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Health Infrastructure in the North Eastern Region of India

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Abstract

India is fast-emerging nation globally but health infrastructural development is not at pace with the growth of the population. Efforts are made to improve health care facilities through National Rural Health Mission since 2005. But such development in the country has not benefited the North East Region equally rather declined. Since the region is backward and poor connectivity due to rugged topography made it difficult in accessing higher-order healthcare facilities. Therefore, the availability of public healthcare in the district itself is essential. The present paper tries to assess the level of public health infrastructural development in terms of availability of health centres and human resources, and analyze inter-district disparity in the availability of these healthcare facilities, and finally assessing utilization of the public health care facilities in the districts of NER. The condition of CHCs in the region is in poor condition due to the unavailability of the Specialist, radiographer and lab-technician, and inter-district disparity in terms of health infrastructure in the region is found to be very high. Districts with higher human resources come to low levels due to higher population size. Similarly, important administrative districts of the region also come at the bottom of the ladder due to the very high population size. So, people have no choice other than private healthcare. Improvement in human resources is one of the most important for all public healthcare to deliver their services to the people, thereby improving the health condition and the economic condition of people.

Keywords: North East Region,Health Infrastructure,Human Resource,Connectivity,Inter-district,Disparity

1. Introduction

India is one of the fast emerging nations in the world witheconomic boom in the recent years. Though there is increasing economic growth, thepaceof health infrastructural development in the country is low compare to higherpopulation growth of twoper cent per annum. The economic growth in the country is around 6-8 per cent but expenditure on public health is one of the lowest in the world which is around 1 per cent of total GDP while in case of developed and other developing countries the spending on public health is more than 8 & 2 times respectively. Health sector in the country is one of the most neglected and in the current budget the expenditure on the health sector is declined and especially in the NRH with 25.6 per cent; therefore, more than 80 per cent of the expenses is borne by the people themselves. The access to the health care facilities in the country is not only worse among poor masses but also to the middle class.

The increasing cost of the health care in the private sector hospitals in urban areas is due to the used of modern hi-tech facilities and of state-of-art-medical technologies with five star deluxe facilities in the diagnosis.This not only hinders the masses to accessibilityof health facilities in the country but also due to improper functioning of

the public sector healthcare. The lack of human resource is animportant factor for theimproper and inefficient functioning of the public healthcare in the country. Many of the officials in the public healthcare are found to be absent from their posting with awide range of reasons including improper health infrastructure, thelocation being remote, etc. All these problems come from lack of public financing in the sector.

With the National Rural Health Mission (NRHM) in the country from 2005, there is animprovement in health care facilities in the country in most of the affected states. The three-tier system in the healthcare is to provide accessible, affordable, accountable and reliable primary health care especially to apoor and vulnerable section of the societies. Though there is increase in the number of sub-centre, primary and community health centre in the country as a whole from the implementation of the NRHM after 2005, there is decline in the North Eastern States. So, availability of these healthcare facilitiesis very important for the masses of the North East as the region is hilly and difficulty in accessing district or other higher order healthcare facilities due to poor connectivity because of topography.

2. Introduction to the Study Area

North Eastern States of India are located in extreme eastern part of India extending from 20˚N to 29˚30/ N latitude and 89˚46/ E to 97˚30/ E longitude.

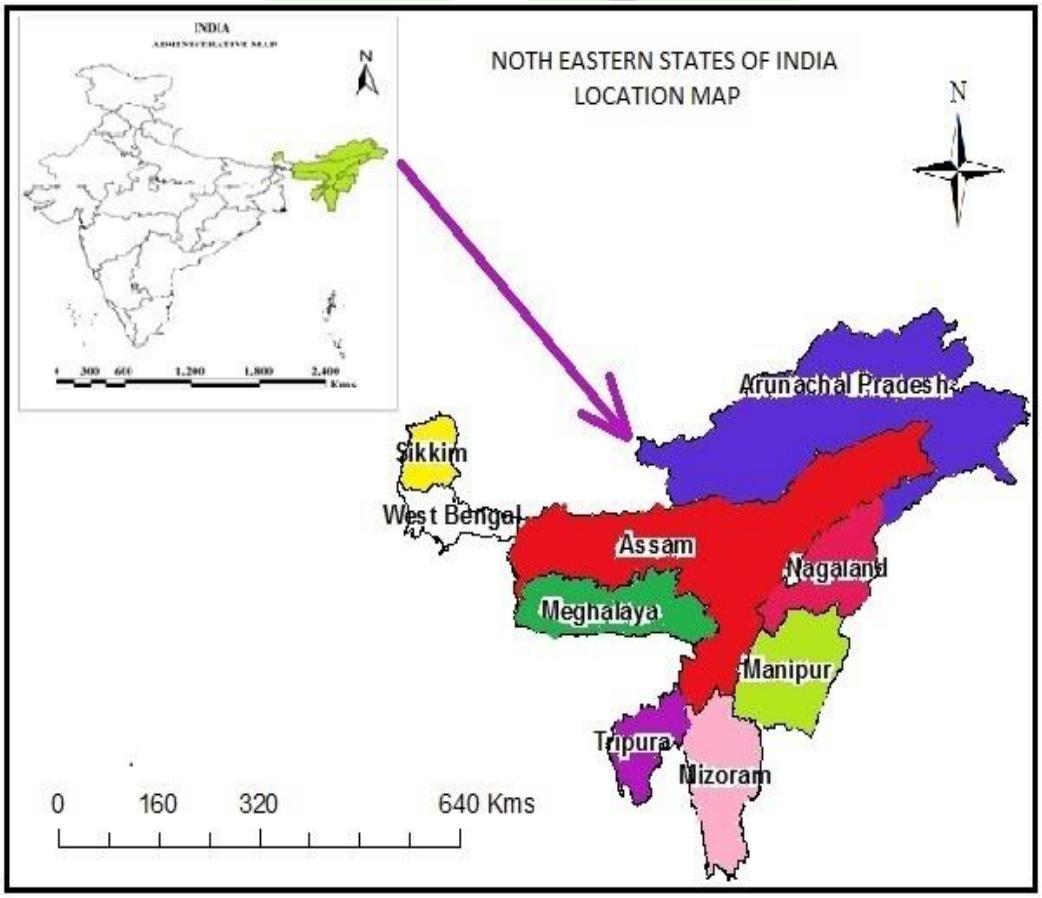

Figure 1: Location of North Eastern States of India.

The region has more than 5000 Km of international boundaries but its physical link to India is through a very narrow strip with a width of 22 Km around Siliguri city in West Bengal which is commonly known as "Chicken Neck". It comprises 8 states viz. Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland,

Tripura and Sikkim and had 3.1 percent population of India in 2011 covering 8 percent of its geographical area. In the present study Nagaland is not considered due to unavailability of data in DLHS 3. The region is geographically isolated and the states have different physical, economic, social and demographic features which are distinct from each other and from rest of the country. Numerous ethnic groups constitute different socio-cultural profiles in the region.

It is true that some states have achieved better literacy level and other social sector indicators than the national average but there is still inadequate enrolment in technical and professional education. Inadequate school infrastructure and shortage of well-trained teachers aggravate the situation.

The region is lagging behind in every aspect of development, ranging from basic amenities to infrastructure to resources base. Same is true for healthcare sector too. The problem of connectivity is one of the most important factors which have direct impact on development of other infrastructure. Being largely situated in areas having rugged topography characterized by steep slopes; construction of roads through this areaentails a high cost and its wetter climate also create problems of maintenance.

3. Literature Review

Health infrastructure in any region is one of the most important factors which take into account in measuring the level of development of any region. Being health one of the indicators in the human development index, well developed health infrastructure is a key determinant of good health. The economic growth of any region depends on the well-being of the workers which has direct impact onlabour productivity.

The public healthcare system in our country is in bad shape where there are shortages of all physical infrastructures, well trained manpower in all the states with variations across states. These shortages in health infrastructures had affected the poor section of the society. Thismarginalized section of the society is unable to access, afford to the medical expenses incur in the private sector hospitals which are located in some pocket of the urban areas and metropolitan city of the country.

“India has several centres of excellence in healthcare delivery, but these facilities are limited in their ability to drive healthcare standards because of the poor infrastructure in the vast majority of the country” (Baishakhi et al., 2013). In this vast country where majority of people still living in rural and under poverty are facing a lot of infectious communicable diseases and health status is very badly perform even after rigorous steps taken by the central and state governments. In terms of health status, our country is far behind the developed nations of the world and developing nations like China and even performs worse than Bangladesh, Sri Lanka etc. in health indicators. Thus, the nation is far behind these developing nations in the list of the human development report in the world.

The lack of doctors and other specialists in the country is due to the shortages in the medical institutions where numbers of medical practitioners are produced in the country. There are 314 medical colleges with 29263 students, for BDS, 289 with 21537 students and MDS of only 140 with 2783 students’ admission in 2010-2011. When students graduated from the institutions and total population of the country are closely observed, numbers of doctors are limited. “The doctor patient ratio in the rural areas is 1:20000 and in urban area is 1:2000 against the statuary 1:250 ratio from WHO for which India requires 600000 doctors” (Healthcare Infrastructure and Services Financing in India, 2012). Such shortages of human resource will be increased in the coming years due to population growth in the country.

Under National Rural Health Mission in the country after 2005, there is great improvement in health infrastructure in the rural areas. The rural health infrastructure in the country is based on three tier system in which Sub Centre is the first contact point between primary health centre and villagers which are manned with one Auxiliary Nurse Midwife and one Multi-purpose worker. Primary health Centre is the contact point between the village community and the medical officer while the Community Health Centre is the referral centre for the PHCs under it, which also provides the specialist doctors and other obstetric care to people. Among these pillars in rural health infrastructure, sub centre is the most important in the sense that it is the first health contact point between the people and the health centre which is the overall requirement for the progress of the entire healthcare system in any region. According to Rural Health Statistics (RHS), as on 31/03/2014; the number of Sub-centre in the country is 152326, PHCs (25020) and CHCs is 3363 which are shortfall of 20 per cent, 23per cent and 32 per cent respectively in the country. The shortage of the specialists in the rural areas of the country is more than 50 per cent where Gynaecologists (76.6 per cent), pedestrians (82.2 per cent) in the rural CHCs are reported shortage and in general surgeons by 82.5 per cent.The number of all these centres working 24x7 in the country is very less compare to the existing number of health care facilities in the country. Though there is provision for the spending of 33 per cent and 25 per cent on health infrastructure in the focus and other groups of the states in the country, many of the States unable to provide and spend the allocated amount for the infrastructure under the NRHM.

Absenteeism in the public sector healthcare in our country is another problem going parallel with the shortage of infrastructure which is also the highest among the countries where the primary health worker absenteeism is found to be 40 per cent. It is also found that the high-ranking doctors and other staff are more often absent than those of the lower ranking official. “The primary reason forabsenteeism appears to be the quality of infrastructure at thefacility. The findings did not unambiguously support thenotion that ‘government service providers’ choose to absentthemselves because they are unlikely to be fired for this butthe clear conclusion was that their decision to go to workwas strongly influenced by the working conditions they faced”(Bhandari Laveesh & Siddhartha Dutta, 2007)

In case of the doctors who are specially trained and well qualified, working in the private institutions in the urban areas, are reluctant to go to the rural areas where there are improper health infrastructures. Moreover, the rural masses are unable to pay the cost even if the private hi-tech healthcare facilities are made available to them (Baishakhi et al., 2013 & Saikia, 2014).

The existing inequality in terms of health infrastructure in many parts of the country is notable due to various reasons ranging from socio-economic conditions as well as the caste and class distinction among social groups of the society. Inequality persisting in these parts isgetting complicated due to shortage of physical and man power resources which propitious poor health performance of such regions. The poor masses under such circumstances are more likely to be vulnerable and have to spend their money in accessing health care facilities in the available location which are normally in the private sector hospitals and far from their villages and towns. This inequality in health care facilities is rooted in the policies and practices since the British colonial era in our country which was pursued even after the post-independence and biased across the region on the basis of the rural and urban and type of the practices (Baru et al., 2010).

The inequality across the states and with the rural-urban variations is reported in many of the literatures which are common phenomena in the country. The rural urban divide in physical health infrastructure is due to the private sector which is mainly operational with the profit maximizing motives than non-profit services provided by them (Baru et al., 2010). The problem of the inadequate financing by the central as well as the state government

in the country is the most important factor which lead to the inequality and inadequate health infrastructure in the society which resulted in the poor health outcomes lowering low human development index.

According to Saikia (2014), the North Eastern Region has made great improvement after the implementation of the National rural health mission in the country since 2005. Though there is improvement in the physical infrastructure namely number of SCs, PHCs and CHCs in the region, which is also better than the national average in the country; still there is lack of equipment and other facilities such as quarters for ANM workers, labour rooms, operation theatres, stabilization units and care corners for new born babies, electricity supply, water supply, telephone connectivity, X-ray machine, and so on. The shortage of the manpower in the health centre across the region is rampant, regional disparities in terms of such important human resource is widespread. The region is shortage of the specialist consultants, pharmacists in the PHCs, radiographers in the CHCs, X-ray labs etc.

So, availability of the physical health infrastructure in the region does not mean that the region is having very good health care facilities which are possible only after fulfillment of all requisite resources in the health care in the region. In the most populated states of the region like Assam and Tripura, the health care infrastructure is lagging behind the other states as well as the national average. Still there is shortfall in the health centres in many of the states in one form or the other but the trained manpower shortage in many of the health centres in the regions are notable. The specialist doctors, nurses or the health workers lie vacant in all the states of the region which do not want to work in the rural areas because of varied reasons. “Even though in many instance doctors are there, they don’t visit their designated centres, rather they engage in private practices. The large shortage and/or absence of health workers resulted in underutilization of facilities whatever available in the existing health centres, and further leading to closure of those facilities” Saikia, 2014.

The presence of private sector health care facilities in the remote areas of the region is very negligible. Therefore, improvement in public sector healthcare facilities under the NRHM in the region is needed to be strengthened and improved efficiency in the quality they provide to rural masses is to be increased tremendously so that the marginalized section of the region should get the benefits of such great developmental planning of the government. With the Look East Policy in the country, the government is trying to set up new private health infrastructure in the NER which will be very costly in accessing the services to be provided by such institution in the region. This will lead to denying the basic services of health to the poor and needy people of the remote areas.

4. Objective

The objectives of the presentstudy are to assess the level of public health infrastructural development interms of availability of health centres and human resource, to analyze inter-district disparity in the availability of these healthcare facilities and finally assessingutilization of the public health care facilities in the districts.

5. Hypotheses

1. Higher the level of physical health infrastructure, higher the human resource in the districts.
2. Districts with higher health infrastructures shall show better utilization.

6. Data Base and Methodology

The data used in the present study is based on secondary data which is the DLHS 3 (2007-08). With the Unit Level Data, some of the most important indicators of health infrastructures have been taken to assess and analyze

the level of public healthcare facilities and inter-disparity in the entire north eastern states of India in order to look intoexisting inequalities in the health infrastructure. Composite index has been used to highlight overall level of infrastructure in the districts of the North Eastern States. Choropleth maps have been used to depict overall level of health infrastructural development and health outcomes in the districts of the region. The health outcome is compared with existing health infrastructure and correlation between them is highlighted through scatter diagram. Weights have been assigned to the variables taken in the study which are given below

Variable	Value Assigned
Specialist (CHC)	5
Staff Nurse (PHC &CHC)	0.5
Radiographer (CHC)	3.5
Pharmacist (PHC & CHC)	2
ANM (PHC &SC)	3
Lab-Technician (PHC & CHC)	4
Health Assistant (F)/LHV	1.5
Health Assistant (M)	0.3
Doctors (PHC)	1
Average Coverage (SC)	2.5
Average Coverage (PHC)	1.8
Average Coverage (CHC)	1.2

These weights are assigned based on researcher perception; the variations and shortages in the availability of the personnel in the healthcare. The weights on doctors at PHCs and ANM (PHCs & SCs) are 1 and 3 respectively taking the variation found in the availability of them in the healthcare. The variance in case of ANM is much higher than those of doctors at the PHCs. While in case of the utilization, indicators like percentage of the Institutional birth, Mothers who hadat least 3 antenatalcare visitsduring the last pregnancy and Immunization of the children age group 12-23 months (BCG, 3doses each of DPTand Polio, andMeasles)have been given equal weights. Their composite index is calculated which is represented though choropleth map and relationship between the health infrastructure and utilization is represented through scatter diagram.

7. Availability of physical infrastructure in Sub-Centres, Primary Health Centre and Community Health Centre

Health infrastructuresin terms of number of available Sub-Centre, Primary Health Centre and Community Health Centre in any region are very important. The human resources are allocated through availability of such healthcare facilities to any region and their population size. When threshold value of each of these healthcarecompared with NER, the threshold value of the region is found to be lower than the other states' criteria. In order to highlight the availability of these healthcare among the people of the region, here it is expressed in terms of average population covered per centre (SC, PHC and CHC). We observe that in case of sub-centre in districts of the region, the average coverage per SC is 3670 only which means facilities rendered by it is in much better way due to the lower population size of the districts. And only 13 districts in the entire NER districts have coverage more than 5000 population and remaining districts are lower than this figure. The variation is found due to larger population size in the districts of Assam while those of Arunachal Pradesh, Manipur and Mizoram have smaller size of the population covered by each SC. Lowest size of population coverage is found in Papum Pare followed by East Siang and Lower Subhansri in Arunachal Pradesh.

In case of primary health centre in the region, norm is that each PHC should cater atleast 20000 population size. There is variation across districts in the region in terms of the population size catered by each PHC. The average population coverage is 53000 which are much larger than the actual coverage of PHC due to large population size of number of districts in Assam, Tripura and Manipur. The districts of the remaining states have low coverage size. Minimum size is found in Arunachal Pradesh district's such as Anjaw, Tirap and KurungKumey while largest population coverage is found in districts of Assam such as Kamrup Metro followed by Nagaon and Tinsukia.

The Community Health Centre in the entire districts is found be to distributed unevenly due to variation in population density and some districts of Arunachal Pradesh, one in Mizoram all four districts of Sikkim have no CHC at all. Since these districts have no CHC, their human resource infrastructure is found lower. The overall average coverage of population of each CHC is 65000 for entire districts in NER. But the plain districts of Tripura and those of Assam have much larger size compare to those of the Hilly states. Largest population size is found in Chirang followed by Udalgiri and Darrang while least coverage size is found in KurungKumey (Arunachal Pradesh) followed by Thoubal (Manipur) and Anjaw (Arunachal Pradesh).

8. Availability of human resources in the Sub-Centre and Primary Health Centre

Some of the important man power resourcesavailable in sub-centre and primary health centrelike doctors, ANM, Health Assistant (male/female) are discussed below separately which will throw some light on the conditions prevailing in NER at the district level. The variations found across districts are to be analyzed and will try to relate with the status of health condition. These are very important resources which are necessary for proper functioning of these healthcares in order to render basic health services to people.

8.1. ANM and Health Worker in the Sub-Centre and Primary Health Centre

All districts in the region have more than 92 per cent of ANM/Health Worker. There are many districts which have filled all the post 100 per cent but some of the districts in the region which perform much better in the health status are having lesser share of it. This is very important in the sense that sub-centre is the first contact point between the villagers and health centre therefore availability of such human resource is very necessary for providing basic service to people. The districts in Meghalaya and Arunachal Pradesh have better condition than those of other districts in NER. Since most of the districts in the region have more than 92.76 per cent, the variation across the districts is less visible. Dalai in Tripura is the only district in the entire NER having 58 per cent of ANM/Health Worker and rests of them are having more than 75 per cent.

8.2. Health Assistant (Male) and Health Assistant (Female)/LHV in PHC

There is large variation across district in the region in term of services provided by the health assistant (both male and female) due to unavailability in the centre, their posts remain vacant. There are few districts which has no male health assistant at all such as North (Sikkim), Tamenglong and Chandel (Manipur), Aizawl (Mizoram) and Kamrup & Chirang (Assam). The rest of the districts vary from 11 to 100 per cent. Few districts in Arunachal Pradesh and Senapati in Manipur have 100 per cent.

On the other hand, health assistant (female)/LHV in the region has the same feature as that of the male health assistant though it has slightly higher share of availability to people with 57.43 per cent. Nearly 20 per cent of the districts in entire region has 0 per cent female health worker in PHC. This means that services that should be provided among people in general and women in particular are denied. There might be some special function they

offer to patients especially to girl and women. Since many districts do not have such human resource in the health centre which remains vacant, there might be many cases that such patients may not visit to get services from counterpart. This will ultimately lead to low accessibility and many problems may crop up among patients.

8.3. Availability of Doctors in Primary Health Centre

There are many districts in NER where post of doctors is filled fully. On an average, the PHCs have more than 90 per cent of the required doctors in the entire districts of the region. When availability of doctors in the Primary health centre in the region is closely observed, it is found that there are some districts which have filled up only 40 per cent such as RiBhoi and East Garo Hills (46.67 per cent) in Meghalaya, Aizawl (50 per cent) in Mizoram even after being a capital of the state. Even in Assam, 16 districts in the state have 100 per cent doctors and remaining districts have more than 75 per cent. The districts in Sikkim, Manipur has 100 per cent though Tamenglong in Manipur has 75 per cent. In the case of doctors' availability in the primary health centre the district has less variation across the districts in the region.

9. Availability of human resources in Community Health Centre

Community health centre is the referral centre for the PHCs under it, which also provide services of the specialist doctors and other obstetric care to the people. The necessity of having efficient CHC in any region is very important because there are some special services, they provide to people such as specialist render their services to people by whom any medical officer cannot give those services in times of special cases and also some basic labs to crater simple test in an emergency case. This is the first referral unit of PHCs under it. There is no CHC in seven districts of North Eastern Region. These are all four districts of Sikkim and two districts Arunachal Pradesh Tawang and Dibang Valley and Saiha in Mizoram. In all these districts some important indicators are absent such as specialists, radiographer, beds in CHCetc. which are available only in the community health centre.

9.1. Pharmacist/Compounder and Laboratory Technician in PHCs and CHCs

These paramedical personal plays an important role in providing medicine and communicate to the patient about the intake of medicine. It is mandatory for all community health centres to provide some basic medicines to the patients and in emergency cases like minor operation, surgery and delivery of the child in these healthcares. There is no pharmacist/compounder in only two districts of the entire North Eastern States like North and South district of Sikkim. On an average, there is 87 per cent of pharmacist/compounder in the PHC and CHC with little variation across the districts though West District and East District of Sikkim have 28 per cent and 12 per cent respectively. More than half of the entire districts of the region has 100 per cent of the said paramedical personnel.

In this case there is alterationin terms of the available laboratory technician. The districts of Sikkim which have least/no pharmacist/compounder have 100 per cent Laboratory Technician but one district of Mizoram has additional personnel which is only district in entire region having more than 100 per cent. Tirap in Arunachal Pradesh have no lab technician while some of the district of NER have as low as 25 per cent only but these districts are more closure to the district and state hospital as well as the private laboratory are found significantly compare to other districts due to other infrastructural development.

9.2. Radiographers in CHCs

There are many districts without radiographers in the CHCs of the region. All the states have one or more districts without radiographer. In NER, the average percentage of radiographer filing in CHC is 47 per cent but

variation is very high across the districts. Those districts without CHC are not accounting in this analysis. And also 20 districts have no such personnel in the CHC excluding those districts without CHC. Such paramedical personnel are important especially in emergency case for providing their service otherwise patient have to depend on private laboratory. Shortage of such personnel in the CHC will compel to get such facilities in the private laboratory. They have to pay themselves. Such situation in the country leads to use of own pocket money and thus more than 80 per cent of the expenditure incur are out of pocket money.

9.3. Staff Nurse in the CHCs and PHCs in the districts of NER

The presences of the Staff Nurses are important as those of the medical superintendents. Their works are to be gone in hand with the doctors for the smooth functioning of the healthcare facilities otherwise the doctors have to attain all the patients. Regarding their importance in the community health centre, there should be 7 in number in each CHC, but still there is vacancy in many of the districts in the region. Around 85 per cent of the Staff Nurse is filled in the CHC in NER. In case of districts without CHCs, the share of available staff nurse is less so is the case with that of Sikkim and other states. In Assam only four districts have filled the post fully and rest of them range from 40 per cent to 95 per cent. Districts of the other five states have much better conditions than those in the two states.

9.4. Gynaecologist and Paediatricians in CHCs

The entire country has poor condition in the context of availability of specialists in public health care system. The condition is very poor in those areas which are situated remotely and improper infrastructural development. As we have seen in many literatures, people in remote and rural areas of country are most affected. In connection to this, gynaecologists and paediatricians are very important for their duties which are indispensable among women and infants in which their services are needed regularly and urgently in many cases. If they are not available in the CHCs, masses under their service provision will suffer the most. It is very important to make avail such most needy doctors in such areas.

The districts regarding availability of gynaecologist in the CHCs is found to be very less compare to other personnel with 28 per cent only. There are many districts where there are no gynaecologists in the states like Mizoram and Tripura but only two districts in Meghalaya, 4 in Manipur with 33 per cent filled. Many districts of Assam have no such practitioners. The variation increases tremendously regarding such important medical personnel in the districts of the region.

The situation is more pathetic regarding the Paediatricians in the entire districts. Only 10 districts have Paediatricians in different states and remaining districts have no such specialist. Most remarkable situation we observe in case of Paediatrician is that in Assam two districts viz Kamrup Metro (4 times) and Baska (2 times) have more than the required number and five more district from the state has 33 per cent. On the other hand, each district from Manipur, Arunachal Pradesh and Meghalaya has 33 per centPaediatrician in CHCs.

Similarly, the conditions of the other specialists are same in the districts with many posts remain vacant. In case of surgeon many districts have filled up the post and their services are delivering to people. The condition of surgeon is better than the other specialists like Eye, Physician, Gynaecologist and Paediatrician in the entire districts.

10. Overall Health Infrastructural Development in the region

Taking human resources and physical infrastructures in terms of average population coverage by each SC, PHC and CHC in each district, composite indices are calculated. After assigning weights to each of the variables taken in the present study, overall composite index is calculated and classes are made which is depicted in the Figure 2.

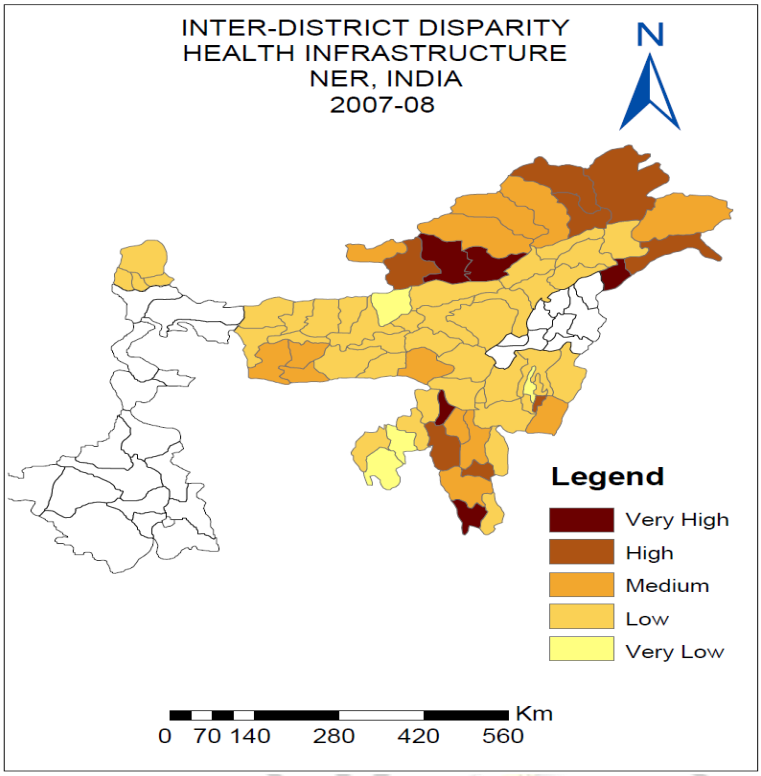

Figure 2: Inter-district disparity in Health Infrastructure, NER 2007-08

In case of Very High developed health infrastructure consisting of East Kameng,Tirap and Papum Pare in Arunachal Pradesh, Lawngtlai in Mizoram and Hailakandi (Assam). In case of Tirap and Hailakandi, their human health infrastructure is still low, but their low population coverage of PHC and CHC made their position stood up together with other districts in the region.

In case of High developed health infrastructure in the region, only eight of them included in this category namely Changlang, East Siang, WestKameng, Upper Siang and Dibang Valley in Arunachal Pradesh, Thoubal in Manipur and two from Mizoram (Serchhip and Mamit). These districts have comparatively better in terms of the human resource in the PHC and CHC.

In the third medium category, there are 13 districts from different states; three districts from Mizoram (Aizawl, Lunglei and Kolasib), five districts of Arunachal Pradesh such as Upper Subhansiri, Anjaw, West Siang, Upper Siang and Tawang, four from Meghalaya (East, West South Garo Hills and JaintiaHils) and Chandel in Manipur.

The fouth group is that of low infrastructure development which has entire districts of Sikkim and Assam except Darrang, six districts of Manipur, North Tripura and West Tripura and two of Mizoram namely Champhai

and Saiha. Since large population size of the districts along with low human resource made them low health infrastructural development in the region.

The districts in the lowest infrastructure development are found inDarrang, Imphal West, South Tripura and Dhalai due to the lack of human resources in these districts of their community health centre like Radiographer, specialist etc. and also ANM in PHC and SC. Presence of physical health infrastructures do not prove that there will be better human resources in the districts which is overshadowed by large population size of the districts as in the case of Assam, Manipur and Tripura. Therefore, accessibility and efficiency become very important for providing better healthcare facilities.

11. Healthcare utilization among people of NER.

In order to captureutilization of the existing health infrastructureamong people in each district of the region, 3 indicators have taken into account in this study namely percentage of Institutional Birth, Mothers who hadat least 3 antenatalcare visitsduring the last pregnancy and Immunization of the children age group 12-23 months (BCG, 3doses each of DPT and Polio, and Measles). These indicators are taken because all these facilities can be available in the healthcare units of each district. For better understanding of the health condition, 42 per cent of the children are immunized and 42 per cent of the birth delivery is in institutions and 53 per cent of the pregnant women had visited the healthcare unit for taking 3 antenatal doses. More than half of the population in the region has not utilized the existing health infrastructure. The important factors for low institutional delivery in the region are no time to visit healthcare facility, more than one-third think not necessary and last but not the least lowaccessibility. Even though there is less population coverage in the SCs level but other healthcarecaters large population as well as lack of awareness among people.Obviously, inter districts variation is found which is highlighted in Figure 3 through choropleth map taking all these indicators together by calculating composite index, which is shown below.

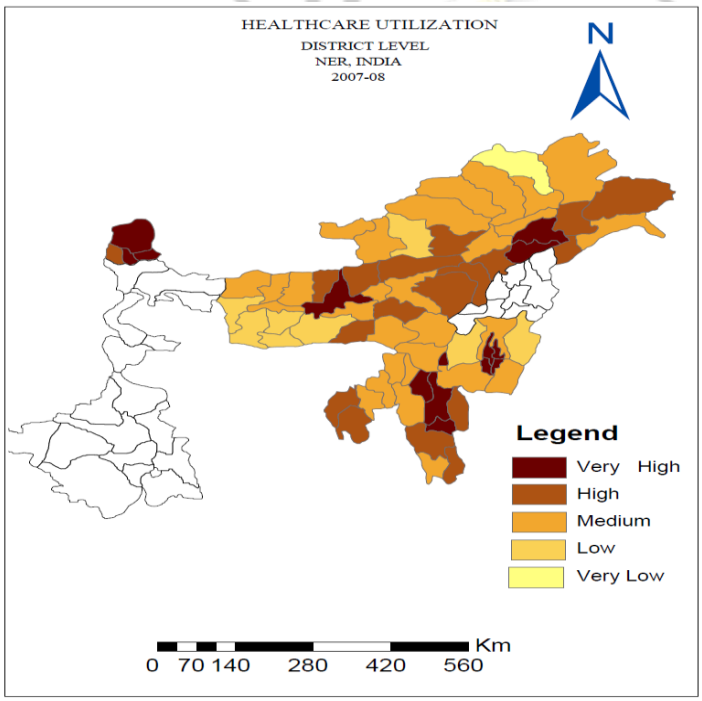

Figure 3: Healthcare Utilization in NER, 2007-08

There are 14 distritcts in the region that fall under Very High categorysuch as Sibsagar, Kamrup, Kamrup Metro, Dibrugarh, South & North Sikkim, Serchhip, East, Aizawl, Kolasib, Imphal West, Bishnupur, Thoubal, and Imphal East. All-important administrative district of the region included in this category. Since these districts are having higher order healthcare facilities as well as better connectivity compare to remote and rugged topography of other hill districts; their utilization is found high. While only one district of Arunachal Pradesh falls under Very Low health condition in terms of the above indicators which is Upper Siang. This is due to very low immunization (6.1 percent) as well as low ante natal care (13.4 percent) and only 13 percent institutional delivery which are quite low. In such situation, role of NGOs and other governmental organizational agenciesbecome very important to give awareness among people to go for healthcare facilities and its benefits to the mother as well as the child.

East Garo Hills, West Garo Hills, Dhubri, South Garo Hills, West Khasi Hills in Meghalaya, East Kameng in Arunachal Pradesh, and Ukhrul and Tamenglong in Manipur fall under Low category. In case of Medium and High categories health condition, districts of Assam, Tripura and Arunachal Pradesh fall. These districts have more or less large number of healthcare facilities and better accessibility.

Interesting feature that is found from the level of healthcare infrastructural development in terms of human resources as well as physical infrastructure (availability of SC, PHC and CHC and their population coverage), such infrastructures do not prove that districts with higher level of development have better health condition which is represented through the scatter diagram below.

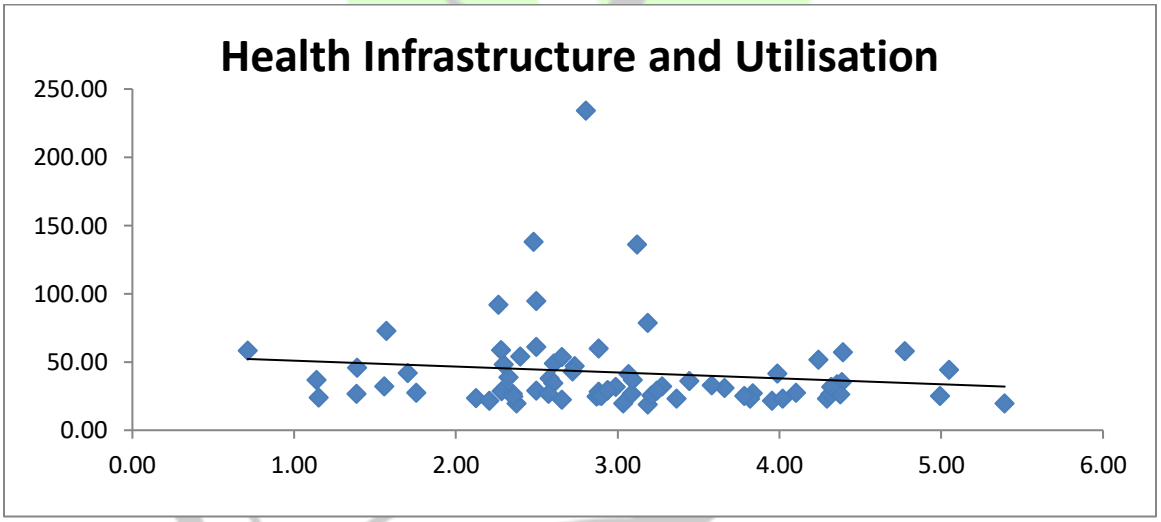

Figure 4: Scatter Diagram of Health Infrastructure and its Utilization.

The question is how such districts of poor healthcare infrastructure utilize much better than those of relatively high infrastructuraldeveloped districts. Since many of these districts might have other higher order healthcare facilities and private hospitals in the urban area as well as better connectivity; therefore, people mightprefer other healthcare facilities which are available in many of district hospitals and higher level of healthcare and many private hospitals too. In case of Assam, where health infrastructure is poor due to many factors like higher population coverage and lack of specialist and doctors and other personnel in public healthcare, these districts have better health condition. In fact, Sikkim is found to be lowest in term of the human resources, but perform in a better way.

12. Conclusion

The health infrastructure in the districts of the region is somewhat better in their PHCs and SCs. The pathetic situation in the Community Health Centre is due to the unavailability of Specialist, radiographer, lab-technician etc. in many of the far-flung areas of the hilly districts. Even after having more specialists in the districts of Assam, the districts appear to be in the category of Low and Medium ones in term of health infrastructure development due to larger population size of each PHC and CHC especially and lack of other personnel in one way or the other. Their SCs are lagging behind than other districts of the NER states. Thus, there is inter-districts disparity in the health infrastructure of the NER states. Development of other infrastructures also matter in terms of the connectivity, location of district whether in urban or rural. Since many of the best performed districts of the region are found to have less developed public health infrastructure and most of the people in those districts might have prefer to private and other higher order public healthcare such district or state hospitals. These districts have fewer human resources in the CHCs and PHCs; therefore, they might prefer in that healthcare which are relatively equipped more with manpower and other facilities.

Therefore, any healthcare in the districts of any state should have enough human resources. More number of such man powers is necessary in those districts where large population size exists. On the other hand, best performed districts have other higher order healthcare facilities operating 24X7, so people will prefer such healthcare in case of emergency like birth delivery. Improvement in the human resources is one of the most important for all public healthcares to deliver their services to the people; thereby health condition of the people will be improved and also people will prefer them.

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