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Inequality in Health Services: A Case Study of South 24 Parganas District, West Bengal, India

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ABSTRACT: Health problems and requisites of health services are the reflections of socio-economic, cultural and inherited trends of a region. It is directly or indirectly related with the endeavour to be fit with the present societal competitiveness. Health and education, the two prime needs of the populace may fulfill many criteria of wellbeing in the long run. But unavailable and inappropriate facilities of South 24 Parganas district to combat the common and in few cases rare diseases are all time headache among the commoners. A planned programme may only be helpful to outwit the minor and major medical lacuna.

KEYWORDS: Health care, Quack doctor, Disparities, Regional imbalance, Human development.

I. INTRODUCTION

Health service is one of the most important criteria of human development index. It plays a vital role in determining the level of welfare as in individual and community level. The district of South 24 Parganas have been facing the problems of disparity in the distribution of the health services which create regional imbalances in development of the district. Due to lack of government and private health service facilities, poor remote villagers compelled to go to the quack doctors. Provisioning of health services to the community is therefore crucial in developing economy. In particular, policy makers must ensure equitable access to the health care system, by providing cost effective health services and facilities to the poor especially in rural areas.

II. RELATED WORK

There is lack of sufficient research paper relating health status of South 24 Parganas district. Authors like Ghosh, A (2010), Mistry, D (2015) have published few research papers on different journals. "Disparity in Health Services in Paschim Medinipur, West Bengal" by Ghosh, A. (2010) and "Socio-cultural Characteristics and Demographic Attributes in Canning Subdivision of South 24 Parganas District, West Bengal" by Mistry, D (2015) are very helpful in this regard. In 2009 Government of West Bengal also published Human Development Report of South 24 Parganas district. It gives lots of ideas related to district health status.

III. STUDY AREA

South 24 Parganas is the southernmost district of West Bengal. It is occupying southern part of the Bengal Delta facing the Bay of Bengal. The district lies between 21°29'0" North and 22°33'45" North latitudes and 88°3'45" East and 89°4'50" East longitudes. South 24 Parganas was part of the undivided 24 Parganas. On 1st March 1986, 24 Parganas was divided into two separate districts mainly for administrative convenience. The northern part became known as North 24 Parganas and the southern part as South 24 Parganas (Bagchi, E. and Chatterjee, K. 2015). The district presently has thirty two Police Stations and twenty nine Community Development Blocks (C.D. Blocks). Total area covered by the district is 9,960 square kilometres.

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IV. OBJECTIVES

The objectives of the study include the followings:

- To bring out the spatial variation of health services among different C.D. Blocks of South 24 Parganas
- To identify the surplus and deficit blocks in respect to health services of South 24 Parganas
- To analyze the problems related to the health service and its outcome in the district

V. DATABASE AND METHODOLOGY

The entire study is based on the census data (2011) of village's amenities, Human Development Report (2009), and other Government publications. The available health services in the district of South 24 Parganas for the year 2011 have been collected from the Bureau of Applied Economics and Statistics (2012), Government of West Bengal. All the collected relevant data were analyzed using statistical techniques and relevant cartographic representations.

VI. CHANGING SCENARIO OF HEALTH CARE FACILITIES

Health services in South 24 Parganas district are provided by five controlling authorities e.g. Chief Medical Officer of Health (CMOH), Private Bodies, Local Bodies, State Government Labour Department and Government of West Bengal. According to the Table 1 it is clear that, from the year 2003 to 2012, number of Health Care institutions under the control of both Government of West Bengal and Government of India has not increased. But over time, privately run health care institutions, total number of hospital beds, total number of doctors have increased in South 24 Parganas district. In many cases the total number of hospital beds and doctors has increased in the private sector.

Table 1: Year-wise growth of Health Care Facilities in South 24 Parganas

Year	No. of Medical Institutions and Facilities										
	Health and Family Welfare Department, Government of West Bengal				Other Department, Government of West Bengal	Local Body	Government of India	N.G.O./Private Bodies (Nursing Homes)	Total no. of Institutions	Total no. of Beds	Total no. of Doctors
	CHC	RH	BPHC	PHC							
2003	9	9	18	63	1	5	1	6	112	3545	389
2004	9	9	18	63	1	5	1	6	112	3545	454
2005	9	9	18	63	1	5	1	6	111	3545	474
2006	9	9	18	63	1	5	1	126	232	4658	381
2007	9	9	18	63	1	5	1	142	248	5448	261*
2008	9	9	18	63	1	5	1	166	272	4973*	547
2009	9	9	18	63	1	5	1	166	272	5042	666
2010	9	9	18	63	1	5	1	188	294	4708*	824
2011	9	9	18	63	1	5	1	188	294	4972*	813
2012	9	9	18	63	1	5	1	188	294	4832*	890

Source: Bureau of Applied Economics and Statistics, Government of West Bengal, 2012

* Excluding private bodies

VII. HEALTH CARE SYSTEMS

Based on available data from Bureau of Applied Economics and Statistics under Government of West Bengal, it is clear that, the Health Care system is controlled under five different authorities. Chief Medical Officer of Health (CMOH) situated at the top followed by Private Health Institutions, Local Bodies or Non Government Organizations (NGOs), State Government Labour Department and Government of India respectively (Table 2). Private Health Institutions is the highest in number 188. On the other hand largest numbers of bed are under Chief Medical Officer of Health (CMOH), South 24 Parganas.

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Table 2: Number of Health Care Institutions in South 24 Parganas District, 2012

Controlling Authorities	Number of Institutions	Number of Beds
Chief Medical Officer of Health (CMOH), South 24 Parganas	99	2633
Private Health Institutions	188	1668
Local Bodies or Non Government Organizations (NGOs)	5	88
State Government Labour Department	1	300
Government of India	1	143
Total	294	4832

Source: Bureau of Applied Economics and Statistics, Government of West Bengal, 2012

The hierarchical order of Health Care Institutions under the control of CMOH, South 24 Parganas is understandable in Table 3. There is only one District Hospital which has 620 beds. Maximum number (63) of institution is under Primary Health Centres (PHC).

Table 3: Health Care Institutions under the control of CMOH, South 24 Parganas, 2012

Hierarchy	Categories of Health Care Institutions	Number of Institutions	Number of Beds
1	District Hospital (DH)	1	620
2	Sub-divisional Hospitals (SH)	4	486
3	State General Hospitals (SGH)	4	406
4	Rural Hospitals (RH)	9	385
5	Block Primary Health Centers (BPHC)	18	235
6	Primary Health Centers (PHC)	63	501
	Total	99	2633

Source: Bureau of Applied Economics and Statistics, Government of West Bengal, 2012

VIII. AVAILABLE HEALTH CARE FACILITIES

Present status of Health Care Facilities in South 24 Parganas District has been discussed under few criteria such as Population-Health Centre Ratio, Population-Bed Ratio and Population-Doctor Ratio. The status of Primary Health Centre and Block Primary Health Centre has been converse here together as Health Care Centres. Population-Health Centre Ratio in different C.D. Blocks of South 24 Parganas District is understandable in Table 4. Relatively high Population-Health Centre Ratio found in Canning-I, Mandirbazar. Number of population has increased rapidly in the study area. But number of health centres is not increasing in comparison to requirements of the population.

Table 4: Population-Health Centre Ratio in different C.D. Blocks, 2011

Population-Health Centre Ratio (Population per health centre)	C.D. Blocks
More than 225,000	Canning-I
175,000 to 225,000	Mandirbazar
125,000 to 175,000	Baruipur, Jaynagar-I, Canning-II and Kakdwip
75,000 to 125,000	Basanti, Gosaba, Bhangar-I, Bhangar-II, Thakurpukur Mahestala, Bishnupur-I, Magrahat-II, Jaynagar-II, Kultali, Mathurapur-I and Patharpratima
Below 75,000	Sonarpur, Budge Budge-I, Budge Budge-II, Bishnupur-II, Falta, Magrahat-I, Diamond Harbour-I, Diamond Harbour-II, Kulpi, Mathurapur-II, Sagar and Namkhana

Source: Computed by the author from the reports of the Census of India, 2011 and Bureau of Applied Economics and Statistics, Government of West Bengal, 2012

Population-Hospital Bed Ratio in Health Care Institutions is one of the important indicators of health service situation. In many cases, the building of Health Care centres is located and doctors are also posted but bed is not available for the patients. It happens during an epidemic of seasonal disease outbreaks, or there is a sudden burst of excess of patients within a short span of time, then the problem of non availability of beds again surface in particular health care institution (Kathuria, R. 2012). In 2011, maximum 12619 persons per hospital bed found in Bishnupur-II, followed by Bhangar-I (11865), Falta (11884) and minimum 316 persons per bed found in Budge Budge-I (Fig. 1).

On the other hand, the health care centres or hospitals are available but the non availability of doctors (may be doctor is not posted) also play a vital role in health service facilities (Kathuria, R. 2012). From the Figure 2, it is clear that,

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maximum 76186 persons per doctor found in Magrahat-II and minimum 2455 persons per bed found in Budge Budge-I in 2011.

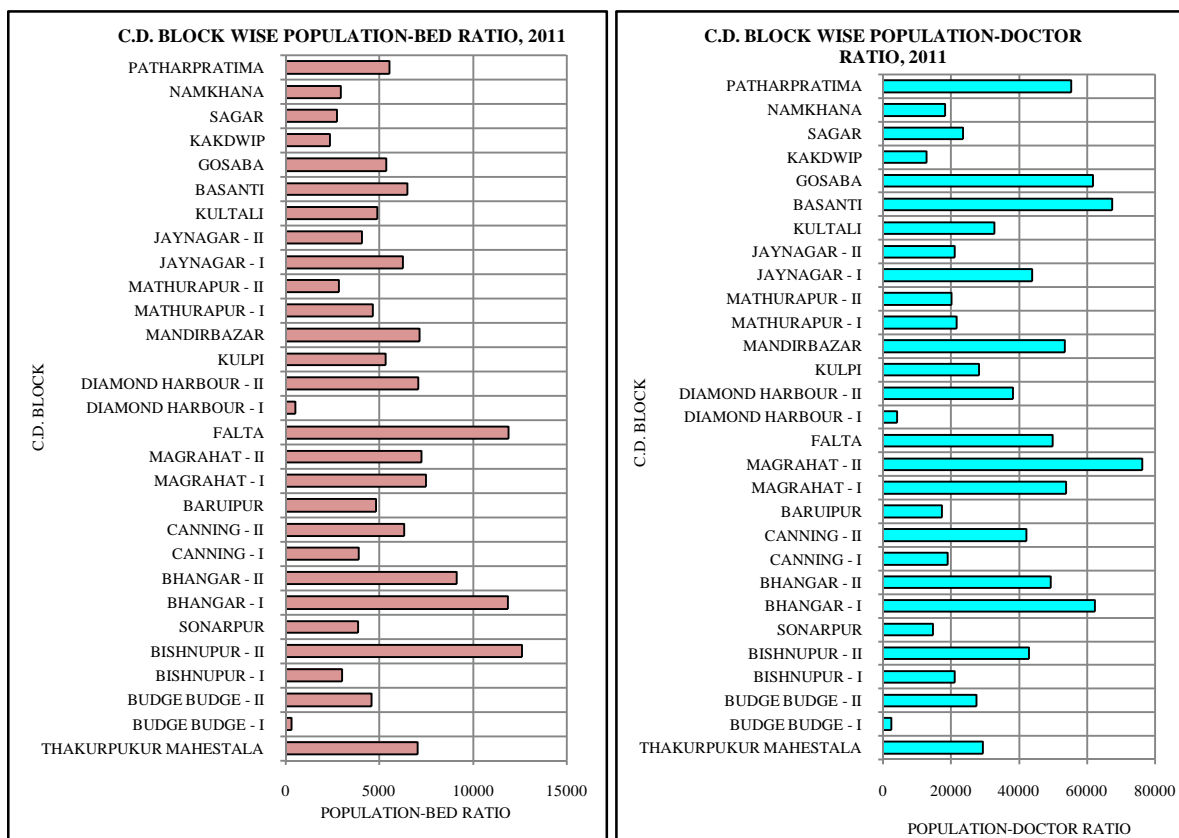


Fig. 1

Fig. 2

IX. HEALTH CARE FACILITIES - SCORE VALUES

The C.D. Block wise data (2011) in respect of selected items of Health Services like Population, Number of hospitals, Number of beds, Health centres, Dispensaries and Family welfare centres in the district of South 24 Parganas are tabulated (Table 5). The score values are selected based on absolute number of facilities and the population threshold, and the scores of all variables for the district are determined as a whole (Table 6). The sum of scores for all the variables gives the total score of a C.D. Block (Table 7).

Table 5: Block wise available Health Services in South 24 Parganas, 2011

C. D. Blocks	Population	Number of hospitals	Number of beds	Health centres	Dispensaries	Family welfare centres
THAKURPUKUR MAHESTALA	176203	0	25	1	11	1
BUDGE BUDGE - I	112908	0	357	3	5	3
BUDGE BUDGE - II	192134	1	42	2	16	1
BISHNUPUR - I	232365	1	77	3	24	1
BISHNUPUR - II	214531	0	17	2	9	1
SONARPUR	219863	1	57	4	10	2
BHANGAR - I	249170	0	21	2	24	1
BHANGAR - II	246708	0	27	3	11	1
CANNING - I	304724	1	78	1	11	1

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CANNING - II	252523	0	40	2	4	1
BARUIPUR	433119	1	90	3	54	0
MAGRAHAT - I	269494	0	36	2	13	1
MAGRAHAT - II	304744	0	42	3	1	1
FALTA	249561	0	21	2	22	1
DIAMOND HARBOUR - I	156166	1	296	3	4	2
DIAMOND HARBOUR - II	190801	0	27	3	14	1
KULPI	283197	0	53	5	7	1
MANDIRBAZAR	214050	0	30	1	27	1
MATHURAPUR - I	195104	1	42	2	1	1
MATHURAPUR - II	220839	1	78	3	13	1
JAYNAGAR - I	263151	1	42	2	14	1
JAYNAGAR - II	252164	1	62	3	8	1
KULTALI	229053	1	47	4	9	1
BASANTI	336717	0	52	4	5	1
GOSABA	246598	0	46	3	25	1
KAKDWIP	281963	1	120	2	7	1
SAGAR	212037	1	78	3	12	1
NAMKHANA	182830	0	62	5	9	1
PATHARPRATIMA	331823	0	60	4	76	1
Total	7054540	13	2025	80	446	32

Source: Census of India 2011, Bureau of Applied Economics and Statistics, Government of West Bengal, 2012

Table 6: Score values of Health Services, South 24 Parganas, 2011

Sl. No.	Facilities	Absolute number of facilities	Population threshold	Score
1	Number of hospitals	13	542657	155.76
2	Number of beds	2025	3484	1.00
3	Health centres	80	88182	25.31
4	Dispensaries	446	15817	4.54
5	Family Welfare Centres	32	220454	63.28
Total population of the district (2011) = 7054540				

Source: Computed by the author from the reports of the Census of India, 2011 and Bureau of Applied Economics and Statistics, Government of West Bengal, 2012

In the year 2011, Block-wise Total Score value below 300 found in Gosaba, Namkhana, Kulpi, Bhangar-I, Mandirbazar, Basanti, Falta, Diamond Harbour-II, Bhangar-II, Magrahat-I, Magrahat-II, Canning-II, Bishnupur-II and Thakurpukur Mahestala C.D. blocks. In Mathurapur-II, Sagar, Kakdwip, Kultali, Jaynagar-II, Budge Budge-II, Jaynagar-I, Canning-I and Mathurapur-I the Block-wise Total Score value ranged from 300 to 450 in the year 2011. The Block-wise Total Score value varying from 450 to 600 was in Patharpratima, Baruiপুর, Sonarpur and Bishnupur-I. More than 600 Block-wise Total Score value could be seen in Diamond Harbour-I and Budge Budge-I (Table 7).

Table 7: Block wise score values of Health Services, South 24 Parganas, 2011

C. D. Blocks	Scores					Total score
	Number of hospitals	Number of beds	Health centres	Dispensaries	Family welfare centres	
THAKURPUKUR MAHESTALA	0	25	25.31	49.94	63.28	163.53
BUDGE BUDGE - I	0	357	75.93	22.70	189.84	645.47
BUDGE BUDGE - II	155.76	42	50.62	72.64	63.28	384.30
BISHNUPUR - I	155.76	77	75.93	108.96	63.28	480.93
BISHNUPUR - II	0	17	50.62	40.86	63.28	171.76
SONARPUR	155.76	57	101.24	45.40	126.56	485.96
BHANGAR - I	0	21	50.62	108.96	63.28	243.86
BHANGAR - II	0	27	75.93	49.94	63.28	216.15
CANNING - I	155.76	78	25.31	49.94	63.28	372.29
CANNING - II	0	40	50.62	18.16	63.28	172.06
BARUIPUR	155.76	90	75.93	245.16	0	566.85

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MAGRAHAT - I	0	36	50.62	59.02	63.28	208.92
MAGRAHAT - II	0	42	75.93	4.54	63.28	185.75
FALTA	0	21	50.62	99.88	63.28	234.78
DIAMOND HARBOUR - I	155.76	296	75.93	18.16	126.56	672.41
DIAMOND HARBOUR - II	0	27	75.93	63.56	63.28	229.77
KULPI	0	53	126.55	31.78	63.28	274.61
MANDIRBAZAR	0	30	25.31	122.58	63.28	241.17
MATHURAPUR - I	155.76	42	50.62	4.54	63.28	316.20
MATHURAPUR - II	155.76	78	75.93	59.02	63.28	431.99
JAYNAGAR - I	155.76	42	50.62	63.56	63.28	375.22
JAYNAGAR - II	155.76	62	75.93	36.32	63.28	393.29
KULTALI	155.76	47	101.24	40.86	63.28	408.14
BASANTI	0	52	101.24	22.70	63.28	239.22
GOSABA	0	46	75.93	113.50	63.28	298.71
KAKDWIP	155.76	120	50.62	31.78	63.28	421.44
SAGAR	155.76	78	75.93	54.48	63.28	427.45
NAMKHANA	0	62	126.55	40.86	63.28	292.69
PATHARPRATIMA	0	60	101.24	345.04	63.28	569.56

Source: Computed by the author from the reports of the Census of India, 2011 and Bureau of Applied Economics and Statistics, Government of West Bengal, 2012

To show the relationship between total population and the total score (health services), the total score (health services) and literacy rate the Least Square Method have been used (Sarkar, A. 2015). In Figure 3, the slope of the regression line shows that the correlation between total population and the total score (health services) is negative ($r = -0.04348979$) which suggests that the increase in population has a negative effect on the total score. Average literacy rate of the district (77.51%) is greater than the state average (76.26%). But, prominent disparity also identified among the C.D. Blocks of South 24 Parganas district (Mandal, A.). Least Square Method has also been used to show the relationship between literacy rate and the total score values of health services. There is a positive relation ($r = 0.200171929$) found between the total score (health services) and literacy rate (Fig. 4). If the different types of health facilities increase the literacy rate should also be increased.

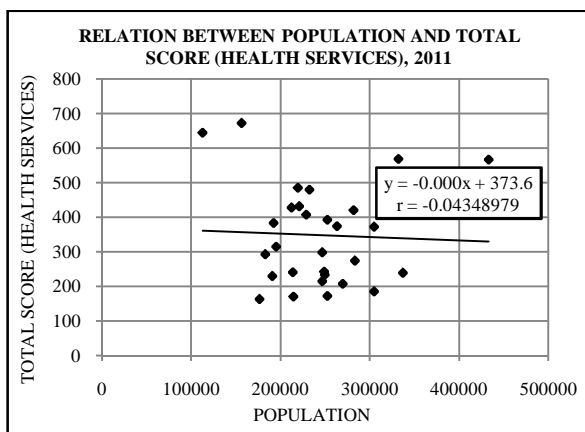


Fig. 3

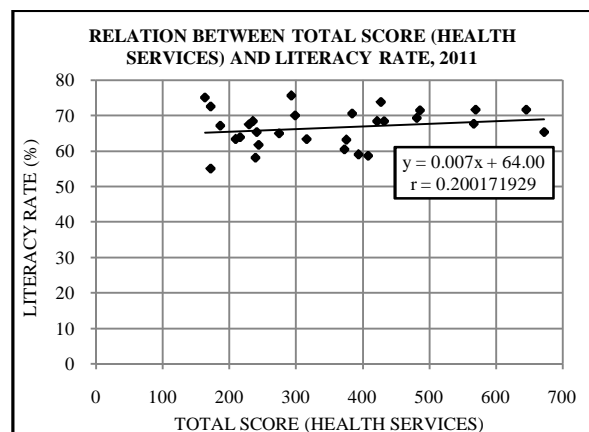


Fig. 4

The spatial association between the population (independent variable) and total score (dependent variable) of Health Service has been estimated through regression analysis. The residual values are the indicator for the spatial association between population and health services as a whole. The negative and positive residuals can be taken to represent the gap areas in terms of desired and actual health services in the district (Ghosh, A. 2010).

In Table 8, it is clear that, there is the inter-district disparity in the distribution of health facilities in the district of South 24 Parganas, 2011.

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Table 8: Block wise residual score values on population, South 24 Parganas, 2011

C. D. Blocks	Total population in thousand (X)	Total score (Y)	Estimated score values (Ye)	Residual value (Y-Ye)
THAKURPUKUR MAHESTALA	176.203	163.53	391.419	-227.889
BUDGE BUDGE - I	112.908	645.47	385.036	260.434
BUDGE BUDGE - II	192.134	384.30	393.025	-8.725
BISHNUPUR - I	232.365	480.93	397.082	83.848
BISHNUPUR - II	214.531	171.76	395.284	-223.524
SONARPUR	219.863	485.96	395.821	90.139
BHANGAR - I	249.170	243.86	398.777	-154.917
BHANGAR - II	246.708	216.15	398.528	-182.379
CANNING - I	304.724	372.29	404.379	-32.089
CANNING - II	252.523	172.06	399.115	-227.055
BARUIPUR	433.119	566.85	417.326	149.524
MAGRAHAT - I	269.494	208.92	400.826	-191.906
MAGRAHAT - II	304.744	185.75	404.381	-218.631
FALTA	249.561	234.78	398.816	-164.036
DIAMOND HARBOUR - I	156.166	672.41	389.398	283.012
DIAMOND HARBOUR - II	190.801	229.77	392.891	-163.121
KULPI	283.197	274.61	402.208	-127.598
MANDIRBAZAR	214.050	241.17	395.235	-154.065
MATHURAPUR - I	195.104	316.20	393.325	-77.125
MATHURAPUR - II	220.839	431.99	395.920	36.070
JAYNAGAR - I	263.151	375.22	400.187	-24.967
JAYNAGAR - II	252.164	393.29	399.079	-5.789
KULTALI	229.053	408.14	396.748	11.392
BASANTI	336.717	239.22	407.605	-168.385
GOSABA	246.598	298.71	398.517	-99.807
KAKDWIP	281.963	421.44	402.084	19.356
SAGAR	212.037	427.45	395.032	32.418
NAMKHANA	182.830	292.69	392.087	-99.397
PATHARPRATIMA	331.823	569.56	407.111	162.449

Source: Computed by the author from the reports of the Census of India, 2011 and Bureau of Applied Economics and Statistics, Government of West Bengal, 2012

Among the total 29 C.D. Blocks in the district of South 24 Parganas, 10 C.D. Blocks covering 34.45 percent of the districts population have surplus of health services and remaining 19 C.D. Blocks have deficiency of health services (Table 9).

Table 9: Surplus and deficit blocks of South 24 Parganas, 2011

Type (Weighted score)	Surplus	Deficit
High (Above 200)	Diamond Harbour – I, Budge Budge - I	Magrahat – II, Bishnupur – II, Canning – II, Thakurpukur Mahestala
Moderate (100 – 200)	Patharpratima, Baruipur	Kulpi, Mandirbazar, Bhargar – I, Diamond Harbour – II, Falta, Basanti, Bhargar – II, Magrahat - I
Low (Below 100)	Sonarpur, Bishnupur – I, Sagar, Mathurapur – II, Kakdwip, Kultali	Jaynagar – II, Budge Budge – II, Jaynagar – I, Canning – I, Mathurapur – I, Namkhana, Gosaba
Total	10	19

Source: Computed by the author from the reports of the Census of India, 2011 and Bureau of Applied Economics and Statistics, Government of West Bengal, 2012

According to Figure 5, it is clear that, the deficiency situation is very critical in Magrahat-I, Bishnupur-II, Canning-II and Thakurpukur Mahestala. On the other hand, Diamond Harbour-I and Budge Budge-I show the better surplus health conditions than the other C.D. Blocks of the district.

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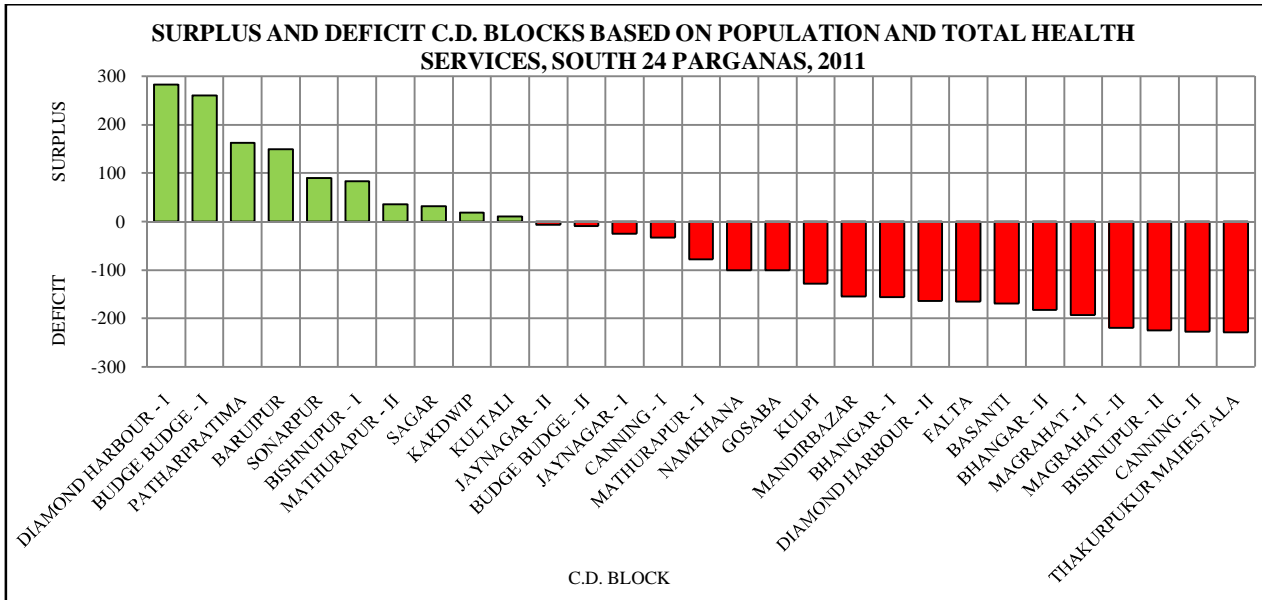


Fig. 5

There are some National Norms for providing Health Care facilities in the rural areas of India (Table 10). But there is a distinct gap between the National Norms and present status of Health Care facilities in the rural areas of South 24 Parganas district. Maximum number of C.D. Blocks suffers due to lack of the basic Rural Primary Health Care Facilities.

Table 10: Existing National Norms for Rural Primary Health Care Facilities

Items	Norms
At least one Trained Dai	For each village
One Trained Village Health Guide	For each village per 1,000 population
One Sub Centre	For 5,000 population in plain area and for 3,000 population in tribal, hilly and backward areas
One Primary Health Centre	For 30,000 population in plain area and for 20,000 population in tribal, hilly and backward areas
One Community Health Centre	For every 1 to 1.2 lakh population and serving as referral institution of four Primary Health Centre

Source: Human Development Report, 2009

Prior to election, the different political parties promised to develop this health centre but after election, status quo was maintained there. Due to lack of infrastructural facilities for caesarean delivery in Primary Health Centers many expecting women are referred to other higher level health care institutes. Sometimes they give birth to the child on the way to the referral unit. The anti rabies vaccines are not available in the health centers of Sundarban region. So, they are compelled to depend on the hospitals which are situated in the city of Kolkata. Most of the people have to go to the quack doctors for treatment in the remote villages. For the improvement of access to referral health care services, Government of India has a scheme named *Rashtrya Swastha Bima Yojana* (RSBY was launched on 1st April 2008) for the poor people. The state government started the '*Nischay Yan*' scheme under the Janani Shishu Suraksha Karyakram (JSSK was launched on 1st June 2011) in the rural areas so that the expecting women can be shifted (admission and release) to the nearby hospitals free of cost. The '*Swasthaya Sathi*' scheme was officially launched by Chief Minister on 30th December, 2016.

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X. CONCLUSION

The study reveals that, the disparity in the distribution of the health services in South 24 Parganas district. This type of disparities create regional imbalance in development of the district. Proper planning required for the equitable distribution of health services. Special care also should be taken for deficit areas and to meet the demand for this type of services arising out of the population increase. Requisite health care facilities and at the same time health education are necessary for improvement of health status of the district concerned especially in the rural areas. Improvement of women education and development of consciousness are also necessary in this respect.

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