

Health care facilities and accessibility in Dariapara village and its adjoining areas in Rural Darrang district of Assam

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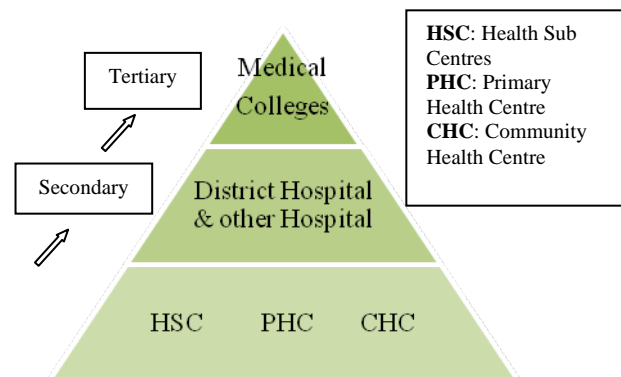
Abstract- Diffusion of medical revolution, development of science and technology and invention of contemporary suave equipment's and drugs helped healing different diseases. These facilities are however buffered around urban/city centre, accessibility and affordability to these facilities are deprived in the rural areas due to distance from the urban centres. An attempt has been made to analyse the spatial accessibility to health care facilities available in Dariapara Village and its adjoining areas. The sole primary health centre (PHC) in this area is Rangamati Mini PHC, which serve all the villagers of the locality. It comes underneath National Rural Health Mission (NRHM) scheme launched in 2005 towards the development of rural health care scheme. Accredited Social Health Activist (ASHA) engaged in rural area established a link between community and health care centre. The findings indicates that although supplements of iron and folic acid tablets are provided and free check up are conducted for gravid women and government sponsored free polio and other vaccination yet one cannot solely depend upon the PHC in cases of acute emergency conditions. The victims have to rush to the Mangaldai Civil Hospital (9 km) and at times to the Guwahati Medical College Hospital (65 km), due to unavailability of doctors, nurse and staff associated with it. Moreover, a single PHC is not sufficient to provide health care facilities to the large population of Dariapara and its adjoining villages.

Index Terms- Spatial Accessibility, PHC, NRHM.

I. INTRODUCTION

Health care access is concerned with the processes surrounding the entry of individuals and population groups into the health care delivery system. With its multi-faceted concept which involves five dimensions including affordability (*i.e.* costs of health care utilization), acceptability (*i.e.* health service compliance and satisfaction), availability (*i.e.* adequacy of health service provision), geographic accessibility (*i.e.* travel impedance between patients and providers) and accommodation (*i.e.* appropriateness and suitability of health services) (Penchansky and Thomas, 1981). From the aforementioned five dimensions of health care access, it is particularly geographic accessibility, also termed as spatial or physical accessibility or simply accessibility that has gained traction over the past few

years, chiefly owing to the increase in use of sophisticated technology and availability of data on both health care supply and demand (Neutens, 2015). Recently, there is wide recognition of the value of Geographic Information System (GIS) in mapping the spatial distribution of health care needs and utilization, determining optimal health service locations and untying the relationships between disparities in accessibility (Higgs, 2004; McLafferty, 2003).



Source: www.assamgovt.org

Figure 1: Health Services Overview

In Indian context, in order to address the health concerns of the under-served rural areas, Government of India (GOI) has launched National Rural Health Mission (NRHM) in April, 2005, under National Health Mission (NHM). The aim of the mission is to establish a fully functional, community owned, decentralized health care delivery system with intersectional convergence at all level, to ensure simultaneous action on a wide range of determinants of health such as water, sanitation, education, nutrition, social and gender equality. Primary health care facilities (HCFs) are delivered through health sub centres, primary health centres (PHCs) and community health centres (CHCs), district hospitals (DH), and dispensaries situated at the village, block and district level respectively.

II. OBJECTIVES

Following are the objectives undertaken

1. To identify the health care facility available in Dariapara village and its adjoining areas;
2. To know the health care facilities provided by the Rangamati Mini PHC (MPHC) in the study area and implementation of various initiatives as per Indian Public Health Standards (IPHS).

III. STUDY AREA

Holding 242 household, Dariapara is a medium size village under Rangamati Gram Panchayat within Mangaldai revenue circle of Darrang district of Assam. It covers an area of 109.99 hectares and is situated 9 km away from district head quarter Mangaldai. Towards north it is bounded by Saruthekarabari village, to the east by Manitari and Garkhuwapara villages, to the south by Niz Rangamati village, and to the west by Bhaluk-khuwapara and Bhangurichuba villages. The village has total 1150 population, of which 605 are male and 550 are female according to 2011 census. The study also include the neighbouring areas which is served by Rangamati MPHC *i.e.*, Bhanguri Chuba, Bhaluk khowa Para, Garkhowa Para, Soruthekarabari, Dariapara, Niz Rangamati, Khodoumara, Monitari and Chengeliapara. Rangamati Mini PHC is the only PHC in the area, which provide health service to the people of Dariapara and its adjoining areas.

IV. DATABASE AND METHODOLOGY

To fulfil the objectives of the study, the data has been collected from both primary and secondary sources. The primary data are collected through interview method from the doctors and staffs of the PHC, ASHA and village head. Secondary data are collected from government organisations like District Revenue Office, Primary Census Abstract (PCA) and Administrative Atlas Assam. Maps are prepared using GIS technique with the use of topographical map (1:50,000 Scale), including maps collected from District Revenue Office, Darrang, Directorate of Census Operations, Assam and Rangamati Mini Primary Health. GPS has been used to collect point location of different PHC. The entire work has been done with systematic procedure from entire generation of data upto final attainment of results. For the integration of primary and secondary data GIS technique (ARC map 9.3) has been used. Data are presented with the help of maps, tables and graphs.

V. ANALYSIS AND DISCUSSIONS

A. Mini Public Health Centre (MPHC)

Rangamati MPHC is the health care centre undertaken in the study. It provides monitoring and supervision to sub-centers by multipurpose health workers and auxiliary nurse midwifery (ANM). The sub-centres under Rangamati MPHC includes Punia SC, Dalibari SC, Bherpuri SC, Rowmari SC, Katahguri SC, Garkhuwapara SC, Niz Rangamati SC, Chaulkhowa SC, Apariya SC, Dhankhunda SC, Borlakhathi SC and Bangalpota SC. Out of which Garkhuwapara SC and Niz Rangamati SC falls within the study area. The Rangamati MPHC is situated in the Dariapara Village and this serves the village and including 8 neighboring

villages namely, Bhanguri chuba, Bhaluk khowa para, Garkhowa para, Soruthekarabari, Dariapara, Niz Rangamati, Khodoumara, Monitari and Chengeliapara.

The Rangamati MPHC is connected to Mangaldai civil hospital by a PWD road and NH 15. One has to travel 1 km from the MPHC through PWD road to reach NH 15 and then another 8 km to reach Mangaldoi civil hospital. Due to poor transportation facilities often villagers have to walk a long distance to reach the health centre. At first patients are to get registered in the MPHC by paying Rs. 5 each except for the female and aged patients. Pregnant women seeking health care in the MPHC are registered under the Janani Suraksya Yujona(JSY) and tracking of pregnant women are done by the ASHA and ANM.

Table 1: Population of Dariapara village and its neighboring areas

Village Names	Male	Female	Total Population
Bhanguri Chuba	62	57	119
Bhaluk khowa Para	481	413	894
Garkhowa Para	165	147	312
Soruthekarabari	1260	1167	2427
Dariapara	603	550	1153
Niz Rangamati	1319	1317	2636
Khodoumara	142	63	205
Monitari	311	275	586
Chengeliapara	445	408	853
Total	4788	4397	9185

Source: PCA

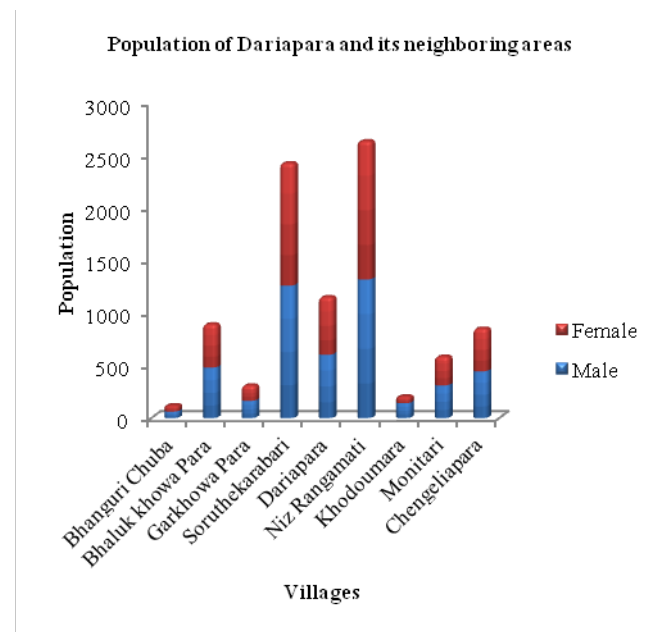


Figure 4: Population of Dariapara and its neighboring areas

LOCATION OF THE STUDY AREA

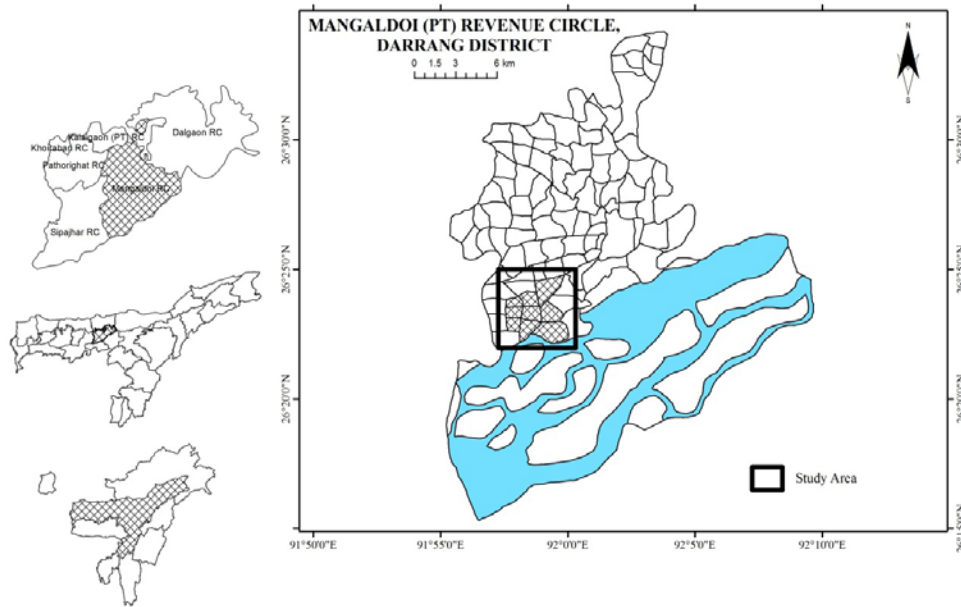


Figure 2: Location of the study area

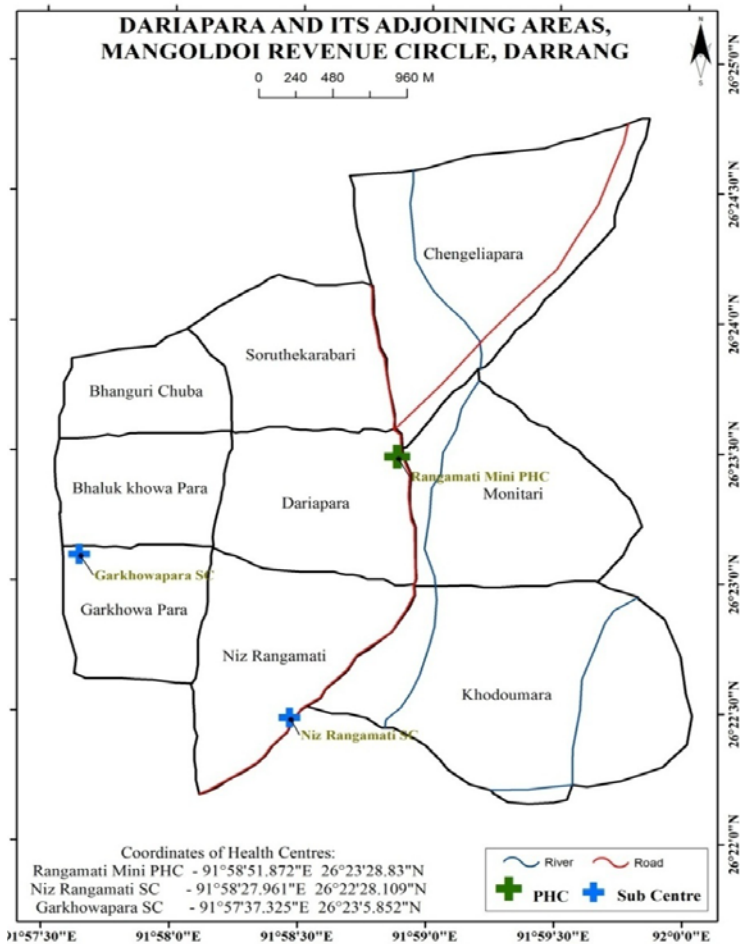


Figure 3: Map showing availability of HCFs in Dariapara and its neighboring areas

i. *Patients flow to Rangamati MPHC*

Rangamati MPHC is the sole government health care centre provided in the area. Although the MPHC has to provide 24*7 services but it remains closed on government holidays. In this study the flow of patients to the MPHC has been divided into two seasonal flows of patients i.e. peak flow (from May, June and July) and base flow or off season flow (from September, October and November). The study is carried out using one month database each of patient flow for peak season (July) and for base season (September). The data includes the study area patients flow and as well as the villages/areas seeking treatment in the MPHC. From table 2, it shows that Dariapara has the highest number of patient flow which is apparent with 135 patients in peak season flow and 110 patients in off season. The next village with highest number of patients flow is Saruthekerabari with 120 patients in peak season and 101 in off season. Followed by Barthekebarari, Bhaluk Khuwa para, Rangamati, Garkhuwapara with 99, 90, 83, 71 in peak season flow of patients and 88, 88, 60, 68 in off season flow of patients respectively.

Table 2: Patients flow in Rangamati MPHC

Villages /Areas	No. of patients	
	Months	
	July	September
Aulachowka	30	25
Saruthekerabari	120	101
Bhaluk Khuwa Para	90	88
Garkhuwapara	71	68
Monitari	20	18
Dariapara	135	110
Rangamati	83	60
Barthekebarari	99	88
Dhariakhaiti	28	25
Bangalputa	48	30
Kathguri	45	35
Chalukhuwa	40	30
Khodoumara	8	18
Pakabangi	20	13
Kuyapani	28	20
Gariapara	58	35
Dhankhunda	39	20
Punia	10	8
Bhanguri Chuba	54	30
Kaliapara	12	9
Deomornoi	0	2
Kaliagaon	0	1
Chengeliapara	40	15
Athiabari	3	0

Source: Survey

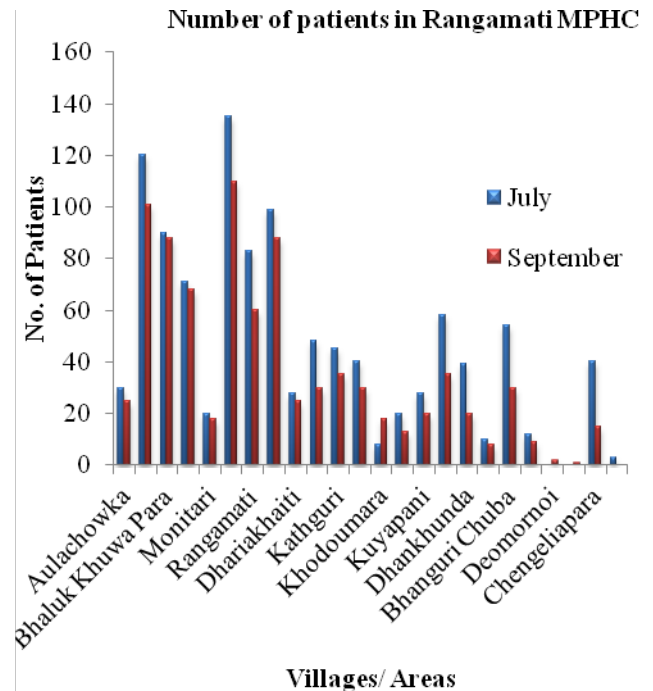


Figure 5: Graph showing patients flow to Rangamati MPHC

ii. *Staffing at Rangamati MPHC*

The quality of RHCs can be examined on the basis of availability of staff associated with it. The poor quality of health care services may reduce the utilisation of the MPHC even if it in an accessible location. Only physical existence of the MPHC does not fulfil the needs. The availability of the staff as per the IPHS norms is necessary and its physical presence is important as well. Rangamati MPHC fulfils the norms of the total number of staff required to run a PHC. Total 18 staffs are working at Rangamati MPHC, designation of the staff are mentioned in table 3. Absence of Lady Doctor was felt at the PHC.

Table 3: Staffing at Rangamati M.H.C.

Staff designation	Number of staff
MBBS Doctor	1
AYUSH Doctor	1
Nurse	2
Laboratory Technician	2
Pharmacist	1
Ophthalmic	1
Malaria Specialist	3
Accountant	1
Vaccine Specialist	1
Lady Health Supervisor	1
B.C.G. vaccinator	1
Sweeper	1
4 th grade worker	2

Source: Survey

iii. *Infrastructural facilities at Rangamati MPHC:*

Rangamati mini PHC was established in 1956 and operating from its own building. It has partial compound wall and fencing and prominent display board in the entrance. It reveals that some essential infrastructural facilities are not available. Indoor patient facility is not available and the laboratory facilities are limited to the blood and urine test only. Electricity supply and running water facility is also not available.

Table 4: Infrastructural facilities at Rangamati mini PHC

Facilities	Availability
No. Of Rooms	11
No. Of delivery Rooms	1
Mobile Van	1
Indoor bed	N.A.
OPD	1
Operation theatre	N.A.
Blood test Facilities	A.
Urine test	A.
Stool test	N.A.
X-ray Machine	N.A.
Ultrasonography	N.A.
Ophthalmic facilities	A.
Computer facility	A.
Accommodation for doctor	2
Accommodation for Nurse	1
Accommodation for pharmacist	1
Accommodation for compounder and others	N.A.
24 hours Electricity supply	N.A.
Running water	N.A.
Wheel chair	N.A.
Stretcher	N.A.
Saline Stand	A.

A.= Available, N.A.= Not Available
Source: Survey

iv. *Services at the MPHC*

The IPHS, Directorate General of Health Services Ministry of Health & Family Welfare Government of India, has provided different norms in fulfilling the health facilities. The essential medical care must be available in a PHC to provide services to the people whenever necessary and during emergency. The most essential medical care facilities that must be available are 6 hours OPD services for six days in a week, 24 hours emergency and delivery services, minor operation theater (OT), referral services, in patient service, antenatal care and immunization. Rangamati PHC has 6 hours OPD services for 6 days in a week and referral service. Antenatal care and immunization is also provided by the MPHC. 24 hours emergency is necessary because no other alternate health centre is available in its vicinity. Rangamati MPHC lacks in providing minor OT service.

Table 5: Services at Rangamati MPHC

Sl. No.	Essential Medical Care	Availability at Rangamati PHC
1	Total 6 hours OPD services for six days in a week	A.
2	24 hours emergency and delivery services	N.A.
3	Minor OT	N.A.
4	Referral services	A.
5	In patient Service	N.A.
6	Antenatal care	A.
7	Immunisation	A.

A. = Available, N.A. = Not Available

Table 6: Work Plan of the Rangamati MPHC

Days	Working Plan
Monday	Health survey in the selected village household
Tuesday	Scheme based health services, distribution of family welfare and planning kits.
Wednesday	Vaccination, antenatal care, primary health care service
Thursday	Health survey in the village household
Friday	Scheme based health service. Distribution of family welfare kits
Saturday	1 st Saturday meeting with the ASHAs, 2 nd and 4 th Saturday health services in the sub centres, 3 rd Saturday Health education, meeting and discussions.
Sunday	Closed

B. *Implementation of NRHM*

According to NRHM there has to be an ASHA in every village. In the study area ASHA's are available in each village. They are trained to act as health educators and promoters in their villages. Their task includes motivating women to give birth in hospitals, assisting, bringing children to immunization clinic, keeping demographic records. They act as a communicator between the HCF and rural population. They receive outcome based remuneration. ANM's are multipurpose health workers working at small village level institutions. According to the recommendations of NRHM two ANM for each sub centre in the study area are appointed.

VI. FINDINGS AND RECOMMENDATIONS

Rangamati MPHC is the sole government health care facility located in the study area. The MPHC serve as a reporting centre for 12 sub-centres under its jurisdiction. The MPHC is easily accessible to the nearby villages but the villages which are located at a distance from the MPHC had to suffer due to poor transport and communication facilities especially the char areas. People had to face lot of hindrance in reaching the health centre.

Although there is provision of ambulance facility but it is not easily available for the ambulance is shared with another organisation and hence not available during emergency. From the study it is found that the month of July has the highest number of patients flow with total 1081 patients and is considered as peak season of patients flow. The main reason is due to high temperature and rainfall in the season the people fall sick easily and had to rush to health centres. Whereas December is the least month with lowest patients flow as per previous records and due to unavailability of data for the month of December, 2016, here September is considered as the least month where patients flow is relatively less i.e. 849 patients.

As per IPHS norms the MPHC doesn't fully fulfil the standard required. Due to lack of medical care facilities whenever there is a critical case they refer patients to next level health care facility. The provision of 24 hours service is totally neglected and the MPHC remains close on Sunday's and government holidays. The MPHC is not well equipped to provide in patient services and other treatments such as performing minor surgeries and primary management and treatment of fractures. The centre also lacks in providing laboratory and inpatient services to its patients.

Ante-natal and post-natal care is provided by the PHC and immunization drives and programs are successfully implemented. Counseling services telling people the benefits of family planning are organized and it supplies oral contraceptives and condoms. MPHC regularly undertake other healthcare programs such as school health programs, safe water supply and sanitation programs for the benefit of its people.

From the above findings following are the important factors that must be fulfilled in order to achieve the goals to overcome the health problems *i.e.*

- i. 24 hours electricity, running water and power bank facility is necessary for uninterrupted service to the patients.
- ii. 24 hours emergency care and minor OT service should be provided by the MPHC.
- iii. Ensuring the occupancy of staff quarter allotted for the improvement of HCFs.

VII. CONCLUSION

The paper identified the availability of HCFs present in Dariapara and its adjoining areas and ways to access these facilities. The paper has also pointed out various schemes that have been implemented by the health care centre to achieve the goals of NRHM. The benefit of spatial accessibility planning is that an equitable geographic distribution of health care facilities can contain the cost of health services by minimizing oversupply and at the same time increase the equity of access to health services for medically underserved areas (Yang et al., 2006). The study has use GPS technology to identify the location of health care centre and integration with GIS provided a visualized idea of the facilities available. The catchment area of the Rangamati PHC is relatively larger than the aforementioned area, but only

some selected villages are taken into consideration on influence basis.

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REFERENCES

- [1] J. R. Audy, "Measurement and diagnosis of health", In P. Shepard & D. Mc. Kin (Eds), Environmental Eassys on the plant as a home, 1971, pp. 140-162.
- [2] T. Arcury, W. Gelsler, J. Preisser, & J. Sherman, "The effects of geography and spatial behavior on health care utilization among the residents of a rural region", Health Services Research, 2005, 40(1), pp. 135-155.
- [3] L. Chan, G. Hart, & D. C. Goodman, "Geographic access to health care for rural medicare beneficiaries", The Journal of Rural Health, 2006, 22(2), pp. 140-146.
- [4] M. F. Guagliardo, "Spatial accessibility of primary care: concepts, methods and challenges", International Journal of Health, 2004, 3(3).
- [5] G. Higgs, "A literature review of the use of GIS-based measures of access to health care services", Health Serv. Outcomes Res. Method, 2004, 5, pp. 119-139.
- [6] W. Luo, & T. L. Whippo, "Variable catchment sizes for the two-step floating catchment area (2SFCA) method", Health & Place, 2012, 18(4), pp. 789-795.
- [7] M. R., McGrail, "Spatial accessibility of primary health care utilising the two step floating catchment area method: an assessment of recent improvements", International Journal of Health, 2012, 11(50).
- [8] S.L. McLafferty, "GIS and health care", Annu. Rev. Public Health, 2003, 24, pp. 25-42.
- [9] R.P. Misra, Geography of Health A treatise on Geography of life and Death in India, Concept publication, New Delhi, 2007
- [10] T. Neutens, "Accessibility, equity and health care: review and research directions for transport geographers", Journal of Transport Geography, 2015, Vol-43, pp. 14-27.
- [11] R. Penchansky, J. Thomas, The concept of access: definition and relationship to consumer satisfaction. Med. Care, 19 (2), 1981, pp. 127-140.
- [12] Rajeshwari, "The Spatial Organisation Of Health-Care Facilities In Rural Haryana: An Inquiry into Its Availability and Utilization", Ph. D. Thesis, Centre for the Study of Regional Development School of Social Sciences Jawaharlal Nehru University, 1993.
- [13] E. J. Salber, S. B. Greene, J. J. Feldman, & G. Hunter, "Access to Health Care in a Southern Rural Community", Medical Care, Vol. 14, No. 12 (Dec., 1976), pp. 971-986.
- [14] L. Sibley & J. Weiner, "An evaluation of access to health care services along the rural-urban continuum in Canada", BMC Health Services Research, 2011, 11(20).
- [15] D. H. Yang, R. Goerge, & R. Mullner, "Comparing GIS-based methods of measuring spatial accessibility to health services", Journal of Medical Systems, 2006, 30(1), pp. 23-32
- [16] Advent Healthcare Group, Facility Survey of Public Health Institutions in Assam, the Mission Director National Rural Health Mission Government of Assam, 2007

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