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**REGIONAL DISPARITIES OF HEALTH CARE INFRASTRUCTURE
IN KOCH BIHAR DISTRICT, WEST BENGAL INDIA**

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ABSTRACT

Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity (WHO). In West Bengal, the Koch Bihar district administration considers health sector as one of the core sectors for development. The important health indicators of the people of the district are still not at par with that of the national average and in fact much below compare to many districts of our State itself. As for the health infrastructure in the district there is one district hospital and four sub-divisional hospitals with 120 beds on the average in each hospital. There is one infectious disease cum TB hospital and a mental hospital. At the block level have 12 BPHC with average 37 nos. of PHC/ Charitable dispensaries. The Human Development report of West Bengal comprises a mixed of health index in the districts. This paper highlights healthcare facilities, development and problems of public health situation in Koch Bihar district using geographic information system (GIS). The paper also calculates the health infrastructure index (HII) and health inequality index of health indicators with respect to health infrastructure at the block level of the district. A health infrastructure index is developed using health inputs like number of hospitals and dispensaries, number of beds and number of doctors in government hospitals.

KEYWORDS: *Health Care, GIS, Regional Disparities, Health Infrastructure Index, Problems*

INTRODUCTION

According to WHO "Health is a resource for everyday life, not the object of living, and is a positive concept emphasizing social and personal resources as well as physical capabilities. In a word, good health is a state of complete physical, social and mental well-being and not merely the absence of disease or infirmity" (<http://www.who.int>). India is the seventh largest country in the world and the second most populous country after China. According to the Investment Commission of India (2010) the healthcare sector has experienced phenomenal growth of 12 per cent per annum in the last four years. Rising income levels and a growing elderly population are all factors that are driving this growth. In addition, changing demographic pattern, disease profiles and the shift from chronic to lifestyle diseases in the country has led to increase the expenditure on healthcare delivery (Debgupta, 2012). Indian healthcare delivery system is categorised into two major components - public and private. The public health care delivery system in India at present has a three-tier structure. The primary tier, in rural areas of the country comprises three types of health care institutions: Sub-Centre (with 3 health workers and 1 voluntary worker), Primary Health Centre (with 4-6 beds, 1 doctor, and 14 other paramedical and supporting staff), and Community Health Centre (with 30 beds, 4 medical specialists, and 21 other paramedical and supporting staff). The secondary tier, which is primarily served to urban mass, includes medical care provided by the specialists at the sub-divisional and district hospitals. Tertiary health care encompasses by super specialists at medical colleges and specialised hospitals (Majumder, 2005; Hati & Majumder, 2013). According to India Brand Equity Foundation the 'Healthcare comprises hospitals, medical devices, clinical trials, outsourcing, telemedicine, medical tourism, health insurance and medical equipment. In India, healthcare industry is growing at a tremendous pace owing to its strengthening coverage, services and increasing expenditure by public as well as private players' (<http://www.ibef.org/>). The Koch Bihar district is located in the extreme north eastern part of West Bengal where more than 80% population are living in rural areas (Census of India, 2011).

Objectives:

This paper has made an attempt to analyse the following objectives:

- a) To identify the infrastructural facilities of the healthcare facilities,
- b) To find out the regional disparities of health infrastructure in the district and
- c) To find out the problems and give some suggestions for development of health care services in the district.

LITERATURE REVIEW:

De (2015) highlights in her paper spatial inequality of in health care infrastructure in Sundarban, West Bengal. In this paper analysis has been made for inter-block disparities of health care facilities and to identify the regional pattern of health care infrastructure three broad categories have identified i.e. availability of health care infrastructure, performances of public health care centres and accessibility to health care infrastructure. There is a huge shortfall in the existing number of primary health centres and manpower under the public health system in Sundarban. Lakshmi & Sahoo (2013) studied about health care infrastructure and health indicators of Andhra Pradesh. In this paper they have shown that the health of the people depends upon the number of service centres, number of beds, number of doctors availability in Govt. hospitals etc. They also used the health infrastructure index is developed using health inputs like number of hospitals and dispensaries, number of beds and number of doctors in government hospitals. Sayanti (2014) reveals in the paper of women health status variation in Hugli district of West Bengal according to the health infrastructure. This paper results there is a great deal of inequality in the female health status at the sub-

district block level. Given this scenario, it is imperative that the status of female health is explored in detail and the link between health infrastructure and female health outcome is examined at the block level. This paper seeks to run the exercise for Hugli district bringing out the intra-block regional variation. It is expected that this will enable to bring out the current sections of concern and aid in adopting necessary measures for improvement of the situation.

Bhattacharya (2014) studied about women health infrastructure on district level analysis of Koch Bihar. In this district 68 public medical institutions of different tiers provide 2252 number of beds for 2.82 million people. The selected indicators like bed per thousand of population, population survey by health units, number of deliveries performed, and number of critical surgeries performed, bed turnover rate, bed occupancy rate etc. used to determine the health index of region. Sheet & Roy (2013) identified the regional disparities are caused by a number of factors that lead to misallocation, under utilization of resource, etc. Regional disparities lead to various economic, social and cultural problems. In micro-level study, regional disparity is a key factor for development. The health factor is the key factor all over the development in region. They analyzed the regional disparities of nineteen blocks of Birbhum district and identified variables.

Methodology:

Database: The present study has been carried out based on primary and secondary data. Primary data have been collected from the different hospitals of the district. Secondary information also has been collected from Office of the CMOH, Koch Bihar, Census Handbook of Koch Bihar, District Level Household and Facility Survey of West Bengal and different Govt. Reports¹.

Methods: The collected data and information have been analyzed to fulfil the above mentioned objectives by using cartographic and statistical techniques. Maps have been prepared using GIS environment. In this work, for preparing Health Infrastructure Index (*HII_j* after De, 2014) of 12 blocks, the following methodology has been applied;

$$I_{ij} = \frac{X_{ij} - \min_j X_{ij}}{\max_j X_{ij} - \min_j X_{ij}}$$

Where, I_{ij} is the health infrastructure for j^{th} block with respect to i^{th} variable and X_{ij} represents the value of i^{th} infrastructural development indicator in j^{th} block, \min_j \max_j are the maximum and minimum values of X_{ij} respectively. However, if X_{ij} is negatively associated with the status of infrastructural development, the following equation has been applied:

$$I_{ij} = \frac{\max_j X_{ij} - X_{ij}}{\max_j X_{ij} - \min_j X_{ij}}$$

The overall development value of Health Infrastructure Index (*HII_j*) has been identified by taking a simple average of chosen indicators as follows:

$$HII_j = \frac{\sum_{i=1}^n I_{ij}}{N}$$

Where, N represents the total number of selected indicators for health care infrastructure and *HII_j* denotes health care infrastructure index for j^{th} block. Higher value of *HII_j* indicates

higher level of development and vice versa. For identification of disparity between doctor-population and service centres and population the Lorenz curve and Gini-coefficient have been applied;

$$G = 1 - \frac{\sum (i.i_{i+1}) - \sum (i^{i+1}.i)}{1000}$$

Values of Gini-coefficient vary within 0 to 1. If the value is 0, indicates that there is no inequality while value of 1 indicates the highest inequality.

To evaluate the satisfaction level of the patients, the index of satisfaction (developed by Hall, Yen and Tan, 1975) has been applied as follows:

$$IS = (fs - fd) / N$$

Where, IS= Satisfaction Index, fs=No. of satisfied respondents, fd= No. of dissatisfied respondents and N=Total respondent

Study Area:

Koch Bihar lies between 25°57'47" to 26°36'2" North latitude and between 89°54'35" to 88°47'44" East longitude. The area of the district is 3387 sq. km which contributes 3.82% of the land mass of the State of West Bengal, India. Koch Bihar is a district under the Jalpaiguri Division of the state of West Bengal. There are 12 numbers of blocks (Fig.1) namely; Koch Bihar-I, Koch Bihar-II, Dinhata-I, Dinhata-II, Tufanganj-I, Tufanganj-II, Mathabhanga-I, Mathabhanga-II, Sitalkuchi, Sitai, Mekhliganj and Haldibari block. It is located in the extreme north-eastern part of the state and bounded by the district of Alipurduar in the north, Jalpaiguri district in the north-west, state of Assam in the east and the international border in the form of Indo-Bangladesh boundary in the south as well as in the west. A geopolitical curiosity was that there were 92 Bangladeshi exclaves, with a total area of 47.7 km² in Koch Bihar. Similarly, there were 106 Indian *exclaves*² inside Bangladesh, with a total area of 69.5 km². There are some important river namely Teesta, Jaldhaka, Torsha, Kaljani, Raidak, Gadadhar ,Khutamara etc.

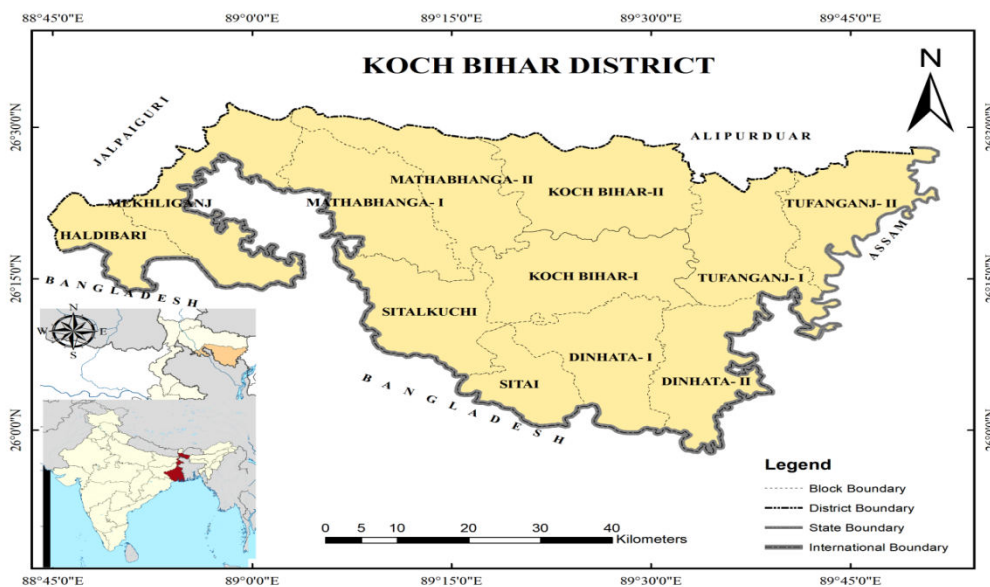


Fig.1. Location of Koch Bihar District

RESULTS & DISCUSSION:

Infrastructure Healthcare facilities in Koch Bihar district:

Health is considered to be one of the key ingredients of Human Development for an economy as it helps in enhancing the quality of human capital and thereby improves the state of human

development. West Bengal has nineteen districts with a population of about 91.4 million as per Census 2011. The state ranks 8th among the country's 16 major states both in terms of human development index and human poverty index. The health infrastructure of West Bengal is very wide covering even the remote villages. There are 9 Medical College Hospitals, 16 District Hospitals, 45 Sub-divisional Hospitals, 346 Community Health Centres, 922 Primary Health Centres and 10356 Sub-Centres across West Bengal. However, the health infrastructure in West Bengal is inadequate in comparison with the total number of population. The District Health Plan under National Rural Health Mission (NRHM) of Koch Bihar was developed in 2007-2009. As for the health infrastructure in the district there is one district hospital (400 bedded) and four sub-divisional hospitals with 120 beds on the average in each hospital. There is one Infectious Disease cum TB Hospital (120 bedded) and a 10 bedded Mental Hospital. At the block level there are 12 BPHC with average of 30 beds followed by 37 nos. of PHC/ Charitable Dispensaries. Some of these PHC have been recently provided bed (10 beds) facilities to the patients.

Availability of Health Care Centres:

Health infrastructure is the elementary need to have a good health condition. Unlike India, West Bengal also has a three tier system of primary health care. It was recommended in 1948 by Bhore Committee³ that there should be at least one bed per thousand populations (Hati & Majumder, 2013). To provide health care services different medical institutions have been established here. However, the health care system has not developed adequately in the district. The District hospital of Koch Bihar is located at the district headquarter which has played a pivotal role in health care service. People of all the blocks are dependent on the District Hospital. The primary health care service comprises 12 Block primary health centres, 1 rural hospital, 31 Primary health centres and 406 Sub centres (Fig.2). Every block has one BPHC with 30 beds. In Haldibari block has one rural hospital with 60 beds.

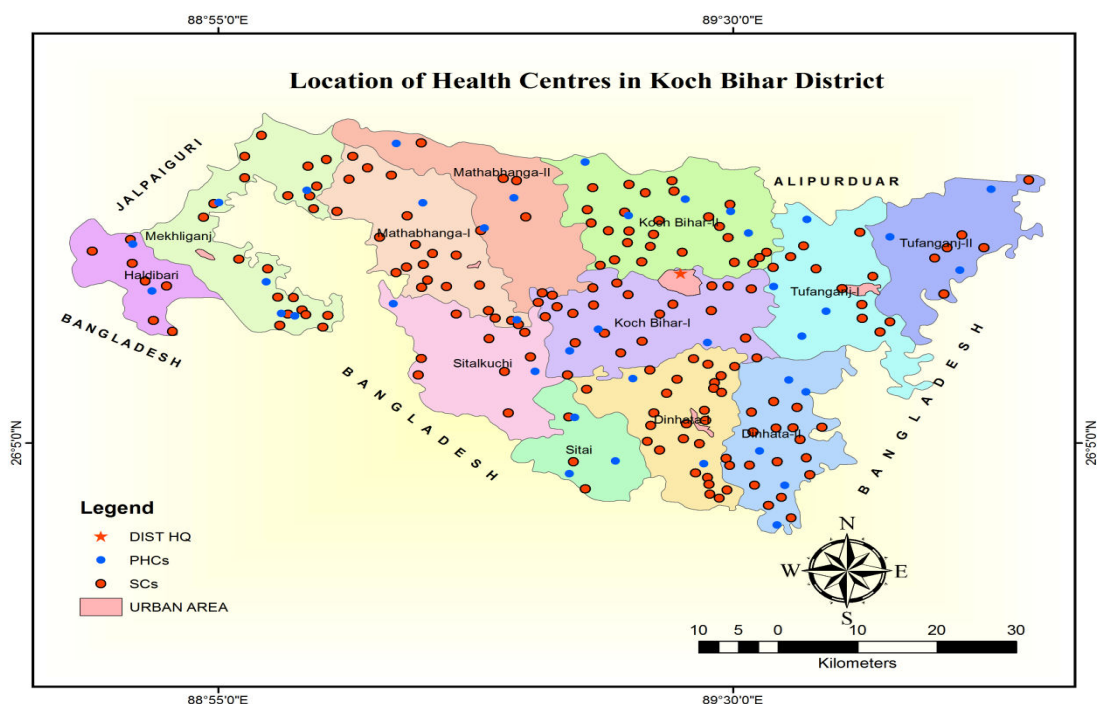


Fig.2. Health Centres in Koch Bihar district.

For health care infrastructure analysis of Koch Bihar District following important selected indicators have been considered as follows:

Table 1

x^1	Doctor-population ratio
x^2	Number of medical institution per 100000 population
x^3	Number of beds per 1000 population
x^4	Percentage of indoor patients to total indoor patients of Koch Bihar
x^5	Percentage of outdoor patients to total outdoor patients of Koch Bihar
x^6	Percentage of institutional delivery to total institutional delivery of Koch Bihar
x^7	Percentage of institutional death (upto 5 years) to total institutional death of Koch Bihar
x^8	Percentage of institutional death (above 5 years) to total institutional death of Koch Bihar

TABLE 2.HEALTH CARE AND INFRASTRUCTURE OF KOCH BIHAR DISTRICT

Name of CD Block	x^1	x^2	x^3	x^4	x^5	x^6	x^7	x^8
Haldibari	9452	21.16	0.721	3.39	1.779	3.81	4.73	5.78
Mekhliganj	7393	18.035	0.966	4.626	3.785	4.24	3.7	5.9
Mathabhanga-I	6818	16.04	0.825	11.732	20.311	12.52	9.05	11.25
Mathabhanga-II	28492	16.233	0.157	2.882	1.41	3.53	7	4.23
Koch Bihar-I	3299	18.373	2.455	31.898	31.384	21.28	26.95	21.75
Koch Bihar-II	21494	18.028	0.605	3.717	2.539	19.74	5.97	6.03
Tufanganj-I	7533	19.711	0.772	13.571	16.692	11.72	12.65	13.74
Tufanganj-II	37345	18.744	0.129	2.848	1.121	1.88	4.32	3.98
Dinhata-I	7340	18.514	1.031	18.437	16.88	13.2	13.58	15.04
Dinhata-II	48813	16.799	0.164	2.726	1.691	1.55	3.6	3.73
Sitai	27583	18.127	0.227	2.214	1.314	3.99	3.81	3.67
Sitalkuchi	37071	17.804	0.135	1.956	1.093	2.54	4.63	4.91

Data computed by authors

TABLE 3.RANK OF HEALTH CARE AND INFRASTRUCTURE OF KOCH BIHAR DISTRICT

Name of CD Block	x^1	x^2	x^3	x^4	x^5	x^6	x^7	x^8
Haldibari	6	1	6	7	7	8	6	6
Mekhliganj	4	7	3	5	5	6	2	7
Mathabhanga-I	2	12	4	4	2	4	9	9
Mathabhanga-II	9	11	10	8	9	9	8	4
Koch Bihar-I	1	5	1	1	1	1	12	12
Koch Bihar-II	7	8	7	6	6	2	7	8
Tufanganj-I	5	2	5	3	4	5	10	10
Tufanganj-II	11	3	12	9	11	11	4	3
Dinhata-I	3	4	2	2	3	3	11	11
Dinhata-II	12	10	9	10	8	12	1	2
Sitai	8	6	8	11	10	7	3	1
Sitalkuchi	10	9	11	12	12	10	5	5

Data computed by authors

From the general of the district it has been observed that a wide gap exists between the availability and expected health care facilities against the national norm and the situation is more or less same in most of the blocks of Koch Bihar. In Koch Bihar district, the Haldibari block provide the highest number of medical institution per 1 lakh population (21.16), whereas the Mathabhanga-I block reveals 16.04 nos. per 1 lakh population (table 2 & 3). In

this district the average number of medical institution in every block is 18.13 numbers per 1 lakh population. As per census 2011, the Mekhliganj subdivision consisting Mekhliganj and Haldibari Blocks and Koch Bihar Sadar subdivision consisting Koch Bihar I and Koch Bihar II blocks, the density of population is 615 persons/sq. km and 991 persons/sq. km respectively. Basically the rapid growth of population day by day has created a lot of imbalance between the availability of service centres and demand from population in the district. Based on calculated data the Lorenz curve (Fig.3) has been drawn which shows the relationship between availability of service centres and demand from population. This show there is inequality at the district level between availability of service centres and demand from population. As the value of Gini's co-efficient is 0.036 i.e. the inequality is insignificant (Fang, Dong, Xiao, Liu, Feng, & Wang, 2010; Berndt, Fisher & Rajendrababu,2003).

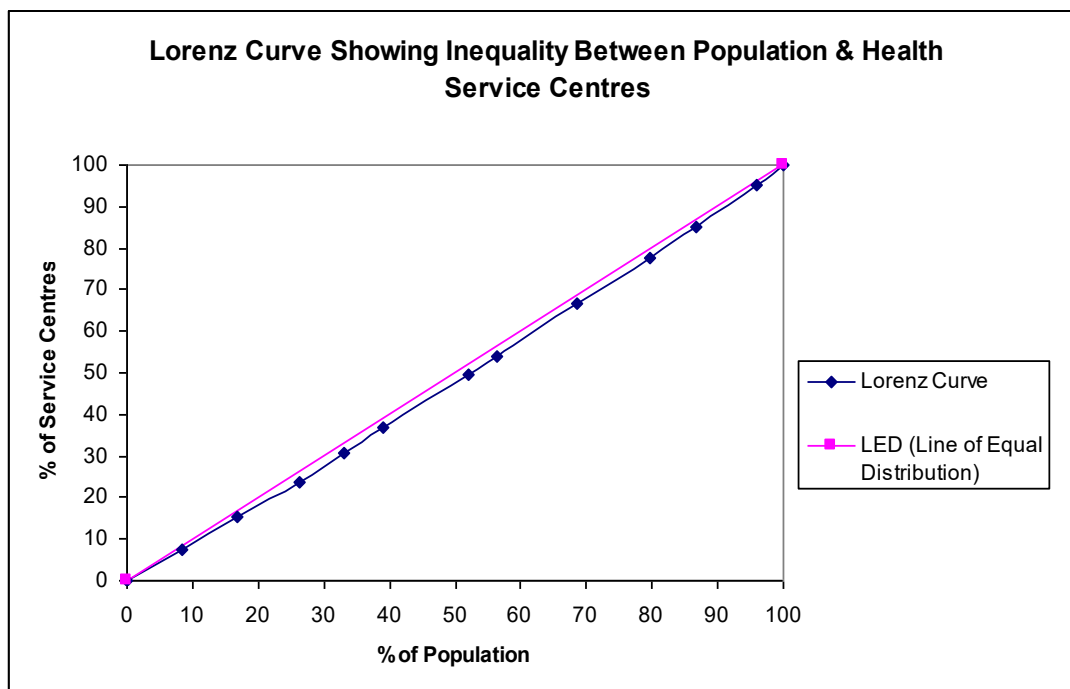


Fig.3. Inequality between health centres and population

From the study it is clear that the services of health centres of Koch Bihar-I block is better than the other blocks because the districts headquarter and the district hospital (DH) is situated here. This is noted that the indoor and out-door patients are visit there. All the BPHCs and sub divisional hospitals referred the patients to the district hospital. The table 2 & 3 shows the percentage of institutional death up to 5 years and above 5 years are less in Dinhata-II and Sitai block whereas in Koch Bihar-I is the highest, where the main district hospital is situated. Actually the block level centres have not the good infrastructural facility and they referred the child patients to sub divisional and district hospital.

Doctor-population ratio:

The minimum doctor-population of 1:1000 made the good quality of health services for universal health coverage which was constituted by planning commission. Several nations and Indian state is going with lower doctor-population ratio. The average doctor-population ratio of the district is 1:20219 according to the Census of India 2011. In the block level studies it has noted that the doctor-population ratio of Koch Bihar-I, Mathabhanga-I and Dinhata-I having the equity condition where ranked 1, 2 and 3 respectively. In the other hand doctor-population ratio of Dinhata-II and Tufanganj-II have worse in condition (table 3). In the fig.4 Lorenz curve showing the inequality of doctor-population ratio among the block levels. The Gini-coefficient value 0.432 reveals that in the district, block level inequality

between service centres and population is less but the inequality between percentage of doctor and population is high.

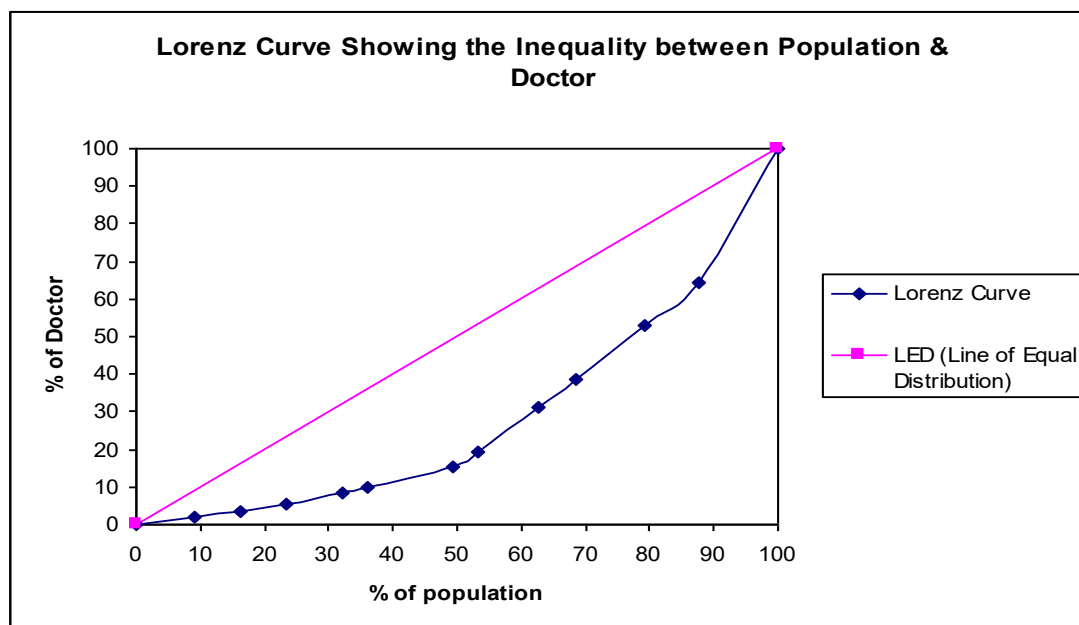


Fig.4. Inequality between doctors and population

In recent years there has been a disparity of healthcare infrastructure between rural and urban areas in Koch Bihar. The district having more than 80% population living in rural areas whereas it consists sub centres, primary health centres and community health centres have great role whereas in urban areas Urban Health Centre (UHC)/Urban Family Welfare Centre (UFWC). Basically urban areas of the district consists some private nursing home, district hospital and sub-divisional hospitals. Most of the rural hospitals have not good quality of laboratory, doctors, nurses and technical staffs etc. So they always transferred most cases to the urban hospitals or nursing home, which create the big of problems in the rural economy of Koch Bihar district.

Accessibility of health infrastructure: The accessibility of rural area health condition is not well overall the district. Most of the centres are not well connected for transportation and communication. But in the urban areas where the well transport and communication developed many hospitals, nursing home, and modern research laboratory.

Women and Healthcare infrastructure:

Women healthcare is one important variable for health infrastructure. About the women health in Koch Bihar district comprises about the institutional delivery, where Koch Bihar-II and Dinhata-I have good infrastructure for deliveries in health centres. In this study it is found that the Dinhata-II, Sitalkuchi and Sitai have very critical condition in institutional deliveries. From the previous sample survey (Bhattacharya, 2014) studied that in Koch Bihar district most of the deliveries are completed in the Govt. hospitals and home (Fig.5). Because the rural areas economic activity depends on cultivation, so they have not enough money to complete the deliveries of their wives in private nursing home. About the delivery system of women it has been noted that the blocks like Sitai, Sitalkuchi, and Mekhliganj where home deliveries are highly observing (Fig.5). Livelihoods of people, most of them are cultivator and agricultural labour, so they are depending on home deliveries and quake services.

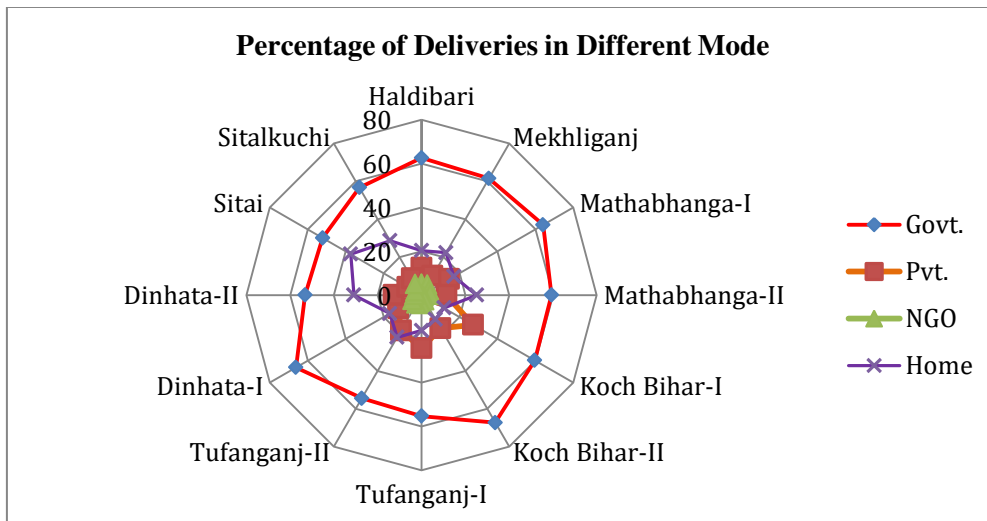


Fig.5. Different modes of deliveries

Fig.5 shows the most of the deliveries of women in Koch Bihar-II (67.3%) and Dinhata-I (66.2%) block has been depending on Govt. serving institution. It has been noted that whereas some blocks viz., Koch Bihar-I, Koch Bihar-II and Dinhata-II, Tufanganj-I depending on private nursing home. The home deliveries are highly observed in Dinhata-II (30.9%), Sitai (37.4%), and Sitalkuchi (28.7%) block. This situation indicates lack of family awareness i.e., the rate of male and female literacy. The percentage of deliveries rate is higher in private nursing home in urban areas than the rural areas.

HDI and HII (Human Development Index and Health Infrastructure Index: According to UNDP the HDI was created to emphasize that people and their capabilities should be the ultimate criteria for assessing the development of a country, not economic growth alone. The Human Development Index (HDI) is a summary measure of average achievement in key dimensions of human development: a long and healthy life, being knowledgeable and have a decent standard of living. The health dimension is assessed by life expectancy at birth, the education dimension is measured by mean of years of schooling for adults aged 25 years and more and expected years of schooling for children of school entering age. The standard of living dimension is measured by gross national income per capita. The HDI uses the logarithm of income, to reflect the diminishing importance of income with increasing GNI. The scores for the three HDI dimension indices are then aggregated into a composite index using geometric mean. Human development in West Bengal presents a mixed picture where the district Koch Bihar comprises 0.5 in health index whereas in the state of West Bengal shows 0.7. Best position of health index is Kolkata district, where Koch Bihar is 17th position. In HDI report 2004, the district (0.52) ranked in 11th position and Kolkata (0.78) is highest position.

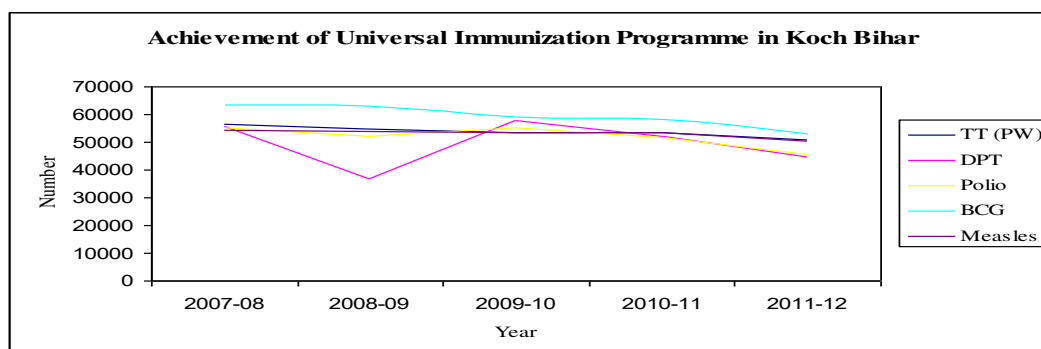


Fig.6. Achievement of universal immunization programme

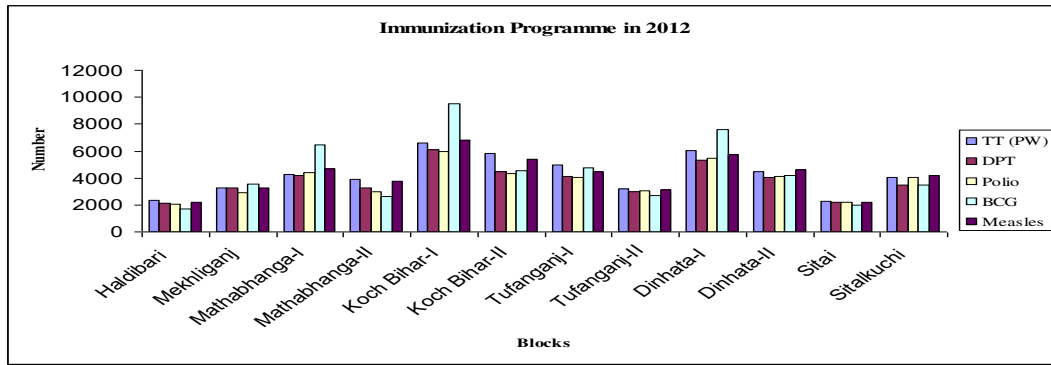


Fig.7. Immunization programme in Koch Bihar district, 2012

Fig.6 shows 2007-08 to 2011-12 development of universal immunization programme in Koch Bihar district. These data emphasised that the programmes are decreasing day by day. Another fig.7 shows the immunization programme in the block levels of the district in 2012, where we have been found that Koch Bihar-I, Dinhata-I expressed highest number of implementation programme. These programmes are related to the health care infrastructure in the district.

TABLE 4.HEALTH CARE INFRASTRUCTURE INDEX (HII) OF KOCH BIHAR DISTRICT

Name of CD Block	Health care Infrastructure Index (HII)	Rank
Haldibari	0.629	8
Mekhliganj	0.681	6
Mathabhanga-I	1.277	4
Mathabhanga-II	0.603	10
Koch Bihar-I	2.596	1
Koch Bihar-II	0.938	5
Tufanganj-I	1.350	3
Tufanganj-II	0.596	11
Dinhata-I	1.519	2
Dinhata-II	0.647	7
Sitai	0.562	12
Sitalkuchi	0.604	9

Data computed by authors

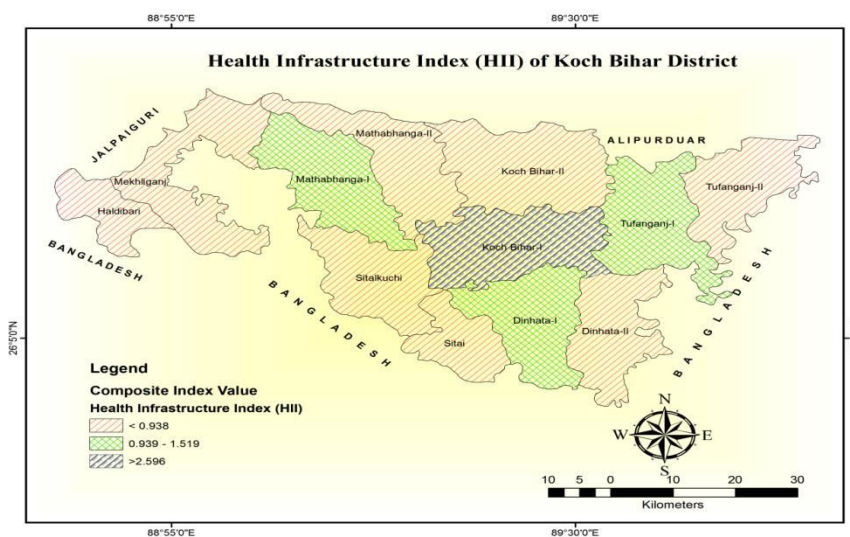


Fig.8. Health Infrastructure Index (HII) in Koch Bihar District

Overall Scenario of Healthcare Infrastructure Analysis in Koch Bihar District: After details of the studies the health care infrastructures of all CD block of Koch Bihar district summarize HII values and categorize the rank (table 4). This study reveals in the block levels there are some gaps in infrastructure development in healthcare facilities. The regional variations of health care facilities indicate the levels of development of region. The Composite Index value 2.596 of Koch Bihar-I is the best position in providing health care facilities in the district. It is followed by Dinhata-I, Tufanganj-I, Mathabhanga-I having 2nd, 3rd and 4th respectively. The Sitai block, Tufanganj-II, Mathabhanga-II and Sitalkuchi blocks having very poor health care services (Fig.8).

TABLE 5.LEVELS OF HEALTH CARE INFRASTRUCTURE DEVELOPMENT

<i>Levels</i>	<i>Name of the blocks</i>
Less than 0.938	Haldibari, Mekhliganj, Mathabhanga-II, Koch Bihar-II, Tufanganj-II, Dinhata-II, Sitai, Sitalkuchi
0.939-1.519	Mathabhanga-II, Tufanganj-I, Dinhata-I
More than 2.596	Koch Bihar-I

From the above study it is clear that only Koch Bihar-I block have highest level of infrastructural development and Mathabhanga-II, Tufanganj-I and Dinhata-I have medium development. Another blocks having lower level of development.

Index of Satisfaction (IS) of Health care Services:

Another important matter is the view of patients on satisfaction level of healthcare services in the district. The study is on based some collected information for IS from 100 visited patients of different health centres on the basis of facilities (table 6).

TABLE 6. DEGREE OF SATISFACTION

Facilities	Doctor	Medicine	Food	Beds	Emergency /OT	Behaviour of doctor & nurses	Accessibility ⁵
IS(Index of Satisfaction)	-0.54	-0.40	-0.76	-0.58	-0.20	0.20	-0.16

Source: Field survey

This Index of Satisfaction values have shown the strong and weak points of health facilities in the district. The value of this remains +1 and -1. The greater value or positive values indicate the degree of satisfaction (Hall, & Tan, S.1975; Ghosh, 2013).

Problems of health care services in Koch Bihar district:

Now-a-days India is a second most populous country in the world and with the healthcare infrastructure that is over-burdened with this over increasing population; a set of challenges that are unique to India arises. Koch Bihar district of West Bengal is not exceptional to this case. Different studies has already published that this district is facing with the illegal migration since 1971 and increasing pressure on population. The main problems of health care services are as follows;

- i. In district health care system the service in rural areas is neglected. It is largely service based on urban areas. Although, there are number of RH and PHCs in rural areas but infrastructure is less in the district. This means there is a wide range of gap of hospitals and beds in rural areas.
- ii. In the district most of the BPHCs, SDHs have not the necessary medical personnel like doctors, nurses, technical staffs etc. The number of hospital and dispensaries is insufficient in comparison to the vast population of the district. Even from the study it is

clear that in rural areas health worker like the ASHAs worker are not paying enough money for their duty. Due this causes there have been found many absence of health programme.

- iii. The economic deprivation of large segment of population results in poor access to health care. The district mainly depends on agricultural activities and most of the peoples engaged in agricultural labour activities. But in recent times decreasing the crop cultivation for high essential commodities and lack of jobs in rural areas.
- iv. The intra-district educational status is not well. The poor educational status leads to non-utilisation of scanty health services and increase in avoidable risk factors. That is why Lack of education, gender inequality and explosive growth of population contribute to increasing burden of disease among the peoples.
- v. Another important thing is lack of environmental sanitation and safe drinking water, under-nutrition, poor living conditions, and limited access to preventive and curative health services creates low level of health care infrastructure.
- vi. Expenditure on health by the Government continues to be low. It is not viewed as an investment but rather as a dead loss. Lack of adequate investments in public health care infrastructure in the district as well as in the country (Economic Express, 2015).
- vii. **Lack of awareness** is a problem which is faced in building access to healthcare.
- viii. **Lack of health insurance** and its low penetration causes further challenge towards access to healthcare. With 75 percent of the Indian population paying for healthcare services from their own pockets, it puts tremendous financial burden.
- ix. Transportation and communication is one of the chaotic problems. Basically the rural areas are facing these problems. All the service centres are not well connected with villages.
- x. In the district mainly found the health services in Allopathic which are expensive. It hits hard to the common man. Lack of alternative system of medicine like Ayurveda, Unani and Homeopathy system.

RECOMMENDATIONS & CONCLUSION:

Health systems should be strengthened with both human and material resources to make them functioning and functional. Indeed, the availability of skilled health providers (particularly midwives, nurses, doctors and obstetricians) is critical in assuring high quality health care delivery and increase the number of service centres. There is two important things viz., maintain the balance between doctor-population ratio and service centres and population ratio. In the rural areas for job opportunities the Govt. should take different projects which eliminate the job deprivation. In the district only develop Allopathic medical system which is hard to expense to the common rural people, so there is needed to develop the alternative medical system like Ayurveda, Homeopathy, and Unani etc. which are less costly and will serve the common people in a better way. To identification of inequality of health infrastructure in the every health centres needed their data to digitize and prepare GIS based thematic layers from where the Government and NGOs will take future health programmes.

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ACRONYMS:

ASHA-*Accredited Social Health Activist*

BPHC-Block Primary Health Centres

CHC-Community Health Centre

CMOH-Chief Medical Officer of Health

DH-District Hospital

GIS-Geographic Information System

GNI-Gross National Income

HDI-Human Development Index

HII-Health Infrastructure Index

IS-Index of Satisfaction

LED-Line of Equal Distributions

NGO-Non Government Organisation

NRHM-National Rural Health Mission

PHC-Primary Health Centre

RH-Rural Hospital

SC-Sub Centre

SDH-Sub Divisional Hospital

TB-Tuber Culosis

UFWC-Urban Family Welfare Centre

UHC-Urban Health Centre

UNDP-United Nations Development Programme

WHO-World Health Organisation