Retention of Human Resource for Health in Rural Nagaland, India.

Chumben Humtsoe
India

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Retention of Human Resource for Health in Rural Nagaland, India

A thesis submitted in partial fulfillment of the requirement for the degree of Master of Public Health

By

Chumben Humtsoe

India

Declaration: Where other people's work has been used (from a printed source, internet or other sources) this has been carefully acknowledged and referenced in accordance with departmental requirements. This thesis "**Retention of Human Resource for Health in Rural Nagaland, India.**" is my own work.

Signature: 

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Table of Contents

LIST OF TABLES

LIST OF FIGURES

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I can do all things through Christ who gives me the strength.
Philippians 4:13

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ACRONYM

ANM	Auxiliary Nurse Midwifes
AYUSH	Ayurveda, Yoga and Naturopathy, Unani, Siddha and Homeopathy
CHC	Community Health Center
CME	Continued Medical Education
DoH&FW	Directorate of Health and Family Welfare
EQUINET	Regional Network for Equity in Health in Southern Africa
GDP	Gross Domestic Product
GHWA	Global Health Workforce Alliance
GNM	General Nurse Midwifes
GOI	Government of India
HCMC	Health Center Management Committee
HCW	Health Care Workers
HR	Human Resource
HRD	Human Resource Development
HRH	Human Resource for Health
ILO	International Labor Organization
MLIC	Middle and Low Income Country
MPW	Multi-Purpose workers
NGO	Non-Governmental Organization
NHM	National Health Mission
NRHM	National Rural Health Mission
PBP	Performance Base Payment
PHC	Primary Health Center
PHFI	Public Health Foundation of India
PG	Post Graduates
RHS	Rural Health Statistic
SC	Sub Centers
SRS	Sample Registration System
UNDP	United Nation Development Program
WHO	World Health Organization

WHR	World Health Report
VHC	Village Health Committee
VU	Vrije Universiteit

GLOSSARY

"Communitization"– The Communitization of health sector means the community takes over ownership and management of health institutions and services. It also means active participation of community in preventive and promotive measures, contributing their share to make health a reality in their own community.

ABSTRACT

Background of the study:

The Human Resource for Health (HRH) represents the critical pathway to improve the health outcomes of the rural population but shortage, mal-distribution and poor performance hinders the attainment of universal health coverage.

Objective of the study:

To analyze factors influencing shortage of HRH in the rural districts of Nagaland, and to review evidence on retention intervention strategies in order to formulate recommendations for staff retention.

Methodology:

The method used for the study is a literature review. The study adapted the conceptual framework developed by Lehmann et al (2008) on different environments impacting attraction and retention of health workers and location of decision-makers associated with attraction and retention in the public sector.

Findings

The mal- distribution of HRH between rural and urban influence shortages of HRH in rural areas of Nagaland leaving the rural population underserved with health care. Determinant factors for shortage of HRH lie in failure to attract and retain the health workers. Push factors of local and work environment are the determinant factors for failing to attract and retain the health workers.

Conclusion

Most of the push factors are beyond the scope of health care and need multi-sectorial approaches to minimize the push factor and increase pull factor to attract and retain health workers.

Recommendations

Nagaland needs a comprehensive state specific attraction and retention policy. There is a need for short and long term strategy incorporating WHO evidence base framework

Key words

Human resource for health, attraction, retention, rural Nagaland

Word count: 11996

INTRODUCTION AND ORGANISATION OF THESIS

All people everywhere will have access to a skilled, motivated and supported health worker, within a robust health system.[1]

The Global Health Workforce Alliance (GHWA) highlighted the above vision in 2006 in response to the global Human Resource for Health (HRH) crisis in the World Health Report - Working together for health (WHR 2006).[2]

The concept of universal health coverage is built on availability, accessibility, acceptability and affordability.[3] Numerous studies have established a relationship between availability of health worker, coverage of health services and health outcomes.[4] However Health Care Workers (HCWs) in many countries remain the weakest link of health systems making progress in health workforce strengthening a pre-requisite in moving towards universal health coverage.[2]

World Health Organization (WHO) defines HCWs as "all people engaged in actions whose primary intent is to enhance health".[2] HRH is characterized by diversity and its complexity and includes people from a wide range of occupational backgrounds like physicians, nurses, pharmacist, dentist, public health workers, policy makers, administrators, educators, clerical staff, scientists, and health managers and others.[5]

Many middle and low income countries (MLICS) including India face a severe HRH shortages and mal-distribution between rural and urban areas. Lately the global policy environment further aggravated disintegration of health systems in MLICS, thereby creating the biggest challenges in producing, recruiting, motivating and retaining health professionals particularly in rural and remote areas.[6]

Inadequate financial and non-financial incentives, poor working conditions, lack of supervision, poor management systems, lack of equipment and limited infrastructure further contributes to the flight of health care personnel from remote areas.

As a project officer working in Non-Governmental Organization (NGO) for a decade, I have been involved in many projects in rural and very remotes areas of Nagaland, India. The lack of basic health care services and the non-availability or absenteeism of health personnel's posted at the remote areas of Nagaland and the mounting health needs of the people living in remote areas motivated me to pursue this study to understand the factors that influence HCWs decisions to accept or stay in remote post so as to find ways to improve the attraction and retention of HRH in remote areas and advocate it to the policy makers.

This thesis is a literature review consisting of five chapters which tries to identify and explore factors that influence retention of HRH in Nagaland, India.

Chapter one gives background information of the state of Nagaland, India. It gives information on geography and demography, socio economic, socio cultural and ethnic composition of the Naga society, the political system, health system and health financing elaborating on health infrastructure, basic health indicators putting more emphasis on HRH and its disparity in urban and rural distribution.

Chapter two describes the methodology of the study. It describes the problem statement, justification and objectives of the study. It also describes the search strategy used in literature review, and the conceptual frame work adapted for the study. It also describes the exclusion and inclusion criteria and limitations of the study.

Chapter three is a literature review exploring the determinant pull and push factors that impact the retention of HRH in rural and remote areas in Nagaland.

Chapter four explores the intervention done to retain the health workforces in rural and remote areas in other state of India and MLICS globally.

Chapter five discusses the findings and conclusions of the study. It also describes the development of recommendations for retention of HRH as to advocate it to the policy makers and state government.

This paper will look at the poor health performances with the assumption that shortage or absence of the HRH is a major bottleneck for poor health care delivery in the rural parts of Nagaland, India. The determinants for the shortage or absence of health workforces will be examined with special focus on the attraction, motivation and retention of the HRH in rural areas.

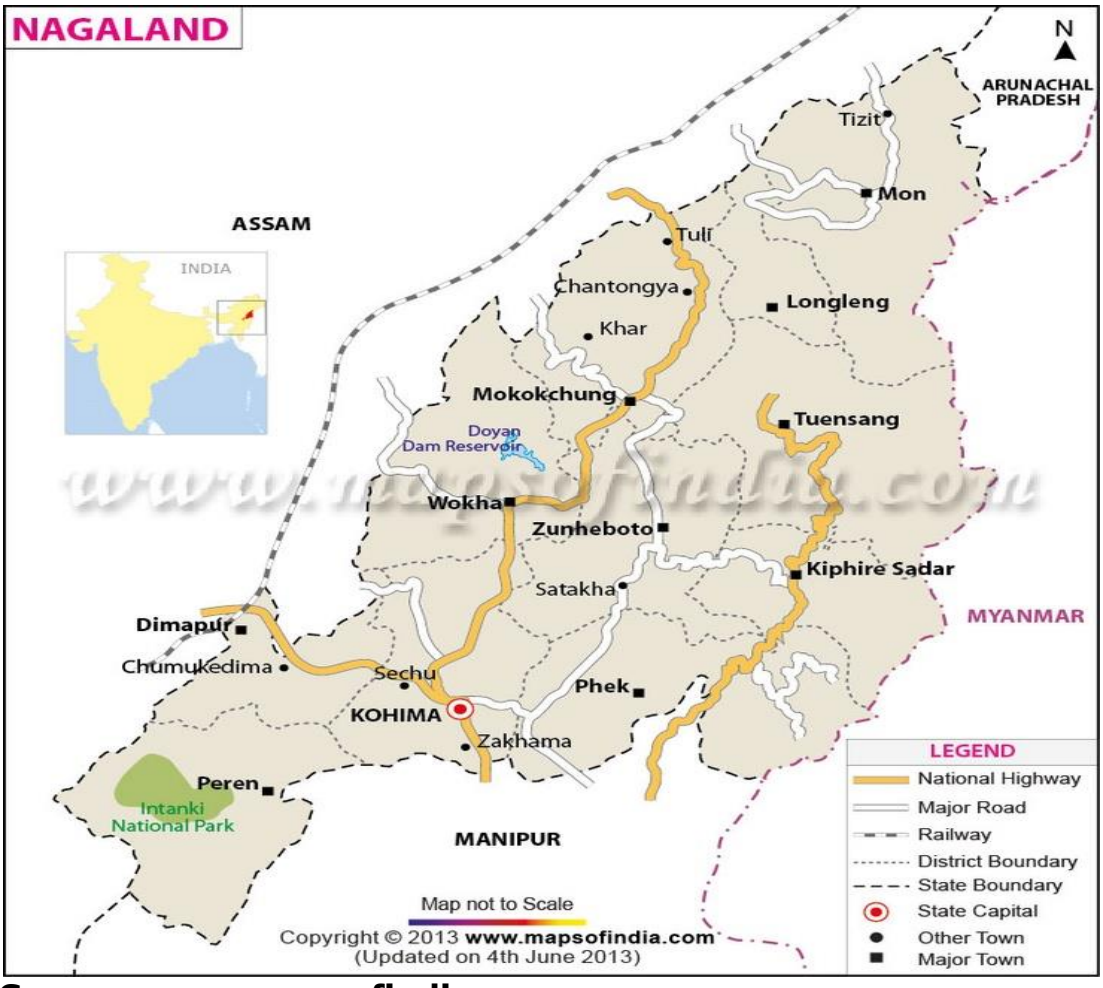
Study follows the conceptual frame work which assumes that "the extent to which HCWs can be attracted to and retained in remote areas depends on two interrelated aspects: the factors which contribute to HCWs' decisions to accept and the stay in a remote post; and the strategies employed by governments to respond to such factors".[6]

CHAPTER ONE: BACKGROUND INFORMATION OF THE STATE OF NAGALAND, INDIA

1.1 Geography and demography

Nagaland became the 16th State in India in 1963. It is one of the smallest states of India. It shares an international boundary with Myanmar on the east.[7]Nagaland has 11 districts. 71% of the overall Nagaland population lives in rural areas, which is similar average of 68.84% in India.[8]More than 80% of the population of 6 districts out of 11 districts lives in rural areas.

Figure 1. Map of Nagaland



Source: www.mapsofindia.com

Table1: General Information of Nagaland

Nagaland at a Glance.	
Total Area	16,579 Sq. kms.
State Capital	Kohima (1,444.12 Mtrs. Above Sea level)
Population	19,80,602 Persons (Census 2011)
Density of Population	119 per sq. km.
Sex Ratio	909Females: 1000Males
Literacy Rate	80.11% (Census 2011)
	a. Male 82.75% b. Female 70.01%
Official Language	English
Religion	Christianity
Commercial Centre	Dimapur
Major Economy	Agriculture
State Boundaries	East - Myanmar & Arunachal Pradesh West -Assam North - Assam & Arunachal Pradesh South - Manipur
Tribes	Angami, Ao, Chakhesang, Chang, Khiamniungan, Kuki, Konyak, Kachari, Lotha, Phom, Pochury, Rengma, Sumi, Sangtam, Yimchungru, Ziliang.

Source:https://www.nagaland.gov.in/portal/portal/StatePortal/AboutNagaland/StateProfile

1.2 Socio economy, socio-cultural and ethnic composition of Nagaland

Agriculture is the main source of economy in Nagaland, providing the prime source of revenue to the state. 70% of the Nagaland population engages in agriculture. The social structure of Naga ethnic groups is culturally different from rest of India. The main religion is Christianity. The people of Nagaland are commonly known as Naga belong to Indo-Mongoloid clan of ethnic group. The state of Nagaland is further divided into 16 sub-ethnic groups having their own distinct dialect.[9]

1.3 Population and Literacy

Nagaland population is approximately about 1.9 million, with 1 million male population and.9 million female population with sex ratio of 931/1000. The literacy rate of Nagaland is 79.55% slightly higher than that of national literacy of 74.04%. Male literacy rate of Nagaland is 82.75% and female literacy rate is 76.11%.**Error! Bookmark not defined.**(Census 2011)

1.4 Political system

Nagaland has single chamber legislation with 60 parliamentary seats in state legislative assembly. Nagaland has one representative

in the lower house, LokSabha in India parliament and one representative in the upper house, RajyaSabha. There are 11 local administrative districts in Nagaland.[10]

Table2. District wise Rural and Urban distribution of population

Name of District	Population in absolute number	Rural %	Urban %
Dimapur	378,811	48.05	51.95
Kohima	267,988	54.40	45.60
Kiphere	74,004	77.72	22.28
Longleng	50,484	84.96	15.04
Mokochung	194,622	71.19	28.81
Mon	250,260	86.15	13.85
Phek	163,418	84.93	15.07
Peren	95219	84.41	15.59
Tuensang	196,596	81.28	18.72
Wokha	166,343	78.95	21.05
Zunheboto	140,757	80.42	19.58
Total	1,978,502	71.03	28.97

Source: Statistical handbook of Nagaland 2013. Directorate of economic & statistic, Government of Nagaland)

1.5 Health System and financing

The sources of financing for health in states of India come from central government.[11] However, the larger portion of the health finances in the state is from states own budgetary. Under the VIIth Schedule of the India constitution, the state government was given the responsibility to provide health care to its population thus making the state government primarily responsible for funding and delivering of the health care to the population in the state.[12] However, the central government of India also plays vital role in supporting the state government in their effort toward achieving the target of the national health policy and contribute one third of the state health budget.64% of the total expenditure on health is

supposed to come from the state budget[13] yet for many states including Nagaland, health is not given priority thus failing to give positive impact on health outcome for the population. In India the public overall health spending remains at 4.1% of Gross Domestic Product (GDP), which is relatively low for a middle and low income country.[14] The low spending on health has resulted in direct implication to the shortage of HRH at all level of public health delivery system.15

1.6 State health profile of Nagaland

The Health profile in Nagaland can be discussed under three aspects, the health indicators as compared to the country figures, availability of health infrastructure and HRH, and existing inequity between rural and urban Nagaland.

1.6.1 Health indicator in Nagaland

Table *3*. Health indicators of Nagaland State as compare to India figures.

Indicator	Nagaland	India
Crude Birth Rate (per 1000 population) (SRS 2013)	15.4	21.4
Crude Death Rate (per 1000 population) (SRS 2013)	3.1	7
Natural Growth Rate (per 1000 population) (SRS 2013)	12.3	14.4
Infant Mortality Rate (per 1000 population)(SRS 2013)	18	40
Maternal Mortality Rate (per 1000 population)(SRS 2010-12)	No data	178
Total Fertility Rate (per 1000 population)(SRS 2012)	No data	2.4
Sex Ratio (per 1000 male)(Census 2011)	931	940
Child Sex Ratio (per 1000 male child)(Census 2011)	944	914

Source: RHS Bulletin, March 2012, M/O Health & F.W., GOI[16]

1.6.2 Health centers and Infrastructure.

The National Health Mission (NHM) has categorized the rural areas into two categories as plain and hilly areas. The population norms for 1 Sub-Centre's (SC) per3000 population, 1 Primary Health Centre's (PHC) per 20000 populations and 1 Community Health Centre (CHC) per 80000populations in the hilly areas like Nagaland. The SC is the first primary contact point between community and the health system. PHC is the first contact point between medical officer and village community, it is established and maintained by the state government with a standard staffing pattern of 4 medical specialists namely Surgeon, Physician, Gynecologist and Pediatrician supported by 21 paramedical and other staff.[12] The number of the require health infrastructure was calculated as per the population concentration of the population.

Table 4. Health centre's, Infrastructure and HRH of Nagaland

Particulars	Required	In position	Shortfall /surplus	%
Sub-centre	468	396	-72	85
Primary Health Centre	70	126	56	180
Community Health Centre	17	21	4	124
Health worker (Female)/ANM at Sub Centres & PHCs	522	867	345	166
Health Worker (Male) at Sub Centres	396	234	-162	59
Health Assistant (Female)/LHV at PHCs	126	37	-89	29
Health Assistant (Male) at PHCs	126	0	-126	0
Doctor at PHCs	126	99	-27	79
Obstetricians & Gynaecologists at CHCs	21	2	-19	10
Paediatricians at CHCs	21	4	-17	19
Total specialists at CHCs	84	9	-75	11
Radiographers at CHCs	21	0	-21	0
Pharmacist at PHCs & CHCs	147	60	-87	41
Laboratory Technicians at PHCs & CHCs	147	70	-77	48
Nursing Staff at PHCs & CHCs	273	382	109	140

(Source: RHS Bulletin, March 2012, MoHealth & F.W., GOI)[17]

1.6.3 Human Resource for Health.

There are two categories of the health workforces in Nagaland. The regular appointees under the Directorate of Health and Family Welfare (DoH&FW) Government of Nagaland, and centrally sponsored appointees on contract basis, under NRHM a sub mission of NHM.

Table5. Ratio of Doctors per 10000 population in Nagaland. (*including Centrally Sponsored Appointees & exclude Doctors working in Directorate)

Name of District	Population	No of Doctor	Dr/10000 Population
Dimapur	378,811	37	0.98
Kohima	267,988	75	2.80
Kiphere	74,004	19	2.57
Longleng	50,484	16	3.17
Mokochung	194,622	48	2.47
Mon	250,260	36	1.44
Phek	163,418	38	2.33
Peren	95219	23	2.42
Tuensang	196,596	38	1.93
Wokha	166,343	32	1.92
Zunheboto	140,757	32	2.27
Total	1,978,502	394	1.99 (average)

Source: (Statistical handbook of Nagaland 2013. Directorate of economic & statistic, Government of Nagaland)

1.6.4 Rural and Urban disparity

The crux of the problem in HRH in Nagaland lies in the Rural and Urban disparity. Though no study has been done to ascertain the exact number of HRH distribution between rural and urban in Nagaland, a study done by Public Health Foundation of India (PHFI)reported 60% of the health workforces are in urban areas which is occupied by only 28% of India's population.[18] Chikersal (2015) reports only 26% of the doctors serves in the rural where almost 69% of its population stays.[19]As per survey done by United Nations Development Program (UNDP) shortage of HRH in rural Nagaland is a major concern for the impact of the health outcome in the state. Out of the 11 districts10 districts reported to have shortage of workforces for health.[20,21,22,23,24,25,26,27,28,29,30]

In Dimapur district, where 52.2% of the population lives in urban areas did not have health workforce shortage in the assessment done by the UNDP.[31]In India, the number of HCWs serving in rural areas is only 11.8 per 10000 populations while in urban area it is more than four times. The number of allopathic doctors serving in the rural areas is 3.9 per 10000 populations where in urban areas it is 3 times (13.3) more than in rural areas. The nurses and midwifes ratio in rural and urban in 10000 population is 4.1 and 15.9 respectively. Similar disparity is seen among Ayurveda, Yoga and Naturopathy, Unani, Siddha and Homeopathy (AYUSH) practitioners with 3.6 per 10000 populations in urban and only 1.0 per 10000 population serving in rural areas.[32]

CHAPTER 2. PROBLEM STATEMENT, JUSTIFICATION, OBJECTIVES, METHODOLOGY AND CONCEPTUAL FRAMEWORK

2.1 Problem statement

The key to success of a country to achieve health goals of the population lies in the competency of the HRH, their skills, motivation and proper distribution of the HRH to deliver the health services.[33]Shortfall of HRH in one of the obstacle in the functioning of the health system in the areas where health care is essential.

In India, the right to health is a constitutional provision for the population. Though health services are provided by both central and state government, health is a state subject. The primary responsibility of delivering health care services to the population lies within the state government and its agencies.5However the strategies of the states are mostly guided by the national health policy and the national programs. But the national programs do not address all health needs of each state particularly in the rural areas. India being a country with diverse topography, socio cultural and economic characteristics, blanket national programs require to be adapted according to the local needs of the states. Each state ought to have their own specific policies to address the health needs of the population however; many states including Nagaland do not have a clear state health policy especially those pertaining to attraction and retention of HRH in rural and remote areas of the state. In Nagaland, HRH is an important area requiring reforms as it has not received much attention yet.

In many countries including India, information on human resource (HR) is fragmented and difficult to obtain. Information in the private sector is scarce and very difficult to collect. HRH is unevenly distributed among the regions, countries, and within countries. India with a population of 1.3 billion of people, out of whom majority (around 73%) lives in rural areas, needs a focus on rural health care. According to Census 2011, there are around 2.2 million workforces for health in India out of which 60% reside in urban areas. This phenomenon can be explained as most of the hospitals, referral hospitals, and specialist hospitals exist in urban. The shortage of HRH exists in all categories at different levels effecting especially rural and remote areas.5

The table 6, below shows that Nagaland is lacking behind National average in almost all the key health coverage indicators

Table 6. Coverage of Countdown indicators at national level and by key equity stratifiers

SL no	Indicators	National (India) %	Nagaland %
1	Family planning need satisfied	81.6	53.4
2	Contraceptive prevalence rate	56.3	29.7
3	Antenatal care 1+ visits with skilled provider	73.2	54.7
4	Antenatal care 4+ visits, any provider	37.0	12.1
5	Skilled attendant at delivery	46.6	24.7
6	C-section rate	8.5	2.0
7	Early initiation of breastfeeding	24.5	54.2
8	Postnatal care for babies born at home	2.1	1.0
9	BCG vaccine	78.1	46.3
10	DTP3 vaccine	55.4	29.0
11	Measles vaccine	58.8	27.3
12	Vitamin A in last 6 months	15.7	6.2
13	ORT and continued feeding	32.7	42.6
14	ORS (packet or prepackaged)	26.0	16.5
15	Care seeking for pneumonia	70.3	28.7
16	Improved drinking water source	87.6	60.2
17	Co-coverage (less than 3 interventions)	18.1	48.8
18	Co-coverage (6 or more interventions)	47.2	17.5
19	Composite coverage index	64.0	40.4

Source: DHS 2015

In India, public health infrastructure consists of CHCs, PHCs and SCs that provides various health services in the rural areas of the district. (Annexure-1). A Bulletin on Rural Health Statistics 2006 (GOI) reported 7.5 % of PHCs were functioning without physician, 38.9% without lab technician and 17.7 per cent without pharmacist. 54.5 per cent of the sanctioned posts of specialists in CHCs remained vacant as on March, 2006. Shortages of 9413 specialists at CHC level and 18,318 female Multi-Purpose Workers (MPW)/Auxiliary Nurse Midwives, 74,721 MPW (Male), 5941 Health Assistant (female)/Lady Health Visitors and 7169 Health Assistant (Male) at PHC/Sub-Centre levels were observed.[34] Only 26% of doctors work in rural areas serving 72% of the population.

The PHFI estimates that in India, health manpower (doctor, nurses, and midwives) population ratio is 0.8/1000 against WHO minimum benchmark ratio of 2.28/1000 population. 70% of the health manpower is in the private sector out of which 80% work in urban

areas. Doctor population ratio in rural areas is 3/10,000 population while it is 13/10,000 for urban. According to the statistical handbook of Nagaland 2013, there are only 394 doctors in public sector in Nagaland serving the 1.9 million.

Attracting qualified health care workers to stay in remote and underserved domains and building their capacity in public health is indeed a daunting task as a plethora of issues related to numerical and distributional imbalances, inadequate training and technical skills, improper deployment, inefficient skill mix of health workforce often coupled with poor personnel management, non-existence of career structures, inadequate staff supervision, lack of motivation, poor working environments and lack of opportunities for personnel development contribute to flight of HRH from rural areas.

Above all, there is absence of a well-defined Human Resource Development (HRD) policy in the states to address the framework for key elements such as forecasting for HRH, deployment and career progression, compensation and retention of HCWs.[35]

A comprehensive, holistic national and state policy for attracting, motivating and retention of qualified HRH in rural areas is needed to achieve universal health coverage especially in rural India. Currently there are no policies in Nagaland that addresses to retain the HRH and this remains an important area where state specific policy is required. Nagaland requires to gear up and establish a dedicated cell for HRH planning forecasting on requirements and taking into consideration the changing disease profile, population dynamics and composition without limiting itself to public systems only but also monitor HRH available in private sector so that a more holistic view can be undertaken to achieve universal health coverage.

2.2 Justification

The HRH represents the critical pathway to improve the health outcomes of the population in rural areas but shortage, mal-distribution and poor performance hinders the attainment of better health outcome.[36]

Lack of resources is one of the reasons resulting in low productivity of the health workforce, and challenges in recruiting and retaining health workforces in the remote areas. Low wages, poor infrastructure and equipment, poor working and living condition makes it hard to retain the already scarce HCWs in the rural and remote areas.[6] Like in many MLICs settings the remote districts in Nagaland are also affected by severe shortage of health workforces. In terms of overall mortality and morbidity profiles, the State's performance is better in comparison to the National however there is a stark difference between rural districts and those districts with higher urban population as health outcome in remote district are

worse than district which are closer to the state's capital Kohima and Dimapur.

The health centers face severe shortage of health work forces as many vacancies for HCWs are left unfilled because of the shortage of qualified HRH. Those who are posted are not willing to stay there and are often absent from work because basic infrastructure at the health centers are not available. The dispersed spread of villages in the hilly terrains makes the public transportation difficult and many villages do not have access to public transport to the nearest health Centre which is already poorly managed. The HCWs do not want to serve in the remote areas because of the lack of basic facilities like, housing, electricity, water and transport, proper education for the children, medical care and other modern amenities. Although these factors are multi-faceted and complex, there is no policy and comprehensive strategy to address the problem.

Because of the complex interaction of factors influencing on motivation, attraction and retention, there is a need for a research that will highlight and address the need for bundles of interventions for attraction and retention of HR in rural and remote areas giving attention to living environment, working conditions and professional and personal development opportunities.

In spite of the several problems that affect the health outcomes of the rural population there is no study done in Nagaland to identify the underlying factors on the ground as well as at policy level at the same time the problems is ongoing and the state government who is the responsible guardian of the rural population to deliver health services do not have any policy to address the issue yet.

This study is undertaken to analyze the factors influencing shortage of HRH in the rural and remote districts of Nagaland. It also reviews intervention in other states in India and other MLICs to address the rural health needs in terms of making availability, accessibility, acceptability and quality of health services; thus to provide recommendations from success stories and lessons learnt from other countries tackling with attraction and retention of HRH in rural areas to the policy makers and planners in Nagaland.

2.3 Objectives

2.4 General Objective

To analyze the factors that influence shortage of HRH in the rural and remote districts of Nagaland in order to make recommendations for their retention.

2.5 Specific objectives

1. To identify the underlying factors that influence shortage of HRH in the rural districts of Nagaland.
2. To critically analyze strategies that have been employed to increase and retain the HRH in the rural districts of Nagaland.
3. To review evidence on intervention strategies on retention of HRH in rural areas from other parts of India and globally.
4. To formulate retention policies for the rural districts of Nagaland in order to improve health service delivery.

2.6 Methodology

The methodology of this study is a literature review method. The purpose of the study is to analyze the factors that influence shortage of health workforce in the rural and remote districts of Nagaland, India. And to identify the strategies that have been employed to tackle the HRH shortage and review the evidence based intervention on retention of HRH in rural areas adopted in India and globally. The study aims to formulate and provide recommendation to the state government at policy level to develop a policy on staff retention to address the shortage of HRH in the rural district of Nagaland.

This sub section describes the criteria used for selection of literature, the search strategy used, conceptual framework adopted for the study and limitations of the research.

2.7 Search strategy and Data

The literature review initially started with search engine Google scholar using the word 'HRH shortage in rural areas' which led to a number of published materials from all countries. While the initial search included articles from high- middle- and low-income countries, the search was narrowed down to middle and low income countries, then India and North East Region of India and specifically Nagaland state.

The search for literature was done in multiple stages based on different research questions being answered in sync with the specific objectives of the study. Various database like the Cochrane Library, VU library and PubMed was reviewed using a range of

different search terms related to Human resource shortage such as "attraction, motivation, recruitment, HCWs attraction, staff retention, health workforce in remote areas, staff retention policy in middle and low income countries, medically underserved areas. Different work force classifications were also combined to search for literature such as "HCWs, physicians, nurses, public HCWs etc." Extensive literature review was done focused on English-language material published between a 10-year periods (2006 to 2016) to access the most up to date studies.

Additionally a number of relevant journals as well as unpublished literature and other information from reports, books, policy documents, protocols and standard guidelines were retrieved from various websites like International Labor Organization (ILO), World health organization (WHO).

Grey literature retrieved from various organizations involved in study of interventions in retention and performance such as Regional Network for Equity in Health in Southern Africa (EQUINET) was also consulted.

The title of the study and abstracts were screened to judge whether the study met the inclusion and exclusion criteria. Those studies which were found unsuitable were left out and selected papers were reviewed in depth.

2.8 Inclusion and exclusion criteria

Literature published in English language only was included. Literature on HRH shortage in terms of attraction motivation recruitment and retention were used. All other literatures that did not meet these criteria were excluded. Articles with abstracts without access to full text versions were also excluded.

Table 7: Search Table

Source	Search words used by objective			
	Objective 1 To identify the underlying factors that influence shortage of HRH in the rural districts of Nagaland.	**Objective 2** To identify the strategies that have been employed to retain HRH	**Objective 3** To review evidence on intervention strategies on retention of HRH in rural areas	**Objective 4** To formulate retention policies for the rural districts of Nagaland
Goggle scholar PubMed The Cochrane library Vu library	"Staff attraction, motivation, recruitment in rural areas", "HCWs attraction in rural areas","staff retention in middle and low income countries","health workforce in remote areas" "staff retention policy in low middle income countries" "medically underserved areas"	"Strategies for attraction and retention of HCWs in medically underserved areas" "Evaluated strategies for retention of human resources for health in rural areas, middle and low income countries" Retention interventions, retention policies, retention strategies.	"Best practices for retention of human resources for health" "Effectiveness of interventions to attract and retain HCWs in remote and rural areas, middle and low income countries"	'HRH management role", "human resources managements polices", "interventions on staff retention policies in rural health" "Effectiveness of interventions to attract and retain HCWs in remote and rural areas in middle and low income countries"
Websites of	'Shortage of health	'HRH development"	"Attractiveness of rural or	'HCWs retention

International Labor Organization (ILO), World health organization (WHO), United Nation Development Program (UNDP)	professionals in rural areas, shortage of medical personnel's in middle and low income countries, nursing shortage in middle and low income countries,	Retention intervention, retention policies, retention strategies.	remote areas" "Deployment/recruitment , retention", "health workforce" , "health systems performance" HCWs retention policies in MLICs.''	policies in high, MLICs.'' HCWs retention programs, rural and remote areas,
Websites of MoH&FW India, Nagaland	"Health care situation in rural Nagaland" "HRH in rural Nagaland"	"Retention of health worker in rural Nagaland"	Interventions, strategies on HCWs retention in rural and remotes areas, MLICs.	HCWs retention programs, rural and remote areas,
UNDP Human Development Report	"Health care situation in rural Nagaland" "HRH in rural Nagaland"	"Retention of health worker in rural Nagaland"		

2.9 Conceptual Framework for study

Different frameworks and models have been used in many studies to explore factors influencing workforce mobility but with slight differences in the type, purpose and context of the study. Various frameworks like 'The Todaro Migration Model' have been used to explain internal migration of HCWs in developing countries based on financial incentives as Todaro model postulates that migration proceeds in response to urban-rural differences in expected rather than actual earnings.[37] This model is not used for this study as it focuses on monetary incentives whereas retention factors interplay on both monetary and non-monetary factors. Some studies have also used concepts of motivation to analyzed the existing empirical evidence on the impact of financial (salary supplements, benefits and allowances) and non-financial incentives (improved working and living conditions, continuing education and professional development, supervision and managements, etc.) on motivation and retention of HCWs in rural settings.[38,39] Maslow Hierarchy of Needs Theory has also been used to explain and analyzed decision making process of workers to stay or leave in the organizations based on whether their needs are met or not. [40,41]

This paper will be analyzed based on the assumption that the final result of retention of HRH in remote and rural areas depends on two inter-linked aspects: [6]

i. The factors that influence the decision or choice of HCWs to relocate or stay in remote and rural areas and
ii. The strategies employed by governments to respond to such factors.

This study will also use the push and pull factors to explain the attraction and retention of HRH in remote rural settings.[6, 42, 43, 44]

i. "Pull" factors are those which attract HCWs to a new destination. These might include improved employment opportunities and/or career prospects, higher income, better living conditions or a more stimulating environment, family ties, roots etc. Desire to come back to home state or home country from other state, cities or abroad due to political instability, racial discrimination or simply homesick for want to being closer to family are also pull factor.
ii. "Push" factors are those which repel the individual from a location. These include factors that might cause loss of employment opportunity, low wages, poor living conditions, alienation from families, roots, not easy to adapt to cities or abroad, political instability, racial discrimination, social and cultural differences etc.

Using a conceptual model based on different environments impacting attraction and retention (Figure.2) and identifying the location of decision-makers association with attraction and retention in the public sector (Figure 3). The conceptual framework aids in analyzing the different factors that interplay and influence ones decision to stay or leave in remote post by grouping the different types of environment surrounding the individual and the extent to which health system policies and interventions respond to these factors. (Figure 3)

It is worthwhile to describe the original conceptual framework developed and used by Lehmann, U., Dieleman, M., & Martineau, T. (2008)6which has been found to be best structured and suitable for this study.

To describe the conceptual framework, the various environments are described in detail.

- **Individual factors** are age, gender and marital status that may impact on decision making of individual to stay or leave in remote posting.
- **The work environment** consist of push and pull factors such as labor relations, managerial and leadership, personal and professional growth and infrastructure availability and support.
- **The local environment** comprises of general living conditions and the social environment.
- **The national environment** consist of both factors of push and pull such as political and social stability, war, crimes, public service and career scopes.
- **The international environment**s are pull factors like higher incentives, better work conditions and professional growth abroad.

The above 'push and pull factors' that influence individual choices are amenable by Human Resource Management (HRM) strategies at central or state government levels by identifying and addressing the various locations where policy and decision makers can develop and coordinate strategies to improve attraction and retention of HRH at remote areas. (Figure.3)

2.10 Conceptual Framework for study

Figure:2. Different environments impacting attraction and retention.

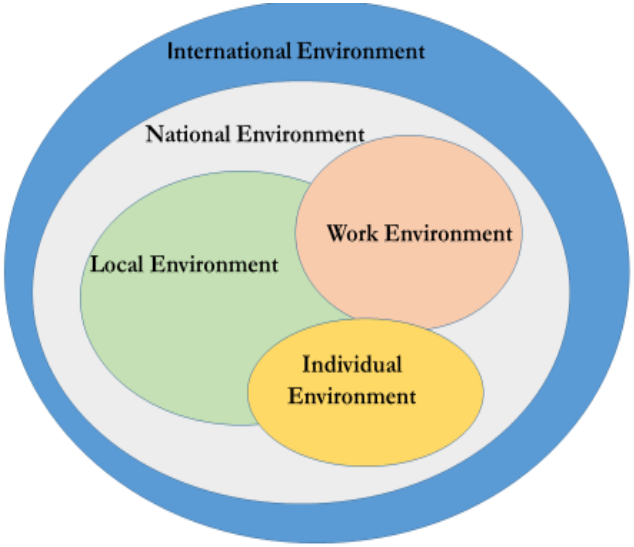
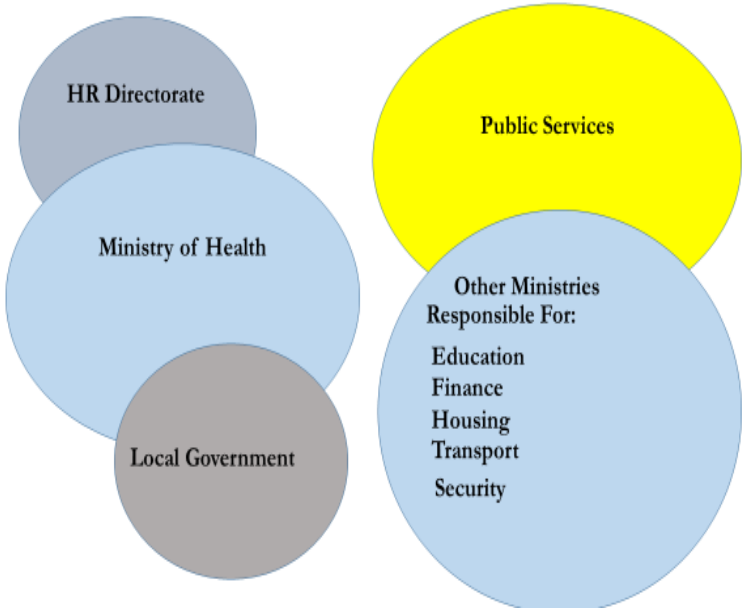


Figure:2. Location of decision-makers associated with attraction and retention in the public sector.



Source: Lehmann U, Dieleman M, Martineau T(2008) Staffing remote rural areas in middle- and low-income countries: a literature review of attraction and retention.

2.11 Limitations of study and analysis

The language for selection of paper include papers published in English, therefore some relevant papers in other language were excluded for the study. Only free peer-reviewed article published in English were included, excluding those papers that need to be purchased. There was a stark paucity of literature on HRH shortages that was conducted in Nagaland thereby limiting the literature review on local context of rural, Nagaland. Since there was limited data in Indian context, multiple studies done across the country were used to present evidence and to triangulate by using similar research from either within the country or outside the country. Mostly the literature review was focused on studies done in MLICs. The study covered literature review of mostly online literature than unpublished literatures which may introduce biases in the information generated. These above limitations were addressed during study analysis by using multiple sources of data within similar contexts to triangulate the findings. The quality of studies used for this literature review was ensured by considering the methodologies implored in each studies.

CHAPTER 3. STUDY FINDINGS

3.1 Factors that influence Shortage of HRH in rural Nagaland

This chapter summarizes the literature review on determinant factors for the shortage of HRH in the light of the failure to retain the health workforces in rural Nagaland. The first part will explore the factors that influence the decision or choice of HCWs to relocate or stay in rural Nagaland and the second part will explore the strategies employed by governments to respond to such factors. This analysis is based on the assumption that "the extent to which HCWs can be attracted to and retained in remote areas depends on two interrelated aspects: the factors which contribute to HCWs' decisions to accept and stay in a remote post; and the strategies employed by governments to respond to such factors." [6]

3.2 Determinant factors for failure to retain the HRH

There are different environmental factors impacting attraction and retention of the HRH in the remote and rural areas. The determining factors of the HCWs to remain or leave the remote and rural areas has been categorized into five categories: Individual factors, Work environment, Local environment, National and International environment.[6] The different factors influencing the individual HCWs to stay or leave the rural and remote areas will be further explained in terms of "pull" and "push" factors.[45]

3.3 Individual factors

Individual factors refer to the factorssuch as age, gender and marital status, ethnicity, education, values and beliefs of a person and how those factors influence to take decisions in life.[46] There are not many studies done especially in context of Nagaland explaining how individual factors influence pull or push factors.

Age: Studies found younger HCWs are more willing to work in rural area for a number of reasons like they are more adventurous, less family obligation to stay in one place. On the other hand, young people are easily attracted by the glamour and lifestyle of urbans with more opportunity for career growth.[47] Study from India shows that 52% of people are likely to move to urban areas attracted by urban pull factors.[48] Presence of family in the rural areas influences an individual decision to go to rural and remote places for medical practice.[46]As per the 2011 census of India, Nagaland has the highest rate of decadal growth with 69%, while the national average is 21% only. This high decadal growth and urbanization is attributed to various factors such as rural push and urban pull and natural growth of urban population. This evidence is shown in the fact that rural areas have recorded

negative growth during 2011 census. In Nagaland, urban mobility is seen as progressive and positive change. Majority of the young people move to urban areas for education and better jobs. Therefore, moving back to rural and remote area is seen as a step backward rather than progressive. Lack of modern amenities, recreational facilities and limited social interaction push away the younger generation from the remote and rural areas to the urban cities where the life style is better with wider scopes for career growth.

Gender: In regard to gender, the association between pull or push factor with gender are reported inconclusive.[49] But there are few studies that explore the gender aspects, like Souket et al (2013), suggested that men are more likely to be motivated to work in rural areas than women. The pull factors for female HCWs depends on their husband's job location, as females are more likely to be attracted to work where their husbands are working.[47] Another study done in Republic of Congo reveals that women may be less willing to work in the rural areas because of safety concerns.[50] Dussault et al(2006), found woman are also under represented in the rural areas as they are less prone to accept rural posting.[46] A study in Bangladesh found most of the women are regularly absent from their rural postings and found them to be at the side of their husband's job place.[51]Gender has also serious policy implications in countries where male doctors are not allowed to attend female patients.[51]Nagaland being an open society gender per se has less influence in decision making to work in rural areas or moves to urban places. Woman in Nagaland are as mobile as man and are influenced by the same push and pull factors.

Marital status: There is limited evidences on marital status as determinant factor for rural retention. Souket et al (2013), suggested that men from urban areas may be less willing to relocate to rural areas after getting married and having children.[47]Study conducted in Malaysia reported that married health workers choice of work place is highly influence by their spouses.[6]In Nagaland context, being a patrilineal society, women are more likely to stay in the place where husband stays, making it unattractive to settle in rural areas without spouse and family. Additionally strong personal will to serve the poor in the remote areas is a pull factor for some individuals.[52]According to a survey across two states of Kerala and Madhya Pradesh by Swasti, HCWs working with faith base organization (FBO) and NGOs has more motivational factors to work in remote areas than those working in government set up.

3.4 Work environment

Work environment relates to those environment conducive to work for HCWs such as good infrastructures, adequate equipments and instruments to perform surgical and clinical activities, supportive staff including managers and colleagues, stability and job security, community support and due appreciation with good income and training opportunities to progress in their career as medical practitioner.[6] Management style, incentives and career structure and opportunities, posting and retention policy are all important elements of work environment.

A study done by the Regional Network for Equality in Health in Southern Africa (EQUINET) distinguishes between endogenous and exogenous factors. It describes endogenous as push and pull factor within the health system and exogenous outside the health system. The endogenous push factors consist of low remuneration and salaries, lack of job satisfaction, unsafe working condition, work related risk and lack of further education and training opportunities. The exogenous push factors were described as the low quality of life, conflicts, less opportunity for good children education.[53]The pull factors with regards to work environment attributes to good management, work incentives, good salary and remuneration, supportive environment for career prospect are some of the attraction and retention for the HCWs in rural areas.[46] A study done in Ghana identified hardship allowances, recognition in terms of appreciation and financial incentive as motivating factors for HCWs to go to rural and remote areas.[54] While salary seems to play a big role in attracting the health workforces to rural areas evidence from a study in Africa shows only 24% of the health workforces are willing to relocate because of better remuneration, suggesting salary is not the only factor that attract the health workforces in the rural areas. Almost 90 % of the research found that financial incentive can be a motivating factor for HCWs to be attracted to a new place, however finance alone do not motivate HCWs to take decision to stay or move, financial aspects need to be integrated with host of other factors like overall development of the place, good communication and transportation, good schooling for the children, nevertheless low salary is still de-motivating factor for the HCWs.[55] A study in Odisha, India found that rural policy such as promotional avenue after serving certain years in the rural areas motivate the HCWs to stay in the rural areas.[52]

Push factor: Push factors are the opposite of pull factors. Lack of elements that has been discussed in the pull factor are the push factors. Henderson et al (2008), found that push factors consist of

heavy workload, professional isolation, poor living condition, poor managerial support and lack of equipments and medical supplies.[56] While, Lehman et al (2008) identified lack of opportunity to additional income through secondary employment, high risk environment as push factor for the HCWs to stay away from rural areas.6Soucat et al (2013), reported that, rural job has high opportunity cost while various studies including WHO report identifies that lack of career path and lack of professional development and training are important as most of the medical faculties are in urban areas.[47]

In Nagaland work environment in health sectors is hugely effected by remoteness of the place combined with lack of proper medical infrastructure and bad governance. According to district development report (2013), most of the SCs and PHCs lack the required infrastructure and equipments in most of the districts. Irregular power supply, lack of proper running water and sanitation demotivate HCWs to stick in remote rural areas.One of the push factors is non availability of the full strength of staffs in the health centers thereby increasing workload of the existing staff. The overall shortages of HCWs in the state is not the only reasons contributing to the non-availability of HCWs in the rural areas but regular absenteeism of existing staff is a major concern. Bad governance and loose administration not only failed to discipline the ghost staff, who are absent from their workplaces but also failed to motivate the dedicated staff through due appreciation and creating training opportunities for professional growth. Lack of earning opportunity of extra incentive in the rural and remote place of Nagaland is another factor contributing to work environment. In spite of the several push factor from the work environment still some choose to serve in the rural areas attributing to personal integrity and motivation, loyalty to job and willingness to serve the underserved.

3.5 Local environment

Local environment relates to general living environment and social obligations that impact the life of the HCWs in the rural area individually and professionally.[6]The local environment interface has much to contribute to the work environment, though they are mostly exogenous factors and are out of the realms of health care, like the overall development, good road connectivity, recreation activities, social support etc.

The local environment as a pull factor identified by Lehman et al (2008) are general living environment such as good living conditions, good schools, good housing and sanitation, good drinking water, good connectivity such as transportation.[6]Assessment done on factors

contributing and affecting availability and retention of health workforces in rural and remote areas in the state of Odisha, India identified good health infrastructure, supportive seniors, good schooling for children and training opportunities as major pull factors to work in the rural areas.[18]

The push factors according to labour law market analyses by Soucat et al (2013) reported that HCWs are reluctant to work in the rural areas because of the poor infrastructure, poor housing, poor health care and limited recreational facilities.[47] According to Soucat et al (2013), the rural and remote don't have purchasing power for health, where on the other hand private sector is an emerging force in the health worker's market in the MLICs.[47] The push factors of the local environment have multiple dimensions outside the perview of health issues, such as general developmental issues. A study on health care delivery in rural Rajasthan by Banerjee et al. (2004) attributed them to the lack of administrative zeal, poor road connectivity and adequate transport system that most of the health centers in the villages are not easily accessible throughout the year.[57]

The overall local infrastructure in rural Nagaland is abysmal to attract HCWs. As per district human development report (2013), modern amenities and facilities are confined to the district headquarter whereas peripheries have been plagued by lack of road connectivity, good schools, lack of good staff accommodation, lack of regular supply of electricity and water supply and good health care facilities. These are few reasons why the HCWs leave their jobs at rural Nagaland. On the other hand, close family and marital ties, zeal to serve own community and willingness to serve the underserved counteracts the push factors and urban pull factors.

The Communitization of health in Nagaland along with other public institution in 2002, the health centers such as SCs, PHC and CHCs are now managed by Health Center Management Committee (HCMC) and Village Health Committee (VHC) thereby increasing the community participation. The Communitization of health resulted in communities taking ownership of the health services, making sure health services run smoothly and infrastructure are in place. The Communitization has made the local environment conducive for the HCWs to stay and work in the rural areas. Community support is one of the pull factors for the HCWs to stay in rural and remote areas. On the flipped side, the lack of leadership and inefficiency of the community leaders has turned out to be push factor for the HCWs. Lack of capacity of the communities and lack of hand holding, capacity building by the government with

lack of support system, the sustainance of the Communitization process has failed.

3.6 National environment

The National environment is determined by the social and political stability and economic condition of a nation. A six nation study done in Africa identified social unrest and conflict, decline in health services, lack of medical facilities to perform the clinical procedures and poor economic condition of the country as push factors to stay away from the country. [58] An increased demand for HCWs from high income countries impacted on MLICs in terms of attrition of health workforces. A study revealed that 31% of the health workforce in UK are from overseas, approximately 20% of the permanent workforce in the medical fileld in Canada, Australia and United States are International medical graduates, 25% of Canadian hospital based physicians are from overseas.[59]Oosthuizen et al (2005), found that unstable political factors play a big role in South Africa to leave the country.[60]

Henderson et al (2008) acknowledge that some Pacific and Asian countries like India, Indonesia and Philippians especially encourage and provide special training to go abroad to earn more and support the family at home.[56]The pull factors from abroad are better remuneration, better opportunity for professional advancement and career growth, better living condition, safer work environment. [61] Clement throws a different angle to the pull factors and his findings show a positive correlation between greater political stability, prosperity and retention of health work forces which shows that overall development helps the health work forces to remain at the workplace for longer period.

National environment in the context of state of Nagaland, India, the biggest factors for shortage of HCWs lies in the capacity of producing HCWs. The lack of medical college in the state is the biggest hurdle in low productivity of doctors in Nagaland. Even the few doctors available are confined to urban areas. Overall the country has acute shortage of HCWs, according to Rao et al (2015) 18% of the PCH are without doctors, about 38% are without laborotary technicians, 16% without pharmacist and 52% of the specialist sanctioned post at the PHC are vacant. The demand of HCWs at national level has an impact on shortages in rural areas like Nagaland. First of all, some of the doctors from Nagaland are easily lured away to other metro cities in India for a better salary and better living conditions. Secondly, Nagaland is not able to attract doctors from other parts of the country as every state in India has their own problems of shortages of HCWs.

3.7 International environment

Shortage of HCWs globally including high income countries has impacted in attraction and retention issues in the MLICs globally. Most of the elements discussed in the push factors in the national environment coincides with the pull factors for International environment. HCWs from countries where there is political instability, less income opportunity, low quality of life are easily succumbed into the demand of the global market of HCWs.[56] The desired opportunities for better salary, better lifestyle and better education for children and better career opportunities offered by high income countries like USA, Canada, Australia and Western European countries attracts health worker to migrate out of their countries.[62]

In context of Nagaland, the International environment may not have direct impact on the issue of shortage of HCWs and their retention. However looking from the larger perspective, there could be a correlation as the demand of HCWs in global scenario have an impact in national environment and the rural areas in the state. The global HCWs labour market compriseof 59.2 million HCWs and there are 2.4 million shortages of HCWs globally. [63] The biggest supplier of physicians to the global market is India but Nagaland is unable to attract doctors from other parts of the country attributing to the remoteness of the geographical location and other push factors that have been discussed in the work environment, local and national environment such as lack of modern amenities, poor connectivity, poor housing, lack of good schools for children and lack of opportunity to earn extra financially are few important factors that fails to attract HCWs from outside the state.

Table 8. Pull and Push factors for the HRH

Factors	Pull	Push
Individual factors	- Younger Age : male and female - Unmarried male and female - Personal attitude to work in rural and serve the poor	- Older Age - Married and family in urban areas - Married female stick at husband job place - Security and safety reason being a female. - Lack of personal attitude to work in rural
Work environment	- Good infrastructure - Availability medical equipments - Supportive managers - Good financial incentive such as good salary, opportunity to earn more - exposure and training opportunities	- Lack of proper infrastructure - Lack of medical equipments - Unsupportive managers - Poor salary, lack of opportunity to earn more - Lack of exposure and training opportunities - Work overload
Local environment	- Supportive local communities - Good school - Good road connectivity - Availability of drinking water - Good housing and staff accommodation - Good health care facilities - Families ties, roots	- Unsupportive local communities - Lack of good schooling for children - Bad road and transport connectivity - Lack of good drinking water - Lack of good housing and accommodation for staff - Lack of good health care facilities.

3.8 Strategies that have been employed to increase and retain the HRH in rural district in India and Nagaland

The availability of health workforces is closely associated with better health outcome of the population.[64]HRH are essential for health service provision but shortage or the absence of the health workforces have now reached critical levels in many rural areas.[65] Nagaland is among such places that face shortages of HR in the rural and remote areas. (UNDP Human Development Report 2013).

No separate strategy has been developed in Nagaland of its own but strategies have been part of the diverse intervention strategies to enhance the retention of qualified workers as they have been planned and instituted by the central and state governments. These strategies include incentives both non-monetary and monetary by way of higher salaries or preferential admission to postgraduate education, and regulatory strategies such as educational bonds or compulsory rural service for medical graduates. Yet little is known about the scale of the actual problem, the contexts in which the interventions are put into practice and their applicability in real world settings. Above all, very few studies have analyzed and evaluated the outcomes of the various interventions which have been introduced in recent times making it difficult to infer which intervention works best for whom and where.[52]

Some key intervention for retention of HCWs in rural and remote areas by central and state Government in rural India are discussed below:

3.9 Compulsory Rural Service

Compulsory rural service is a mandatory mechanism in India where the medical graduates have to work at government health facilities in the rural and remote areas for specific period. This compulsory rural service for medical graduates was introduced in eleven states of India (Assam, Arunachal Pradesh, Gujarat, Chhattisgarh, Kerala, Manipur, Meghalaya, Nagaland, Orissa, Tamil Nadu and West Bengal) for a duration varying from 1 to 5 years.**Error! Bookmark not defined.**

A bond system also exists, where students sign a bond to serve the government for a predefined period at the time of admission to medical school. This bond value varies from state to state ranging from 1 lakh to 10 lakh rupees. This kind of monetary obligations forces the fresh medical graduates to work in rural areas for certain period. Other forms of compulsory rural service tried in India are compulsory rural service before and after post-graduation. In India, states like Arunachal Pradesh, Haryana, Himachal Pradesh, Jammu and Kashmir, Maharashtra, Manipur, Nagaland, Orissa, Sikkim, Tamil Nadu and

Tripura have made two to three years of rural service compulsory for getting admission to PG (Post Graduate courses).

In Nagaland though the strategy is not formerly evaluated there is some evidence of success in filling rural posts through successful posting of those who join the health system but not all the assigned posts were filled as this strategy is seen not appealing to the fresh medical graduate and failed to attract the newly medical graduate to the rural and remote Nagaland. The reason why this strategy is not well accepted by the fresh medical graduates were lack of confidence to manage patients right after graduation without supervision from seniors, lack of proper medical infrastructure in the rural areas, isolation from peers, compromised lifestyle, language barriers.

3.10 Rotation of doctors to rural posting:

Rotation is another strategy to ensure availability of doctors and other health workforces in the rural areas. Every doctor working under the government is made to rotate their posting from rural to urban and vice-versa for a certain period of time to ensure availability and accessibility of health service to the rural population.**Error! Bookmark not defined.** This strategy has been implemented all over the country and is also enforced in Nagaland. In spite of this, Nagaland continue to face the problem of HCWs shortages and still fails to attract the HCWs in rural area due to poor local environment and work environment. Loose administration, poor governance, nepotism, favouritism and political connection has made it impossible to enforce the strategy to deploy the HCWs to the rural areas. Some doctors who are well connected to bureaucrats and politicians get away without fulfilling their duties, while some of them are kept longer than the rotation period.

3.11 National Rural Health Mission (NRHM)

NRHM was launched in 2005 through out the country to provide accessible and affordable health care to the rural population. Nagaland is one of the special focus state under NRHM. Since its inception the health workforces in the rural Nagaland has increased. In spite of this increase there is still acute shortage of health workforces.

Table 9. No. of health work forces appointed under NRHM (February 2015)

Sl No	Name of the Post	Number of Post
1	General Duty Medical Officers	52

2	Dental Doctors	16
3	Specialist Doctors	7
4	Public Health Nurses	7
5	Ayush Doctors	40
6	GNMs	283
7	ANMs	327
8	Lab- Technicians	41

Source:http://www.nagahealth.nic.in/departmental%20set%20up%20-man%20power.htm accessed 10/07/2016

3.12 Financial incentive motivation through NRHM:

Nagaland along with the rest of India launched NRHM in 2005, the objective of the mission was to provide accessible, affordable, acceptable and accountable health care to the population. NRHM became sub-mission of NHM. One of the recruitment and retention strategies deployed under the NRHM was that the salary of the doctor was increased according to the remoteness of the place. Financial incentive schemes "difficult area allowance" were introduced to attract and retain the health personnel like doctors, ANMs, nurses and paramedics posted in rural areas classified according to their degree of remoteness.[66] As evidence shows that financial incentive is one of the pull factors for HCWs this strategy was recieved well to a large extent and since then there are substaintial number of general doctors, specialist doctors, dentist, GNMs and ANMs appointed in the rural parts of Nagaland. (Table No.8)

NHM is a centrally sponsored scheme and not under the directorate of health in the state. The NHM staff are appointed on contractual basis so there is a sense of job insecurity among the HCWs and the suatainability of the mission cannot be measured at the moment.

3.13 Accredited Social Health Activist (ASHA) under NRHM

The GOI, with an aim to strengthen rural health coverage through NRHM, introduced ASHA (Annexure 2). ASHA represents the cornerstone of NRHM stategy to achieve universal health coverage. With one ASHA per 1000 rural population, the mission aims to support the rural communities to access public health services. In Nagaland, ASHA under NRHM was launched in 2006 since then; there are 1700 ASHAs in Nagaland. The positive impact of ASHAs in the State is evident by increased health awareness amongst the rural population

and increased number of people availing health services. Performance Based Payment (PBP) system was recently introduced to support ASHAs in achieving defined health objectives and to retain them to reach health care to the unreached (Annexure 3). The impact of NRHM and the ASHA is only as strong as the individual ASHA who are chosen to be the first link between community and health care. [67]However improper selection, inadequate training, delayed payments, lack of supervision and lack of representativeness of the community , may only lead to recruitment of ASHAs who are unable to perform to the level necessary.

3.14 Mainstreaming of AYUSH

Under the NRHM, AYUSH physicians, who were trained in alternative system of medicine were appointed in the PHCs to mainstream the Indian system of medicine. The inclusion of AYUSH doctors was a step taken to address the shortage of health workforces in the rural Nagaland and other rural states of India.[66] Since the mainstreaming of AYUSH in to the health care, around 40 AYUSH doctors have been appointed to give leverage of health care to the rural population (Table No.6). The inclusion of AYUSH doctors to the mainstreaing of health care has been well accepted in Nagaland reducing the gap of the ratio of doctors and rural population making health care available and accessible in the underserved areas of Nagaland.

CHAPTER4. EVIDENCE ON INTERVENTION FOR RETENTION OF HCW'S IN RURAL AREAS IN MIDDLE AND LOW INCOME COUNTRIES

Shortage of health workforce in the rural areas is a global phenomenon.[68 - 69] All countries irrespective of their economic status face the problem of HCWs imbalance between rural and urban but it is predominant in MLICs. Though many countries have developed strategies to address the shortages of HCWs with recruitment and retention policies, evidence of success of the strategies is limited.[70] No country has ever completely solved this challenge. Recognizing this, several International events have emphasized the importance of HCWs retention and appealed for more concrete effort and policy through the following International events

- 2004 -The World Health Assembly resolutions on migration and 2006 - Rapid scaling up of HCWs; both called upon Member States to put in place "mechanisms to address the retention of HCWs."[71,72]

- March 2008 - The Kampala Declaration from the First Global Forum of Human Resources for Health called to "assure adequate incentives and an enabling and safe working environment for effective retention and equitable distribution of the health workforce."[73]

- July 2008 - The G8 Communiqué called "to restate the need to assure the effective retention of HCWs."[74]

- November 2008 - The Commission on Social Determinants of Health called upon governments and international partners to "specifically address the imbalances in the geographical distribution of HCWs in rural areas as a structural determinant of poor health outcomes."[75]

- June 2009 – The high-level Taskforce on Innovative International Financing for Health called upon governments to "ensure that all people, including rural and remote populations, have access to safe, high-quality and essential health-care services."[76]

Responding to the call to action from global leader, WHO convened a group of experts to examine the existing knowledge and evidence as to provide practical guidance to policy makers on how to design,

implement and evaluate attraction and retention strategies of HCWs in rural and remote areas. The group of experts laid down an evidence based framework that had a range of interventions that can be combined to improve attraction, recruitment and retention of HCWs in the rural and remote areas. The framework has four categories; education, regulation, financial incentive and personal and professional support.[77] This framework was provided to guide the policy makers to formulate each own strategies according to their countries context to increase access to health care in the rural and remote areas through recruitment, attraction and retention of HCWs.

Table 10. WHO Evidence Base Framework

Category of Intervention	Example
A. Education	A1 Students from rural backgrounds
	A2 Health professional schools outside of major cities
	A3 Clinical rotations in rural areas during studies
	A4 Curricula that reflect rural health issues
	A5 Continuous professional development for rural HCWs
B. **Regulatory**	B1 Enhanced scope of practice
	B2 Different types of HCWs
	B3 Compulsory service
	B4 Subsidized education for return of service
C. **Financial incentives**	C1 Appropriate financial incentives
D. **Professional and personal support**	D1 Better living conditions
	D2 Safe and supportive working environment
	D3 Outreach support
	D4 Career development programmes
	D5 Professional networks
	D6 Public recognition measures

Source: WHO Global policy recommendation

4.1 WHO evidence based framework

The WHO evidence based framework is categorized into four critical aspects: Education, Regulation, Financial incentives, Professional and Personal support. The four categories are recommended on the merit of their characteristics. A short description of each category is given below:

A. Education

Education is the basis of producing competent human resources. Educating the person to make him available at the remote areas is the first step toward the strategy to recruit and retain the HCWs in rural areas. With right student teaching, relevant curricula that emphasize on rural health needs will give solid foundation and influence them to work in the rural areas. Providing opportunity for knowledge updates and refreshers courses throughout their career is also crucial.[77] Vietnam implemented successful education approach by recruiting student from remote areas for medical studies in order to give equitable distribution of health work forces to the remote area, as family connection, desire to serve own people, language and cultural familiarity, and recognition from own people served as pull factor for the health worker to go back to the place of origin.[78] There is evidence across all high, MLICs that, there is a high chance of HCWs coming from rural background to return to rural area and serve their communities.[79] In Sri Lanka medical student were selected on the basis of place of residence from underserved areas in order to increase the HRH in the geographical location where HCWs were scarce.[78]

In Nagaland context, recruiting students from rural and remote area is also difficult to implement as there are no adequate high schools in rural areas thereby finding an eligible candidate from remote areas for medical training may not be feasible and have not been tried. There is no medical college in the state of Nagaland; it calls for the government to take a step to established medical schools in Nagaland giving emphasis on the need to locate the institute in rural areas or at least in a location accessible for rural population. Although in India, there is no specific syllabus on rural health issues, compulsory rural posting for certain period ranging for 1 to 3 months are incorporated as a part of course curriculum in all medical and nursing schools in India. For HCWs posted in remote areas, there are Continuing Medical education (CMEs) trainings organized by Nagaland health directorate and HCWs are expected to attend at least three times in a year. But since the CMEs are conducted at the state capital most of the HCWs posted in

remote areas find it difficult to attend making the attendance of such programs very poor and objective unfulfilled.

B. Regulatory

Regulation is another crucial aspect to support the process of recruitment, attraction and retention of the HCWs in the rural areas. Regulation can be defined as government support through legislation, administration, legal or policy tool, policies and guidelines.[77]

Regulatory strategies such as compulsory rural service have been tried in many countries such as Russia, Bolivia, Cuba, Mexico, Ecuador, South Africa and Nigeria and in India in order to address the shortages of HCWs in the rural area. But such coercive method seems to bring only short term results in addressing the shortage of HCWs in underserved areas. Although widely practiced, no thorough assessment has been done on this approach hence there is no conclusive evidence or a successful regulatory approach. [80]

In Nagaland, compulsory rural service posting is mandatory for PGs under state quota to serve the government for 5 years failing which they have to pay a penalty of 3 years salary in cash to the state government. Rural posting rotations are also implemented but because of poor governance, the objective of such regulation is not achieved in Nagaland.

C. Financial Incentives

It is empirical fact that there is an opportunity cost for working in the remote and rural areas. Financial incentives encompass all additional benefits that compensates for the opportunity cost in serving the rural communities. It includes monetary incentives, good housing, vehicles, and compensation for lost of revenue from not having private practices etc.[77] Evidence suggests that financial incentive is one of the key pull factors for HCWs. Many countries have adopted this approach to lure HCWs in the rural and underserved areas. [81] Financial incentives approach has been tried in both high and MLICs. Australia provided financial incentives to the long serving HCWs in remote areas by paying according to the length of studies and degree of the remoteness of the area. This strategy has increased retention rate by 65% in five years' time.[82] In Nigeria, financial incentive approach was implemented to attract the HCWs to serve the underserved and has proved to have increased HCWs retention in the rural areas.

In Nagaland, there is no provision of financial incentives like remote area allowances for HCWs posted in remote and rural areas, which is a

major push factors to leave rural posting. But health employees under NRHM are paid remote area allowance according to the degree of remoteness; this approach is well appreciated and has increased the number of HCWs in the rural areas.

Performance Based Payment (PBP) system of ASHAs under NRHM has been tried in Nagaland and other states of India to support them in achieving defined health objectives. Review of preliminary evidence suggests that PBPs can play a critical role in improving delivery of targeted services. Delayed and lack of clarity on payment process, lack of transparency and inadequate governance are some the challenges that undermines their motivation to work.

D. Professional and personal support

Remote and rural areas are usually characterized by a sense of isolation at both professional and personal level. Isolation from colleagues and peers, families, deprivation of up to date access to modern technologies, lack of opportunities for social interaction are the perceived personal level push factors for HCWs from joining rural health care. On professional level, lack of opportunity for peer consultation, especially for the fresh and inexperience medical graduate, lack of access to latest information are few push factors from joining the rural health care.

Countries across the globe have taken different approaches according to country's own context to attract the HCWs in the rural areas. Professional and personal approaches have been implemented by Lao People's Democratic Republic in an effort to attract the HCWs in rural areas. The approach suggested that though salary and financial incentive has positive impact, professional and personal development, social recognition and appreciation were valued higher in their country's context. Lao People's Democratic Republic acknowledge the rural service of the HCWs by giving annual national HCWs and community HCWs award to the best performing HCWs.[83]

4.2 Bundled approach

As almost in all countries, Thailand faces inequitable distribution of HCWs between urban and rural that resulted in major impact on health access in rural areas. Thailand took a successful path of bundled approach to attract, recruit and retain the HCWs in the rural areas.[78]

- **Education:** Students from rural backgrounds were enrolled in medical schools for training and were given home placements. Thailand has established 12 out of 19 Medical schools and 67 out of 79 nursing school outside of Bangkok city in order to give a

rural experience during medical studies. Hands on training were imparted through compulsory rural posting, clinical rotation to the rural areas during the training course. Rural health issues were made part of the curricula in the medical school. Continued professional development was made mandatory for nurses and non-mandatory continued professional development was made available for doctors posted in rural areas.

- **Regulation:** The educational measures were combined with regulations such as task shifting by increasing the scope of nurses in field. Three years compulsory rural service was made mandatory for all the doctors, those who failed to comply had to pay fine in cash.
- **Financial Incentives:** For those who were deployed in the rural areas were compensated by providing financial allowance in the form of hardship allowance and non – practice allowances.
- **Professional and personal support:** In order to enhance pull factor through professional and personal support and as a part of public recognition, best doctor and best nurse of the country felicitation is done anually.

CHAPTER 5. DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS

5.1 Discussion:

The findings from the literature review revealed that, the mal-distribution of HCWs between rural and urban is a global phenomenon irrespective of the economic status of a country. HCWs are disproportionately available in the urban centers but that does not necessarily indicate a bad health system: the concentration of HCWs in urban centers is inevitable because most hospitals, referral hospitals and specialist hospital are located in the urban. But the issue is when there in huge inequitable distribution of HCWs between rural and urban, the rural population were left underserved with health care. The study findings indicate that the rural population of Nagaland is not receiving adequate health care due to inequitable distribution of HRH. Another aspects of the study findings revealed that, the health system does not exist in isolation but pull and push factors are often exogenous of the health system, showing interplay with developmental, governance and policy issues.

The study explored how different environments interlink as pull and push factors in recruitment and retention of HCWs in the rural areas of Nagaland. The following issues identified are summarized below:

5.1.1 Individual environment

Association between individual factors such as age, sex and marital status and attraction of the HCWs to weather to leave or stay in the rural areas do not have a universal influence; however, there are few studies that throw light on how such individual factors correlate with retention of staff in remote areas. Soucat et al (2013 reported that 52% of the people from rural areas were likely to be attracted by the urban pull; on the other hand young people were more likely to go to the rural posting because they are enthusiastic and adventurous with less family responsibility. In Nagaland, there is a big gap in the overall infrastructure and development between rural and urban. According to the 2011 census of India, Nagaland has the highest urbanization rate with 69% much higher than the national urbanization average rate of 21%. Nagaland is a developing state and urban mobility is considered an improvement in life therefore moving to rural is viewed unattractive especially for the younger generation who are attracted to the glamour and modern amenities of the urban. Those who are from the urban

areas are even more unlikely to be attracted to work in rural Nagaland.

5.1.2 Work environment

Several studies have consistently concluded that work environment is a huge factor to pull in and push out the HCWs from workplace. The push factors reported by Henderson et al (2008) were heavy workload, professional isolation, poor living conditions, poor managerial support and lack of equipment and medical supplies. Lehman et al (2008) identified lack of opportunity to additional income as a push factor while Soucat et al (2013) and various studies including WHO reports identified high opportunity cost, lack of career path and lack of professional development and training as important push factors. According to the district development report (2013), most of the SCs and PHCs are without proper infrastructure, inadequate supply of essential medicines and equipments, with irregular water and electricity supply. Absenteeism of some of the staff put the remaining staff with even heavier workloads. The remoteness of the place combined with the lack of proper medical infrastructure and inefficient governance fails to motivate HCWs to work in Rural Nagaland.

5.1.3 Local Environment

One of the biggest challenges to attract and retain HRH in rural Nagaland lies in the push factors in local environment. Lehman et al (2008) identified the pull factors in local environment as general living conditions like good living conditions, good schools, good housing and sanitation with good drinking water, good connectivity and transportation. But as per district human development report (2013), modern amenities and facilities are confined to the district headquarter whereas peripheries have been plagued by lack of road connectivity, good schools, lack of good staff accommodation, lack of regular electricity and water supply. All this factor push away the health workers from rural area in Nagaland.

5.1.4 National environment

The biggest problem for shortage of HRH in Nagaland lies in the capacity of producing HCWs in the absence of medical college in the Nagaland. The demand of HCWs at the national level has an impact on shortages in rural areas like Nagaland. Many doctors from Nagaland are being lured away to other metro cities in India for a better salary

and better-living conditions and better career prospect. Whereas Nagaland is not able to attract doctors from other parts of the country because of the better labour market in health sector at National level.

5.1.5 International environment

In Nagaland context, the International environment may not have a direct impact on the issue of shortage of HRH and their retention. However looking from the larger perspective, there could be a correlation as the demand of health workers in global scenario have an impact on the country labour market on HRH as many health workers from India prefer to go out of the country rather than serving the rural areas within their country. The biggest supplier of physicians to the global market is India but Nagaland, which is a state within India is unable to attract doctors from other parts of the country.

5.2 Strategies employed in Nagaland and example of other successful intervention in MLICs is described under the WHO evidence base framework.

5.2.1 Education

5.2.1.1 Recruiting student from rural background

Nagaland does not have a medical college yet, however the state government sponsors 30 to 35 students every year to different medical colleges in India based on merit through All India Pre Medical Test Examination. Recruitment of medical students from rural area has not been tried. In context of Nagaland, the rural areas are so underdeveloped that there is no high school even for basic education, therefore finding an eligible candidate from rural area for medical or nursing course training may not be feasible. But some MLICs like Vietnam implemented this approach and found it successful as family connection, desire to serve own people, language, and cultural familiarity, and recognition from own people gave them desire to go back to the place of origin to serve.

5.2.1.2 Health Professional school outside the major city

Nagaland does not have medical college in the state yet, but WHO recommended strategy can be used as a guideline to established medical college in rural Nagaland or at least in a location accessible for the rural population to avail health care.

Thailand shares a success story with the implementation of this strategy. Thailand successfully established 12 out of 19 Medical

schools and 67 out of 79 nursing school outside of Bangkok city in order to give a rural experience during medical studies as a result increasing health care delivery service to the rural areas.

5.2.1.3 Curricula that reflect rural health issues and Clinical rotation in rural areas during studies

Although in India, there is no specific syllabus on rural health issues, compulsory rural posting for medical and nursing students for certain period ranging for 1 to 3 months are incorporated as a part of course curriculum in all medical and nursing schools in India.

5.2.1.4 Continuous professional development for ruralhealth workers

In Nagaland, HCWs posted in remote areas CMEs trainings are organized by Nagaland health directorate and HCWs are expected to attend at least three times in a year. But since the CMEs are conducted at the state capital most of the doctors posted in remote areas find it difficult to attend making the attendance of such programs very poor and objective unfulfilled.

5.2.2 Regulation

5.2.2.1 Compulsory service

In Nagaland, compulsory rural service for those who are sponsored to study medicine and nursing exist only in theory but not implemented. The reason for not implementing the regulation is because government cannot ensure employment to all graduates currently. Regulatory strategies such as compulsory rural service have been tried in many countries such as Russia, Bolivia, Cuba, Mexico, Ecuador, South Africa, Nigeria, and in other states India in order to address the shortage of health workers in the rural area. But such coercive approaches have been found to yield only short term results.

5.2.2.2 Subsidized education for return of service:

Every year Nagaland government sponsors student to study medicine and nursing sciences however the government keeps no obligations for the students to come back and serve the state.

5.2.3 Financial incentive

5.2.3.1 Appropriate financial incentive:

This strategy is partly implemented in Nagaland among the NRHM doctors and nurses. Additional remote area allowance is paid according

to the degree of remoteness of the place. This strategy was successful in Nagaland and it has resulted in increase of HCWs in the rural areas.

5.2.4 Professional and personal support

Professional development program implemented by Lao People's Democratic Republic in an effort to attract and retain HCWs in rural areas suggested that non-financial incentives like professional and personal development, recognition and appreciation were viewed as of high value to impact retention of staff in rural areas in their country.

5.3 Conclusion

The pull and push factors of HCWs in the rural areas are usually complex and the complexity differ across different settings. In Nagaland, factors influencing HRH shortages are multi-factorial with interplay of various factors like infrastructure development, poor governance, lack of community's ownership and support. To have a comprehensive attraction and retention strategy goes beyond the health care system. However, within the present context and with all the challenges, the health care system needs to have a realistic policy. No single approach can address the complexity of the attraction and retention challenges. Unless multi-sectorial approaches involving all other sectors and concerned departments such as department of education, rural development, public work department, electrical department, public health department is taken to improve the overall development of the state, the challenges of HRH shortages in rural and remote areas will remain unchanged.

5.4 Recommendations:

Recommendations are drawn based on the WHO evidence base framework and evidence from implementation in other countries.

5.4.1 Short term recommendations

5.4.1.1 Education

- To the state government, DoH&FW
  - Every HCW should attend compulsory short course training on the health needs of the rural population.
  - Invite medical students for rural internship to address health service gaps as a short term solution
  - Provide good internet service for knowledge update and quick consultation with their counterpart in the urban areas.
  - Ensure continued professional development for rural HCWs by giving them mandatory training opportunities, opportunity to attend National and International conferences to update their

knowledge as well as part of recreation to overcome rural boredom and fatigue.

5.4.1.2 Regulation

- To the state government, DoH&FW
  - Ensure that state sponsored medical students are given opportunity to serve the rural community after completion of training to fill the gap of doctor's shortages.
  - Engage the newly passed out medical and nursing graduates who are waiting for job placement in rural health care for temporary filling up of the gap of health care workers shortage in the rural.

5.4.1.3 Financial incentives:

- To DoH&FW
  - Introduce extra financial allowance according to the remoteness of the place in addition to the regular pay scale.
  - Make a short term attractive contractual basis placement plan in the remote area to attract doctors from other state and from Nagaland who are working in other metro cities.

5.4.1.4 Professional and personal support

- To DoH&FW and NGOs
  - Introduce 'Doctor, Nurse of the year' award based on the merit of rural service
  - Provide continued training and knowledge update opportunities.

- To DoH&F
  - Strengthened communitization mechanism such as capacity building for the community leaders, VHCs and HCMCs on ownership of the health care and harness community's committee to make the local environment supportive for HCWs.
  - Engage local community to create conducive environment for HCWs to stay in the rural area through community support, security and appreciation.

5.4.2 Longterm recommendations

5.4.2.1 Education:

- To the state government and DoF&HW:
  - Select the state sponsored students for Medical and Nursing on the basis of the place of residence with a bond to serve for at least some specific years.
  - Incorporate rural issues in the curricula in the medical and nursing schools.

5.4.2.2 Regulation:

- To the state MoHFW and state government, DoH&F:
  - Make regulation to select state sponsored students for Medical and Nursing on the basis of the rural residence with a bond to serve the community after return.

5.4.2.3 Financial incentives

- To DoH&FW
  - Introduce extra financial allowance according to the remoteness of the place, apart from the regular pay scale not only for NRHM but state government doctors
  - PBP system can be introduced and tried for doctors and nurses in rural areas.

5.4.2.4 Professional and personal support:

- To DoH&FW and NGOs
  - Introduce 'doctor of the year' award based on the merit of rural service in order to recognize their service at the rual and motivate them to continue.
  -
  - Opportunities for National and International conference on health be given priority to those serving in rural areas.
  - Provision of continued training and knowledge update

5.4.2.5 Additional long term

- To the MoH&FW and DoF&H
  - Develop acontinues advocacy policy to continually advocate with other sectors responsible for developmental activity.
  - Engage the NGOs to come up with innovative program to attract and retain health workers in the rural areas.

5.5 Recommendations for further research

- Despite of the many challenges related to both push and pull factors, some of the HCWs still work in remote and rural area and it will be worthwhile to study what motivates them to remain and serve the remote and rural population; likewise 'exit interviews' can be planned with people who move away from remote areas, after long or short periods; In both cases, it would concern exploring health workers perspectives of attraction, motivation and retention
- Comparative study on the performance of NRHM employees who are on contract basis with financial incentive is paid according to remoteness of the rural area and state government permanent employees posted in rural areas without extra incentives.
- Impact of Performance Base Payment on HCWs working in rural and remote areas.
- Evaluate performance Base Payment system of ASHA workers and explore if that can be implemented at physician level

5.6 Monitoring

The following strategy need to continuously monitor and evaluate with develop HRH indicator to adapt strategies according to result and needs

- Performance Base Payment system of the ASHA workers
- NRHM doctors Salary payment system based on the remoteness of the place

5.7 Recommendation for pilot program

- Task Shifting: There are many unemployed nurses and shortages of doctors in Nagaland – explore task shifting approach and employed them at rural areas where doctors are not available
- E-medicine: Set up E-medicine for the doctors posted in the rural area with good internet connection as part of motivating an attraction strategy and evaluate response.

ANNEXURES

Annexure 1. STAFFING PATTERN (Minimum norm)

A. Staff for Sub Centre (SCs)		
Sl no	Name of Staff	No of Post
1	Health Worker (Female)/ANM	1
2	Additional Second ANM (on contract)	1
3	Health Worker (Male)	1
4	Voluntary Worker (Paid @ Rs.100/- p.m. as honorarium)	1
	Total	4
B. Staff for Primary Health Centre (PHC)		
Sl no	Name of Staff	No of Post
1	Medical Officer	1
2	Pharmacist	1
3	Nurse Mid-wife (Staff Nurse) + additional 2 staff Nurse on contract	1
4	Health Worker (Female)/ANM	1
5	Health Educator	1
6	Health Assistant (Male)	1
7	Health Assistant (Female)/LHV	1
8	Upper Division Clerk	1
9	Lower Division Clerk	1
10	Laboratory Technician	1
11	Driver (Subject to availability of Vehicle)	1
12	Class IV	4
	Total	15
C. Staff for Community Health Centre (CHC)		
1	Medical Officer	4
2	Nurse Mid– Wife(staff Nurse)	7
3	Dresser	1
4	Pharmacist/Compounder	1
5	Laboratory Technician	1
6	Radiographer	1
7	Ward Boys	2
8	Dhobi	1
9	Sweepers	3
10	Mali	1
11	Chowkidar	1
12	Aya	1
13	Peon	1
	Total	25

Sources: Rural Health Statistic. Ministry of Health and Family Welfare. Government of India

Annexure 2. Accredited Social Health Activist (ASHA)[84]

In Nagaland, ASHA programme under NRHM has been in place since 2006. 1700 ASHAs have already been selected and are in place in the Villages all over the State. Updating of ASHAs' capacity and skill is an ongoing process and is imparted through a series of training based on modules especially developed for them. The positive impact of the implementation of ASHA programme in the State is quite visible and is evident from the higher level of health awareness amongst the rural population and as also from the increased number of people availing health services in the various health centers.

Key components of ASHA

- ASHA must primarily be a woman resident of the village – married/ widowed/ divorced, preferably in the age group of 25 to 45 years.
- She should be a literate woman with formal education up to class eight. This may be relaxed only if no suitable person with this qualification is available.
- ASHA will be chosen through a rigorous process of selection involving various community groups, self-help groups, Anganwadi Institutions, the Block Nodal officer, District Nodal officer, the Village Health Committee and the Village Council.
- Capacity building of ASHA is being seen as a continuous process. ASHA will have to undergo series of training episodes to acquire the necessary knowledge, skills and confidence for performing her spelled out roles.
- The ASHAs will receive performance-based incentives for promoting universal immunization, referral and escort services for Reproductive & Child Health (RCH) and other healthcare programmes, and construction of household toilets.
- Empowered with knowledge and a drug-kit to deliver first-contact healthcare, every ASHA is expected to be a fountainhead of community participation in public health programmes in her village.
- ASHA will be the first port of call for any health related demands of deprived sections of the population, especially women and children, who find it difficult to access health services.
- ASHA will be a health activist in the community who will create awareness on health and its social determinants and mobilize the community towards local health planning and increased utilization and accountability of the existing health services.

- She would be a promoter of good health practices and will also provide a minimum package of curative care as appropriate and feasible for that level and make timely referrals.
- ASHA will provide information to the community on determinants of health such as nutrition, basic sanitation & hygienic practices, healthy living and working conditions, information on existing health services and the need for timely utilization of health & family welfare services.
- She will counsel women on birth preparedness, importance of safe delivery, breast-feeding and complementary feeding, immunization, contraception and prevention of common infections including Reproductive Tract Infection/Sexually Transmitted Infections (RTIs/STIs) and care of the young child.
- ASHA will mobilize the community and facilitate them in accessing health and health related services available at the Anganwadi/ sub-centre/ primary health centers, such as immunization, Ante Natal Check-up (ANC), Post Natal Check-up, supplementary nutrition, sanitation and other services being provided by the Government.
- She will act as a depot older for essential provisions being made available to all habitations like Oral Rehydration Therapy (ORS), Iron Folic Acid Tablet(IFA), chloroquine, Disposable Delivery Kits (DDK), Oral Pills & Condoms, etc.
- At the village level it is recognized that ASHA cannot function without adequate institutional support. Women's committees (like self-help groups or women's health committees), Village Health & Sanitation Committee of the Village Council, peripheral health workers especially ANMs and Anganwadi workers, and the trainers of ASHA and in-service periodic training would be a major source of support to ASHA.

ASHA is responsible for creating Awareness on Health including

- Providing information to the community on nutrition, hygiene and sanitation.
- Providing information on existing health services and mobilizing and helping the community in accessing health related services available at Health Centers.
- Registering pregnant women and helping women to get BPL certification.
- Counseling women on birth preparedness, safe delivery, breast feeding, contraception, RTI/STI and care of young child.
- Arranging escort/accompany pregnant women and children requiring treatment/ admission to the nearest health centre.

- Promoting universal immunization
- Providing primary medical care for minor ailments. Keeping a drug kit for first aid of common ailments.
- Promoting construction of household toilets.
- Facilitating preparation and implementation of the Village Health Plan through AWW, ANM, SHG members under the leadership of Village Health Committee.

Annexure 3: Suggested compensation package for ASHA under NRHM

Services	Suggested compensation per case (in Rs)	Estimated case workload per ASHA per year	Estimated maximum compensation per ASHA per year (in Rs)
Janani Suksha Yojana institution delivery: Rural (low-performing state	350 for ASHA & 250 for referral transport	13	7800
Janani Suksha Yojana institution delivery: Urban	200	9	1800
Motivation for tubectomy/vasectomy	150/200	8/4	1200/800
Immunization session	150	12	1800
Pulse Polio Day	75	6	150
Organization of village health nutrition day (VHND)	150	12	1800
Direct Observe Treatment short course (DOTS)	250	1	250
Promotion household toilet	75	12	900
Direction, referral, confirmation, and registration of leprosy case/after complete treatment of pauci-bacillary (PB) leprosy case/after complete treatment of multi bacillary (MB) leprosy case	100/200/400	1/1/1	100/200/400

Source:http://www.intrahealth.org/files/media/performance-based-payment-system-for-ashas-in-india-what-does-international-experience-tell-us-technical-report/PerformanceBasedPaymentSystemASHAsIndiaReport.pdf.Accessed 15/08/2016

REFERENCES

[1] Global Health Workforce Alliance. (2009) Moving forward from Kampala-strategic priorities and directions of the Global Health Workforce Alliance: 2009 to 2011. WHO, Geneva.

[2] World Health Organization. (2006) The world health report: working together for health. WHO, Geneva.

[3]Tanahashi T. Health service coverage and its evaluation. Bull World Health Organ. 1978;56(2):295-303.

[4]Anand S, Bärnighausen T. Health workers and vaccination coverage in developing countries: an econometric analysis. Lancet. 2007 Apr 14;369(9569):1277-85.

[5]Sayeed, Afzal. Human resource for rural health in India – a pragmatic reality. Indian J SocDev, Vol. 11, No. 2 (July-December 2011), 765-779

[6]Lehmann,Uta. Dieleman, Marjolein. Martineau, Tim. Staffing remote rural areas in middle- and low-income countries: A literature review of attraction and retention. BMC Health Services Research 2008, 8:19 doi:10.1186/1472-6963-8-19. (http://bmchealthservres.biomedcentral.com/articles/10.1186/1472-6963-8-19 Accessed on 05/07/2016

[7]Nagaland State Human Development Report. 2004. Department of Planning & Coordination Government of Nagaland, India

[8]Nagaland Population census 2011 http://www.census2011.co.in/census/state/nagaland.html. Accessed on 22/07/116

[9]http://www.mapsofindia.com/nagaland/society-and-culture/ethnicity.html. Last Updated on : 22/06/2013. Accessed on 22nd July 2016

[10]http://www.mapsofindia.com/nagaland/accessed on 24/07/16

[11]National Health Accounts India: 2004-05. National Account Cell, Ministry of Health and Family Welfare. Government of India.

[12]Annual Report 2013-14 National Health Mission. Department of Health & Family Welfare Ministry of Health & Family Welfare Government of India

[13]MoHFW, Government of India. National health accounts of India 2004–05, national health accounts cell. New Delhi: Ministry of Health and Family Welfare, Government of India, 2009

[14]Rao, Mohan, Kurian, Oommen C. 1015, Financing health care for all in India: Toward a common goal. Oxfam India. https://www.oxfamindia.org/sites/default/files/WP-Financing-Healthcare-for-All-In-India-29-05-2015-EN_0.pdf accessed 26/07/16

[15]State programme implementation plan 2008-09 State health Society National Rural Health mission Government of Nagaland. http://www.nagahealth.nic.in/SPIP/Nagaland%202008-09%20PIP.pdf. Accessed on 25/07/16

[16]http://www.nagahealth.nic.in/departmental%20set%20up%20-man%20power.htm. Accessed on 25/07/16

[17]http://www.nagahealth.nic.in/departmental%20set%20up%20-man%20power.htm.Accessed on 25/07/16

[18]Kadam, Shridhar. Pati, Sanghamitra. Ray,Shomik. Hussain,Akhtar. Srinivas, N. Chakravarty,Nayan. Panda, Bhuputra. Sahu, Biswamitra. Chauhan,Abhimanyu Singh. Swain, SangramKeshari. 2012. Assessment of factors contributing and affecting availability and

retention of health workforce in rural and remote areas of Odisha. Indian Institute of Public Health, Bhubaneswar

[19]Chikersal, Anjali. Physician Shortages in the Indian Public Sector:Health policy Brief. April 2015. Centre for Policy Research; Stanford; Indian Health Policy.

[20]District Human Development report. Mon 2013. Government of India UNPD project. Government of Nagaland Department of Planning and Coordination Nagaland – Kohima.

[21]District Human Development report. Tuensang 2013. Government of India UNPD project. Government of Nagaland Department of Planning and Coordination Nagaland - Kohima

[22]District Human Development report. Peren 2013. Government of India UNPD project. Government of Nagaland Department of Planning and Coordination Nagaland – Kohima.

[23]District Human Development report. Phek 2013. Government of India UNPD project. Government of Nagaland Department of Planning and Coordination Nagaland – Kohima.

[24]District Human Development report. Longleng 2013. Government of India UNPD project. Government of Nagaland Department of Planning and Coordination Nagaland – Kohima.

[25]District Human Development report. Kiphere 2013. Government of India UNPD project. Government of Nagaland Department of Planning and Coordination Nagaland – Kohima.

[26]District Human Development report. Zunheboto 2013. Government of India UNPD project. Government of Nagaland Department of Planning and Coordination Nagaland – Kohima.

[27]District Human Development report. Wokha 2013. Government of India UNPD project. Government of Nagaland Department of Planning and Coordination Nagaland – Kohima.

[28]District Human Development report. Mokokchung 2013. Government of India UNPD project. Government of Nagaland Department of Planning and Coordination Nagaland – Kohima.

[29]District Human Development report. Kohima 2013. Government of India UNPD project. Government of Nagaland Department of Planning and Coordination Nagaland – Kohima.

[30]Soucat, Agnes, Richard Scheffler, Tedros , Adhanom, Ghebre, yesus, eds. 2013. The Labor Market for Health Workers in Africa: A New Look at the Crisis. Washington DC: World Bank. DOI: 10.1596/978-0-8213-9555-4. License: Creative Commons Attribution CC BY 3.0

[31]District Human Development report. Dimapur 2013. Government of India UNPD project. Government of Nagaland Department of Planning and Coordination Nagaland – Kohima.

[32]Rao K, Bhatnagar A, Berman P. Using multiple sources of information to estimate India's health workforce. In: La Forgia J, Rao K, eds. India Health Beat. New Delhi: World Bank, New Delhi and Public Health Foundation of India, 2009

[33]http://www.who.int/healthinfo/systems/WHO_MBHSS_2010_section2_web.pdf accessed 5th July 2016).

[34] Government of India (2006), Bulletin on Rural Health Statistics in India, Special Revised Edition. Ministry of Health and Family Welfare, New Delhi.

[35]Nandan, Deoki, and Dinesh Agarwal. "Human Resources for Health in India: Urgent Need for Reforms." Indian Journal of Community Medicine : Official Publication of Indian Association of Preventive & Social Medicine 37.4 (2012): 205–206. PMC. Web. 22 July 2016.

[36]Jimba, Masamine. Cometto,Giorgio.Yamamoto,Tami. Shiao,Laura.Huicho,Luis. Sheikh,Mubashar. Health workforce: the critical pathway to universal health coverage. Background paper for the global symposium on health systems research 16-19 november 2010. Montreux, Switzerland

[37]Todaro M: Internal migration in developing countries. Geneva, International Labour Office; 1976.

[38] Francis A. Adzei, Roger A. Atinga, (2012),"Motivation and retention of health workers in Ghana's district hospitals: Addressing the critical issues", Journal of Health Organization and Management, Vol. 26 Iss: 4 pp. 467 – 485

[39] Henderson, L.N. and Tulloch, J. (2008), "Incentives for retaining and motivating health workers in Pacific and Asian countries", Human Resources for Health, Vol. 6 No. 18.

[40] Maslow, A.H. (1943), "A theory of human motivation", Psychological Review, Vol. 50, p. 370.

[41] Maslow, A.H. (1970), Motivation and Personality, 2nd ed., Harper and Row, New York, NY

[42]Zurn P, Dal Poz MR, Stilwell B, Adams O: Imbalance in the health workforce. Hum Resour Health 2004, 2(1):13.

[43]Padarath A, Chamberlain C, McCoy D, Ntuli A, Rowson M, Lowenson R: Health personnel in Southern Africa: confronting maldistribution and brain drain**.** Equinet Discussion Paper no 4 2003.

[44]Buchan J. what difference does ("good") HRM make? Human Resources for Health 2004;2(1).

[45]Boyle PJ, Halfacree K: Exploring contemporary migration**.** Longman, Harlow; 1998.

[46]Dussault, Gilles. Franceschini, Maria Cristina. Not enough there, too many here: understanding geographical imbalances in the distribution

of the health workforce. Human Resources for Health 2006. Dussault and Franceschini; licensee BioMed Central Ltd

[47]Soucat, Agnes, Richard Scheffler, with TedrosAdhanomGhebreyesus, eds. 2013. The Labor Market for Health Workers in Africa: A New Look at the Crisis. Washington DC: World Bank. DOI: 10.1596/978-0-8213-9555-4. License: Creative Commons Attribution CC BY 3.0

[48]Satpathy, Ipseeta. Patnaik, B. C. M.Pradhan, Prabir Kumar. An encounter with migrants on the line of push-pull theory. 2012. ZENITH International Journal of Business Economics & Management Research Vol.2 Issue 3.

[49]Harrison ME: Female physicians in Mexico: migration and mobility in the life course. *Social Science and Medicine* 1998, 47(4):455-468.

[50]Crigler, L., S. Boniface, and S. Shannon. 2008. "Human Resource and Quality Rapid Assessment." Brazzaville, Republic of Congo.

[51]Chaudhury N, Hammer J: Ghost doctors: absenteeism in Bangladesh health facilities. 2003 [http://econ.worldbank.org/wdr/wdr2004/library/doc?id=29809].

[52]Kadam, Shridhar. Pati, Sanghamitra. Ray,Shomik. Hussain,Akhtar. Srinivas, N. Chakravarty,Nayan. Panda, Bhuputra. Sahu, Biswamitra. Chauhan,Abhimanyu Singh. Swain, SangramKeshari. 2012. Assessment of factors contributing and affecting availability and retention of health workforce in rural and remote areas of Odisha. Indian Institute of Public Health, Bhubaneswar

[53]A.Padarath; C. Chamberlain; D. McCoy; A. Ntuli; M. Rowson; R. Loewenson 2003. Health personnel in Southern Africa: Confronting maldistribution and brain drain.EQUINET: Network for Equity in Health in Southern Africa www.equinetafrica.org. http://www.eldis.org/go/home&id=13555&type=Document#.V5z-wriLTb1 accessed 20/07/2016

[54]Francis A. Adzei, Roger A. Atinga, (2012),"Motivation and retention of health workers in Ghana's district hospitals: Addressing the critical issues", Journal of Health Organization and Management, Vol. 26 Iss: 4 pp. 467 – 485)

[55]Willis-Shattuck, Mischa. Bidwell, Posy. Thomas, Steve. Wyness, Laura. Blaauw, Duane. Ditlopo, Prudence. 2008Motivation and retention of health workers in developing countries: a systematic review. BMC Health Services Research. http://bmchealthservres.biomedcentral.com/articles/10.1186/1472-6963-8-247 accessed 30/07/2016

[56]Henderson LN, Tulloch J. Incentives for retaining and motivating health workers in Pacific and Asian countries. *Human Resources for Health*. 2008;6:18. doi:10.1186/1478-4491-6-18.

[57]Banerjee A., Esther C. Duflo, and Angus Deaton (2004). 'Healthcare Delivery in Rural Rajasthan', Economic and Political Weekly, 39(9), pp. 944–949, Mumbai

[58]AwasesA, Gbary A, Nyoni J, Chatora R. 2004.Migration of health professionals in six countries: a synthesis report. Brazzaville , WHO.

[59]Organisation for Economic Co-operation and Development (2002) InternationalMigration of Physicians and Nurses: Causes, Consequences, and Health Policy Implications., OECD Paris

[60]Oosthuizen MJ. An analysis of the factors contributing to the emigration of South Africa nurses. PhD Dissertation, University of South Africa, Pretoria, 2005, 177.

[61]De Mesquita JB, Gordon M. The international migration of health workers: a human rights analysis. Medact 2005. Available from: http://www.equinetafrica.org/bibl/docs/BUEhres.pdf accessed 28/07/2016.

[62]Nair,Manisha. Webster,Premila 2012. Health professionals' migration in emerging market economies: patterns, causes and possible solutions. Journal of Public Health | pp. 1–7 | doi:10.1093/pubmed/fds087

[63]Nair,Manisha. Webster,Premila 2012. Health professionals' migration in emerging market economies: patterns, causes and possible solutions. Journal of Public Health | pp. 1–7 | doi:10.1093/pubmed/fds087

[64]Anand, S., and T. Bärnighausen. 2004. 'Human Resources and Health Outcomes: Cross-country Econometric Study'. Lancet 364: 1603–09

[65]Dieleman, Marjolein. Harnmeijer, Jan Willem. 2006.Improving health worker performance: in search of promising practices . Evidence and Information for Policy, Department of Human Resources for Health Geneva, WHO

[66]Five Years (2009-2014) Achievements & New Initiatives: National Rural health Mission Ministry of Health & Family Welfare, Government of India

[67]Fathima FN, Raju M, Varadharajan KS, Krishnamurthy A, Ananthkumar SR, Mony PK. Assessment of "Accredited Social Health Activists"—A National Community Health Volunteer Scheme in Karnataka State, India. Journal of Health, Population, and Nutrition. 2015;33(1):137-145.

[68]Buchan, J., Couper, I. D., Tangcharoensathien, V., Thepannya, K., Jaskiewicz, W., Perfilieva, G., &Dolea, C. (2013). Early implementation of WHO recommendations for the retention of health workers in remote and rural areas.Bulletin of the World Health Organization, 91(11), 834–840. http://doi.org/10.2471/BLT.13.119008

[69] World Health Organization. Increasing access to health workers in remote and rural areas through improved retention:2010, Global policy recommendations. WHO. http://www.who.int/hrh/ retention/guidelines/en/ accessed 10/08/2016

[70]Grobler L, Marais BJ, Mabunda SA, Marindi PN, Reuter H, Volmink J. Interventions for increasing the proportion of health professionals practicing in rural and other underserved areas. Cochrane Database Syst Rev 2009;1:CD005314. PMID:19160251

[71]http://www.who.int/hrh/migration/code/background_paper_code.pdf. Accessed 11/10/2016

[72]https://apps.who.int/gb/ebwha/pdf_files/WHA59/A59_R23-en.pdf. Accessed 11/08/2016

[73]http://www.who.int/workforcealliance/Kampala%20Declaration%20and%20Agenda%20web%20file.%20FINAL.pdf. Accessed 11/08/2016

[74]http://www.mofa.go.jp/policy/economy/summit/2008/doc/pdf/0708_09_en.pdf. Accessed 11/08/2016

[75]http://www.who.int/social_determinants/thecommission/finalreport/en/index.html. Accessed 11/08/2016

[76]http://www.internationalhealthpartnership.net/en/taskforce. Accessed 11/08/2016

[77] Increasing access to health workers in remote and rural areas through improved retention; Global policy recommendations, 2010. WHO. http://www.who.int/hrh/retention/guidelines/en/ Accessed 25/07/2016

[78]Buchan, J., Couper, I. D., Tangcharoensathien, V., Thepannya, K., Jaskiewicz, W., Perfilieva, G., &Dolea, C. (2013). Early implementation of WHO recommendations for the retention of health workers in remote and rural areas.*Bulletin of the World Health*

Organization, *91*(11), 834–840.
http://doi.org/10.2471/BLT.13.119008

[79]Laven G, Wilkinson D. Rural doctors and rural backgrounds: How strong is the evidence? A systematic review. Australian Journal of Rural Health, 2003, 11:277–284

[80]Grobler L*,* Marais BJ*,* Mabunda SA, Marindi PN, Reuter H, Volmink J*.* Interventions for increasing the proportion of health professionals practising in rural and other underserved areas*.* Cochrane Database *of Systematic*Reviews 2009*,* Issue 1

[81]Dieleman, Marjolein. Cuong,PhamViet.Ahn, Le Vu. Martineau,Tim. Identifying factors for job motivation of rural health workers in North Viet Nam. Journal of Human Resources for Health, 2003, 1(10): 1–10.

[82]Gibbon P & Hales J. Review of the Rural Retention Program – Final report. Australian Government, Department of Health and Ageing, 2006.

[83]Buchan J, Weller B. Health worker incentives, Lao People's Democratic Republic; final report. Manila: World Health Organization; 2013. Forthcoming.

[84]http://www.nagahealth.nic.in/ASHA.htmaccessed on 10/08/2016