

Human resources for health, opportunities & challenges in the Indonesian province of Papua



Royal Tropical Institute

Thesis

For obtaining the degree of Master of International Health

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Declaration: Where other people's work has been used (either from a printed source, internet or any other source) this has been carefully acknowledged and referenced in accordance with departmental requirements.

The thesis 'Human resources for health, opportunities & challenges in the Indonesian province of Papua' is my own work.

Signature:

A handwritten signature in blue ink, consisting of a large, stylized initial 'J' followed by a series of loops and a long horizontal stroke extending to the right.

Total word count: 14.813

Date: 13th of February 2010

Glossary and definitions

‘ABC’:	‘Abstinence, Be faithful, Condom use’ approach
AIDS:	Acquired Immune Deficiency Syndrome
Bidan:	midwife
Dani:	Western Dani are the main ethno-linguistic indigenous population-group residing in the district of Puncak Jaya.
DHO:	District health office
EPI:	Expanded program of Immunisation: World Health Organisation program that is implemented by most Ministries of Health
FBO:	Faith based organisation
HIV:	Human Immunodeficiency Virus
MDG:	Millennium Development goals
MdM:	International medical NGO Médecins du Monde
MoH:	Ministry of health
NGO:	Non governmental organisation
PHC:	Primary health care
PHO:	Provincial health office
Puskesmas:	Primary health clinic
STI:	Sexual transmitted infection
TB-DOTS:	Tuberculosis- direct observed treatment strategy
UN :	United Nations
VCT:	Voluntary counseling and testing
Village health workers:	Community health workers, volunteers, kaders, appointed by the village health leader to support health staff conducting health services. In Puncak Jaya most of them are old nurses (mantri’s), trained by the missionaries.
WHO:	World Health Organisation

I. ABSTRACT

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Title: Human resources for health, opportunities & challenges in the Indonesian province of Papua
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Abstract: The province of Papua is the easternmost province of the republic of Indonesia. The indigenous population of Papua consists of 300 ethnic groups that are becoming outnumbered by migrants from other islands in Indonesia. The province has the lowest human development index of the country and the health status of its population is characterized by a high infant mortality rate and a generalizing HIV epidemic (estimated 3% of the general population). The major factor that limits access to health services is the availability of competent health staff within the primary health care (PHC) system. The study identified factors influencing availability of PHC staff in the highlands district of Puncak Jaya. It proposes strategies to improve the attraction and retention of health workforce, *Methodology:* Literature review plus qualitative data-collection via in depth-interviews with 12 (village) health workers, policy makers and key-informants. *Results:* Factors at macro-health system, micro-health facility and individual level have been identified. Decentralisation of health authorities with limited decision space, human resource management capacity, expensive living costs and a low proportion of indigenous persons available for the health workforce are the main factors. *Conclusions:* Health policies that provide more decision space for health authorities to fine-tune its workforce are needed. Strategies that provide indigenous (village) health workers with education possibilities and absorption in the workforce are outlined. Indigenous health workers can become a valuable link between communities and non-indigenous staff provided that they are well managed and remunerated. Health workforce planning requires localized solutions adapted to the socio-cultural environment.

Keywords:

Human resources for health, Papua, retention, decentralisation, management, village health workers

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Introduction

The researcher has been working as medical coordinator and is still program adviser for international NGO Médecins du Monde (MmM) in Papua. The general objective of its current 3 year program is to improve health status of the population living in the two sub-districts of Mulia and Sinak, part of the larger Puncak Jaya district. The specific objective is to improve access to primary health care (PHC) services; with a special focus on prevention and treatment of prevalent infectious diseases as HIV/AIDS, Tuberculose (TB) and Sexual transmittable infections (STI's). This work is done in partnership with local health NGO PRIMARI and the district authorities. Health staff and village health workers (VHW) play a vital role in this capacity building program on local health resources. One of the main determinants that influences sustainable results of this program, is the availability and performance of health workers with all stakeholders; MmM, the district health office, the district hospital and two health centers.

Voluntary Counseling and Testing (VCT) services have only started recently and depend on motivated and skilled staff. During several years the researcher and NGO have been working in partnership with the local health authorities to address staff training in a more comprehensive regard, within the rationale of PHC.

Worldwide, shortage and migration of skilled health workers impede that health related Millennium Development Goals (MDG) can be met. Skilled health workers are the core of PHC and hence the basis of a vital health system.

This research hopes to provide some suggestions and evidence to enhance health staff attraction, retention and available presence at the health post for the district.

The study is mainly targeted for health policy makers and authorities in the district of Puncak Jaya. The NGO MmM, policymakers as well local health staff will participate in the discussion on study findings and recommendations with the main researcher after finalisation of the thesis.

Background

Papua consists of the easternmost two provinces of the Republic of Indonesia and displays a topography that encompasses a central chain of mountains and large areas of swampland in the coastal areas. The total population of Papua is around 2.600.000 people, making up only 1% of Indonesia's entire population, of which 70 % live in villages and remote mountainous areas. There are over 250 ethnic groups with different customs, languages, indigenous practices and beliefs in Papua. Moreover, there are 100 different non-Papuan ethnic groups residing that have migrated over the last decades to the province. Literacy rate is 75 %, with only 6.2 mean years of schooling per capita (BPS statistics 2006). For many non-economic indicators of poverty, including those measured by the MDGs, Papua lags behind most other provinces. According to the Indonesian Human Development Index over 1999- 2005 (BPS 2006), Papua ranks lowest

in Indonesia. It actually deteriorated in HDI status, which is attributed to declines in education coverage and income levels (UNPD 2005, p.6-7). Since 2002 Papua has been granted special autonomy by the central government. This and decentralisation policies have transferred executive power to the district level.

The district of Puncak Jaya is located in the central highlands and has 142.500 inhabitants. The main indigenous population is the western Dani, one of the largest ethnic groups in Papua. Although Christianity and civil administration have brought a lot of rapid changes in this society; an agricultural, rural way of living prevails; with a distinct socio-cultural context, language and health perception (Gaillard 2004). The district is accessible only by plane. The villages can be reached by feet and traveling lasts up to one day. Public services as housing, sanitation, education and health care require improvement to level it with other parts of the country.

Conflicting interests and exploitation over local and natural resources, like tropical hardwood, minerals and oil, have resulted in distrust within this multi-ethnic society. The indigenous population does not have the same educational and economic possibilities as residents originating from Java and Sulawesi. This migration began as part of a governmental transmigration program in the 1980s. Although this program has stopped, migration continues informally and unchecked, whereby the indigenous population is displaced from jobs and land. This migration pattern has led to a demographic shift. Whereas indigenous Papuans comprised 96% of the population in 1971, they accounted for only 59% in 2005. Religious and cultural differences are not well understood between these population groups (Rees *et al* 2008).

These are the underlying determinants for a low-intensity conflict between a separation movement and the security forces of the Indonesian government. This conflict is rooted in the grievance by Papuans that, after a period of governance under Dutch colonial law, in 1962 the area was integrated into the Indonesian Republic. A considerable part of the Papuan population are dissatisfied that they have not been consulted in their right of self-determination. Although the province has received a special autonomous status this grievance still exists.

The rapid social changes since the eighties have led to a considerable 'anomic' generation of young Papuans. This generation has difficulty to define their place in society, as if they fall between two stools. These youngsters do not feel comfortable anymore to participate in the traditional customary rituals as they consider them out-dated, but they are not able to profit from modernization either as they often lack required qualifications. Members of this community are easily trapped in situation of social deviation. This has led to low attendance of formal education, considerable abuse of alcohol and domestic violence amongst others. The inferiority complex of many young indigenous people leaves them viable to falling into poverty and perilous behavior that affects the health status (Sugandi 2008).

National averages indicate that the population lives longer and child mortality has fallen dramatically. However, Indonesia continues to under-perform in a number of important

areas and, as a result, is unlikely to achieve several of its health-related MDGs. In particular, the country has made very little headway in reducing maternal mortality, improving child nutrition or addressing geographic health disparities (Worldbank 2008, p.2-3).

Indonesia is undergoing a major demographic transformation that will demand a different — and more expensive — health system. Indonesia is in an early phase of epidemiological transition: communicable diseases, such as TB and measles, albeit in decline, remain highly prevalent, while non-communicable diseases, such as diabetes, heart disease and cancers are increasing (Worldbank 2008, p.23-25).

Disparity in health status between geographic regions can be reflected in the health indicators. In the table below are the reported health indicators available for the district of Puncak Jaya and the national average in Indonesia.

Indictors	Puncak Jaya	Indonesia
Infant Mortality Rate	89/1000 live births/year	35/1000 live births/year
Under 5 Mortality rate	30/1000 U5 pop./year.	31/1000 live births/ year
Maternal Mortality Rate	397/ 100.000 live births/ year	420/100.000 live births/ year

Table 1. National and district mortality rates (District health authorities 2007 and WHO 2009)

The comparison indicate that the mortality rates don't differ that much, maybe only for the Infant Mortality Rate. There is a probability that data are underreported as no demographic health survey had been conducted in Papua before 2008. Other studies indicate higher mortality rates for the district (Rees *et al.* 2008).

In Papua the HIV/AIDS prevalence is estimated to be 2.4 % of the general population. HIV infections indicate a slow, but steady growing epidemic that has become generalized in the highland districts, where the prevalence is estimated to be 3.0 – 3.5 % of the average population (MoH 2007).

The Indonesian health system has its origins in a post-independence planning and implementation 50 years ago. The main goal was to improve access to health services under the umbrella of PHC, initially establishing a health center (Puskesmas) in every sub-district in which village volunteers are trained to supervise village activities (Posyandus). Indonesia committed itself to increase the number of Puskesmas. In wake of the Alma-Ata declaration in 1978 the goal was to sustain one Puskesmas per 30.000 people, staffed with one doctor and a team of paramedical staff. This indicator is more or less still valuable for staffing and coverage of the Puskesmas in 2008 (Worldbank 2009, p.39).

This goal is hard to reach in the district of Pucak Jaya as it is remote, and economic opportunities are limited. Private provision of health services have not developed (except one pharmacy in the main city). Service provision is by the public authorities and by faith based organizations. The health services in the district now consist of one public general hospital, one missionary hospital and 6 puskesmas. Additionally 10 new puskesmas are

allocated to new sub-districts that have been created in 2006. These new puskesmas still need to be staffed with managers, administrators and health staff.

Statement of the Problem

Nature of the problem: limited availability of competent human resources for health

The global health worker shortage has been a major impediment to making progress on meeting the health related Millennium Development Goals (WHO 2006, p.19-20).

WHO defined a minimum threshold of 2.28 health care professionals per 1000 population to reach a 80% coverage level of skilled birth attendance. Indonesia is one of the 57 countries identified by the WHO as having a critical shortage in health workers (WHO 2006, p.11-13).

Indonesia's health workforce has increased over time and the ratio of health workforce to population has improved. However doctors are unequally distributed geographically, and are mainly working in urban areas. Midwives are better equally distributed between urban and rural areas, and their health worker ratio indicate that they are over-distributed in Papua in comparison with other parts of Indonesia (average of 49 midwives/ 100.000 population in 2006). Changes over time have been positive for rural and remote areas (Worldbank 2009, p.17).

The health worker ratio/ 100.000 Population is 18.8 for doctors and 84.5 for midwives in the province of Papua in 2006 (MoH 2007). Despite the mentioned increase of the workforce nationwide; NGOs and local organizations observe that availability of health staff in the district is not yet optimal. These organizations note that absence of staff in the more remote PHC and health posts in the villages is frequent. Management and supervision of staff, staff presence at their position, attraction and retention of health staff are challenges for the district health system (Mdm 2008).

Doctors originating from outside the province are willing to work in the district, as it financially and professional stimulated to work in remote areas. Unfortunately, most of these staff leaves after 1 year of service and empty spaces in the long-term retention of health workers remain.

The output of the nursing, midwifery and medical schools, has increased over the last years. The number of paramedical schools increased from 5 to 9 from 2004 till 2006. These schools provide a D-III degree in nursing, midwifery or related field. A university public health department and medical school opened in 2002. The first batch of doctors graduates in 2008. The output of these schools in 2006 was 100 nurses, 80 midwives, 50 environmental health staff and 50 nutritionists. With a special budget and resource allocation from the central government targeting the training of nurses in Papua, an additional 115 nurses graduated in 2006 (HRD department of MoH 2007).

The local government subsidizes indigenous promising youth with a high-school degree and existing staff to be trained as nurse or midwife. It is noted by the researcher, that once

trained, indigenous health workers prefer to continue working in urban areas than to be retained for their original district.

The ongoing decentralisation and administrative division of districts have not been accompanied by support from the central level to transfer the management of the health system. The capacity of human resource management is limited, as is available staff that has been trained in management capacities. Decentralization has eroded the health information system, as it isn't controlled anymore from the central provincial level. These two phenomena had its effect on the possibilities to plan, supervise and monitor existing and new health workforce (Worldbank 2009, p.44-45).

Administrative sub-division of districts has also led to a larger need for nursing, midwifery and administrative staff as the amount of health units has increased. It is observed that staff that before worked as nurse or midwife in a primary care center, have been promoted to an administrative or management position. New staff has only partly replaced the positions that then became vacant.

Before the government opened a public hospital in 2004, the *Immanuel* missionary hospital provided general and specialized health services to the population. A foreign doctor was providing services with trained local nurses. An outreach health program that linked with 22 health posts in villages managed by VHW or so called 'mantris' provided basic health services to the population.

Because of financial reasons and national health regulations most of the missionary clinic activities have been downscaled since 2002. Currently only a small outpatient primary care department remains, managed by 8 nurses. The posts in the villages, as well the inpatient activities have all stopped, or have been transferred to the government services. The existing staff stopped working or became incorporated as a civil servant in the government health services.

Major factors influencing health staff availability

Human resource policies and its allocated funds come from different levels (national, provincial and district), which lead to a complex yearly budget provision on health expenditure and health staff planning at district level. Health staff in clinics complains of frequent salary delays and lack of essential materials to provide services (Mdm 2008).

The low-intensity conflict leads to security constraints for the local population. Internal displacement is seen in some areas in Papua, including Puncak Jaya. As this conflict follows ethnic – and religious lines, distrust and fear exists between indigenous groups and migrants. The migrant health care workers speak another native language than the indigenous population, leading to communication gaps between the groups.

Since the mid-70's Puskesmas were staffed through a period of obligatory government service (*Pegawai tidak tetap*, PTT) for medicine, nursing and midwifery graduates. For fiscal reasons, this system ended in 2007, except for a small number of doctors serving during six months in a remote area. In addition, a large part of the workforce, indigenous

auxiliary nurses and midwives are not officially allowed to practice anymore in health clinics and are required to have a full qualification (Heywood and Harahap 2009).

Nationwide, the output of midwives and nurses has increased till 10.000 midwives and 34.000 nurses per year. For doctors the output has increased till 5.500 graduates per year. This growing workforce has problems maintaining its quality, as the growing number of private medical school still has to be accredited for its education. The production of specialist doctors remains low, at around 1.200 per year. This low production is related to the limited capacity of the public medical schools to provide specialist training. Only 14 out of a total of 52 medical schools provide specialist training (Worldbank 2009, p.33).

With limited availability of qualified health care workers, the health system is restricted in improving the health status of the population. This study searches to identify the core of this problem and to research major determinants that influence human resources for health availability for the district of Puncak Jaya.

Thesis objective

General thesis objective

To identify factors influencing availability of primary health care (PHC) health staff in the district of Puncak Jaya, Papua, in order to propose interventions to improve health staff availability.

Specific thesis objective

1. To identify determinants for health staff availability in rural areas at global and national level.
2. To describe human resource policies implemented at province and district level influencing health workers availability for the district of Puncak Jaya.
3. To explore technical and organizational factors at health clinics influencing health staff availability for the district of Puncak Jaya.
4. To explore contextual factors influencing health staff availability for the district of Puncak Jaya.
5. To reflect on the research methodology used for the objectives of the study.
- 6 To provide recommended points of actions to improve health staff's availability and greater retention of health staff for the district of Puncak Jaya.

Methodology

(For description of complete methodology see annex 8)

For the thesis objectives, two study designs have been selected. The 1st objective is met via a literature review while the 2nd till the 4th objective are explored via a field research in the district.

Methodology for the literature review

A desk study was performed on published material. The main sources for the literature search were PubMed, Medline and electronic journals over the period 2000-2009. The study also included consultations of relevant websites of international institutes and national health authorities. Inclusion criteria were English or Indonesian written articles. Search terms as 'human resources' combined with 'retention', 'availability', 'determinants', 'Indonesia' and 'Papua' have been used. Via advisory documents and meta-analysis papers a targeted search has been made of articles in references lists.

Study design for the field research

A qualitative small scale - explorative design was best suitable to achieve objectives of the study. Topics used to reach the thesis objectives are provided in the research tables in annex 2. The study population consists of health staff, village health workers, key informants like priest, village- and tribal leaders, as-well health authorities staff working on human resource management.

The study followed a purposive sampling strategy for the respondents. Selection was done via (indirect) partners with which the NGO of the main researcher works. To avoid bias, participants were selected that are not actively involved in the program. Gender balance in the study population was initially aimed for by selecting an equal amount of men and woman among the respondents. Unfortunately ten of the eventual respondents are man, two are woman.

Data collection techniques

Data collection and annual reports of WHO, Ministry of health (MoH), Provincial health office (PHO) and District health authority (DHO) for the years 2005-2007 were reviewed regarding human resource planning, training, availability and performance. National guidelines on human resource management were assessed. The administration reports of human resources at district and clinic level were reviewed. In-depth interviews were conducted to provide insight in the different issues that lead to health staff performance and availability. A topic guide is developed for these interviews.

Data collection and analysis

The research team consisted of one researcher and an assistant to translate the informed consent and interview introduction topics to be addressed. The interviews and data collection were conducted between 26th of October and 3rd of December 2008. Each interview lasted in between 45minutes and one hour.

Data collection and analysis

The interviews are conducted following an interview guide (See annex 5). The interviews are sorted on issues and coded after each session according to topics. Data are sorted in a master excel sheet by the principal researcher.

Quality assurance mechanism

The assistant translated the topic and issues related to the objectives for interviews and informed consent. Pre-testing of interview guide was conducted during a first interview. The principal researcher coded and sorted the interview topics; He crosschecked the coding with the assistant researcher when in doubt of translation. Using different methodologies like literature reviews, guided interviews and observations was done for triangulation purposes. External validity of the study will remain low as the specific geographical and cultural characteristics of the district and population represent a limited area in Papua. The results cannot directly be transposed to other districts in Indonesia.

Ethical considerations

The research has been conducted under approval by MdM, and must follow the mandate of the organization. It was clearly explained to local stakeholders that this research will be used to identify possibilities to enhance, in partnership, human resources for health availability. The research has been approved by the ethics comity of the Royal Tropical Institute.

Planning of research objectives and methodology, as well a formal agreement with the district authorities (DHO or representative from HR department) has been obtained. Written or verbal consent was obtained from all participants involved in the study. Anonymity is ensured.

Limitations of the study

Researcher is working within the framework of MdM's program and is hence not objective to the situation. Due to his coordinating position time for data collection is limited and because of time and budget limitation original focus group discussions have been taken out of the research proposal. The research is focused on PHC and as such does not include health workers working in inpatient departments of the district hospital. The VCT team of the hospital is however included, as they have a strong link with outreach PHC. Perceptions, language, cultural and hierarchical gap between respondents and main researcher do bias the results.

The existing missionary hospital is not included in this study as it is not a partner of the health authorities and the NGO. Due to the size of the study and specific, remote and socio-cultural aspects of the district and its population, external validity is low.

Workplan

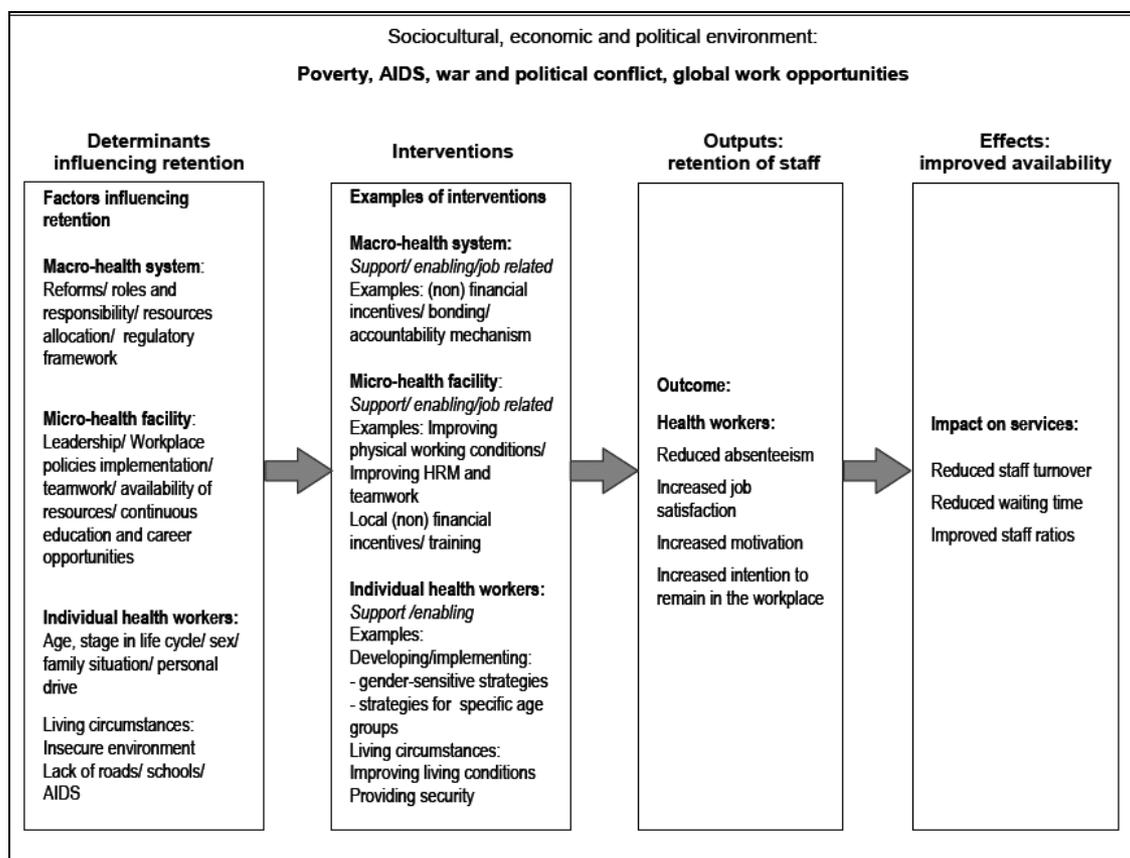
See annex 4.

Dissemination of results

A first preliminary feedback has been given to the head of the DHO after conduction of interviews and first analysis. Final discussion is done after completion of the report, and scheduled in a future evaluation visit of the coordinator to the district (2010). Recommendations to improve health staffs' availability will be shared with local stakeholders as the health authorities, NGOs, faith based organisations (FBOs) and UN agencies.

Conceptual Framework

A conceptual framework for analysing health workers availability



Figuur 1. Conceptual framework (adapted from Dieleman and Harnmeijer, 2006)

The conceptual framework to analyse determinants of health workers availability has been used (Dieleman and Harnmeijer 2006). Although it is originally limited to retention, it was considered applicable for health staff's availability in this study. The framework categorizes the factors influencing availability in the following broader groups:

- The macro health system
- The micro health facility
- Individual health workers

The determinants are embedded in the local and national socio-cultural, economic, political environments. The literature review and study framework follows these categories. For the purpose of logical coherence this categorization is followed in the study. Distinction between them is not always clear and overlap does occur between them and hence also in the presentation of this study (Lehmann *et al* 2008).

Definitions

Health workers: People whose job it is to protect and improve the health of their communities. Together these health workers, in all their diversity, make up the global health workforce. The data available on health worker numbers are generally limited to people engaged in paid activities, hence the data provided refer to these workers (WHO 2006, p.1-3). They include the people who provide health services - such as doctors, nurses, pharmacists, laboratory technicians - and management and support workers such as financial officers, cooks, drivers and cleaners.

Retention of health staff: The “continued employment of skilled and productive staff”.

Available health staff: availability of health staff in terms of space and time: encompasses distribution and attendance of existing workers. Availability can be split into three elements; firstly attraction of health workers to a rural posting, secondly retention of the health worker at that post, thirdly the actual physical presence of a health worker in that post. Availability is one of the four dimensions of health workforce performance, the other being competence, responsiveness and productivity.

Rural areas: considered to be those areas that are not urban in nature. An ‘urban agglomeration’ refers to the de facto population contained within the contours of a contiguous territory inhabited at urban density levels without regard to the administrative boundaries. It usually incorporates the population in a city or town plus that in the sub-urban areas lying outside –but being adjacent to- the city boundaries (WHO 2009, p 6-7).

Results of the study

Literature review

Having remote and rural areas staffed with health workers, depends on two interlinked aspects (Dieleman and Harnmeijer 2006, p.9-12):

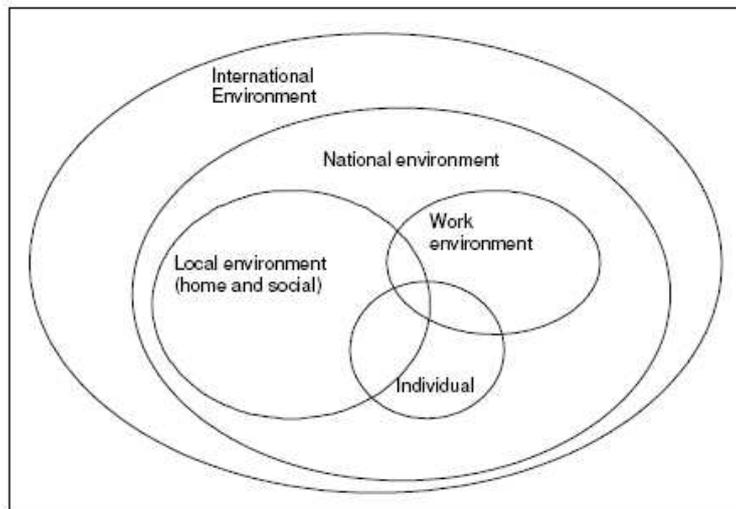
- a. The factors that influence the decision or choice of health workers to come to, stay in or leave those areas.
- b. The extent to which health systems policies and interventions respond to these factors.

This literature review and study analyzes primarily the factors addressing availability. Health systems policies and strategies addressing and improving health workers availability will return in the discussion and recommendations of this thesis as to suggest possible strategies to improve health workers availability.

There are several theories and models exploring factors involved in worker's mobility. They range from economic theories as the neo-classic wage theory, which explains that choice of working relation is driven mainly by financing motives. There are also behavioral theories as the one of Maslow and Herzberg, that put as centre of a decision making process the expectations and satisfactions that (health) workers get out of their job (WHO 2009, p.11). Elements of both theories are integrated in the conceptual framework for this study.

Factors that influence migration of workforce are often described in "push" and "pull" factors. "Pull" factors are those, which attract an individual to a new destination. One has to think of an increase in income, career and education prospects or better living conditions. "Push" factors are those, which act to repel the individual from a location. At local level one sees that living conditions and social environment can act as both push and pull factors, while at national level labor relations, political and social stability play a role for health workers to retain in a rural area (Lehmann *et al* 2008).

The complexity of these factors makes their categorization difficult; but they are generally discussed as individual, organizational and broader environment factors. These factors interact and influence each other in the decision for location of work (WHO 2009, p.11). The interactions can be grouped as follows:



Figuur 2. Different contextual impact on attraction and retention (Lehmann *et al*, 2008)

Determinants at the politic-economical and macro health system level influencing health workers availability

Most commonly cited reasons for departure from health workers from countries or areas of origin are low wages and compensation, which makes it impossible to afford the basic necessities of life; lack of continuing education opportunities and training institutions; salaries that are not realistic in terms of the risks and amount of work; lack of social and/or retirement benefits; lack of proper equipment to carry out the procedures professionals have been trained to perform and deliver; and an unsatisfactory or unstable political environment. This accounts both to external as well domestic migration from remote to more urban areas, and domestic movement out of public health sector employment. A study emphasized importance of perceived national security environment. It found that in Zimbabwe social unrest and conflict ranked high as reason for migration (Awases *et al.* 2004).

Changes in the socio-political environment have an influence on distribution of health workers. A study in Thailand found that distribution of doctors in Thailand was influenced by several macro-health system factors. The worldwide movement of primary health care and the rural health development policy during 1977 –1987 were the positive factors that led the Thai government to plan and implement a more equitable distribution of doctors. Rapid economic growth in 1987-1997 and increase of the international health service trade in late 1990s, resulted in increased private hospital demand. These were negative factors contributing to an increasing mal-distribution of doctors.

The same study mentions that if authorities allow dual practice by health workers it can have a negative effect on the availability of health staff in the public sector. Its implications range from time misuse by spending public funded time in private facilities to neglecting patients in public service and poor performance from exhaustion (Noree *et al* 2005).

Hiring caps at the Indonesian Ministry of finance limit a growth of the civil servants stock for the districts. Fresh graduates can have difficulty finding a position in the public service (Worldbank 2009, p.37 -38). The quality of education from the growing number of private colleges is not yet accredited. Although the training output of health workers has increased, competencies of these health workers cannot always guaranteed (Worldbank 2009, p.34-35).

Decentralisation of government and health authorities can be done in four types, as is explained in an overview article (Kolehmainen-Aitken, 2004). In Indonesia there was initially a decentralisation where civil servants management was devoluted and not deconcentrated to the district government. Despite assertions to the contrary, it brought no increase in ‘decision space’ about human resources for health in the districts. ‘Decision space’ is a term introduced by Bossert to describe the expansion of choice at local level of government in the situation of decentralisation. “It is the range of effective choice that is allowed by the central authorities to be utilised by local authorities” (Bossert 1998).

In the first years of decentralisation of government in 2001 some decision space became available as districts could 'contract' local health workers to be part of the workforce. However, the central government has recently moved to regain control over most of the public sector staff by converting all non-permanent (PTT) and contract staff to permanent civil services. With this policy of 're-centralization' civil servants management, the decision space for districts regarding workforce planning is reduced to virtually zero (Heywood and Harahap 2009). Moreover, because of fragmented responsibilities at central level, the deployment of new civil servants to the district can be a time consuming processing (Worldbank 2009, p.38).

It is estimated that 60-70 percent of publicly employed health staff have second jobs, many in private solo practices or private facilities. This practice is commonplace not only for health staff but also for all civil servants in Indonesia. The lack of private practice opportunities in poor and remote regions is a factor that deters deployment to these regions (Heywood and Harahap 2009).

Determinants at the micro health facility level influencing health workers availability

A systematic review found that low salaries were particularly de-motivating if health workers felt that their skills were not valued. Further more, they became overworked when taking a second job to supplement their income. The same study identified that supervision and recognition from managers and/or colleagues are important elements in health workers motivation. The deepest concerns of health workers when it comes to practicing in remote and rural areas are those related to the socio-economic environment. This doesn't include only financial security, but also working and living conditions, access to education for children, availability of employment for spouses, insecurity, and work overload. It was reported in Tanzania that to be trusted by the community was a crucial component for motivation (Willis-Shattuck *et al* 2008).

Gender is another important determinant at the health facility level. Woman health workers are less likely to occupy positions that involve decision making and more likely to become unemployed than male counterparts. Women are often expected to conform to male work models that ignore their special needs, such as childcare or protection from violence. Women more often than men have to work part-time in order to be able to combine gainful employment with family responsibilities (Sen *et al.* 2007). As more females enter the medical profession, the need to understand gender-related differences in terms of specialty preference, geographical location of practice and other characteristics become increasingly important. A study in Bangladesh found that female doctors rarely live in the same village as their assigned post and have higher overall absentee rates (Hossain 1998). Socio-cultural factors often preclude woman from accepting positions in rural, remote areas for extended periods (Dussault and Franceschini 2006).

Determinants at individual and local contextual level influencing health workers availability

Most of the literature addressing individual and local factors, applies to high-income countries. Some repeating determinants can be seen that also apply for middle- and low-income countries. Lack of housing, health care and schools are reasons why staff either

do not join or leave health services in remote areas. Other determinants include qualified teachers, good drinking water, electricity, roads and transport (Lehmann *et al.* 2008).

Remote postings may not provide the opportunity to an adequate income for health workers and therefore may be unsustainable without subsidy. A study that evaluated the Indonesia government village midwife program (Bidan di Desa) 16 years after its launch in 1989 found an inequitable distribution of midwives between urban and remote areas. Midwives are attracted to urban areas because they can generate viable and sustainable clinical practices there. Most offer private services outside their government working hours, under a formal arrangement designed to enable public sector providers to supplement their government pay. Only in 30% of the surveyed villages the midwife was also resident, which is more the case in urban villages than in remote areas. Assigned midwives who are not resident spend less than half the number of days on village-based clinical work than residential midwives, who spend a median of 20 days per month in the villages (Mackowieka *et al.* 2008).

Health workers uncertainty about their position can lead to attrition of the workforce. A study conducted in the autonomous Navajo region in the USA, found that non-indigenous health workers feared institutional reform, namely the possibility that the facilities would be managed under indigenous authorities. They were afraid to have less social and financial benefits as well less decision power. This reform was cited as one important reason for wanting to leave. Lack of administrative support, distance from family and friends, poor local school systems and lack of health care were other reasons for health staff to leave the area (Kim 2000).

Health professionals develop a set of individual 'coping strategies' to deal with unsatisfactory living and working conditions. They choose to work in remote areas where income is 'topped-up' with financial incentives or the position provides access to future specialist training. Examples from Indonesia indicate that initially these strategies worked but it proved expensive and attract providers with 'wrong' skills and attitudes (Chomitz 1998; Lerberghe *et al.* 2002).

Besides economic reasons for retention and attraction of health workers, standard or social norms are equally important and complementary for staff to be available in remote areas. It implies that a person's social background, ethnicity, age, gender, education, values, beliefs etc. are all factors to be considered for retention and deployment of staff to remote and rural areas. The individual person needs to 'fit' with its working and social environment. Health staff growing up in a rural community have been associated with higher probability to practise in rural areas (Dussault 2006).

Evidence suggests several education strategies at macro-health level to increase attraction and retention of health workers (WHO 2009, p.14-15) that can be considered for remote areas:

- To prioritise training health professionals from rural areas as they are more likely to practice in rural areas
- To have clinical rotations for medical students in rural settings
- To adapt curricula to include rural health issues
- Loan repayment schemes and credits for entering medical resident programs can encourage rural placements

A major part of the factors at global level that are described in the literature review did return in the findings of the interviews as shown below.

Field study

Respondents:

12 respondents have been interviewed for the study, following the interview guide (see annex 5). Their profiles can be summarized as follows.

Organisational level	Health authorities	Puskesmas (Mulia and Sinak)	Village level	Faith based organisation	Non governmental organisation
Positions and nr. of staff	Head of HR department provincial level (n=1) Head of HR department at district level (n=1) Staff programming health services at district level (n=1)	Manager (n=2) Doctors (n=2)	Village health workers (n=2)	Religious leader (n=2)	Director (n=1)
Sex and age	Male (n=3). 50, 33 and 34 years.	Male (n=3). 37, 35 and 34 years. Female (n=1). 28 years	Male (n=1). 35 years Female (n=1). 26 years	Male (n=2) 50 and 55 years	Male (n=1). 43 years
Education	- Master in public health (S2) - Bachelor in public health (S1) - Senior Nursing degree (D-III)	- Bachelor in public health (S1) - Senior Nursing degree (D-III) - Medical degree (n=2)	- Junior high school (n=2)	-Theological college (n=2)	- Medical degree (n=1)
Working experience	- Since 6 years in this position, before head of research department - 10 years working at	- Since 2 years head of PKM, before nurse in several PKM in highlands - Since 1 year head of PKM,	- Mantri since 10 years - Kader/ midwife	- Religious leader and bible teacher (30 years) - Religious leader, bible	- General doctor in PKM in highlands for 3 years, afterwards working as NGO staff. Since 8 years

	DHO, since 1 year in this position before in department of programming health services - Works since 5 years at DHO, before worked as nurse in PKM.	before working as nurse in same PKM - Works since 4 years in district, both at PKM and hospital level. - Works since one year in district at PKM level.	assistant since 5 years	teacher and mantri (30 years)	director of independent NGO
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Tabel 2. Overview of respondents, including age, position, gender, education and working experience

The study findings are clustered in 3 groups of factors influencing availability, which are according the conceptual framework provided. These consist of *the macro health system*, *the micro health facility* and *individual health workers factors*. Overlap exists between them, including factors that fit *the political, socio-cultural and economic context*. These contextual factors influence the 3 levels at the same time and are incorporated in their respective parts.

The macro health system

Elements of the macro health system include health sector reforms, regulatory framework, responsibilities and resource allocations for human resources for health. Overlap exists with the micro health facility but leadership and career factors have been incorporated in this section.

Occupied positions for PHC, hospital and administration in the district

The statistics (DHO 2008) on the health workforce in the district mention a total of 237 health workers with civil servant status working in the district. A detailed overview of the composition, distribution, civil servant status and educational degree of this workforce can be found in Annex 3. The following data can be extracted concerning health workforce deployment in Puncak Jaya.

Distribution

- The DHO consists of 46 persons. (19 % of the district workforce)
- The missionary and government hospital combined consists of 63 persons. (27 % of the workforce)
- The primary health clinic in Mulia consists of 35 persons (15 % of the workforce).

60 % of the total workforce is employed in the central sub-district of Mulia (hospital, PHC and DHO). The other 40% of the workforce is distributed over 15 different sub-districts. In the new 10 divided sub-districts, where new primary health infrastructure is created, 21 persons (1 %) of total staff works.

Of the total workforce 75 persons (32 %) work at administrative/logistic/management level. 162 (68%) work at curative level.

Echelon:

- 197 members (83%) of all staff receive a salary in Echelon II
- 28 Persons receive a salary in Echelon III, 1 in Echelon IV. 75% of this group works at district health office or general hospital level.

Education:

- The majority of the workforce consists of nurses and midwives with a junior degree (called SPK and Bidan ‘A’). These 156 persons make up 66 % of the total workforce.
- 87 % of all nurses and midwives (N=179) have a junior degree.
- Of this group, 105 persons (67%) work at primary health care level.
- 58 % of senior nurses, midwives, nutritionists and health promoters work at district health office or in the hospital.
- 17 persons (50%) of staff with a university degree are general doctors.
- There are 2 dentists for the district.
- An additional 8 persons have a university public health degree (1 person has a masters degree).
- There aren’t any specialist doctors in the district, nor is there a pharmacist.
- There is one person with a laboratory degree, one physiotherapist and one psychologist. They work in the district health office.
- There are only two persons in the districts that have a ‘non-medical’ degree, which might be in administration or management.

When we look for the indicators for staffing requirements set out by the Indonesian government for its strategy “Healthy Indonesia 2010” (MoH, Indikator Indonesia Sehat 2010) a table can be created with the available data, based on the needs for an estimated 145.000 residents residing in Puncak Jaya district. These includes the main professions in the health sector, but not administrative and laboratory analytical positions as indicators for these were not defined for the “Healthy Indonesia 2010 Strategy”. These estimations are made for the public sector and do not include the private sector, NGOs and FBOs.

Position	Available Staff in PJ	Required staff	Shortfall of staff (in numbers)	Shortfall of staff (in ratio to existing staff)
General doctor	17	58	41	241 %
Specialist doctor	0	9	9	- staff non existent-
Dentist	2	16	14	700%
Pharmacist	0	14	14	- staff non existent-
Midwife*	82	145	63	77 %
Nurse *	122	170	48	39 %

Community health promoters	13	58	45	346%
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Tabel 3. Estimated health staff needs for Puncak Jaya (based on indicators ‘Indonesia Sehat 2010’)

* Including auxiliary midwives and nurses with a basic degree (SPK and Bidan A)

- There is a clear need for university educated staff, especially medical and specialist doctors, pharmacist and dentists.
- There is a quantitative need for health promoters, nutritionists, sanitary personnel and laboratory staff (The last 3 professions not included in the table).
- There is need for increased stock of nurses and midwives, while at the same time nurses and midwives with a basic auxiliary degree must be upgraded in their educational level.

The registration from the district health authorities also has aggregated data per health worker if active or not in their position, whether they have been given housing from the government, and importantly, continuing postgraduate education. About 24 persons of these 237 persons, receive at the moment of the data-collection post-graduate training, ranging from nursing and midwifery degrees to public health management and specializations for doctors. These persons are not in their post in the district. A further 18 persons have a status of being ‘non-active’.

During the interviews with staff from the provincial and district health authorities, the findings below were found.

An administrative staff responds that in the district, 152 persons currently have a civil servants status, plus 42 that have a temporary contract (honoraire’ status.) These 42 are not included in the civil servants regulation.

He analyses: *“We see that we have shortages of all positions but specifically for laboratories and informatics personnel, also the total number of midwives and nurses is too few”.*

According to him the 152 staff are present at their positions but that it requires control and coordination from communities and sub-districts to see if all staff is actually working. In the new sub-districts staff is only irregular present.

Another person explains that the problem is that:

“We have way too few workforce in Papua and with limited competency. It’s both a qualitative and quantitative problem. The health workforce is clustered in the cities and not well distributed.”

And also: *“We are analysing the workforce needs for all the districts. We depend on the central government to allow new civil servants to be recruited”.*

A manager of the Puskesmas observes that he has enough staff, but that in the newly created districts more trained staff is required. *“There need to be 3-5 skilled nurses per clinic but that’s far the case from the moment”*.

One of the priests mentions that the churches had 21 posts in the past where ‘mantri’ were working; Only 5 of these mantri still are at their health post. Mantri that still work there receive a small compensation from the government.

Salary scale and salary developments

The salary depends on the echelon (level of education plus position) someone has in the civil (health) workforce. This is uniform all over Indonesia and regulated by presidential decree. The range is between echelons I till IV. The executing staff, nurses and midwives are in level II, PHC and hospital management, health authorities staff are often in level III, while the head of district office is in echelon IV. These echelons consist of 4 sub-levels. Positions are set and regulated from a civil servant department. Position and echelon change has to be suggested by this department, part of the local regent’s office, which then has to be approved by the central department at national level.

During an active civil servants career, salary increases are standardised. Regarding the fixed salary within an echelon each second year there is adaptation to inflation, for all civil servants all over Indonesia. There is a scheduled increase in salary or echelon related to working experience a certain staff member has.

Increase in position (and hence echelon) depends on the level of education, as well available positions in that district.

The basic monthly salary for the civil servants is summarised in the following table

Echelon	Salary per month in IDRp. (1 USD ≈ 10.000 IDRp.)
IA	760.500 - 1.021.700
IB	820.200 - 1.077.100
IC	854.900 - 1.122.700
ID	891.100 - 1.170.200
IIA	961.000 - 1.398.000
IIB	1.036.400 - 1.457.100
IIC	1.080.300 - 1.484.700
IID	1.126.000 - 1.583.000
IIIa	1.200.600 - 1.726.700
IIIB	1.251.400 - 1.799.700
IIIC	1.304.400 - 1.875.900
IIID	1.359.500 - 1.955.200
IVA	1.417.100 - 2.038.000
IVB	1.477.000 - 2.124.200
IVC	1.539.500 - 2.214.100
IVD	1.604.600 - 2.307.700

Tabel 4. Basic salary scales for civil servants in Indonesia 2007 (Presidential decree, 2007)

All over Indonesia the salaries scale is the same for the civil servants but it is not related to the living costs of the region. One staff from the health authorities responds: *“Our salary alone is not sufficient, as costs of living are very expensive here”*.

One of the managers of the puskesmas explains: *“One can increase in echelon depending on position and experience. This is usually after every 4 years. Maybe I have to move to the Dinkes (DHO) if they have shortage over there. Mutation is not on fixed rotation but depends where there is staff shortage”*.

According to a respondent the church had health posts that were paid by the mission, but these all have stopped; some of these staff has transferred to a civil servant position, and started working in the primary care clinics of the government.

Most of the salaries arrive on time every month, but it depends on available transport to the sub-districts.

The doctors have a separate status; one is a civil servant; the other has a temporary compulsory status (PTT) for 6 months that can be extended. The PTT doctor receives salary directly from central level. The salary for PTT staff is different from other parts of Indonesia because the district is in ‘a very remote area’. This is a difference with fixed civil servants.

(Non-) financial incentives

While the salary is fixed nationwide, each district decides it’s own incentives for staff. For Puncak Jaya, a financial incentive of 300.000-500.000 rupiah is provided per staff; Dependent on the echelon they are in.

According to some respondents this is mainly done to cover the high living costs in the district. The Puskesmas also have operational budgets that are partly used to provide incentives for regular outreach services, but also to attend deliveries at night or in the villages. The current incentive scheme was introduced 3 years ago.

The district human resource manager explains the process of the incentives as follows:

‘We send salary and incentives to the ‘old’ puskesmas and monitor it via the camat (= head of the sub-district) office whether staff is active. We can stop their incentive if they are not at their place, as these funds are directed to serve the people in the community’

The VHW, whom are not employed as a civil servant, respond that they receive a standard ‘honorarium’ per month. This is also managed from the Puskesmas. These VHW mentions that the honorarium is about Rp. 50.0000- 100.000/ month. The disbursement is irregular and can be delayed several months.

The PTT- doctors responded that they receive an incentive from central level on top of their salary as they have to work in ‘a very remote’ area. They receive extra incentive from the district for their work and an incentive to cover the expenses of not being

allowed to open a private clinic. All medications and health services are free of costs under Papuan autonomy law. The district authorities financially compensated this loss of income from private practice so as to retain the doctors.

The manager of the health services explains that staff at district health authorities, hospital, managers of puskesmas, doctors as well some senior nurses and midwives live in a '*rumah dinas*', This is housing provided by the district authorities and can be seen as a non-financial incentive also to retain staff in the district.

It has been observed by the researcher that civil servants receive a proportion of staple food as incentive, like 10 kg of rice/ month, but the respondents have not mentioned this.

Dual positions

None of the participants mention to have a second (private) job and their work as a civil servant is the only position they have. For the VHW agricultural sustenance work remains an important part of their daily needs.

Career development of health staff

Administrative staff explains that selection for a civil servants position is via a test or it is possible that existing contracted staff is proposed by the civil servant departments to be included in the government ranks.

Since 2003, government regulations stipulate that all staff must have a formal degree, like that for a nurse or midwife. All SPK (auxiliary degree nurses) and Bidan 'A' (auxiliary degree midwives) must be upgraded to a formal D-III (nursing or midwife) degree over time. Over recent years, the district government has send staff to these postgraduate trainings. 24 persons receive this training in 2008. Funding comes from the district government. As places are limited in the province, majority of these staff continues training outside Papua, mainly on the islands of Java and Sulawesi.

The provincial human resource manager notes:

"People don't want to stay longer in the villages. They feel that after having received a better degree they have the right to stay at central district level".

The managers at provincial and district level explained that they themselves had also received further education, respectively masters and bachelor degree in public health. For this specialisation the local government financed them.

One participant notes: *"There is a number of midwives with knowledge in Papua that are not productive. The village midwife plan from before did not result in a stable workforce that remained in the district, as a lot of them married and then joined their husbands in the city".*

Doctors come from other parts of Indonesia and schedule to return to their original area. During a period of 6 months – one year, they choose to access the PTT program. The

doctors responded that is useful for them to get credit for working in remote areas, getting experience, save income for future specialisation. There are also 8 general doctors that have a fixed civil servant status in the district. Some of these doctors receive financial support from the government to continue speciality education.

The following was said about it by one of the doctors and civil servants in the study:

“I am civil servant since 2007. I would like to become a specialist, but this is expensive. A district can help (financially) but it depends on the authorities First I wanted to become a paediatrician, but because of my age I am now thinking to become a neurologist. I think to reunite with my wife, and return to the province where I come from”.

According to the provincial health manager; the number of colleges for (para-) medical professions has increased in Papua, and they will produce graduates that can work in the remote rural areas. He explains:

“The nursing and midwifery school do not produce enough staff yet, especially not for the village posts in the rural area, It is important that Papuan people get trained for these positions as we will not be dependent. We need to improve general education before for our local people, so they can enter these schools”.

And for the midwife program the provincial health manager says:

“We want to recruit 200 midwives for this. As the social and cultural conditions of this province are so specific within Indonesia, we can’t recruit from outside Papua as these migrants won’t feel at home. We need to do this with local people. We can’t train them here, as we don’t have enough capacity but then we’ll send them to Java for further training”.

Some respondents mention that a current health policy plan by the provincial and district health authorities is to open nursing schools at district level to guarantee local education.

Participants explain that (para-) medical education has become expensive. It is hard to enter, especially if one is not in a civil servant position to receive a grant from the government. To enter the civil servants rank via a test, one at least needs to have a senior high school degree. Staff that doesn’t have a formal position like the village health workers can’t enter formal health education as they lack the financial support.

Health staff training

The managers realise that continuing education, conducted and monitored in the district itself is important in upgrading the capacity of the health staff

“We like to focus this period on the puskesmas staff, not to send them to other places but to do more on-the-job training. Maybe a NGO can also help with some managerial trainings, so that we can improve our functioning”.

The managers lacked managerial training and said:

“We didn't receive training on health management and strategy until now, we have limited skills and capacity”.

The provincial human resource manager explained that decentralisation of the health services also had its impact on the health staff training that had diminished in quantity and quality and now have to be organised for a part by the districts themselves.

“Before everyone was trained and prepared at provincial level, the health staff came from Java and then were better prepared here for management and to work in the local situation of Papua. Now they leave unprepared directly to the districts”.

The VHW and priests stressed the relevance of trainings and program earlier implemented by the missionaries and by NGOs:

“I have learned a bit about certain topics, but still require more. There are no regular planning and meetings with the puskesmas staff. The training that is given comes from the NGO”.

Leadership

Leadership and supervision are linked to the local capacity of managers, as well the policies of the organization in place. The provincial human resource officer explains:

“It depends about local leadership, directly from the head of districts. Capacity for management is often missing, including finances to do so. In some districts local people need to learn how to manage the health services, how to lead. They need to learn how to be accountable for the funds they receive. We need to monitor this process”

Capacity on management of health services is related to the reform in the health sector. The manager of the district human resource department explains that the hospitals have become autonomous and are managed directly by the district civil service office. The district health staff salary is paid and coordinated by the same office. With the creation of new sub-districts and districts more administrative capacity is needed, as is explained by this manager:

“We now also work for future transition of staff to the new district, as they need support for that. It is unclear who will move to the new district. There are always limitations with new districts. We began here with 3 persons here as well! It takes time to develop new resources.”

The physical remoteness of (new) clinics and limited means of communication is mentioned by staff from the health authorities and clinics to be a hindrance in the supervision process.

The director of the NGO explains the decentralisation transition in health services as follows:

“The management system has changed, both in authorities and in Puskesmas. Before they had more systematic and clear program what to do although it is a more centralistic program from province to district. These staff lack guidance how to manage the services”.

PTT doctors fall directly under the management of the district health officer. Regarding the medical management of cases they have to depend on themselves, and seek guidance with colleagues from the hospital or from the Indonesian medical association, whom are responsible for the registration and quality of its professionals.

Interpretation of results for the macro Health system factors

Most of nursing and midwife positions in the *original* puskesmas are occupied. Because of the subdivision of districts, due to decentralization, new puskesmas are opened that require extra staff, especially nurses and midwives. Positions for staff with special skills and education are still open for the original puskesmas such as nutritionists, laboratorial workers and specialist as well generalist doctors for the hospital.

The shortfall presented analyses health staff. It doesn't explain a shortfall of supportive administrative and management staff. However, It can be seen from the district data that staff with specific administrative, financial or management education is (despite two exceptions) absent in the workforce.

With subdivision of districts, more administrative and managerial positions will become available. Because the administrative process of staff and echelon mutation (as it has to be approved by central government) takes time, nurse and midwife positions at health centres factually are temporarily not occupied. It takes considerable administrative and transportation time before a new staff occupies the position.

For the respondents (non)-financial incentives do have a role in stimulating health staff to be retained and work in remote areas. The (non)-financial incentives have a role for persons in wanting to be a civil servant, as it covers expensive daily food and accommodation expenses.

Leadership and supervision are crucial for good functioning health services. Health staff receive continuing postgraduate training to improve their position and capacities. They become then staff in management and administrative positions. Their education however contains limited elements in organisation and management of services.

Due to reform in the health sector (decentralisation and new sub-division of districts), a monitoring and evaluation framework, as well accountability framework have not yet been well developed.

The micro health facility

The factors presented here work out practices and availability of resources at clinic level. More specifically it looks at staff involvement in decisions and cooperation by health staff with village health workers and the community.

Standards of procedures

According to the administrative staff, standards of procedures and job profiles are available for all positions at provincial and district authorities' level. Other respondents mention that they are not available at the Puskesmas.

Staff involvement in decisions

The respondents explain that the staff of one puskesmas comes together monthly or at one puskesmas once per three months. The last is the same at DinKes level, During this meeting the service results of the last period are shared. It is often a moment when division of incentives is discussed. One of the doctor's answers:

“Staff comes together every month. I don't normally join these meetings because it is always about finance and salary”.

The primary health care workers don't meet on regular basis with the health authorities. Their link is via their manager who represents them.

Cooperation between health workers and the communities

Several things were said. A local health staff working for the district authorities explains how government health services are functioning like separated pillars:

“Now in the government, we communicate not well enough with churches and the community. We need to understand and include the adat and churches in our communication”.

He also expresses the transition from a more traditional society to a modernised one with an administrative government and financial issues. He explains the necessity to understand the values of both systems and how it could be integrated:

‘Before, people brought materials and vegetables from all the villages. They exchanged these goods, but as we have our own district these days, we need to pay everything and this is very expensive. Before it was a lot easier. When a tribal head or priest spoke, everyone was listening and following. Money has damaged a lot, but for our tribe here, the Lani, it is also good to learn how to deal with money, how we can save money for instance when someone has to deliver in the hospital and how we together can collect this money. We need to learn from outsiders about this. With our high social nature we voluntarily help other people. This is what we do from our nature’.

The provincial health manager promotes integration of civil servants in the missionary hospital, as this could bring the services closer to the people. Technically integration of civil servants is already the case for the mission hospital in Puncak Jaya, that has

employed existing, older, health staff under a civil servants contract. There is some opportunities as the manager expresses:

“We have already one good example from the highlands. Maybe it is possible if there is a clear agreement between FBOs and DHO, but they need to pay additional incentives for health workers to work in their services”.

One of the priests in the district mentions he is actually working in an organisation and proposal to revitalise the missionary hospital in the district, He is looking for cooperation and funds into this, but he doesn't see direct possibilities to work with the government.

For non-indigenous staff the reception of the community depends on the situation, but is in general good. They express their opinion:

“We get enough support from the local community. The language is a bit difficult. We need to try to understand them in their own language. I can speak a bit of Lani language”.

Perception and attitudes play a role in how health staff and services are accepted. Some participants replied the following:

“Because of the knowledge of the community that is effected by HIV and depending on attitude of the health staff people accept the services or not. Because the persons in government hospitals never smile or talk, the population thinks the services are less”.

“The community doesn't want to go to the district hospital, as the doctor doesn't care for them. Doctors just arrive, and leave quickly again. We only enter to die in the hospital”.

Cooperation with village health workers

There is a consensus from the managers and administrative officers that cooperation with village health workers is important and should be encouraged to reach the community. One of the managers explains:

“It is important to train new local persons in this new plan of one midwife plus 2 village health workers per village. (This is a new health policy called ‘Desa Siaga’). We need to find a type of policy that is supportive for their involvement. We need to be close in their villages so they don't need to come each time to the district”

The director of the NGO also sees the same valid reason to work with village health workers:

“It should be the same person that combines both clinical work, like the mantri does, and community work (helping immunisation, growth monitoring, prevention). If there could be a group of these persons in a village it works. The experience is that the missionaries before trained local health workers, that were active”.

The doctors have mixed opinions about working together with the VHW. Doctors are not so much involved with trainings but see some benefits in the cooperation. They express difficulty in adapting to the practices of the mantri.

“We work well the mantri. We need to adapt to work with them. Unfortunately a lot are not worthy to receive the financial compensation for what they do”.

The VHW would like to learn and cooperate, and in general the cooperation with the primary care workers is good. What is lacking, is actual time spend with the health staff. Only registered village health workers are authorised to work together with health staff; as explained by one of them:

There is a traditional birth attendant that would like to join these monthly services, but it is forbidden by the Puskesmas. We cooperate well with the midwives of the Puskesmas. However, they only come once a month for this posyandu. They come to do the antenatal care checks, and then they leave”.

The church representatives also would like VHW to be more involved in the health services. They have a basic level of health education that is rooted in the training by the missionaries. VHW should cooperate with the health staff, because there is a value in that

“The health workers must relay and cooperate with the indigenous village health workers to translate the explanation of treatment to the people, this is very important so they can understand”.

Interpretation for the micro health facility factors

A clear division is seen between government, church and adat (customary) structures. These elements of society are quite separated. At provincial and district health offices the wish is expressed to work more together with FBOs, as they have been able in the past to manage proper services and the community has trust in them.

The village health workers participating in the study have a willingness to cooperate with the health clinics. At managerial level there is also willingness and even plans to bring health services closer to the communities by involvement of these VHW.

Individual health workers and living circumstances

This part talks more about the motivation, personal drives, family conditions of health workers and the living circumstances of health workers that enables them to work in such a rural area.

Motivation and job satisfaction

The managers and staff at provincial and district level express to be motivated in their work. They say to have several reasons to be motivated, amongst others because of a long history of employment and building the health workforce in this remote area, two of them feel responsible for building their communities, as they are originally from this area.

The VHW and priests mentioned serving god and the local communities as main reason to serve the people. One VHW said:

“Because of God. To give services to the community. I grew up in this community”

The doctors, including the director of the NGO express several motivational reasons to work in this remote environment. The first is that they feel that they can serve and experience some of the remote communities in Indonesia. The second reason is an opportunity to save funds for future specialisation and gaining credits for it by working in a remote area as PTT doctor. The NGO doctor said:

“I decided to stay, I don’t know (laughs). I feel I can do more things compared with other places and at that time I was still planning for specialisation. For collecting my funds I started to work for an NGO”.

The question on job satisfaction has triggered a range of responses. The most common reason in work related difficulties on day-to-day level was lack of logistics, (medical) tools, transportation and means of communication. The distance to the villages is far, and often can only be reached by foot. One of the participants said:

“Its very hard to get human resources here, as they have to walk. If the roads already improve, it would be a lot easier to get to the villages”.

Most of the health staff, including the managers mentions missing supervision and monitoring from superiors. The doctors and village health workers feel not supported in their work.

Electricity and water provision limitations, different languages spoken and safety of the premises were cited as hindering good services and job satisfaction. In this regards there were comments about how to reach the indigenous population.

“There are a lot of difficulties to work here, one needs to learn and adjust to the language, secondly there are limitations in medication and tools available. Thirdly is maybe the culture of the people, we need to adapt to the customary laws of the people and their traditions. For instance, we need to clarify what our objectives and what we do as health workers”.

Despite these difficulties, health workers make the best out of it. A manager of a puskesmas said:

“I am satisfied with my work despite the constraints of the district. I would like to improve availability and services of my staff”.

The provincial manager mentions that both a quantitative and qualitative lack of health workers leads to a higher workload for other staff:

“The replacement time of doctors is too long, places remain empty from 6 months to one year. It is important that local nurses can do some task shifting to overcome these gaps in medical positions”.

Social services and living conditions in the villages

Basic needs are available but prices of commodities are a problem for staff working in these remote areas. The head of puskesmas Sinak express it as follows:

“The social conditions to live here are good enough, as well food that is local available. However there is lack of variation and needs of materials like food that we have to bring from outside. This is expensive (food, fuel etc.) as transportation is via planes. There are no real social services in Sinak”.

Access to basic services as running water and electricity is a problem, both for the health staff as for the VHW. A VHW said:

“We have needs. There is no water and we need pipes for clean water to enter the village”.

The same VHW also expressed that for him it is difficult to stay in the village because there is no education for his children there:

“I have three children. They can’t go to school because there is no teacher”.

Non-indigenous staff expresses the difficulty of bringing their family to the district because of the social conditions, a doctor said:

“I am not married yet. To live alone is possible in this area. If I would have a family I would go somewhere else, with better education possibilities, like a city. Costs are to expensive here”.

Some respondents explained the role of the church in society:

“I am protestant. Most protestants (GKI denomination) are migrants. We often come together for worshipping and festivities. If we feel lonely we don’t depend on ourselves. We can find accompaniment with other people that are part of the church community”

Security

Security is not a direct concern mentioned in the interviews.

Only one respondent didn’t feel secure at his current working place or to do outreach activities. He expresses:

“I don’t have courage to go to the village as my local colleagues that work already longer time here advise me not to go. They say “doctor, because you are new here, please be careful””.

Customary warfare is something to take into account when sending health staff for outreach services. Health staff cannot visit areas if they are originally from a local indigenous clan that is in conflict with one other clan in that area. The manager of the PKM says:

“Warfare between local clans is a problem for allocation of health staff.”

The local priests see that fear of the unknown is a reason for health staff not to visit a remote village:

“For non-indigenous health workers it is heavy to walk to the villages and they are a bit afraid to rely to indigenous population, original from Papua”.

Access to villages and services

This remote area remains, by way of it's its mountainous, jungle-covered geography, very hard to reach. Most villages out of the district need to be reached by foot. Alternatively, irregular missionary operated airplanes can reach the main villages.

For the VHW; it is expensive when they have to go to the cities for services. One VHW said:

“From here it is far to the Puskesmas, if someone has money he takes an ojek, otherwise he walks. When someone is sick it is expensive to go to the city, 30.000 rupiah to go and 30.000 back is too much for people here”.

VHW and the local population are used to walk long distances to reach markets, and were also willing to walk long distance for their health education.

“We received training from missionaries during 6 months in Mapenduma. 3 persons from this area received training. All other nurses were from other side of the mountain. it was 4 nights and 4 days of walking” .

The managers of the Puskesmas in Mulia and health authorities state clearly that the remoteness is a hindrance to the execution of health services:

“The distribution of TB-Dots medicines is not regular. Clinic staff cannot reach remote villages”.

Interpretation for the individual health workers and living circumstances factors

Difficulties to fulfill one's work are related to an array of difficulties. In resume one can see that these are related to *organizational* factors like logistics, management, deployment of health workers, attitude of fellow workers and then also contextual factors like communication difficulties with patients that hinder good services.

Living costs are high and despite the access to bigger markets, that brought more food, (social) services for the villages were not developed alongside. This makes it difficult for health workers to stay with their family in the villages, hindering retention of health workers.

The church plays an important role in creating a sense of togetherness and shared experiences in this remote area. However, indigenous and non-indigenous populations visit different church denominations. Interaction between those religious denominations is little, which implies that its followers not readily visit each-others communities. This could have a negative impact on integration of health workers.

Security is not a main reason to stay away from the villages, as is explained by the health workers. It is more of a perceived risk than that of a security threat itself.

Remoteness of villages is related with the difficult delivery of services that is hindered. It can be a push factor for local health workers, as they cannot access the basic education or other services needed by their family.

Discussion

The discussion on the literature and findings is categorised in the factors that may lead to a shortage of available staff. Availability encompasses health staff attraction, retention and presence at a health post.

Macro health system factors influencing availability

Decentralisation of health policies has a considerable effect on the availability of human resources for the district of Puncak Jaya. It had a positive effect as it allows local government districts to invest in their health services and health staff. funds are now available for the creation of new hospitals and puskesmas, with the recognition that these services needs to be equipped with health staff that has the competency to provide qualitative health services.

Decentralisation resulted that public funds for the health system ‘diluted’ over a larger amount of districts and sub-districts. It created more administrative posts as the amount of district health offices as well as primary health centres increased. These new positions have been occupied with available staff in the districts that were promoted to these positions. At the same time nursing and midwifery positions in the existing and new puskesmas have become vacant and are not occupied yet.

The district government provides financial incentives and scholarships for postgraduate education to overcome the high living costs in the district and retain health staff to work in the remote area. Financial interventions to retain staff for the district are limited as the district government being not directly responsible for the salary administration and remuneration of the civil servants, as outlined in other studies (Heywood and Harahap 2009).

The findings indicate that the health workforce stock in Puncak Jaya is, according to the target indicators for the 'Indonesia Sehat 2010' in absolute need of competent and qualified health workers. Besides the numeric shortfall of nurses (39%) and midwives (77%), there is also need for *quality* improvement as large proportion (87.2%) of them have an auxiliary degree and are not officially accredited to work as a nurse or midwife under new regulations.

It is arguable if the proportion of health staff in Puncak Jaya needs to contain so many administrative and managerial staff. With so many new sub-districts, the population coverage of a puskesmas decreased considerably. They serve at the maximum 5.000 – 10.000 population, much less than the 30.000 envisaged. When applied to health workers needs in the workforce; it might be more effective to invest in the existing workforce of auxiliary nurses, midwives and even village health workers than to provide each puskesmas with its own manager.

The civil servants working in the missionary hospital are an old-stock that will not be replaced by new civil servants. Some respondents suggested staff in FBO of NGO clinics to receive civil servants status as to have sustainable health workforce presence in an area. This is not possible under current national regulations

The findings make clear that retention interventions, like obtaining credits for medical resident programmes and ongoing education for local health professionals have been implemented in the district. Some doctors are attracted by the provision of civil servant positions and financial support for future specialisation. It is however expensive and evaluations in Indonesia were not positive regarding the longer-term retention of doctors for rural areas (Chomitz 1998). The long-term effect of this strategy for the district cannot be defined yet.

The evidence for financial incentives to attract health staff to work in a remote area in developing countries is not conclusive (WHO 2009, p.17). The evidence from Puncak Jaya demonstrates that financial incentives do attract health care workers. However, under a weak regulatory and supervision framework by health management, it does not lead to improved presence of health workers and quality of care at health facility level.

Factors at the micro -facility affecting health workers availability

For Puncak Jaya, one can distillate from the interviews that attraction of health worker is possible with incentives and increased training outputs. To have health care workers being present at their services remain challenges. When findings are compared with the civil servants data, one sees that there are people on the civil servants payroll that have not been at their position for a long-time.

The respondents in the study reflected the need for more stewardship by their managers. These managers miss the skills and capacity to effectively manage the staff. They have received limited training in this, and due to the rapid decentralisation, they arrived in positions where they have not always been well prepared for. Job satisfaction and motivation of health workers is amongst others related to the presence of a supervisor or

manager who provides guidance and is an example to its staff (Willis-Shattuck *et al.* 2008).

The findings reveal that there is lack of tools and equipment at the facility to properly provide services. Especially in the peripheral sub-districts medication was often missing, as well as nursing materials.

The respondents mention that cooperation with religious and customary institutions is thought to improve motivation of health staff. Key persons in this regard are the VHW, often trained in the missionary hospital. They can be 'bridging' persons towards the local population as the VHW have all links to the government, church and customary structures. While not all of these 'mantri' could enter the civil servants ranks after the introduction of government health services, they were able to practice at village level and receive compensation for that. These VHW take over tasks that fall under the responsibility of the health staff, but are not adequately remunerated or supervised. This problem is more often described in task-shifting strategies (Lehmann *et al* 2009).

Another workforce strategy is suggested by the manager of puskesmas Mulia whom promoted in his thesis for scheduled position rotations within the health services in the district. This could stimulate workforce to remain working in this remote area. The staff then 'shares' the burden of working in a remote positions (Krembo 2006).

From the interviews it becomes clear that participation of staff on decisions is limited. It entails a three monthly feedback on the results of the services and is often about the division of incentives over the staff. Lack of participation can have a negative impact on job satisfaction and motivation, and consecutively to retain staff for the district (Willis-Shattuck *et al* 2008).

Determinants at the individual level affecting health worker availability

The main difficulty for health workers is the high living costs in the district. Although health workers receive a financial incentive from the district government on top of their salaries, the respondents express difficulties covering the daily expenses they have for food, kerosene used to cook the food, telephone communication etc.

There are several other factors that play a role. An important one is the availability of facilities to support a family, like education, housing, running water, electricity, communication etc. This is available in the central city of the district, but very limited in the sub-districts. It can explain why staff is often for longer time not at their post in these remote districts. The gender aspect is also important. The system doesn't address the needs of female staff to take care of their children or to feed her family. Female staff posted in a remote position, like the village midwife's (with auxiliary degree), return to a more central place to join husband and family if they are not specially supported and have the facilities to live in a remote place.

The participants expressed the importance to have access to religious services and communities that fits with their beliefs. It can provide the motivation to remain working

in an area. At the same time ethnic background of health staff must be considered when allocate staff to a village as it could potential lead to conflict between members of different indigenous ethnic groups.

Contextual factors influencing availability

The district is geographically remote, mountainous and lacks key infrastructure, so that logistics and transport requires much energy and considerable time of health staff. This in itself is a main challenge to retain health workers for the district.

The experiences of decentralisation in Indonesia affecting available health staff as described in literature review are emphasised by the study findings and policy context of this study.

To guarantee competency of health staff is one the reasons that the government initiated a regulation that health staff must have a formal nursing and midwifery degree (D-III). The district government indeed invested in providing this education for part of its workforce. Upon graduation, decision space on staff absorption and mutation to a senior position in the civil service being at central level, delays this staff allocation to a new position. This results in a proportion of staff not to return to the district but rather chooses to stay in urban areas, while still receiving their former basic civil servant salary. This salary is often not cut because of the limited monitoring and enforcement capacities.

In Puncak Jaya are limited possibilities for private practice. Only doctors receive a financial compensation for not being able to open a private practice. The findings indicate that health staff for economic reasons might leave the area and seek employment or alternative income in urban areas.

A large part of the Papuan province is inhabited by an indigenous population and the province already has a special autonomy within the republic. Indigenous people have special rights and needs to guarantee their social protection. Adequate resources to close the gaps for indigenous health are needed (Gracey and King 2007). This suggests that a specific strategy is needed to overcome the shortage of health system recourses in this area.

Non-indigenous staff is rather unprepared about the local conditions and culture when arriving newly in the district. Most of them don't receive support for that from health authorities level. The same applies to the indigenous population that has limited knowledge about the culture of the migrants, especially as the social change has embarked on this population so rapidly.

Strategies that address trust building dialogue and provide socio-cultural education for both indigenous and non-indigenous health workers and key community leaders could improve availability and acceptance of health workers.

It is observed that the organisation of the health system is not aligned to the local cultural context. For instance, the organisation of a health service via posyandu at village level is

not in line with the traditional social organisation in 'parishes' and 'hamlets' (Hayward 1980, p.41-58). Parishes by nature oppose neighbouring parishes, but may be situated in the same village. This could also hinder mothers to visit services in the other parish, and at the same time hinder health staff to visit parishes, especially when they are in warfare.

The security point is less of a problem than initially expected. Although health workers have some fear and distrust to visit certain communities, a true security threat for health workers is not there according to the respondents. Non-indigenous staff, when residing longer in an area, can get more accustomed to the local practices. If indigenous people are explained well about the objectives of health workers and recognize these as beneficial, staff is welcome and safe in the villages. Unfortunately, incidences of armed conflict fuel distrust and fear of visiting remote communities and hinder staff to be available in those positions.

Reflection on research methodology

This small scale purposive-sampling study with in-depth interviews that followed an interview guide, as well the inclusion of a literature review on the factors, proved valuable to research the objectives. The original interview guide could have been more specific on attraction, retention and availability of health staff. In that light focus group discussions would probably provide additional valuable data.

The study population was limited in number and not well gender balanced. Unfortunately, a lot of nurses and midwives working at PHC level were not available at the time of data-collection. In this; the study misses valuable data on individual health workers factors to be retained for the district.

The major limitation of the study is related to interviewer bias. The main researcher has spent two years as NGO coordinator in the district and, despite all efforts during the design analysis, he was not a neutral observant during the time of the data collection. His position in the district influenced the answers by the respondents. At the same time the Indonesian language capacities of the interviewer made that some information got lost 'in translation'. In reflection it would have been better if an independent researcher or autonomous research assistant that speaks fluently Indonesian conducted the interviews, data collection, coding and analysis.

Conclusions

The literature review and findings have indicated determinants at several levels that influence the availability of health staff in rural and remote areas. Districts have limited 'decision space' on right-sizing their workforce as deployment caps for new public health workers are set by the central government. It limits the total expansion of the workforce in Puncak Jaya.

As the private health sector is often not developed in rural areas, both the study and literature indicate that (new) health staff is inclined to work in urban areas. Without special strategies set by the government, daily living costs are considered too high for employees to be retained or attracted to work in rural areas.

The local district government can attract health staff to remain in the district by stimulating ongoing education and career development opportunities. These efforts can be fruitful, as is shown by the doctors and midwives that are now specialising and are scheduled to return working in the district.

The literature and study demonstrate that incentives alone are not sufficient to have health staff be available at their position. Without clear supervision and a regulatory framework from health (facility) managers, staff might be not present at their position for a longer period.

There are both absolute and relative needs for health professionals. Highly skilled medical personal as doctors and technical personal are required, as is the upgrading of auxiliary nurses and midwives to a senior degree. With increased output of medical schools and nursing colleges in Papua, this could be viable for the next years. The quality and accreditation of the education is a point of attention.

It is arguable if the proportion and distribution of the health staff in Puncak Jaya requires a relative high number of trained administrative staff or that more education and strategies must be invested in having trained doctors, nurses and midwives working in remote postings. It will be probably both, but the last deserve a priority in this remote area.

Before 2000 the missionary structures provided basically the only health services in the district. Most of their services have stopped. A part of their stock started working in the government structures. Current regulations do not allow new civil servants to work in faith-based organisations.

Village health workers are often trained by these missionary structures and are valuable 'bridging' sources that in the current system are limited involved in the health services.

At individual level, the availability of (social) services as schools, churches, water, electricity, availability of essential food all play a role for health staff to remain working in a remote position. Security is another point of attention in this area confronted by regular flares of conflict.

The aspect of gender aspects influencing health staff availability came not forward clearly in the study. Literature indicates that it is important to address the specific needs of woman staff to remain available in the district health services.

Recommendations

Recommendations can be divided into policy and research aspects. The policy recommendations are mainly for the national and local district health authorities to consider, but are also valuable input for the NGOs and FBOs working in the district.

The policy recommendations can be divided in how to attract and increase the number of available health workers; how to retain the workers already available in the district and how to improve the presence of health workers being at their post.

The attraction of health workers is related to the amount of civil servants that are allowed to be deployed by central government. Legal opportunities within Papuan special autonomy law could be explored to increase the 'decision space' and consecutively an increase of workforce for local district governments. Strategies could include 'contracting' health staff, having compulsory placements and by creating career credits and finance for doctors by entering a residence scheme and consecutively an obligation to work a minimum amount of years in the district.

Regarding retention it could be explored if special autonomy law allows FBOs and/ or NGOs to fill vacant positions and health services. It is not a final solution, but could be one of transition while building up the workforce in the district and province.

Village health workers could be 'contracted' more formal under government regulations. They can link between non-indigenous health workers and the traditional communities. Task shifting of basic medical and nursing care under a financial-, education - and career scheme could increase availability of local health personnel as well at improvement of the health services.

It is beneficial to invest in ongoing education for local health staff, both nurses, midwives as well for analyst and medical staff. This must include a regulatory and supervision framework that set conditions of the ongoing education, with a compulsive amount of years that staff must work in the district upon graduation. Frequent contact between health authorities and education centres is needed to see the progress of the health staff. Accreditation of these education centres, including the scheduled new nursing school in the district requires attention.

Local health authorities and NGOs could work together at management and facility level to provide capacity in management and human resource information systems. At the same time authorities and NGO's could be actively involved with FBOs in providing dialogue, trainings on socio-cultural elements of the population as well specific living conditions in the area.

Stewardship and motivation by a health manager can change a lot regarding staff's presence and performance. These managers must be given the tools and authority to either stimulate or sanction health staff to be present or when absent from their positions. It is suggested to consider a rotation system, so that staff rotates between more central and remote postings as to share 'the burden'.

Individual aspects and needs of the workforce must be explored and addressed. These are related to socio-economical needs of the staff. It is advised that each staff receives an personal follow-up from health authorities Special incentives could be offered like possibility for children of staff to enter boarding schools, subsidised education etc. In a

more direct sense, security and access to direct communication with family must be guaranteed to retain staff for a remote posting. Water, housing and electricity should be provided as basic daily needs for civil servants staff.

This study was limited in the number of respondents and area of investigation. It is recommended to conduct the research at a larger scale, in several districts. As this study concentrated on the determinants influencing health workers' availability, a consecutive study could research strategies and policies that have been implemented to increase the availability of health staff. The study must include also political and macro-health systems research as the policy influences at central level have a large impact on the workforce available for remote postings.

It is recommended that a consecutive research address more specific gender determinants and strategies that hinder or promote health staff's availability. The impact of the increasing HIV epidemic must be looked into, as it can become an important determinant for health workforce availability.

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Annex I. Original proposal abstract

Title: Human resources in health, opportunities & challenges in Indonesian province of Papua
Duration: September 2008 – February 2009
Total budget: Estimated €5.000, -
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Research supervisor: Marjolein Dieleman, Royal Tropical Institute, Amsterdam
Research advisor: Patricia Gaillard MA, anthropologist, Head of Mission Mdm

Problem statement: Staff shortage and reduced retention of health staff is a factor that limits health services in the district of Puncak Jaya. Absenteeism of health staff is frequent. Geographical and security constraints make allocation of human resources difficult. Management capacity of health authorities is limited and budget allocated to health restricted. Local human resources and education are few. Health status of the population is among the worst in Indonesia and is aggravated by a generalized HIV/ AIDS epidemic.

General objective: To identify factors influencing retention of primary health care (PHC) health staff in the district of Puncak Jaya, Papua, in order to propose interventions to improve health staff performance

Study-population: Health staff at primary care level and health policy makers working in the district of Puncak Jaya; with a focus on the sub-districts of Mulia and Sinak.

Sample size: For this small-scale explorative study; 8 health workers will be selected ; as well 5 policy makers and 2 key informants from visited villages.

Data collection: Data will be collected through a literature review, observations at the workplace; as well through in-depth interviews with health workers and policy makers.

Expected results: The study will identify elements for improvement regarding capacity and allocation of human resources in health. These recommendations will be shared with participants and other stakeholders, aiming to implement appropriate human resource development interventions at the health authorities and in the clinics.

Annex 2 -Research Table (I)

General objective: To identify factors influencing availability of primary health care (PHC) health staff in the district of Puncak Jaya, Papua, in order to propose interventions to improve health staff retention.

Specific objectives	Research topics	Data collection Techniques	Respondents
To identify determinants for health staff availability in rural areas at global and national level	<ul style="list-style-type: none"> • HRM in Primary health care • National and provincial policy on HRM • Brain drain • Retention of health staff • Health staff formation 	Review of WHO recommendations Review of national policy Review of expert literature and papers	(None)
To describe human resource policies implemented at province and district level influencing health workers availability for the district of Puncak Jaya.	<ul style="list-style-type: none"> • Ratio of occupied/ available positions at PHC in district • Salary-scale and salary development • Young professionals support and career development • Accountability and monitoring mechanisms 	Review of district administration Review of district annual health report In-depth interviews	District health officer Manager + selected staff from 2 different PHC
To explore technical and organizational factors at health clinics influencing health staffs availability for the district of Puncak Jaya.	<ul style="list-style-type: none"> • (Non-) financial incentives • Health staff formation • Job Satisfaction • Standards of procedures. • Dual jobs • Participatory involvement in decisions (committee of employees) • Job satisfaction • Work environment 	In depth interviews Review guidelines and SoP Observations in 2 clinics	Manager + selected staff from 2 different PHC Selected staff from VCT clinic (RSUD Mulia) District health officer Administrator of DHO HR responsible of PHO

Annex 2 -Research Table (II)

General objective: To identify factors influencing availability of primary health care (PHC) health staff in the district of Puncak Jaya, Papua, in order to propose interventions to improve health staff retention

Specific objectives	Research Topics	Data collection Techniques	Respondents
To explore contextual factors influencing health staff's availability for the district of Puncak Jaya.	<ul style="list-style-type: none"> • Access to village • Social services in village • Living conditions in village • Support from community • Cooperation with Village health workers. • Security 	<p>In depth interviews</p> <p>Observation in 2 villages (different sub-districts)</p>	<p>Selected staff from 2 different PHC.</p> <p>Village health workers (from 2 villages)</p> <p>Key informants (priest, teachers, village leader)</p>
To reflect on the research methodology used for the objectives of the study.	<ul style="list-style-type: none"> • Study design • Research outcomes • Methodology used 	<p>Literature review on methodology</p> <p>Research guidelines</p>	
To provide recommended points of actions to improve health staff's availability and greater retention of health staff for the district of Puncak Jaya.	<ul style="list-style-type: none"> • Recommendations • Points of action 	<p>FGD</p> <p>Dissemination of field report</p>	All stakeholders

Annex 3: Overview civil servants employed in DHO Puncak Jaya (2008)

Working unit	Echelon PNS				PTT		Education level of civsil servant staff CPNS/ PNS/ PTT																				Total					
	I	II	III	IV	gen. Dr.	Dentist	SD	SMP	SMA	SPK	SMF	Bidan A	Bidan C	SMAK	College						university degree							Specialist				
															SPPH	SPAG	D3- Kep.	D3- KEBID.	D3- GIZI	D3- Kesling	Other	Gen. Dr.	dentist	S.kep	APT	S.Si		SKM	other	Dr. Ahli	Public health	Other
Dinas kesehatan	1	29	15	1	0	0	0	1	6	10	0	2	1	0	1	1	5	2	0	3	0	3	0	2	0	1	6	0	0	1	1	46
Puskesmas Mulia	0	32	1	0	1	1	0	0	0	10	0	4	11	1	0	0	3	2	1	0	0	1	1	0	0	0	1	0	0	0	0	35
Puskesmasllu	0	14	1	0	0	0	0	0	0	8	0	1	5	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	15
Puskesmas Fawi	0	5	1	0	0	0	0	0	0	1	0	4	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	6
Puskesmas Beoga	0	10	1	0	0	0	0	0	0	8	0	0	1	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	11
Puskesmas Ilaga	1	15	1	0	0	0	0	0	0	8	0	2	6	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	17
Puskesmas Sinak	0	21	2	0	0	0	0	0	0	8	0	1	9	0	0	0	4	0	0	0	0	1	0	0	0	0	0	0	0	0	0	23
Dovo	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Torere	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Wangbe	0	5	0	0	0	0	0	0	0	4	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
Gome	0	4	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
Agadugume	0	2	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Pogoma	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Yamo	0	2	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Mewoluk	0	2	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Tingginaambut	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Jigonigme	0	2	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
RS Immanuel Mulia	0	8	0	0	0	0	0	0	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8
RSUD Mulia	0	42	6	0	6	1	0	0	5	17	1	7	6	1	0	0	3	0	2	0	1	8	1	1	0	0	0	2	0	0	0	55
Total	2	197	28	1	7	2	0	1	11	93	1	22	41	2	1	1	19	4	3	3	1	17	2	3	0	1	7	2	0	1	1	237

Tab.1 Occupied civil servant health staff positions in Puncak Jaya district for the year 2008
(Nominatif Pegawai Dinas Kesehatan Kab. Puncak Jaya Keadan mei 2008)

Annex 4: Workplan and time schedule.

GANTT chart "Human resources in health, Puncak Jaya, Papua"

Activity \ Week	Sep 08	Oct	Nov	Dec	Jan 09	Feb	Following months 2009
Final preparation research paper	█						
Submission of proposal for clearance		█					
Translation of interview guide + introduction to health authorities		█					
Obtain permission from MdM		█					
Planning interviews		█					
Data collection DHO/PKM/ Mulia			█	█			
Data collection villages/PKM sinak			█				
Data collection PHO/ nursingschool			█				
Proces data + make preliminary interpretation			█	█	█		
Analyse data + write thesis					█	█	
Feedback of research MdM and with stakeholders in district							→

Annex 5. Interview Guide

September '08

Dear Mr./Mrs,

I ask your participation in the following study on human resources in health. The study has as objective to identify elements that can improve availability and quality of existing health staff in the district. The research is conducted by the medical coordinator of MdM and is done in the framework of MdM's program on capacity building of health services in the district of Puncak Jaya. The research will be supervised by the Royal Tropical Institute, Amsterdam, The Netherlands. The results will be discussed next year in a feedback and evaluation meeting in the district.

I kindly ask you to answer the following questions I have regarding job position, performance and possibilities. The interview will be recorded on tape, as this makes it possible to remember answers and organize data. The interview will only be used for this research purpose. You are free to decide if to participate in this study or not. Identity will not be disclosed and not shared with other respondents or in the research report.

If you agree, please sign below:

Respondent:

Interviewer:

Time and date:

Date:

Interview Nr:

Sex:

Age:

Education:

Position:

Objective 2: Define PHC staff available within the district

(Questions for managers in provincial, district office and health managers)

1. Can you explain me the different kind of positions (civil servant and non-civil servant) available with the health echelon? Who decides whether they become civil servant or not? Which institution provides the budget for their salaries? (Question for PHO and DHO administrative staff)
2. Can you explain me how many of the positions are occupied and which are still open for recruitment?
3. Can you explain me if and how many of health staff is absent at their position within the district and Puskesmas?

Objective 3:

(Focused on managers and health staff, if applicable also for village health workers)

1. What is the reason and motivation for you to work in this district?
2. Do you feel prepared with your education to fulfill your current position?
3. Do you face any difficulties fulfilling your position in the district, and if so which difficulties?
4. Do you receive trainings and formation to update your skills and capacity, if so which?
5. Do you have a (career/ working) plan for the future?
6. Do you receive/ provide support for it from a manager/ to your employee?
7. Do you perceive that your salary is sufficient for your position?
8. Do you receive it on time?

9. Is there a possibility for you to increase your salary over time?
10. Do you receive incentives for your services and what kind of incentives are these?
11. Do you have a second source of income besides your work-position, if so which one?
12. Is there a guideline for human resource salary scales and performances?
(Questions for PHO/DHO/ and managers)
13. Who follows up staff performance? (Question for DHO/PHO and managers).
14. Is health staff involved in decision making processes in the district health office or health centre?

Objective 4:

(Focused on health workers in the clinics + if applicable village health workers)

1. Is there a job description available for your position; if so what does it say?
2. Are standards of procedures available for your activities? If so; which ones.
3. Do you receive supervision of your work? (Please explain)
4. Are there regular team meetings? How much per month?
5. Do you have sufficient material available to do your work properly?
If not, what is missing?
6. Are you satisfied with the job you are performing? (Please explain)
7. Do you have the skills and capacity to fulfill your position? (Please explain)
8. What do you think of your work environment? (Please explain)

Objective 5:

(Focused on the health workers in the clinics/ village health workers/ key informants)

1. Is the village you have to go for services (are working in) accessible to the nearest Puskesmas? (Please explain)
2. How are the living conditions in your appointed village/ where you live? (Please explain)
3. Are their social services in the village you work? (Please explain)

4. How is the support and involvement from the community you are working with?
(Please explain)
5. How is the cooperation with village health workers/ health staff?
(Please explain)

Thank you for your cooperation

Annex 6: Statement of approval research human resources in health



Médecins du Monde (Mdm) is an international medical Non-Governmental Organisation (NGO) that is implementing a health program in *Puncak Jaya* regency, Papua. MDM supports health staff and communities in improving the district health situation by technical capacity building, training and education. MDM focus on Primary Health Care, including prevention of Sexual Transmitted Infections and HIV/AIDS. *Médecins du Monde* supports vulnerable population worldwide to reach an improved health status and its right to health. MDM works on basis of impartiality and neutrality.

Remco van de Pas, medical coordinator of Mdm in Papua is conducting a research on human resources in health. This research thesis is part of the Master of International Health studies and will be supervised by the Royal Tropical Institute, Amsterdam, the Netherlands. The head of Mission of Mdm in Papua, Patricia Gaillard, will act as advisor regarding socio-cultural aspects addressed in the research.

The research will contribute to Mdm's program activities in Papua. It will provide recommendations for stakeholders and Mdm regarding quality improvement and allocation of health staff in the respective health clinics.

The research will be done in the framework of Mdm presence in Papua. As part of the research stakeholders and beneficiaries of the program are interviewed. The researcher will adhere to mandate, internal and security regulations of the NGO.

Research will be conducted alongside ongoing program-activities and will not harm or interrupt these activities. In this construction, no additional budget requirements are needed for the research; neither will be provided by Mdm.

The research results and recommendations will be provided to Mdm and stakeholders for dissemination and future program implementation.

The researcher will respect confidentiality of participating health workers as well Mdm staff involved in the translation of the interview guide.

Mdm will not take liability in case of delays in research activities or when additional expenses have to be made.

As agreed upon,

5th of October 2008

Remco van de Pas, MD
Medical coordinator
Médecins du Monde Papua

Patricia Gaillard, MA
Head of Mission
Médecins du Monde Papua

**Annex 7: Letter for research approval to health authorities on
'research human resources for health'**

Nomor : MDM/PAPUA/ M/2008/036
Lampiran: 2
Hari/ Tanggal: 31st of October 2008
Perihal : Introduction research on Human Resources in Health

Kepada Yth: Kepala Dinas Kesehatan Kabupaten Puncak Jaya
Cc: Kepala Dinas Kesehatan Provinsi Papua
Kepala Rumah Sakit Umum Daerah Mulia
Kepala Puskesmas Mulia dan Sinak
Ketua klasis GIDI Mulia
Ketua klasis KINGMI Sinak

Dear district health officer;

I hereby would like to ask your cooperation regarding a research that is conducted by the medical coordinator of Médecins du Monde (MdM).

This research is focused on the performance and allocation of health staff in the different health clinics in Mulia and Sinak. The research aims to identify elements that can improve capacity and availability of available human resources. During the research, several staff of the health authorities, different clinics and in the villages will be interviewed. The interviews will be conducted in confidentiality and the results will be analyzed without disclosures of the participants' identity.

I would like to obtain your opinion, and if possible your agreement, to conduct this study. I would like to share with you constraints and possibilities for allocation and performance of human resources and what would be the position of both governmental and non-governmental actors to improve their outcome.

The research interviews will be conducted during the months October and November 2008. The research is conducted in the framework of the MdM program in Puncak Jaya. The research is supervised by the Royal Tropical Institute, Amsterdam, The Netherlands.

The results and recommendations of the research will be presented to all participants and stakeholders after completion of the study. This feedback will be provided in the second half of 2009.

With best regards,

dr. Remco van de Pas
Koordinator Medis MdM
+ 62 81344193907

Annex 8: Complete study methodology

For the thesis objectives, two study designs have been selected. The 1st objective is met via a literature review while the 2nd till the 4th objective are explored via a field research in the district.

Methodology for the literature review:

A desk study was performed on published material. The main sources for the literature search were PubMed, Medline and other electronic journals over the period 2000-2009. The study also included consultations of relevant websites of international institutes and national health authorities. Electronic journals and news groups on human resources have been visited. Inclusion criteria were English or Indonesian abstracts. Original research reports as well as grey literature was consulted. Editorials and newspaper articles on the topics were included. Search terms as 'human resources' combined with 'retention', 'migration', 'Determinants' 'Indonesia' and 'Papua' have been used. Via advisory documents and meta-analysis papers a targeted search have been made through the references list.

Study design for the field research:

A qualitative small scale - explorative design is best suitable to achieve objectives of the study. These are only limited explored before by others (Kerembo, 2006) .A comparison regarding influencing factors on retention can be made between the central sub-district and the remote sub-districts.

Topics used in the research

Topics that can be used include:

- Spec. ob. 2: National health policies on human resources in health.
 No. of job positions in primary health care in the district
 Ratio of occupied/ absent positions at PHC in district

Topics for specific objectives 3, 4, 5 and 6 are provided in Annex 2

Study Population

This consists of health staff, village health workers, key informants like priest, village- and tribal leaders, as-well health authorities staff working on human resource management.

Sampling and Recruitment of study population

The study will follow a purposive sampling strategy. Different processes will be used to conduct the sampling:

- 2 villages, each in one of the sub-districts will be assessed on available human resources in health (health staff or village health workers).
- In each village an in interview will be conducted with a village health worker and key informant (priest and local leader).
- 2 different staff of the VCT clinic and primary health clinic in the central sub-district, as well 2 health staff of the health clinic in the rural sub-district will be interviewed on perceived jobs satisfaction and performance.
- In-depth interviews will be conducted with 2 selected health staff of the human resource department of DHO, PHO and the 2 managers of the clinics in the sub-districts. The director of the provincial nursing school will be interviewed.

Selection is done via (indirect) partners with which the NGO of the main researcher works. To avoid bias participants will be selected that are not actively involved in the program. Gender balance in the study population is aimed for by selection equal amount of men and woman among the respondents.

Data collection techniques

Observations

In the clinics staff and health care procedures will be observed during their daily activities. Specifically objective 4 can be assessed by this. No specific check lists will be used for this. However, participant observations have been conducted as part of Médecins du Monde program activities in the years 2007-2008 and will be obtained from program reports. To avoid bias, activity reports from other areas in the district will be compared through available data from the health authorities.

Review of available information

Reports of WHO, Ministry of Health, PHO and DHO for the years 2005-2007 will be reviewed regarding Human resource availability and performance. National guidelines on Human resource management will be assessed, as are clinic standards of procedures and job-descriptions. The administration reports of human resources at district and clinic level will be reviewed. It will be used for all specific objectives.

In-depth interviews

In-depth interviews will be conducted to provide insight in the different issues that lead to health staff performance and availability. It will be used for specific objectives 3, 4, 5 and 6. A topic guide will be developed for these interviews.

Data collection procedure

The research team will consist of one researcher and an assistant to translate the informed consent and interview introduction + variables/ issues to be addressed. As part of their current position within medical NGO MmM, the researcher and assistant are already based in the district. The researcher will spend time during 1 month in the district and villages to conduct the interviews and data collection. The researcher will visit the provincial capital during one week of the province to obtain material and interview the respective staff of the PHO and nursing school.

Data collection and analysis

The interviews will be conducted following an interview guide. The interviews will be sorted on issues and coded after each session according to topics. Checking for completeness and internal consistency will be done via comparison with the research topics to be investigated. Data will be sorted in a master excel sheet by the principal researcher.

Observations on health staff performance will be collected from health authorities and MmM reports. These observations have to be indirect as bias is expected with the position of the main researcher.

Quality assurance mechanism

The assistant will translate the topic and issues related to the objectives for interviews and informed consent. Pre-testing of interview guide will be conducted during a first interview. Internal validity and reliability will be improved by adhering to research topics and conduct the interviews in a coherent and logical way. The principal researcher will code and sort the interview topics; he will cross-check the coding with the assistant researcher when in doubt of translation. Both principal researcher and assistant have earlier experiences in conducting interviews and translation of health idioms.

Triangulation is done by using different methodologies like observations, literature reviews and guided interviews. External validity however, will remain low as the specific geographical characteristics of this districts and population represent a limited area in the highlands of Papua, The results can not directly be transposed to another districts in Indonesia

Ethical considerations

The research has to be conducted under approval by MdM, and must follow the mandate of the organization. It must be clearly explained to stakeholders that this research will be used to identify possibilities to enhance, in partnership, human resources in health and is not a denouncement of the weak health system. The research has been approved by the ethics comity of the Royal Tropical Institute

Planning of research objectives and methodology, as well a formal agreement with the district authorities (DHO or representative from HR department) will be obtained. A first preliminary feedback will be given to this person after conduction of interviews and first analysis. With their input further elaboration will be done in a group discussion attended by authorities and participants.

Regarding the research participants

- Confidentiality will be ensured by explaining to all respondents that identity will be disclosed, and used only for purposes of this study.
- Interviews will focus on the health services and will not do harm by elaborating local conflict issues.

Written or verbal consent will be obtained from all participants involved in the study. Anonymity will be ensured.

Limitations of the study

Researcher has to conduct the data collection besides his regular position. He has to work within the framework of MdM's program and is hence not objective to the situation. Due to this position time for data collection is limited and because of this original focus group discussions have been taken out of the research proposal. The research is focused on primary health care and as such does not include health workers working in inpatient departments of the district hospital. The VCT team of the hospital is however included, as they have a strong link with outreach PHC. Perception of service utilization and clinic visitors is not conducted as the language, cultural and hierarchical gap between users and main researcher would bias the results. The existing missionary hospital is only limited included in this study as it is not a partner of the health authorities and the NGO. Due to the specific, remote and socio-cultural aspects of the district and its population, external validity is low.

Active cooperation and planning for the research will be made with the representatives of the district health authorities. Albeit the presence of these persons is limited both written and oral elaboration of research objectives will be shared with the DHO. In case of absence; staff from the human resource department of either district- or provincial health authorities will be contacted for sharing objectives and eventual comments of the research.

Workplan

See annex 4.

Budget

All field work is done in the framework of MdMs program activities. Material used, travel expenses, researcher plus assistant salary, and any time spend for research purposes is covered under ongoing MdM program activities.

Dissemination of results

A first preliminary feedback will be given to DHO or representative after conduction of interviews and first analysis. With his input further elaboration will be done in a group discussion attended by authorities and participants in December 2009

Final discussion will be done after completion of the report, and scheduled in a future evaluation visit of the coordinator to the district (July 2010).

Recommendations to improve services will be shared with local stakeholders as the health authorities, NGOs, churches and UN agencies.