adjust western theories to better fit different cultural settings (Blunt and Jones 1986, Blunt and Jones 1997), while others are taking a stance further away from all western theories and suggest that there are other motives that decide motivation all together in the Sub-Saharan Africa setting (Carr et al. 1997, Jackson 2002). Reference often made to Hofstede's (1984) value dimensions in the developing/developed conceptualization is argued to often fail to recognize other management systems operating in Africa (Jackson 2002).

Reflecting on these positions within the field of motivation in Sub-Saharan Africa it seems justified to assume that findings in this study support the relevance of the categories and items defined by Machungwa and Schmitt (1983). The weakness of Machungwa and Schmitt's (1983) analysis might however prove to be that the resulting motivational incidents were interpreted and later categorised by American researchers based and on their value system. Perhaps could the findings from Machungwa and Schmitt (1983) have indicated another framework had these findings been analysed through other eyes.

8.3 Motivation and HMIS work

In the preceding discussions some motivational potentials for HMIS practices targeted at supporting HMIS routines specifically have been indicated (learning and recognition through training, meetings, discussions, and awards) as well as demotivating potentials (lack of training and supervision, lack of feedback, lack of HMIS related career path). It has also been indicated that other factors, not directly related to the functioning of HMIS, hold considerable potentials for demotivation (low pay, lack of fringe benefits, envy caused by inequity in access to monetary incentives, unfair organisational policies and practices, lack of promotion in general) but also opportunities for motivation (increased professional exchange, opportunities to prove one self, opportunities to take responsibility) towards work in general. These factors also identified to affect HMIS indirectly. In this section I discuss issues of specific relevance to motivation towards HMIS computing work.

Findings in this study suggest that HMIS work seem to hold some opportunity to increase motivation towards primary work in general. When HMIS computing work is primary work, as in the case for some HMIS staff, it is relatively easy to document one's work. Especially HMIS review meetings offers an opportunity to prove one's work to others and receive praise and corrective feedback, all aspects identified as positive motivators. HMIS computing can potentially also motivate both primary work of patient care as well as management articulation work. In both cases, HMIS analysis can support documentation of work and providing a way of proving one self to others. This motivational potential has also been reported by Moyo (2005).

Motivation towards work that is perceived to be important, challenging and interesting also seems to hold considerable unrealised potential for motivation towards computing work. With increased understanding of the critical need for HMIS data this should serve as an

encouragement towards especially HMIS staff that might increase their professional conscience and increase the status of HMIS related work. The demotivating effect of doing work that was perceived to be un-important, was however often observed in this study. The general impression among HMIS staff was however that they were motivated to learn and perform well when they were provided with sufficient support through opportunities to meet with district supervisors.

This realisation of the importance is also relevant to the articulation work to both District and Facility Managers. At both levels there were observed a lack in understanding and acknowledgement of the importance of the HMIS. Unless managers are aware of the value and understand how to benefit from the HMIS this problem is a serious threat towards both the functioning of the system in general, but to the motivation of lower level staff in particular.

Discouraging factors identified directly related to HMIS computing work was how heavy work load coupled with lack of skills resulted in staff finding the work burden of HMIS duties to outweigh potential benefits of using the system. HMIS work was reported to be a burden on top of other duties. This indicates that there is reason to examine the fit between actually available computing resources in the sector and what can be assumed to be realistic expectation to the system. Especially discouragement by this misfit between skills and responsibilities were observed among health staff that was not targeted by any of the HMIS support structures.

The above discussion illustrates that HMIS work of different nature can inhibit different potentials for motivation. This is presented in more detail in the following.

Primary work

In the case of computing work being primary work it is likely that motivation towards this work is similar to that of other primary work, like the motivation of primary work of health workers. The motivational potential in this case seems to be influenced by the degree of training, the degree of professional conscience, and the understanding of the purpose of the work.

Articulation work

When computing work is articulation work that is conducted to support primary work, it is likely that the degree of motivation towards computing is determined by several factors. If the end goal of the system clearly supports the need of this articulation work it is likely that an employer will be motivated to use it. In the case when the articulation work itself is poorly understood, and the system enables the user to do things the user do not understand the value of doing, is expected to seriously affect motivation negatively. Finally in some cases the motivation towards the computing might be negatively affected if the system appears to be too involving and difficult to use, and although perhaps seen as valuable, the effort required might not compensate for the value added by using the system.

Adaptation work

We have seen different examples of adaptation work; (1) Employees working around the system due to slip in several computing related resources, and (2) augmenting work of employees undertaken additional duties to try to make of for the constant misfit of resources and computing work required. Augmenting work conducted in order to support one's own work is supposed to be more easily affected by motivation than the case of augmenting work supporting the misfit in resources of someone else's work.

It is not suggested here that the nature of motivating and demotivating factors are different towards HMIS computing and other work, it is rather suggested that according to the different nature of HMIS responsibilities, it seems that the different types of HMIS work might need focus on different types of motivators.

For the purpose of analysing motivation towards HMIS the concepts and framework for defining different types of work was perceived to be relevant. Combining the different nature of HMIS work of the different categories of positions with responsibilities towards HMIS indicated that there is reason to believe that the different nature of work is of relevance for motivation towards work.

8.3.2 Potential conflicts between motivators for health workers and what is best for the HMIS

As indicated there are examples of situations where positive factors motivating health workers are not necessarily beneficial for the functioning of HMIS, unless there are mechanisms in place to protect the quality of the HMIS.

It was indicated in the discussion that promotion of health workers often leads to a loss of competence on HMIS. This problem is further increased because there is no real career path available to HMIS staff, indicating that very few seek HMIS skills for their own benefit.

There is reason to consider alternative arrangements as the general lack of qualified health workers adds to this dilemma. Is it really fair to ask overburdened health workers to focus on data when there is lack of health providers? Whether this is effective use of scarce human resources, must on the other hand be weighed against the value of medical knowledge and insight in ensuring the quality of HMIS data.

9. Conclusion

In this chapter I present my conclusions according to my research objectives, based on my analysis and discussion. I also present implications of my study both to theory, to the current practice in Malawi, and future research.

This study addressed the need to understand problems of utilisation of HMIS in developing countries with the critical lack of human resources in general and the lack of qualified staff in particular. The main objectives of this study was to understand local practices of data collection, processing, dissemination, and use of a national health management information system in a developing country in order to understand if health worker motivation affected or was affected by these practices.

In general I found both promising and concerning issues related to the current HMIS practices that had observable effects on motivation and demotivation respectively. Promising findings in this study included: (1) observed value of HMIS training, HMIS review meetings, supervision that targeted HMIS routines, and the Recognition Scheme awarding health facilities on the quality of HMIS reports; (2) committed and capable HMIS Managers that were crucial to the functioning of the system; (3) Health workers that were interested and willing to learn.

Some important findings of concern included; (1) problems of lack of skills and understanding among mainly lower level staff on the importance of data; (2) different expectations towards the intended functioning of support mechanisms among staff at district and facility levels; (3) priority of HMIS was not reflected in all practices at superior levels resulting in a lack of understanding of priority at lower levels; (4) HMIS was too involving and routines too time consuming at facility level in the situation of lack of staff in general and qualified staff in particular.

There were also examples where health workers attitude caused by other circumstances not related to HMIS routines affected HMIS: (1) low salaries and inequity in monetary incentive structures leading to envy and problems of cooperation among co-workers; (2) face to face meetings offered opportunities for professional exchange, recognition, proving one's work, and improved interpersonal relations.

Three specific objectives were addressed in order to understand the main objective of this study. First it was necessary to understand how managers and health workers at district and facility level perceived their current HMIS related practices. Managers at both district and facility levels perceived in general HMIS routines and HMIS quality to be reliable, but in many cases however not to be good enough. Mainly due to the different levels of support provided to HMIS practices in the two districts, the situation was different in Chikwawa and Chiradzulu. Chikwawa district received both technical and financial support from Management Sciences for Health and several HMIS support structures were piloted in the district. As a result there was a generally higher level of consciousness related to the importance of data collection and information use among staff. In Chiradzulu district that was not supported by Management Sciences for Health, and hence was not included in the piloting of HMIS support structures, had a generally lower level of understanding related to

HMIS among staff. This difference was in this study perceived to be mainly due to the different level of focus on HMIS routines in general.

Secondly, it was investigated how managers and health workers at district and facility level perceived both intentions and actual functioning of existing HMIS support structures. Although the level of support in the two districts were different, most of the support structures were the same. With the exception of the Recognition Scheme in Chikwawa, where health facilities were awarded based on the quality of quarterly reports, both Chiradzulu and Chikwawa had HMIS training; HMIS review meetings; and supervision targeting HMIS routines. The main difference was in the scope of the support, and in the frequency of which support was provided.

Chikwawa district received financial support to provide both quarterly HMIS review meetings at district and facility level, as well as both quarterly integrated supervision and quarterly HMIS specific supervision. The district was divided into six sub-clusters each with one responsible supervisor. The district level HMIS review meetings targeted the District Health Management Team, district Programme Coordinators, facility In-Charges and other stakeholders, while quarterly HMIS reviews at facility level targeted all facility In-Charges and the facilities' HMIS focal persons. HMIS training targeted all staff involved in data collection and reporting in the facilities. In general both facility staff and district level managers perceived these support structures to be valuable, although there were examples of differing expectations to their content, outcome and intended frequency between facility and district level.

Chiradzulu districts conducted annual district level HMIS reviews only, due to financial problems, targeting the same key positions in the district as in Chikwawa. Due to lack of funding they also had problems achieving targets on HMIS training in the district. Integrated supervision was however provided regularly by the District Health Management Team, in addition to monthly HMIS specific supervision. In Chiradzulu the general perception among both district managers and facility level staff was that the existing support structures were helpful but not frequent enough. As in Chikwawa, there were differences in expectations and perceptions of the intended and actual frequency of the provided support between district and facility level.

The third specific objective addressed the need to identify practices and support structures that either positively or negatively affected health worker attitudes towards HMIS related work. All the existing support structures identified were found to positively affect staffs' attitudes towards HMIS given that they were provided frequently and were conducted seriously. Good interpersonal relations among co-workers in facilities were also identified to be important, as facility staff then could work together to overcome challenging tasks, and thereby make this work more interesting and fun. One other issue of importance that affected workers positively was when managers reflected the priority of HMIS in their practices. Capable and committed HMIS Managers were crucial both to the technical functioning of the HMIS but also in giving the HMIS credibility and status.

Lack of skills and understanding of the intentions of HMIS and its functions was among the most serious problems that negatively affected health worker attitude towards HMIS. When the intended function, content and frequency of support was not clear this also negatively affected staff in lower levels when their expectations were not met, as well as when superiors did not fulfil their duties on HMIS but still expected lower level staff to take their

responsibilities serious. Low salaries motivated health worker in general to participate in training and meetings sessions to receive allowances. This resulted in envy and problems of cooperation among co-workers when the access to such benefits was not equally available. Problems related to data collection and time consuming reporting was also found to be frustrating when there was a general lack of staff and long lines of patients waiting.

Other writers have also indicated problems of motivation among health workers in developing countries and identified motivating and demotivating factors to include issues of support, training, recognition and pay, in addition to both financial and non-financial incentive (Dieleman et al. 2003, Dieleman et al. 2006, Manongi et al. 2006, Mathauer and Imhoff 2006, Mkandawire and Muula 2005, Muula and Maseko 2006, Rowe et al. 2005, Wyss 2004). In the following section I will address the specific contribution offered by this research.

9.1.1 Theoretical contributions

The fourth specific objective addressed the need to understand how motivational theory would apply to work of secondary nature, and how theory could be extended to cater for the different nature of HMIS related work.

There are other studies on motivation towards information systems use but these are mostly looking at highly automated systems. Motivation towards health information systems use in developing countries are touched upon in a few studies (Chunda 2006, Kimaro 2006, Moyo 2005) mostly indicating that motivation is an important issue. The conclusions in this study draw attention to that several issues of motivation are of importance to successful implementation and use of national health management information system in developing countries.

Empirical findings in this study, combined with findings from document analysis and literature studies have been analysed using Machungwa and Schmitt's six categories of good and bad critical incidents on motivation combined with Herzberg et al. concepts of motivators and demotivators. Hofstede's (1984) cultural value dimensions helped singling out some salient cultural features of relevance to work motivation, and Gasser's (1986) theory on integration of computing and routines work offered concepts that helped illustrating how motivation might influence different types of work for different reasons. Some specific contributions are indicated below.

- Machungwa and Schmitt's (1983) motivational items have been identified as chiefly relevant to the cultural context of Malawi. Differences identified related mainly to the specific situation of the health sector with few qualified health professionals, and to the different nature of computing work that support other work.
- The importance of different cultural values in motivational theory has been supported, and new insights have been offered to the possible need of addressing different values also within organisations. The high numbers of unqualified personnel in the health sector living in rural poor areas are likely to have more traditional values. Managers and health professionals are assumed to be more influenced by values of western individualistic cultures.

- Gasser's types different types of computing work have been identified as a helpful framework to illuminate motivational issues related to computing work, particularly related to computing work that support other work. To indicate motivational potentials related to computing work, Gasser's (1984) concepts must be combined with position and the nature of computing responsibilities.

9.1.2 Practical contributions and recommendations

The fifth objective of this study aimed at suggesting solutions to practice that might increase motivation or decrease demotivation among health workers towards HMIS related work. Findings in this study indicate that meetings face to face in general seem to be especially important potentials for motivation, possibly indicating traditional values that are still particularly important to many rural people working in the health sector. It is also indicated that the difference between rural workers and higher levels managers in respect to these traditional values might in fact be greater than the actual difference between Malawian managers and assumed western work values.

Managers educated in institutions that are mainly influenced by the legacies from their British colonial power as well as the increased difference between urban and rural life are likely to possess different values and expectations towards working life compared to those living in rural poor areas, and often have no formal training. There seem to be reason to take this into consideration when looking at ways to motivate workers in different levels of the health sector.

Finally, specifically related to HMIS, it seems important to look at the amount of medical insight needed to conduct HMIS related work. The high number of unqualified health workers need to be considered related to the amount of time spent on data collection and reporting to ensure that priorities are resource effective. There is reason to believe that it might prove easier to motivate HMIS staff towards their primary work of computing if a career path is provided, than motivating health workers to do augmenting articulation work to support the work of health managers.

This research provides insights into how issues of motivation can be addressed, specifically related to the identified motivating and demotivating issues. The study has implications for health managers at all levels, but specifically addresses issues of importance to district level managers. My main recommendations fall into two categories; (1) address practices with motivating potentials to increase commitment and motivation towards HMIS in the districts; (2) address practices associated with demotivating potentials to decrease low morale and demotivation towards HMIS duties in the districts. Some specific recommendations are outlined below, while specific recommendations towards HMIS related practices and routines are provided in Appendix E.

Motivation

Main issues of opportunity related to positive motivation include:

1. The existing support structures were all found to hold the potential to positively affect attitudes among staff towards HMIS. Continued focus on these support structures is recommended.

2. Encourage cooperation among staff in facilities, especially on HMIS reporting. This can increase the feeling of team work and make time consuming work more interesting and fun.
3. Give priority to face to face meetings between staff working in rural health facilities and district management.

Demotivation

Main issues of concern that need attention to decrease low morale include:

1. Problems of lack of skills and understanding among mainly lower level staff on the importance of data;
2. Similarly, to ensure continued positive potential of the existing support mechanisms it is important that those providing this support are both competent and have a supportive attitude.
3. Different expectations towards the intended functioning of support mechanisms among staff at district and facility levels indicates that practices are not clarified with all involved parties;
4. The national priority of HMIS was not reflected in all practices at superior levels resulting in a lack of understanding of this priority at lower levels. The need for feedback seems especially important;
5. Low salaries and inequity in monetary incentive structures leads to envy and problems of cooperation among co-workers;
6. HMIS might be too involving and routines too time consuming at facility level in the situation of lack of staff in general and qualified staff in particular.

9.1.3 Future research

This study explored issues of motivation and demotivation of health workers in general, and towards the Health Management Information System of Malawi specifically.

It is recommended that further research should look into the different nature of HMIS related work to establish more details of the implications and usefulness of Gasser's (1984) types of work for motivation.

Differences among different levels and categories of staff related to culturally different values should be investigated.

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Appendices

Appendix A

Comparing motivational themes by Machungwa and Schmitt (1983) and Herzberg et al (1993).

Herzberg's Motivators	Machungwa and Schmitt's corresponding themes
<i>Achievement</i>	Achievement
<i>Recognition</i>	Recognition
<i>Work itself</i>	Work itself
<i>Responsibility</i>	Responsibility
<i>Advancement</i>	Promotion
<i>Possibility of personal growth</i>	Learning

Herzberg's Hygiene factors	Machungwa and Schmitt's corresponding themes
<i>Company policy and administration</i>	<p>Tribalism (ethnicity), corruption in promotions, pay raises, work assignment or grievances, nepotism, racial discrimination</p> <p>Bad organisational policies and procedures</p> <p>Organisation, superiors and co-workers do not care for or listen to problems or welfare of employees</p> <p>Failure of organisation to keep promises</p>
<i>Supervision</i>	<p>Too close or too loose supervision</p> <p>Lazy and/or incompetent superiors and co-workers</p>
<i>Relationship with supervisor</i> <i>Relationship with subordinates</i>	<p>Bad relations and misunderstandings between workers, quarrels or mistrust in the work group</p>

Herzberg's Hygiene factors	Machungwa and Schmitt's corresponding themes
<i>Relationship with peers</i>	Unjust suspicion or blame for error committed
<i>Working conditions</i>	

Appendix B

Interview Guide

This interview guide presents the initial questions asked in this study. It does not provide an extensive list of questions asked during the course of all interviews. As our understanding of the HMIS and staff working with the HMIS grew, our focus changed and questions were added. The questions list does not reflect the sequence of which the questions were asked during each interview, and since our interviews were semi-structured, additional questions were usually added.

Data collection, Use of Data & Reporting

Is all staff who participates in data collection process adequately trained?

Is there an HMIS focal person at the facility?

Is facility staff trained in HMIS?

Are HMIS quarterly reports submitted on time?

Are there gaps in the reports you submit?

Are comments made against any gaps in the forms?

Do you trust the data you report?

Are copies of the HMIS quarterly reports kept at the health facility?

Does the District management review reports from facilities to check for mistakes?

Does the District management follow up with data collectors on identified issues?

Is the population size of your catchments area known?

Are graphs prepared for key indicators?

Do you have graphs displayed on the walls?

Are the graphs up to date?

Is staff able to interpret graphs and tables?

Are the graphs discussed with staff and management of the facility?

Is there any action based on the information from graphs and tables?

Do HMIS reviews occur regularly (quarterly) at district and facility level?

Do the health centers receive written feedback from the DHMT?

Supervision

When was the last supervisory visit on HMIS made to the facility?

What are the benefits of supervision?

How often are you supervised on HMIS?

Do you receive feedback based on the supervision?

Was there written feedback from the supervision?

Are there discussions with all staff on all identified problems and action points noted?

Has the sub-district supervisor conducted supervisory visits in the zone?

Is staff supervised by DHMT in relation to HMIS?

How is staff at facilities supervised on HMIS?

The Recognition Scheme

Does DHMT reward facilities that performed well in HMIS based on set criteria?

What kinds of rewards are given?

What are the benefits of the Recognition Scheme?

Does the Recognition Scheme work as motivation?

When was the last Task Force meeting?

What is the objective of the Task Force meeting?

Appendix C

Analysed documents

<i>National Level</i>	
Malawi Health Management Information Bulletin, Special Issue 2002, Health Management Information Unit, MoH	
Health Information System: National Policy and Strategy, MoH, Oct 2003	
HMIS Tools and Guidelines 2003 - Reference Manual, Health Management Information Unit, MoH	
Human Resource Strategic Plan 2003 Draft, MoH, Jan 2003	
MSH MALAWI PROGRAMME – Quarterly Report number 8, Jan – March 2005	
Preparation for the Operationalisation of Zonal Health Support Structures, Final Report March 2005	
Malawi Health Management Information Bulletin, Annual Report 2004 - 2005, Health Management Information Unit, MoH	
Guidelines on Quarterly HMIS Zonal Review Meetings for District Health Management Teams, MoH	
Guidelines for District Implementation Plan 2006-2007, Dep. Of Health Planning and Policy, MoH	
Health Management Information Systems Management Tools, Management Sciences for Health	
Malawi Health Management Information Bulletin, Semi-Annual Report July-December 2005, Health Management Information Unit, MoH	
South – West Zonal Review Meeting Report, March 2006	
Presentation ‘Lessons Learnt from the Previous HMIS Quarterly Review Meetings’ Chris Moyo, MOH, South West Annual HMIS Review Meeting, Blantyre, 3-4 August 2006	
Presentation ‘MSH Support to HMIS’, Maxwell Moyo, MOH, South West Annual HMIS Review Meeting, Blantyre, 3-4 August 2006	
<i>District Level</i>	
Chikwawa	Chiradzulu
DHO HMIS Supervision Report March 2004	Annual HMIS Review Meeting Report
DHO HMIS Supervision Report Sept 2005	HMIS Officer’s presentation at DIP Review Meeting Sept 2006
DIP/HMIS Review Meeting Report Oct 2005	Annual DIP Review Meeting Report Sept 2006
HMIS Performance Top 10 Reporting Facilities	
Minutes Zonal Supervision Review Oct 2005	

DIP/HMIS Quarterly Review Meeting Jan-March 2006	
DHO/MSH Implementation Report Jan-March 2006	
HMIS Officer's presentation at DIP/HMIS Review Meeting August 2006	
Minutes Zonal Supervision Review Feb 2006	
<i>Facility level</i>	
	2 Letters from DHO to health facilities

Appendix D

Consent Form

Title of Study: Opportunities of Existing Working Practices: Case studies of a District Based Health Information System in Malawi

Principal Investigators: Gro Alice Hamre

Co-investigator / translator: Marlen Stacey Galimoto

Study Contact telephone number: 09186375

Study Contact email: groah@ifi.uio.no

What are some general things you should know about this study?

You are being asked to take part in a qualitative research study. To join the study is voluntary. You may refuse to join, or you may withdraw your consent to be in the study, for any reason, without penalty.

Details about this study are discussed below. It is important that you understand this information so that you can make an informed choice about being in this study. You should ask the investigators any questions you have about this study at any time.

What is the purpose of this study?

The purpose of this study is to learn about what different health professionals in different positions in the health district perceive as good working practice related to data collection, data analysis, information use and information dissemination.

The hope is to gain insight of thoughts and opinions that you may have on what is or could be good working practices in these areas of practice so that we can learn from this and look for opportunities to improve the use and impact of the health information system.

How many people will take part in this study?

The study will be conducted in two different health districts in Malawi, and all health workers and managers with responsibilities related to data collection, data analysis, information use and information dissemination will be offered to participate.

How long will your part in this study last?

If you decide to be in this study, you will first be asked to participate in one initial interview

that will last for no more than one hour. Later we would like to observe work routines in your work place, attend meetings if possible and based on this we might have more questions at a later date, or if appropriate during observations or meetings. Time and place for any further questions will be arranged by your preference and convenience.

What will happen if you take part in the study?

The initial interview is made up of a series of general questions about how data and information is handled in your work place and whether you have opinions on whether some of these work practices are better functioning than others. There are no wrong answers or bad ideas, just different opinions.

If you agree to participate in the interview we will record your response on a piece of paper. Also, if you do not object, we would like to tape record the discussion to make sure we do not miss anything. Only the investigators will listen to the tapes. The tapes will be erased after the study is over. You can ask us to turn off the tape recorder at anytime. If you have any questions about the study, you can ask us at any time. You also have the right to stop the interview at any time.

What are the possible benefits from being part of this study?

You will have the opportunity to share your thoughts about the district based health information system; how it affects your work, your work place, and ways you think it could be improved.

Although you may not experience any direct benefits, your participation may help to make things better in your work place over time. Research is designed to benefit society by gaining new knowledge. However, there is a possibility that you may receive no direct benefit. You will not be paid to participate and there is no costs for participating in the study other than your time spent.

What are the possible risks or discomforts involved from being in this study?

The main risk is that you may feel uncomfortable answering some of the questions during interviews. You may be embarrassed or afraid to disclose information about your work relations or colleagues. You may refuse to answer any question that you do not want to answer. You can also stop participation at any time. You should report any problems to the researcher.

How will your privacy be protected?

No names will be attached to interviews and the data will be kept confidential. To protect your privacy, all of the information you provide will be stored only with an identification number, not with your name. Participants *will not* be identified in any report or publication about this study.

The only people with access to all of the data are the investigators. All notes and audiotapes containing your interview responses will be stored in a locked room at the investigator's place of residence in Malawi and will be destroyed in October 2006 when the study is over.

What if you have questions about this study?

You have the right to ask, and have answered, any questions you may have about this research. If you have questions, or concerns, you should contact the principal investigator listed on the first page of this form.

I have read the information above and give my consent to participate in the above described research project.

Signature of Person Giving Consent

Date

Printed Name of Person Giving Consent

Appendix E

Preliminary Report, Sandvand & Hamre, University of Oslo, Norway, October 2006

From: Jon Sandvand and Gro Alice Hamre, Master Students, University of Oslo, Norway

To: Chiradzulu District Health Office, Chikwawa District Health Office

Copy: The Health Management Information Unit at the MOH, South-West Zone Supervision Office, Management Sciences for Health (MSH), All Health Facilities in Chiradzulu and Chikwawa districts

Introduction

In the Health Management Information Bulletin, Annual Report 2004 – 2005, the Ministry of Health state that there is no denying the fact that the decision making process, at all levels, requires timely, objective, reliable and relevant information.

“Data gathering and its analysis into useful, timely and accurate information constitute a major investment of scarce and valuable health resource. It is hence essential that data must be conscientiously collected and analyzed and put to use first and foremost at the local, community, facility, and district levels. It is only then that the health care delivery system can plan properly, monitor and evaluate actual progress, redirect resource allocation, address inequities and imbalances and inform and educate the community” (MOH 2005).

Our research falls under the domain of health information systems implementation and use in the context of developing countries. The main objective of our study has been to look for good working practices related to data collection, data analysis, use and transmission of information at district and facility level in the Health Management Information System (HMIS) in Malawi.

In total we have conducted 37 interviews with different levels and categories of professionals working in the health sector over a period of 11 weeks, from August to October. We have talked to health professionals at the Ministry of Health (MOH), the Zonal Supervision Office of the South-West Zone and the District Health Offices (DHO) of Chikwawa and Chiradzulu districts. We have talked to health workers at the two district hospitals and five health centres in the above mentioned districts. We have observed meetings and supervisory visits and finally we have analysed minutes, reports and official policy documents.

We have aimed at understanding existing work practices and will continue to investigate whether there are opportunities for generalisation and dissemination of the lessons learned. This is a preliminary report of our main findings where we combine the best from the two districts. We highlight some issues that we feel will need attention to enable reinforcement

some of the promising work and support mechanisms we have observed. Finally we suggest some opportunities for further strengthening of the HMIS at the health facility level.

We will take this opportunity to express our sincere gratitude to all of you who have contributed to our work. We have been met by interested and helpful people who in turn have been a great motivation to us. Zikomo kwa mbiri!

Findings

In this section we present our main findings related to the HMIS. The descriptions of observed practices are followed by what we perceive to be the observed advantages. Our recommendations highlight what we believe to be important issues to follow up to ensure continued or reinforced results.

HMIS Reporting

Health managers at all levels need timely data they can trust to be able to make proper plans for the available resources. Inadequate or poor quality data may mislead important decisions and priorities. Reminders on deadlines for reporting from the district and assistance in collection of reports when transport is difficult, seems to improve both number of reporting facilities and timeliness of reporting. Controlling of submitted reports at the district for inconsistencies and errors, and ensuring clarification from facilities when questions are raised, contribute to increased completeness and quality of the reported data.

It is our impression that such feedback from the district HMIS officer educates facilities on how to improve their reports and that it sends the message that someone pays attention and care about what is reported from the facilities.

Recommendations

- Remind about deadlines for reporting
- Assist in collection of reports
- Give priority to improvement and clarification of the HMIS 15 reporting form
- Ensure that each facility has a HMIS focal person

HMIS Training

People need to understand the reason and value of the work they perform for them to wish to improve the quality of their work. HMIS training teaches staff techniques for filling registers and reports, but also serves as an important motivation. Going for training offers a break in the daily routine, reminds about the importance of the data collection and reporting, and it gives a chance for staff to refresh or gain new knowledge.

Through our interviews we have experienced that staff is noticeably more motivated for data collection, and understand better the value of reporting, when they have received regular training on HMIS. It is our opinion that they need to understand how to collect and report properly, as well as how they can use the information, for the quality to improve.

Recommendations

- Train and/or refresh all staff involved in data collection each year
- Train staff on how to analyse, interpret and use the information
- Include all planned HMIS activities in the District Implementation Plan

HMIS Recognition Scheme

Recognition and incentives appear to be effective ways of motivating staff to improve their HMIS reporting routines. In Chikwawa, where the Recognition Scheme has been implemented we have learned that staff is very motivated to win, and one health worker expressed that it creates a 'spirit of data collection'. Awards like calculators and flip chart provide an incentive for the winners to improve the quality of reporting, analysis and information use.

Quarterly reports are assessed and winners pointed out by a Task Force, and the Task Force meetings are perceived to have an additional educational value. The participants of the Task Force are rotated among representatives from the different facilities and through the assessment process they learn how they can improve their own reports. It is our impression that district management also sends the message that data collection and reporting are priority issues when they devote time and money to such a scheme.

Recommendations

- Ensure clear and unified guidelines for the assessment and rating of reports
- Give priority to the educational value of the Task Force meetings
- Rotate participation of Task Force members, but ensure continuity of purpose
- Ensure all staff is inform about the award system

HMIS Review Meetings

The HMIS review meetings offer opportunities for the participants to discuss data and indicators, and to compare their performance. They receive valuable feedback from their colleagues. The participants get experience in interpreting and presenting their data and these preparations increase the likelihood for local use of the same information later.

Through our interviews we have learned that these meetings are highly valued at all levels and perceived to be both helpful and motivating. It seems like this is also the most reliably mechanism for feedback at all levels, and at the facility level in particular.

The division of a district into clusters and regular review meetings within these clusters are in our opinion of great value. Being smaller in scale these meetings offer more flexibility, both to the form and content of the meetings. It is our impression that these meetings can offer a unique opportunity for support on technical issues on reporting as well as an educational value on interpretation of data and the linking of performance to planning of service delivery.

Recommendations

- Ensure that all participants are aware of the agenda for the meeting in advance

- Ensure that all participants have time to prepare properly
- Ensure that facilitators are prepared to enable proper help and feedback
- Encourage discussions and reflection based on the presented data
- Enable discussion on technical issues related to reporting
- Give priority to quarterly review meetings at district and sub-district level
- Give priority to punctual facilitation

Supervision

Regular supervisory visits enable invaluable follow up of routine tasks and responsibilities of health workers at facility level. It enables discussion and feedback on the spot that can assist in identifying weak areas of practice and the creation of action plans. Convening a meeting with all staff at the end of the visit to discuss findings and possible solutions ensure that everybody have a chance to understand how to improve. Reporting of findings to management increases awareness of existing problems and challenges.

Again the division of the district into sub clusters is of value. Follow up on important issues is easier when a supervisor can concentrate on a limited number of facilities and this can improve the continuity of the supervision. Regular HMIS specific supervision seems however to be an important addition to the integrated supervision as it allows necessary follow up more often and in greater detail.

Through interviews we have learned that supervision visits are valued as very helpful and motivating when performed regularly. It is also our impression that on the spot feedback and discussions is a unique opportunity to encourage and motivate both individuals and groups of health workers.

Recommendations

- Ensure mutual understanding of frequency of visits
- Give priority to more than one visit each quarter
- Ensure continuity by following up on issues from last visit
- Enable questions from all staff
- Ensure written feedback or action plan on the spot of supervision
- Ensure that feedback is shared with all affected staff

Some suggestions

Based on our understanding of the existing practices we offer in this section some suggestions on additional initiatives that might be worth considering in the effort of strengthening the HMIS.

Pair Form Filling / Reporting

Recent research has proved that the practice of two people working together on the same task when following a set of predetermined rules and routines improves the quality of the product. Pair Programming is initially a way of working while creating software for computers; but this contains a lot of similarities to the compilation of HMIS15 quarterly reports.

The observed advantages of working in pairs are:

- Work tasks become more fun
- Less mistakes are done
- Workers have greater confidence in the final result
- Increased man hours, but total task time is decreased
- Reliance on formal training decreases
- More effective learning through sharing of knowledge
- Less dependency on individuals

We believe that working in pairs while compiling HMIS15 quarterly reports might prove helpful in improving the quality of the reported data. The principle is based on two people working together on the same task having two different roles. One compiles the report while the other one observes. The one writing the report is called the **driver**, while the one observing is called the **navigator**. The drivers' responsibilities also include explaining everything he or she is doing to the navigator. The navigators' responsibility is to constantly review everything the driver is doing, as well as giving feedback and asking questions. To ensure that the report is filled correctly and that both driver and navigator equally understand the data, it is extremely important that the navigator always asks questions if he or she doesn't understand what the driver is doing.

It is recommended that the roles are changed frequently so that the driver becomes the navigator and the navigator becomes the driver. That way we secure that both driver and navigator are always equally involved in the process, and that both understand what is being done. In filling the HMIS15 report we suggest that the roles are changed every time you start compiling data from a new register.

Monthly Facility Meetings

High turn over of staff and problems of training of all new health workers are serious challenges to the quality of HMIS data as well as to service delivery. We believe that all health workers involved in data collection and reporting need regular attention and motivation for the quality of HMIS data to improve at this level. It is however our impression that most of the described support mechanisms and structures usually includes the involvement of only a few individuals representing the health facilities. These individuals do not always have the capacity to inform and motivate their friends at their respective facilities sufficiently.

We have mentioned the possible value of gathering all staff available for briefing and discussion at the end of supervisory visits. Most facilities do however also conduct monthly meetings for all staff where they discuss performance and plan their activities. We suggest that these meetings could serve as an opportunity to invite the HMIS Officer for discussion and briefing on selected HMIS issues for instance once every quarter. Collaboration between the in-charge of the facility and the HMIS Officer would be necessary to decide on relevant issues for such meetings.

In addition to ensure that all staff gets first hand information on HMIS issues, this could also serve as an opportunity to improve in-charges' capacity to orient and motivate staff on HMIS issues.

Conclusion

In our research we have looked for good practices related to data collection, analysis and use. We have in this preliminary report described the mechanisms that seem to give the most important support to staff in understanding and using data. Health workers and professionals at different levels have all emphasized these mechanisms as the most important factors for support and motivation in their daily work.

The main challenge to further success of these mechanisms is in our opinion regular training and motivation of all staff on HMIS related issues. Incentives are important, but the understanding of the purpose and usefulness of the system is in our opinion equally important.

Telephone: + 265 789 400
Facsimile: + 265 789 431
e-mail doccentre@malawi.net
All Communications should be addressed to:
The Secretary for Health and Population



In reply please quote No. MED/4/36c
MINISTRY OF HEALTH
P.O. BOX 30377
LILONGWE 3
MALAWI

28 July 2006

Ms Gro Alice Hamre
Department of Informatics
University of Oslo
P.O. box 1080
Blindern
N-0316 Oslo
Norway

RE: P. # 404: Opportunities of Existing Working Practices: Case studies of a District Based Health Information System in Malawi

Thank you for the above titled proposal that you submitted to the National Health Sciences Research Committee (NHSRC) for ethical and scientific review. Please be advised that the NHSRC has reviewed and **approved** your application to conduct the above titled study.

- **APPROVAL NUMBER** : NHSRC 404.
The above details should be used on all correspondence, consent forms and documents as appropriate.
- **APPROVAL DATE** : 28/07/2006
- **EXPIRATION DATE** : This approval expires on 27/07/2007
After this date, this project may only continue upon renewal. For purposes of renewal, a progress report on a standard form obtainable from the NHSRC secretariat should be submitted one month before the expiration date for continuing review.
- **MODIFICATIONS:** Prior NHSRC approval using standard forms obtainable from the NHSRC Secretariat is required before implementing any changes in the Protocol (including changes in the consent documents). You may not use any other consent documents besides those approved by the NHSRC.
- **TERMINATION OF STUDY:** On termination of a study, a report has to be submitted to the NHSRC using standard forms obtainable from the NHSRC Secretariat.
- **QUESTIONS:** Please contact the NHSRC on Telephone No. (01) 789314, 08588957 or by e-mail on doccentre@malawi.net
- **Other:**
Please be reminded to send in copies of your final research results for our records as well as for the Health Research Database.

Kind regards from the NHSRC Secretariat.

A handwritten signature in blue ink, appearing to read 'W. Karemba'.

.....
FOR CHAIRMAN, NATIONAL HEALTH SCIENCES RESEARCH COMMITTEE

PROMOTING THE ETHICAL CONDUCT OF RESEARCH
Executive Committee: Dr. C. Mwansamb (Chairman), Prof. E. Molyneux (Vice Chairperson)
Registered with the USA Office for Human Research Protections (OHRP) as an International IRB
(IRB Number IRB00003905 FWA00005976)

NATIONAL RESEARCH COUNCIL OF MALAWI

Request for Amendment/Modification

Please complete the following:

NHSRC REF. Number <p style="text-align: center;">NHSRC 404 (NHSRC will not process requests without this number.)</p>	Date of Request <p style="text-align: center;">September 12, 2006</p>
Principal Investigator Name: Gro Alice Hamre Phone # : 09 18 63 75 Email: groah@ifi.uio.no	Contact Person (if other than PI) Phone # Email
Title of Study <p style="text-align: center;">Opportunities of Existing Working Practices: Case studies of a District Based Health Information System in Malawi</p>	

1. Description of proposed changes: (Note: Changes may not be implemented before NHSRC approval)
 Use attachments and additional pages, as needed.

One more student will join the project that Hamre has received approval for, Jon Sandvand, male, citizen of Norway. We hope that the Ministry of Health can accept that Hamre's project description is changed such that Sandvand is also included, since they will work on the same project.

This will not alter the aims, contents and methods of the project, but it will increase the budget, so we therefore expect to pay an additional fee.

2. Reason for Amendment/Modification:

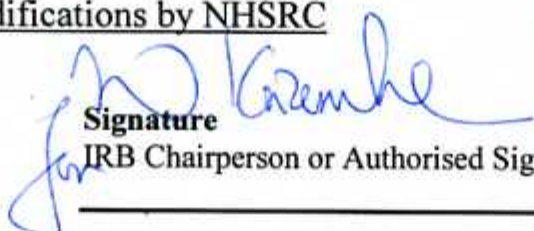
The agreement between Hamre and Sandvand regarding cooperation on the project was made after Hamre's proposal was submitted and approved by the MOH.

3. Changes to Consent Form: Are changes required? No Yes (If Yes, attach new consent form)

Gro Alice Hamre <hr style="border: 0; border-top: 1px solid black;"/> Signature of Principal Investigator	September 12, 2006 Date
--	----------------------------

Approval of Changes /Modifications by NHSRC

Recommended :
 Not recommended :


 Signature
 IRB Chairperson or Authorised Signatory

NHSRC Office Use only Approval date: N. H. S. R. C. Approved by: APPROVED Date: <u>20/9/06</u>
