

## **Chapter III**

# **Access to Health Care in Rural Goalpara District: A Comparative Study**

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### 3.1 Introduction

Health care provision of a country is one of the important sign of organization and distribution of scarce resources in the country. According to Starfield (1998), there are two main goals of any health care service. The first is to optimize the health of the population by employing the most advanced state of knowledge about the causation of disease, illness management and health maximization. The second, but, equally important goal is to minimize the disparities across population subgroups so that certain groups are not at a systematic disadvantage with regard to their access to health care. These will lead the way towards achievement of optimal health status. But, in present day world, there are wide disparities in the availability of welfare facilities including those for health care at the international, national and regional levels (Akhtar et al 1994). There is shortage of trained personnel, inadequate preventive and curative care for maximum people, shortage of drugs and exorbitant prices. Especially, in case of developing countries, the problem is more severe. These are actually supply side constraint in availing health care. This is the main cause of excess morbidity and mortality in third world countries where well off sections enjoy the similar health status with that of most people in developed countries. In case of India too, there is wide disparity exist in regard of health care provision.

Present chapter is an attempt to give a clear picture about the access to health care in rural Assam as well as rural Goalpara in comparison to all India level and inter-state level of India and inter-district level of Assam. This chapter tries to assess the health care facilities and their critical inputs as per the norms. This chapter is mainly on availability and accessibility component of access to health care. Availability

component will mainly focus on the available amount of health care institutions in rural areas and the provision of manpower and infrastructure in those institutions. On the other hand, accessibility component will concentrate on the spatial availability of health care provision. In other words, this chapter discusses about supply side of health care. One important point to be noted here is that this study is basically on public health care system. This is because in India around 26.1% people live below the poverty line. Against this, in Assam 36.09% of people live below poverty line. Besides this, considerable numbers of people are just above the poverty line in the state especially in rural areas. For these people, taking health care from the private sector is a matter of hardship. Poverty and ill health are intimately related. Catastrophic health expenses are one of the major push factors into the poverty across the world (Rajasekhar et al 2011). Eleventh plan of India has also accepted the close link between poverty and ill health in our country. Again, majority of people in our country lives in rural areas where qualified doctors are reluctant to provide their services. So, giving more emphasis to the private sector health care will fail to satisfy the second goal of the health care services. Again, we do not even basic statistics about private health care provision in rural areas in the state. So, this chapter is an effort to understand about the public provisioning for health care service in rural Assam with special focus on rural Goalpara.

The outline of the chapter is as follows. Section 3.2 elaborates on the methodology used, section 3.3 of the chapter discusses about the prevailing public health care system in rural India. Section 3.4 discusses about the progress in health care infrastructure in rural India and the present status of the health care infrastructure and manpower in rural India. Section 3.5 compares about the availability and accessibility of health care in rural Goalpara in comparison to national level and inter-state level, section 3.6 is on inter-district comparison of availability and accessibility of health care in rural Goalpara, section 3.7 is on rural Goalpara where a detailed study on the spatial availability as well as infrastructure availability in health care is done. Finally, section 3.8 is the conclusion of the chapter.

### **3.2 Data and Methodology**

This chapter mainly deals with the first research question of the study. The main data bases of this chapter are village data of Census 2001 and 2011, Bulletin of Rural Health Statistics, District Level Household Data (DLHS) 3, various reports of NRHM, and Statistical Hand Book of Assam 2010. Analyses are done in terms of simple averages and percentages. Composite index has been constructed on the basis of secondary data to capture both availability and accessibility of health care to have an idea about the relative position of Goalpara among the districts of Assam.

### **3.3. Structure of Rural Health Care System in India**

The health system in India, especially at rural areas, at present, is the synthesis of the recommendation of various committee reports on health like Bhore committee report, Mudaliar Committee, Jungawalla Committee report, Karter Singh Committee report, Srivastav Committee report etc. The present health care system in India is a three tier structure to provide health care services to its people as – primary, secondary and tertiary sector. The first tier, known as primary tier, has been developed to provide health care services to the vast majority of people in rural areas. Again, the primary tier mainly comprises of three types of health care institutions: sub centres (SCs), primary health center (PHCs) and community health center (CHCs). The rural health care infrastructure has been developed to provide primary health care services through a network of integrated health and family welfare programme (Majumder et al (2004).

The three tiers of rural health system have been discussed below in details:

**i) Sub Center (SC):** Sub center is the first contact point between health workers and village community. There is a national norm of population coverage to be served by a sub center. In case of a plain area, it is 5000 people against 3000 people in hilly areas

/ tribal areas. The basic services to be provided by a sub center are registration and ante / post natal services for pregnant women- check ups, general examinations, injection, minimum laboratory investigations, new born care, full immunization of all infants and children, treatment of minor ailments, first aid in accidents and emergencies, family planning and contraception- copper t, contraceptive pills, condoms etc. Besides those, it acts as the referring agent for high risk pregnancies, accidents and emergencies to the PHCs.

**ii) Primary Health Center (PHC):** Primary health center is the first contact point between village community and doctor. The activities of a PHC involve curative, preventive, promotive and Family Welfare Services. It acts as a referral unit for 6 SCs. National norms of population coverage of a PHC is 30,000 in plain area and 20,000 hilly / tribal areas. All the services provided by sub centers are also the responsibilities of PHCs also. In addition to those services, each PHC has to perform some other responsibilities. Indoor and out door patient services, 24 hours delivery services; both normal and assisted, sterilization services, accident and emergency services etc are some of the responsibilities of the Primary Health Centers. Again, basic laboratory services and microscopic services – TCL / DLC, urine, TB, malaria etc is also provided by PHCs.

**iii) Community Health Center (CHC):** Community Health Centres (CHCs) help to provide specialized healthcare services to people in rural areas and acts as a referral center for 4 PHCs. It has 30 indoor beds with one operation theatre (OT), X-Ray, Labour Room and Laboratory facilities. According to the national norms, each CHC should serve 1,20,000 people in a plain area and 80,000 people in hilly area. Various services done by a SC or a PHC are the responsibilities of a CHC also. Besides those functions, a CHC should perform some other duties like surgery emergency, obstetric emergency, various diagnostic services like ECG, X-Ray, and ultra sound etc. All the National Health Programmes like HIV/AIDS, Leprosy, and Blindness are also served under CHC. Again, a CHC is a blood bank also.

Besides, NRHM has introduced a new kind of health care services known as Mobile Medical Units for each district by 2009. Different rural health care institutions has different staffing pattern depending on their duties. Staffing pattern of a Sub centre in India is shown in table 3.1.

Table 3.1: Staffing pattern of a Sub Center

Sl. No.	Name of the post	No. of posts
1.	Health worker (female) / ANM*	1
2.	Health Worker (male)	1
3.	Voluntary worker	1
	Total	3

Source: Bulletin on Rural Health Statistics, December, 1997 (MoHFW, Government of India)

So, there should be all total three health workers in a Sub center. Unfortunately, there is no provision for a doctor in a Sub Center. Further, NRHM has set the goal to increase the number of (Auxiliary Nurse Midwife) ANMs to two by 2010.

Table 3.2: Staffing pattern of a Primary Health Center

Sl. No.	Name of the post	No. of posts
1.	Medical officer	1
2.	Pharmacist	1
3.	Nurse Mid Wife(staff nurse)	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 Clark	1
9.	Lower Division Clark	1
10.	Laboratory Technician	1
11.	Driver (subject to Availing vehicle)	1
12.	Class iv	4
	Total	15

Source: Bulletin on Rural Health Statistics, December, 1997 (MoHFW, Government of India)

LHV\*\* - Lady Health Worker

In case of a PHC, there is the provision of doctor, pharmacist, staff nurse, health

educator, laboratory technician etc for which PHC can be recognized as quite better health care institution than the Sub center. Further, NRHM has targeted to increase the number of PHCs (nearly 30,000) with three staff nurses who will provide service during 24 × 7 by 2010. Staffing pattern of a PHC is shown in table3.2.

Considering the staffing pattern of a CHC, it can be definitely considered as a better and well equipped and hence, a referral unit for PHCs.

Table 3.3: Staffing pattern of a Community Health Center

Sl. No.	Name of the post	No. of posts
1.	Medical officer	4
2.	Nurse Mid Wife (staff nurse)	7
3.	Dresser	1
4.	Pharmacist / Compounder	1
5.	Laboratory Technician	1
6.	Radio Grapher	1
7.	Ward Boy	2
8.	Dhobi	1
9.	Sweeper	3
10.	Mali	1
11.	Chowkidar	1
12.	Aya	1
13.	Peon	1
	<b>Total</b>	<b>25</b>

Source: Bulletin on Rural Health Statistics, December, 1997 (MoHFW, Government of India)

Total number of staff in a CHC is 25. Among them, there are four specialist doctors who are either qualified or specially trained to work as a surgeon, obstetrician, physician and pediatrician. One of the existing Medical officers similarly should be either qualified or specially trained in public health. But, there is no special provision

for lady doctor which is can be considered as weakness of rural public health care system in India. Besides, there are seven nurses in a CHC. Staffing pattern of a CHC is shown in the table 3.3.

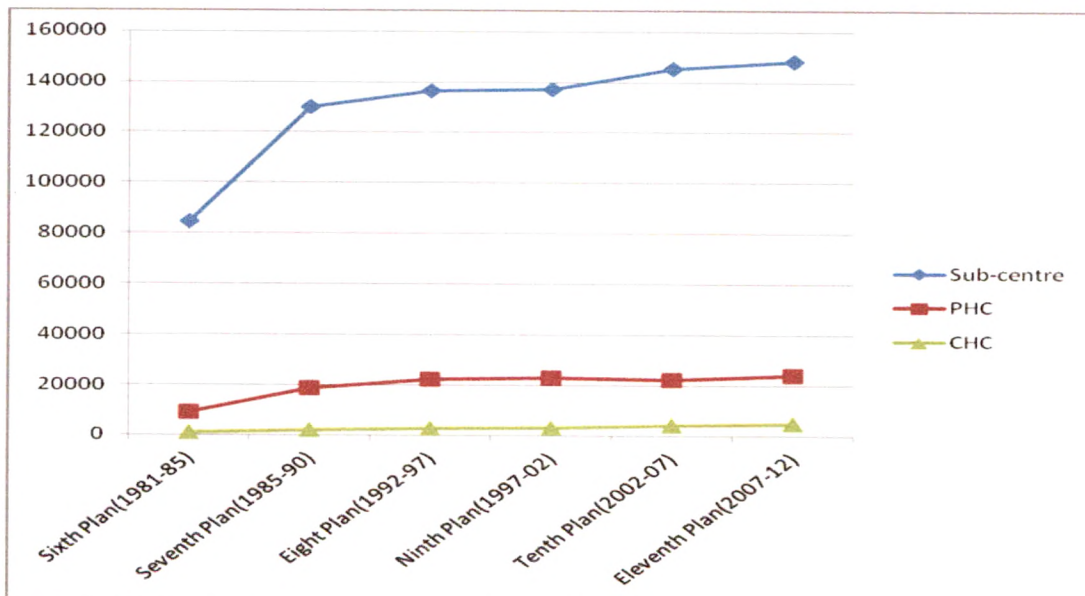
After the inception of NRHM programme, target has been set to increase the number of specialist to seven and staff nurses to nine by 2011.

### 3.4. Rural Health Care System of India

#### 3.4.1. Progress in the Rural Health Care System in India

Progress of Sub Centres, which is the most peripheral contact point between the rural health care systems and the community, is a prerequisite for the overall progress of the entire system. An observation on the rural health care system of India has made it clear that in 1985 that is at the end of sixth plan, there were 84, 376 Sub Centres. The number increased to 1, 30, 165 at the end of seventh plan and to 1, 48,366 at the end of eleventh plan. Progress has been experienced in the number of PHCs also.

Figure 3.1: Progress of Rural Health Care System in India



Source: Bulletin on Rural Health Statistics, March, 2012, GoI.



At the end of sixth plan that is in 1981-85, it was 9115. This figure has become almost doubled to 18671 at the end of seventh plan (1985-90) and rose to 22370 at the end of tenth plan (2002-07). As on March 2012, there were 24049 PHCs functioning in the country. Number of CHCs has also increased from 761 at the end of sixth plan (1981-85) to 1910 at the end of seventh plan (1985-90) and 4045 at the end of tenth plan (2002-07). Finally, it became 4833 at the end of eleventh plan.

From the figure 3.1, it has been clear that the growth in the number of SC was highest from the sixth plan to seventh plan. Not only in case of SCs, in case of PHCs also, there was significant increase in the number. Perhaps, because of the fact that this was the immediate period after the inception of India's first health policy this was outcome of Alma Ata summit of 1978. The main motto of the summit was the 'health for all' especially in regard of primary health care. Unfortunately, the rate of growth in the number of CHCs has not shown the required amount of growth.

### 3.4.2. Availability of Rural Health Care during NRHM period

Total number sub-centres have increased 146026 to 148366 during last seven years from 2005 to 2012 whereas number of PHCs has increased from 23236 to 24049 from 2005 to 2012. In case of CHCs also; it has risen from 3346 to 4833 during this period.

Fig 3.5: Rural Health Care in India under NRHM

Type	Total number in 2005	Average population served(based on census 2001)	Total number in 2012	Average population served(based on census 2011)
Sub-centre	1,46,026	5,078	1,48,366	5,615
PHC	23,236	31,918	24,049	34,641
CHC	3,346	2,21,656	4,833	1,72,375

Source: Bulletin of Rural Health Statistics 2012, Census 2001, Census 2011.

After the introduction of NRHM, rural health care system of India seems to be improved. But, it will be more appropriate if we consider about the average number of population served by each type of health care system as shown in table 3.5. So, in case of average number of population served by each SCs and PHCs, burden of health care has been increased instead of decreasing which are actually not up to the standard of national norm even today. But, in case of CHCs, average number of population served by each of the CHCs has come down considerably during the period 2005 to 2012; but still quite away from national norm.

### **3.4.3. Accessibility of Rural Health Care in India**

Accessibility reflects the distance to health facilities. After controlling individual and household variables, such as length of previous birth interval, and maternal age and education, increasing distance to a hospital is accompanied by a rise in mortality risks of children: mortality rates for children living further than ten miles from a hospital are 40 percent higher than those for children living within three miles. Mortality rates are 54 per cent higher when children live further than five miles from a doctor than when a doctor resides in their village (Frankenberg, 1995).

DLHS-3 has given some idea about the accessibility of health care in India. According to this survey, in India, 71.4% of the villages that have been surveyed have Sub Centres within 3 kilometer from the respective villages. Again, 71.2% villages have PHCs within 10 kilometer distance.

### **3.4.4 Man Power in the Rural Health Care of India**

It is by now widely acknowledged that health workers, as an integral part of health systems, are a critical element in improving health outcomes. *The World Health Report 2006: working together for health* sounded the alarm that without sufficient numbers of adequately trained and supported health workers, there is a significant

risk of not attaining the health-related Millennium Development Goal (MDGs) (WHO, 2006). In India, there is a short fall of multipurpose workers (female/ANM at SCs and PHCs) by not more than 4%. But, there is large number of vacant positions of doctors, nurses and paramedical personnel exist in the country as shown in the table 3.6.

Table 3.6: Shortfall in Health Personnel in Rural Health System- All India

For the Existing manpower	Required	In position	Shortfall
Multipurpose workers(female/ANM at SCs and PHCs)	172415	165785	6630(3.84%)
Health Workers (male)/ MPW(M) at SCs	148366	51705	96661(65.16%)
Health Assistant (Female)/LVH at PHCs	24049	16109	7940(33.01%)
Health Assistant (Male) at PHCs	24049	14648	9401(39.09%)
Doctors at PHCs	24049	28984	**
Total Specialist at CHCs	19332	5858	13474(69.69%)
Radiographer at CHCs	4833	2342	2491(51.54%)
Pharmacists at PHCs and CHCs	28882	26219	2663(9.22%)
Laboratory Technician at PHCs and CHCs	28882	17525	11357(60.67%)

Source: Bulletin of Rural Health Statistics (2012), MoHFW, GOI.

In regard of male health worker at sub center, total specialist in CHCs, radiographers in CHCs, pharmacists at PHCs and CHCs, laboratory technician at PHCs and CHCs, shortfall is quite high. Actually, the existing numbers of health personnel of those types are less than half of the required amount. For example, in case of male health worker, the required number is 148366 where as the existing number is only 51705 i.e., less than 35%; in case of specialist doctor in CHCs, the required number is 4833 where as the existing number is only 2342 i.e, only 51% of the required number; in case laboratory technician at PHCs and CHCs, the existing number is 28882 against which the required number is 17525 i.e., less than 40% of the required amount.

A good percentage of women in rural areas are reluctant go to health facilities due to lack of lady medical officer (NFHS 3). But, as per Bulletin of Rural Health Statistics (2011), only 20.89% of PHCs in India are serving lady medical officer. The extent of availability of human resources at CHC level in India is also not very encouraging according to the same survey. Only 44% of the CHCs have at least one Gynecologist in position.

### 3.4.5 Infrastructure in Rural Health Care of India

Besides sufficient number manpower, physical infrastructure is an important component for smooth functioning of the health care system. Unfortunately, Bulletin of Rural Health Statistics 2012 data has proven the inadequacy of the health care infrastructure in rural India as shown in table 3.7.

Table.3.7 Infrastructure Facilities in Sub centre and PHCs (in %)

Type of Infrastructure	% of the Existing health care institutions	
	Sub-centre	PHC
1. Without Regular Water Supply	25.5%	10.7%
2. Without Electric Supply	25.5%	8.0%
3. Without all weather Motor able Approach	6.6%	5.8%
4. With Operation theatre	NA	34.4%
5. With at least 4 beds	NA	67.0%
6. With Referral Transport Facility	NA	46.37%

Source: Bulletin of Rural Health Statistics, 2012, MoHFW, GOI

In rural India, 25.5% Sub-centres and 10.7% PHCs are without regular water supply whereas 25.5% Sub-centres and 8.0% PHCs are without electric supply. So, the quality of services provided by each of these kind of health care institutions are really doubtful and it is not possible for those PHCs to provide 24×7 services to the patients.

Besides, only 34.4% PHCs are with operation theatre. Again, 67% of the existing PHCs are with at least 4 beds and 46.37% of the existing PHCs are with referral transport facility.

Regarding CHCs also, it has observed that merely 80.65% of the CHCs have functional Operation theatre (OT) and 65.71% of the CHCs have the new born care services. Unfortunately, only 18.41% of the CHCs are with all four specialists. In other words, rural health care system of India fails to provide the stipulated services to a greater extent. But, these kinds of discrepancies are due to interstate differences as some state states are performing quite well where as others are performing in a very poor way.

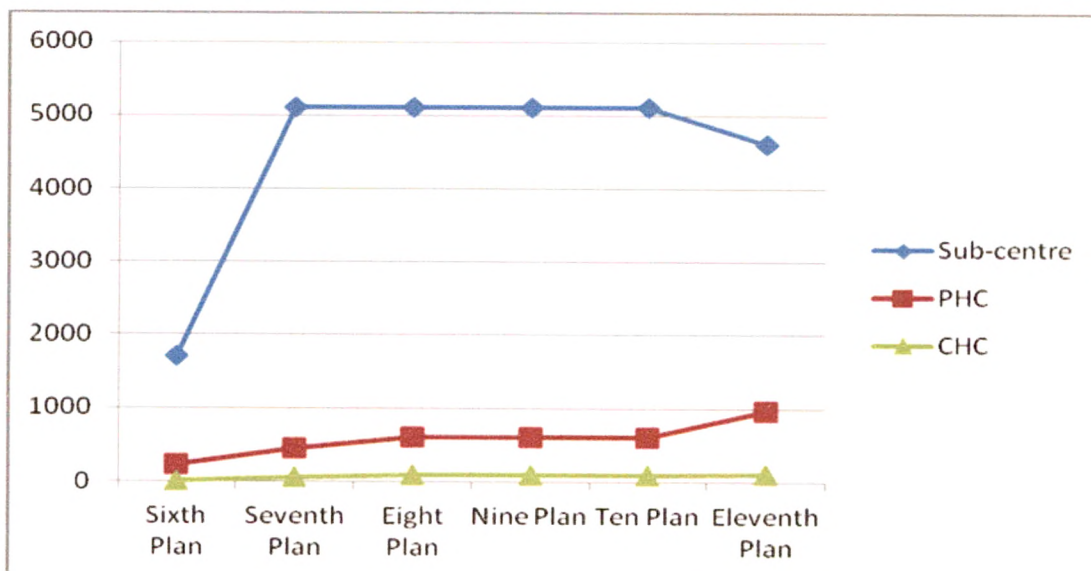
### **3.5 Comparative Study of Rural Health Care of Assam as well as Goalpara**

#### **3.5.1.. Progress in the Rural Health Care System in Assam**

In case of rural Assam, in the 6<sup>th</sup> plan that is in 1981-85, total number of existing Sub centre was 1711. Like at the national level, in Assam also, numbers of sub centres jumped to a higher level during 7th plan (1985-90) as the outcome of India's first health policy in 1983.

During 7<sup>th</sup> plan, it rose to 5109 and thereby, continued the same figure upto 10th plan that is up to 2002-2007. Then, suddenly, it fall to 4604 during eleventh plan as shown in figure 3.2. This fall in the number of Sub centre in Assam was due to up gradation of some Sub centres to a higher status as a part of NRHM programme introduced in 2005 where Assam was one of the high focus states. In case of PHC, from 6<sup>th</sup> plan to 7<sup>th</sup> plan, number of PHC functioning in Assam has increased from 237 to 449 which can be the outcome of the introduction of the National Health policy 1983.

Figure: 3.2: Plan wise Progress in the rural health system in Assam



Source: Bulletin on Rural Health Statistics, March, 2008, Govt. of India

Then, in the 8<sup>th</sup> plan, it became 610 and continued to be the same till 10<sup>th</sup> plan. After that during the eleventh plan, it became 975. Again, if we consider about CHC, it would be clear that it had been increased from 12 to 60 from 6<sup>th</sup> the plan to the seventh plan. After then number of CHCs also remains constant up to 10<sup>th</sup> plan. Finally, in at the end eleventh plan, it became 109.

### 3.5.2 Availability of Health care

To have an idea about the availability of rural health care system of Assam as well as Goalpara district, comparison have been done with some selected better performing states and worse performing states in terms of average population served by each of the rural health care institutions. Regarding average population served by each of the Sub-centre, position of rural Assam is better than states like Kerala, Bihar. But, it is worse than states like Goa, Tamilnadu even states like Orissa. But, in case of rural Goalpara, with 5762 persons serving by each of the Sub-centre, its condition is weaker except in case of Bihar in table 3.8. But, one good thing about the rural health care system of Goalpara district is the availability of adequate number of PHCs. In

that regard condition of Goalpara district is not just better than rural Assam; even quite better than those states like Kerala, Tamilnadu etc which are enjoying the same health status of those countries having very good ranking in HDI.

Regarding the available number of CHCs, along with the poor performing states some of the better performing states in regard of health status like Kerala, Tamilnadu are also lagging behind the required number.

Table3.8: Inter State Comparison of Rural Health Care System

State/District	Average Population Served		
	Sub-centre	PHC	CHC
Goa	3,271	34,641	1,72,374
Tamilnadu	4,011	28,461	39,549
Kerala	5,152	29,140	1,08,638
Orissa	4,678	25,519	82,990
Bihar	7,669	39,890	10,61,667
Assam	5,042	23,811	2,12,993
Goalpara	5,762	20,717	4,35,060

Source: Calculated on the basis of Bulletin of Rural Health Statistics (2012), MoHFW and Census 2011 population data of GoI.

Regarding the availability of CHCs, condition of Assam is a matter to be worried as with 2,12,993 people to be served by each of the CHCs meaning there are only 50% of the required number of CHCs are existed in the states. But, if we consider about the situation of rural Goalpara, it is worst with 4, 35,060 people to be served by each of the CHC which is atleast four times larger than the national norm. So, the rural health care system of Goalpara is over burdened.

### 3.5.3 Accessibility of Health Care

In rural Assam, regarding the accessibility of Sub centre, the state is in quite better position than all India level. In case of Sub-centre, 83.2% villages of Assam have a Sub-centre within 3 kilometers as against 71.4% villages of all India. In case of accessibility of a PHC, the state is in worse condition than the all India level. Here,

only 68.3% of the villages have PHC within 10 kilometer distance against 71.2% villages at all India level. This is a serious matter because PHC is a very important institution of the rural health care system which acts as referral unit for 6 Sub-centres. Even, in state like Tripura in northeast, 78.9% villages have a PHC within 10 kilometer distance from their village. Again, in comparison to states like Kerala, Tamilnadu, Goa, Haryana and even Bihar, Orissa etc, the state is in weaker position. In Kerala, 99.8% villages have Sub-centre within 3 kilometer. Again, 94.9% villages in Kerala have a PHC within 10 kilometer. Table 3.9 will give a comparative picture about the accessibility of health care in rural Assam.

Table3.9: Comparative Accessibility of Health Care Facility in Rural Assam (in %)

States Villages	Kerala	Tamilnadu	Bihar	Orissa	Tripura	Assam	India
SC within 3 KM	99.8	83.7	74.2	80.7	80	83.2	71.4
PHC within 10 KM	94.9	78.5	70.6	83.6	78.9	68.3	71.2

Source: District Level Household Survey (DLHS)-3(2006-07) fact sheet, GOI & IIPS

So, rural Assam is lagging behind most of the Indian states and even most of the back ward states of India especially in regard of the accessibility of a PHC within 10 kilometer distant according to DLHS-3.

Regarding accessibility of sub-centre relative position of rural Goalpara is better than Assam. As per India Development Indicators (2012), in rural Goalpara 84.4% villages have sub-centre within 3km. But, in that regard, districts like Golaghat, Lakhimpur, Sonitpur, Morigaon, Dibrugarh, Karbi Anglong, Sivsagar, Dhemaji, Nagaon, Dhubri, Kamrup(m), Karimganj, Haikandi are in better position whereas Dima Hasao, Udalguri, Baksa, Jorhat, Tinsukia, Kokrajhar, Nalbari, Kamrup(r),



Darrang, Barpeta, Bongaigaon, Cachar, Chirang are in worse condition than the Goalpara district.

#### **3.6.4. a. Manpower in the Rural Health Care in Assam**

As per Bulletin of Rural Health Statistics 2012, in Assam, there are no shortage regarding health worker (female) ANM, doctors on PHCs, regarding pharmacists and laboratory technician and nursing staff at PHCs and CHCs. But, in case of total specialist (surgeons, gynecologists, physician and pediatrician) and radiographers, there are shortages by 62.02% and 40.37% of the existing CHCs in Assam. But, when there are shortages of doctors in these institutions, the burden of treatment and care, generally falls on the nursing and paramedical staffs who actually not eligible to provide those specialized health care services.

#### **3.6.4. b. Manpower in the Rural Health Care in Goalpara District**

As per the Facility Survey of Public Health Institution in Goalpara, 77.3% Sub-centres have one ANM whereas 19.8% have two ANMs. But, male Multi-purpose Health Worker (MPHW) is available only in 27% which is actually a vital component for smooth functioning of a Sub-centre. Again, voluntary worker is existed in 89.7% of the Sub-centres of rural Goalpara.

As the PHC is the first contact point between the doctor and the patient in rural area, therefore, it is more important to check the staffing pattern of various types of PHCs in details. Table 3.10 will be useful in that regard. In case of Block PHC, in Goalpara district, all the PHCs have two or more medical officers whereas in case of all Assam, only 79.2% of the Block PHCs have two or more doctors. Regarding the availability of Lady Doctors and staff nurses also, condition of the Block PHCs of rural Goalpara is better than rural Assam. Again, in the Block PHCs of rural Goalpara, laboratory assistants and ophthalmic assistants are available in all the PHCs whereas in rural

Assam, laboratory technician and ophthalmic assistants are available in 86.6% of Block PHCs and 64.9% only Block PHCs respectively which are actually very much crucial for any PHC. Unfortunately, there is shortage of Male Health Assistant and Female assistant in the Block PHCs of rural Goalpara.

Table 3.10 Manpower in PHCs of Goalpara and all Assam (%)

Types of PHC	One doctor	Two or more Doctors	Lady doctor	Three or more Staff nurse	Parma-cist	Labora tory techni cian	Health assista nt(mal e)	Health assista nt(fem ale)	Ophthal mic assistan t.
Block PHC									
Goalpara	0.0	100.0	33.3	40.0	80.0	100.0	40.0	60.0	100.0
Assam	16.8	79.2	18.7	28.1	85.9	86.6	53.0	73.8	64.9
Mini PHC									
Goalpara	93.7	0.0	18.7	0.0	93.7	25.0	6.2	6.2	0.0
Assam	69.5	16.1	11.3	2.9	80.6	30.6	9.4	14.5	4.1
Subsidiary Health Centre (SHC)									
Goalpara	0.0	100.0	0.0	50.0*	100.0	50.0	0.0	0.0	0.0
Assam	59.4	30.0	8.6	33.8*	84.0	49.2	8.6	24.6	5.7
State Dispensary(SD)									
Goalpara	75	8.3	0.0	0.0	0.0	0.0	83.3	0.0	8.3
Assam	74.2	10.0	10.4	2.9	12.9	2.5	80.4	8.3	14.2

\* -at least one staff nurse

Source: Facility Survey of Public Health Institution in Assam; a report by Advent Health Care group, NRHM.

In case of Mini PHCs of rural Goalpara, 93.7% of them have one doctor against 69.5% of Mini PHCs of rural Assam. There is no Mini PHCs having two or more doctors in rural Goalpara whereas in case of rural Assam, 16.1% of the Mini PHCs

have two or more doctors. But, it should not be a matter to be worried as because as per the national norms about the staffing pattern of a PHC, there should be one doctor in each PHC. Regarding the availability of Lady Doctor or pharmacist, condition of the Mini PHCs of rural Goalpara is better than rural Assam. On the contrary, regarding staff nurse, laboratory technician, ophthalmic assistant, male health assistant, female health assistant, position of the district is weaker than all Assam level.

In regard of availability doctors and pharmacist in Subsidiary Health Centre (SHC), rural Goalpara is in a satisfactory condition with all the SHC having two or more doctors and pharmacists. But, there is a loophole in the system with virtually non existence of any Lady Doctor in those SHCs. In regard of availability staff nurse and laboratory technician, condition of the district is better than the state; but not in a satisfactory condition in true sense. Posts of ophthalmic Assistant, male health assistant and female health assistant are vacant. In case of State dispensary (SD), condition of the district weaker than all Assam regarding all most all the positions except male health assistant.

Although, condition of rural Goalpara is more or less better than rural Assam in regard of available manpower in PHCs, regarding availability of manpower in CHCs, status of the district is quite poor than rural Assam. This is a serious problem for the rural areas of the district as CHC is the first point where specialized health care is available for the rural population in India.

From table 3.11, district wise availability of manpower in the CHCs of rural Goalpara will be clear. According to norms of the rural health care system of India, each CHC should provide various specialized services like surgery, gynecology and obstetric care, emergency care, child care etc.

Table 3.11: Manpower in the CHCs of Goalpara and all Assam (%)

Manpower	Goalpara	Assam
1. Surgeon	0.0	14.7
2. Physician	0.0	6.9
3. Gynecology and obstetrics	33.3	27.5
4. Pediatrician	33.3	11.8
5. Eye specialist	33.3	33.3
6. General Duty Medical Officer (GDMO)	100.0	100.0
7. Auxiliary Nurse Midwife (ANM)	100.0	78.5
8. At least seven staff nurses	66.7	89.2
9. Pharmacist	100.0	79.4
10. Laboratory Technician	100.0	72.5
12. Radiographer	0.0	39.2
13. Ophthalmic Assistant	66.7	46.1

Source: Facility Survey of Public Health Institution in Assam; a report by Advent Health Care group, NRHM.

But, unfortunately, in the CHCs of the district, there is no surgeon, no physician whereas in case of CHCs of Jorhat, Sivasagar, Tinsukia in upper Assam, Kamrup, Nagaon in central Assam and Nalbari, Bongaigaon Barpeta in lower Assam is in better position regarding the availability of specialized medical officer. In case of rural Assam, 14.7% and 6.9% of the CHCs have surgeon and physician. On the other hand, others are in a pathetic condition. One important point to be noted here is that in rural Goalpara, there is no radiographer at all. Morigaon, Goalpara and Hailakandi are the only districts in the state of Assam that do not have a radiographer in any of its CHCs whereas Jorhat and NC Hills have radiographers in all CHCs. A total of 39.2% CHCs have radiographers.

In contrast to specialized health care, General Duty Medical Officer (GDMO) is available in all CHCs of rural Goalpara. Actually, GDMO is available in 100% CHCs of all Assam and all the districts of Assam. Regarding gynecology and obstetrics and pediatrics, condition of the CHCs in the district is not bad in comparison to other

districts of Assam; in fact quite better than rural Assam. Still, only 33.3% of the CHCs of rural Goalpara have specialist of gynecology and obstetrics and pediatrics of each. Percentage of CHCs having eye specialist is same in Rural Goalpara and rural Assam. Regarding the availability of ANM, condition of the district is appreciable as every CHC have their ANM. In case of laboratory technician and pharmacist also, condition of the district is satisfactory. But, there is a shortage of staff nurses which is quite big problem. Only 66.7% CHC have at least seven nurses which is actually required for each CHC. Except Kokrajhar, Karimgang and Cachar, all the district of Assam is in better than rural Goalpara in that aspect.

### **3.6.5. a. Infrastructure in the Rural Health Care in Assam**

According to DLHS-3 fact sheet for Assam for the year 2007-08, merely 22% of the surveyed Sub-centres are equipped with regular water supply whereas 76.7% has toilet facility respectively. In case of PHC, it is good indicator of having residential quarter for more than 90% doctors. But, only 64.6 % of the PHCs surveyed possess at least four beds which are slightly less than the national average. There is another thing to be surprised is that merely 57.6% of the surveyed PHCs are equipped with regular power supply whereas PHCs are assigned with the responsibility to serve people by 24 × 7 basis. So, it is not possible to serve 24 × 7 basis by those PHCs who do not possess regular power supply. Again, new born care equipments are available in 43% PHCs and functional operation theatre (OT) is available in 72.3% of the PHCs. About 80% of the PHCs in the state have functional vehicle against 37% at national level which is a matter of satisfaction. In case of CHCs, only 24.1% of the CHCs have functional OT which is the matter to be worried; because CHC is first point of rural health care system at which specialist treatment is possible. Again, it is the referral unit for the PHCs and hence, there should be higher level treatment. Regarding the new born care services at CHCs, situation of rural Assam is satisfactory with 88.9% CHCs having that facility. Regarding blood storage facility also, rural Assam is quite above rural India with 25.9% CHCs having this facility.

Still, the situation is not satisfactory as because the rural health system of India recommends for all CHCs to perform the duty of a blood banker.

According to Facility survey in Public Health Institutions in Assam, 2007, in 100% CHCs that means in all CHCs of rural Goalpara, have 24 hours emergency services, 24 hours delivery services laboratory services. There is no provision for ultrasound in CHCs and 66.7% of CHCs have X-Ray services and referral transport facilities of each.

#### **3.6.5.b. Infrastructure in Rural Health Care of Goalpara District**

According to Facility survey in Public Health Institutions in Assam, 2007, in Goalpara, only 48.4% of the total Sub-centres are functioning in their own building. Unfortunately, only 14.4% of the Sub-centres in rural Goalpara have electricity provision. 5.2% Sub-centres in rural Goalpara have piped water facility and 30.0% have hand pump facility. Flush toilet is a vital component for maintaining hygiene of any hospital or health care institution. But, in case of rural Goalpara, only 20.9% of the Sub-centres have flush toilet facility. However, not only in rural Goalpara, but also in whole Assam due to lack of proper water supply facility, the flush system is unworkable. Again, residential facility is available in 29.4% of Sub-centres of Goalpara; but ANM stays regularly only in 8.5% Sub-centres. As per the norms of the Indian Public Health System (IPHS), the equipment provided to the Sub-centres should be adequate to provide all the assured services in the Sub-centres. Those include BP instrument, weighing machine for adult, weighing machine for children, vaccine carrier, Kit C. But, BP instrument is available in 69.9% Sub-centres whereas weighing machine for adult and children are available respectively in 70.5% and 28.7% Sub-centres. But, weighing machine for infant is a crucial component for any health care institution in order to verify the low birth weight babies and mal-nourished babies.

Most of the rural health care institutions in rural Goalpara are lacking of the basic amenities and facilities required for its better functioning. Having any health care institution in rural areas without those amenities is meaningless. Table 3.12 has shown the availability of those amenities and facilities in different types of PHCs. All the Block PHCs in rural Goalpara have the electricity facility whereas only 60% of them have generator provision. Although, 60% of the Block PHCs in rural Goalpara have the flush toilet facility; limited number are functional as because only 20% of the Block PHCs have the piped water facility. Further, telephone and ambulance facility are available in 60% and 40% Block PHCs respectively. Again, weighing machine, deep freezer, Ice lined Refrigerator (ILR) are available in all the Block PHCs. Medical Termination of Pregnancy (MTP) suction aspirator is totally nonexistent. But, this one is very important for reducing abortion and pregnancy related complications in rural Goalpara. Flush toilet is meaningless for all types of PHCs including Mini PHCs, SHC and SD due to non availability of sufficient amount of running water. Although, Block PHCs and Mini PHCs are in favorable condition in regard of availability of electricity condition of SHC and SD are very poor.

Due to non availability of sufficient amount of telephone and ambulance facilities in different types of PHCs, communication system has been severely affected. Regarding BP instrument condition of the PHCs in Goalpara is not so bad. Weighing machine for infants is also available in sufficient number of PHCs except Mini PHCs. An autoclave, an instrument used to sterilize equipments is very much essential in any health care institution. But, in case of rural Goalpara, it is available in a very limited number of PHCs.

Like Block PHCs, conditions of SHCs are quite good. But, Mini PHCs and SDs are in poor condition. Again, MTP suction aspirator is available only in 6.2% Mini PHCs. Apart from that no other type of PHC has that facility. Besides, examination table,

labour table, iron bed, stretcher, trolley are some of important element required for functioning any PHC or CHC. Table 3.13 will give light in that aspect.

Table 3.12: Availability of basic Amenities in Different Types of PHCs in Goalpara (%)

Basic amenities	Block PHC	Mini PHCs	SHC	SD
1. Piped water supply	20.0	12.5	0.0	0.0
2. Flush toilet	60.0	87.5	50.0	41.7
3. Electricity	100.0	93.8	50.0	16.7
4. Generator	60.0	0.0	0.0	0.0
5. Telephone	60.0	0.0	0.0	0.0
6. Ambulance	40.0	6.2	0.0	8.3
7. BP instrument	80.0	93.7	100.0	75.0
8. Weighing machine for infants	100.0	15.0	100.0	91.7
9. Autoclave	40.0	37.5	50.0	16.7
10. Deep freezer	100.0	25.0	100.0	16.7
11. Ice lined Refrigerator(ILR)	100.0	18.7	50.0	16.7
12. Medical Termination of Pregnancy (MTP) suction aspirator	0.0	6.2	0.0	0.0

Source: Facility Survey of Public Health Institution in Assam; a report by Advent Health Care group, NRHM.

In the district, all the Block PHCs and SHCs have examination table where as only 81.2% of the Mini PHCs and 91.7% of the SD have examination table. Further, labour table is available in all SHCs; but in case of Block PHCs, only 18% of them have labour table which create a serious problem as Block PHCs are the referral unit for SCs and other types of PHCs. In case of Mini PHCs and SDs, 56.2% and 58.3% of them have the labour table respectively. Highest number of iron beds are available in Block PHCs in contrast the lowest number of iron bed are available in SDs. Stretcher/trolley is very much essential for the serious patient. In case of a Mini PHC or a SD, it is totally absent against which 100%SHCs have that facility.



Table 3.13: Availability of Infrastructure in various Types of PHCs in Goalpara (in %)

Types	Examination Table	Labour Table	Iron Beds	Stretcher/Trolley
Block PHC	100.0	18.0	80.0	60.0
Mini PHC	81.2	56.2	31.2	0.0
SHC	100.0	100.0	50.0	100.0
SD	91.7	58.3	16.7	0.0

Source: Facility Survey of Public Health Institution in Assam; a report by Advent Health Care group, NRHM

CHC, the top institute in the hierarchy of the rural health care system, requires sounder infrastructure in order to perform specialized health care services. In rural Goalpara, separate ward for male and female and labour room are available in all CHCs. But, only 66.7% of those CHCs have emergency/casualty service and operation theatre and only 33.3% of the CHCs have the blood storage facility (Facility survey, 2007). On the other hand, according to DLHS-3 survey, 50% CHCs in Goalpara have the blood storage facility. Actually, these type of variation between DLHS-3 report and the Facility Survey 2007 report have arose due to the fact that the Facility Survey 2007 report assumed the FRUs of each state as a CHC whereas DLHS-3 did not considered any FRU as a CHC. Again, according to the Facility Survey 2007, separate public utilities are available in 66.7% CHCs of Goalpara. Although, electricity is available in all CHCs in rural Goalpara, generator power back up is available in 33.3% CHCs. Incinerator is a device that combusts any amount of hospital waste and/or medical/infectious waste which is a important element for any rural health care institution and even more important for a CHC as it is the referral unit for all the PHCs and provides specialized health care. But, in Goalpara, no CHC has that facility.

### 3.6. Inter District comparison of the Rural Health Care of Goalpara in terms of Availability and Accessibility

In order to have a clear idea about the relative position of rural Goalpara regarding availability and accessibility of health care facilities among the districts of Assam, all

the districts of the state are ranked in terms of composite indices indicated by Basic Rural Health Infrastructure (*BRHI*). For that both availability and accessibility components are taken into consideration because both the dimensions are important and neither of them alone is sufficient to rank the districts (Goswami et al, 2012). Dimension Index Technique of UNDP (Anand et al, 1994) is used for the construction of composite index of district wise rural health care infrastructure of Assam.

The Dimension Index of each indicator *i* can be written as:

$$D_y = \frac{X_y - \min(X_{ig})}{\max(X_{ig}) - \min(X_{ig})} \dots\dots\dots(i)$$

Where,  $X_y$  is the actual value of *i*th indicator for district *j*.  $\max(X_{ig})$  and  $\min(X_{ig})$  are respectively the highest and lowest values for the *i*th indicator.  $D_y$  lies between 0 and 1.

*BRHI* comprises of three Dimension indices:

- i) Population wise Basic Health Unit Index (*PBHUI*): *PBHUI* is calculated on the basis of total number of SCs, PHCs, Dispensaries and CHCs against per lakh population
- ii) Population wise Bed Index (*PBI*): *PBI* has been calculated on the basis of total number hospital beds in PHCs and CHCs per lakh population.
- iii) Area wise Basic Health Unit Index (*ABHUI*): *ABHUI* is based on total number of CHCs, PHCs, Dispensaries and Sub-centres per 100 square km. This criterion is useful in case sparsely populated area.

Therefore,

$$\text{Population wise Basic Health Unit Index (PBHUI)} = \frac{X_1 - 16.14}{54.27 - 16.14}$$

$$\text{Population wise Bed Index (PBI)} = \frac{X_2 - 10.12}{70.12 - 10.12}$$

$$\text{Area wise Basic Health Unit Index (ABHUI)} = \frac{X_3 - 1.56}{31.14 - 1.56}$$

Finally, Basic Rural Health Infrastructure (*BRHI*) is arrived at by taking simple average of *PBHUI*, *PBI* and *ABHUI*.

$$\text{i.e., } BRHI = \frac{1}{3} (PBHUI + PBI + ABHUI) \dots \dots \dots (i)$$

Now, Basic Rural Health Infrastructure (*BRHI*) for each of district will lie between 0 and 1. Higher *BRHI* value indicates higher level of achievement in Basic Rural Health Infrastructure and vice-versa.

In regard of *PBHUI*, rural Goalpara stands at 11<sup>th</sup> position. In that regard, Kamrup (Metro), Dima Hasao, Dhemaji, Kokrajhar, Nalbari (*PBHUI*), Kamrup (Rural) are in better position than the Goalpara district while districts like Dhubri, Bongaigoan, Morigaon, Nagaon, Karbi anglong are in weaker position as observed in table 3.14. By attaining 7<sup>th</sup> position in case of *PBI*, Goalpara stands in a better position in comparison to *PBHUI*. Still, Kamrup(M), Darrang, Dima Hasao are in quite satisfactory position than Goalpara. *ABHUI* has been used to measure the capture the regional imbalances in regard of accessibility of health care. In that regard, position Goalpara district is relatively satisfactory as only Kamrup (metro), Dhubri, Nalbari, Karimganj districts are in better position than the district. Now, the overall position of Goalpara district will be clear from Basic Rural Health Infrastructure Index (*BRHUI*). Among the districts of the Brahmaputra valley Kamrup(m), Nalbari, Dhemaji,

Darrang and Dima Hasao and Karbi Anglong in Barak valley are in better position than Goalpara district regarding BRHUI as observed from table 3.14.

**Table3.14: Rank of the Districts in terms of Rural Health Infrastructure**

District	<i>PBHUI</i>	Rank	<i>PBI</i>	Rank	<i>ABHUI</i>	Rank	<i>BRHUI</i>	Rank
Dhubri	0.024	26	0.071	22	0.563	3	0.219	13
Kokrajhar	0.304	4	0.115	19	0.194	19	0.204	16
Chirang	0.157	14	0.369	7	0.149	22	0.225	12
Bongaigaon	0	27	0.453	4	0.316	9	0.256	7
<b>Goalpara</b>	<b>0.169</b>	<b>11</b>	<b>0.369</b>	<b>7</b>	<b>0.356</b>	<b>5</b>	<b>0.298</b>	<b>6</b>
Barpeta	0.117	18	0.212	15	0.354	6	0.227	12
<b>Nalbari</b>	<b>0.286</b>	<b>5</b>	<b>1</b>	<b>1</b>	<b>0.578</b>	<b>2</b>	<b>0.621</b>	<b>2</b>
Baksa	0.144	15	0.203	16	0.290	12	0.185	17
<b>Kamrup(M)</b>	<b>1</b>	<b>1</b>	<b>0.357</b>	<b>8</b>	<b>1</b>	<b>1</b>	<b>0.785</b>	<b>1</b>
Kamrup	0.262	6	0.336	9	0.297	11	0.298	6
<b>Darrang</b>	<b>0.222</b>	<b>9</b>	<b>0.562</b>	<b>3</b>	<b>0.329</b>	<b>8</b>	<b>0.371</b>	<b>5</b>
Udalguri	0.130	17	0.260	12	0.288	13	0.226	12
Sonitpur	0.084	22	0.072	21	0.167	21	0.107	27
Lakhimpur	0.107	19	0.308	10	0.234	15	0.216	14
<b>Dhemaji</b>	<b>0.780</b>	<b>3</b>	<b>0.269</b>	<b>11</b>	<b>0.076</b>	<b>25</b>	<b>0.375</b>	<b>4</b>
Morigaon	0.068	23	.0008	25	0.312	10	0.127	25
Nagaon	0.061	24	0.034	24	0.341	7	0.145	23
Golaghat	0.100	20	0.226	14	0.134	23	0.153	19
Jorhat	0.163	12	0.043	23	0.184	20	0.130	24
Sivsagar	0.226	8	0.238	13	0.278	14	0.247	8
Dibrugarh	0.254	7	0.203	16	0.231	16	0.229	9
Tinsukia	0.051	25	0.172	17	0.121	24	0.114	26
Karbianglong	0.078	23	0.430	5	0	27	0.169	18
<b>Dima Hasao</b>	<b>0.937</b>	<b>2</b>	<b>0.816</b>	<b>2</b>	<b>0.002</b>	<b>26</b>	<b>0.585</b>	<b>3</b>
Karimganj	0.202	10	0	26	0.443	4	0.215	15
Hailakandi	0.091	21	0.125	18	0.225	17	0.147	20
Cachar	0.134	16	0.077	21	0.219	18	0.143	24

Sources: Calculated by the author using data from Statistical Hand Book of Assam 2010 and Census 2011 data.

### 3.7 Conclusion

In this chapter comparative study about rural health care infrastructure of Assam as well as Goalpara district has been done. Here, it has been found that after launching the NRHM programme, there has been increase in the number of rural health care institutes in numerical sense. But, average number of population served by each of the rural health care institutions in rural Assam is yet higher than in other states taken into consideration even after considering Assam as high focus in the NRHM

programme. On the other hand, position of rural Goalpara district is not only better than rural Assam in case of average number of population served by each PHC but also better than other states taken into consideration who are enjoying quite better health indicators. But, in case of sub centre and CHCs condition of rural Goalpara is quite serious. Regarding accessibility of sub-centre position Goalpara district is quite better position than the all Assam level as well as India. But, in case of internal infrastructure and man power in the rural health care institutions, there is shortage in both rural Assam and Goalpara. So, it is really difficult for the even for the existing health care units to function smoothly without adequate provision of man power and infrastructure. Again, regarding availability and accessibility of rural health care, relative position of Goalpara is not so exemplary.

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