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Peopling of Bihar: Problems and Prospects

THE total fertility rate of Bihar was 6.5 as against 5.8 for India at the 1971 census and this rate gradually slid down to 4.0 for Bihar as against 3.7 for India in 1992-93 (Rama Rao *et al*, 1987 and NFHS, 1993). The TFR of Bihar is not only high in itself but also higher than the national average. Worried over the situation both policy makers and population analysts are curious to know as to why the TFR still continues to be higher in Bihar than most parts of the country. The present paper has tried to answer the sole question with a view to finding possible solutions to the problem. The discussion is essentially based on data derived from secondary sources and personal interviews of the concerned state government officials.

Before we deal with the main issues relating to population growth and its management, it seems worthwhile to offer a brief socio-economic background of the state. The discussion is necessarily brief because a detailed treatment of such a subject would make this paper unnecessarily cumbersome.

The Development Scenario

Though Bihar is the richest state in mineral resources, it is taken as one of the very few most backward states of India. It enjoys the unenviable distinction of occupying the lowest rung of the ladder among the states in terms of per capita income. There are numerous factors to account for the tardy pace of development of this state which have been dealt with at a great length elsewhere (Prasad, 1989; Singh, 1992). According to the estimate of the Expert Group of the Planning Commission, 52.2 percent of the people in rural areas and 57.9 percent in urban areas are poor, as against 37.6 percent in rural and 38.9 percent in

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urban areas of India. The combined index for Bihar is 53 percent (EPW Research Foundation, 1993: 1769). With respect to the level of economic development, both in terms of per capita income and per capita consumption expenditure (1986-87), Bihar returned the lowest figures among the major Indian states in the recent past (Shiva Kumar, 1991).

As regards the level of human development, particularly based on the life expectancy at birth, literacy and measures of necessary income in 1986-87 prepared for the Indian states, the State of Bihar occupied the lowest position among all the states, barring Madhya Pradesh and Rajasthan (Shiva Kumar, 1991). If the same index is constructed on the basis of the latest data, the position of Bihar is likely to be the lowest of all. In order to assess the health status of different states, Dadibhavi and Bagalkoti (1994: 17-21) have prepared a composite index of health infrastructure (CIHI) according to which the rating of Bihar is very low with 1.13, against 3.09 for the country as a whole. The index for Kerala is as high as 10.93, followed by Gujarat (7.35) and Maharashtra (6.15).

TABLE 1: INDICATORS OF SOCIAL AND ECONOMIC DEVELOPMENT IN BIHAR AND INDIA

Some Indicators of Development			*Bihar*	*India*
1.	Total fertility rate (1993)		4.0	3.7
2.	Life expectancy at birth (1 996-200 1)	Male	63.5	62.3
	Female		62.1	65.3
3.	Infant mortality rate (1993)		89	74.0
4.	Sex ratio (1991)		911	927
5.	Age at marriage for female (1 993)		18.0	18.3
6.	Enrolment ratio - Classes I to V (1988-89)		81.6	100.0
7.	Level of urbanization (1 99 1)		13.1	25.7
8.	Literacy rate (1 99 1)	Male	52.5	64.1
	Female		22.9	39.3
9.	Percentage of women employment to total employment		6.8	13.6
10.	Percentage of poor to the total population (1987-88)		53	38.0
11.	Per capita expenditure on health in Rs. (1989)		40	79
12.	No. of beds in public hospital per lakh population (1992)		33	86
13.	No. of PHCs and SCs per million population (1991)		200	200
14.	Percentage of workers to the total population (1 99 1)	Male	47.9	51.6
	Female		14.9	22.3
15.	Per capita consumption of power in KWH (1989)		104	201
16.	Length of roads in kms per lakh population (1984)		113	222
17.	Per capita deposit in banks in Rs. (1990)		974	2,101
18.	Per capita income in Rs. (1989-90)		2.122	4,313

Source: NFHS, Bihar (1993); Singh (1995: 6) and Vijayanunni (1998).

A comparison of Bihar with the country as a whole with respect to various indicators of human development clearly shows that this state is very underdeveloped or backward. It is a matter of great worry for all concerned that the state is slowly lagging behind most states of the Indian Union with the lapse of time. The prevailing state of affairs is clearly reflected in Table 1 which presents a summary view of the important levels of social and economic development in Bihar vis-a-vis those of India. It is against this backdrop that an attempt is made to examine the prevailing demographic scenario and problems of population management in the State of Bihar. An exercise of this kind would possibly help planners and policy makers know where Bihar actually stands in terms of the human development indicators in relation to other constituent units of the Indian Union.

Population Size, Density and Growth

At the sunrise of 1st March, 1991, the State of Bihar returned a population of over 86 million. This figure is estimated to have reached 96 million in 1998. Bihar with about 10 percent of the country's population, continues to be the second most populous state in the country. It is next to Uttar Pradesh which accounts for about 16 percent of the total population of India.[1]

There are considerable variations in the size of population by districts. Patna with 4.2 percent of the state's population is the most populous district of the state followed by Bhagalpur (3.7 percent), Munger (3.5) and Purba Champaran (3.5 percent). In 1981, Santhal Pargana had the highest share in the state's population, but later this district has been split up into 4 new districts (i.e., Dumka, Sahebganj, Deoghar and Godda), and therefore, these districts individually share less than two percent of the total population of the state.

There are 496 persons per sq km in Bihar, as against 274 for the whole country. With respect to density, Bihar occupies third position after West Bengal (767) and Kerala (749). At the district level the density of population varies from 127 persons per sq km in Gumla to 1130 in Patna district. The population density of Patna district is over four times the all-India average and about double that of the whole state. This is due mainly to the fact that the capital city of Bihar, Patna, is located in the district. The districts of North and South Ganga plains are much more densely populated than those of the plateau region, except for the district of Dhanbad.

The decadal rate of growth of population came down from 24.1 percent (1971 -81) to 23.5 percent during 1981-91. The rate of growth was the same as the national average. During the last census, the State of Bihar recorded a lower rate of population growth than most states. As a matter of fact, the growth rate of population in Bihar did not exceed the national level growth rate during 1901-1991. Important factors that account for this are: first, the pace of natural increase has been somewhat slower because of a relatively higher incidence of infant and child mortality, and secondly, the inter-state out-migration has exceeded in-migration because of poverty and lack of adequate employment opportunities in the state

[1] The subsequent discussion is based on an earlier publication by the author (Singh, 1992).

TABLE 2: GROWTH OF POPULATION IN BIHAR, 1901-1991

Census year	*Population* (in '000)	*Decadal growth* in percent	*Average annual growth rate (exponential)* %
1901	27,314	_	_
1911	28,316	-3.7	0.36
1921	28,129	-0.7	0.07
1931	31,350	11.5	1.08
1941	35,174	12.2	1.15
1951	38,786	10.3	0.98
1961	46,656	19.8	1.85
1971	56,353	21.3	1.89
1981	69,915	24.1	2.16
1991	86,374	23.5	2.11

Sources: Census of India, 1981 Series-5, *Final Population Tables*, Series-1 Paper 1 of 1982 and Vijayanunni,M., 7997 *Census Handbook*. Delhi, Controller of Publications, Census of India.

(Singh, 1986: 78-94). Table 2 shows that till 1921 the population of Bihar was almost stable. It was only subsequent to the 1921 census that the population tended to increase. Until 1951 the decadal growth rate was below 13 percent. Due to the rapid decline in infant and child mortality, the rate of growth of population has reached the present high peak.

Sex **Composition**

At the 1991 census, Bihar returned a sex ratio of 911 as against 927 for the country as a whole. This suggests that there is an excess of males over females. In other words, there is a shortage of 89 females per thousand males in Bihar, as against a shortage of 73 females per thousand males in the country. Siwan is the only district where females preponderate over males. A sex ratio of 1017 of Siwan is unusual primarily because of the fact that a large number of male workers out-migrate from the district to other districts of the state as well as other parts of the country. Although there is heavy male migration from the plains to Chotanagpur Plateau, the sex composition of Chotanagpur region is relatively more balanced. The tribal population commonly shows a better balance of sex ratio than the non-tribal population of the <3angetic plains.

Literacy

Bihar is characterized by one of the lowest levels of literacy among the Indian states. According to the 1991 census, only 38.5 percent of population in Bihar is literate as against an all-India average of about 52 percent. Here it appears that in 1991, the level of literacy

made a quantum leap forward from a mere 20 percent in 1981. It seems to be a big jump mainly because in the 1991 census the level of literacy was computed on the basis of the number of literates to the total population excluding persons below 7, whereas in all the earlier censuses the level of literacy meant the number of literates to the total population. It implies that the level of literacy was previously underestimated or under-reported for technical reasons.

Literacy among women is far below the national average. In the state as a whole, the female literacy was only 13.6 percent according to the 1981 census. There are a few districts where the level of female literacy was less than 10 percent; for example, West Champaran (8 percent), East Champaran (9 percent), Sitamarhi (10 percent), Madhubani (10 percent) and Saharsa (9 percent). They belong to the North Ganga plain which is characterized by the lowest level of female literacy. At the 1981 census, only 11 percent females were recorded literate compared to about 17 percent in the south Ganga plains and 15 percent in the Chotanagpur plateau. This differential is the manifestation of varying levels of development and status of women between the regions. The difference in the level of literacy by sex is in fact higher in Bihar than in all other states, except for Haryana, Orissa, Rajasthan and Uttar Pradesh. Similarly the difference between rural and urban areas too is quite high in Bihar compared to other states.

The Health Care System

Here a brief discussion on health services obtaining in the state is also essential, as both mortality and fertility are linked with the available quality of health services. Moreover, the family welfare programme is directly controlled and managed by the health department of the government. The existing care system in the state can be understood chiefly in terms of numerical strength and functioning of hospitals, dispensaries, PHCs, CHCs and doctors in relation to the given population. The description is based on the information available relating to the government hospitals and dispensaries only. But the main problem with the available data set, as given under Appendices 1 to 4, is that its general quality is poor. Information relating to private health care facilities is non-existent, while such information would have been really quite useful because the network of private health care system is vaster and provides better services than the public health care system in the State of Bihar.

A close look at the available statistics on hospitals and dispensaries reveals that there exist 60 non-government and 162 government hospitals in urban areas of Bihar (Appendix 1). We really wonder whether these figures are true. Based on our intimate information about certain districts, we believe that the given statistics in Appendix 1 are not very reliable, and therefore, these figures at the state level are bound to be somewhat misleading. The actual number of government and private hospitals is likely to be higher than the given number, but we have no way to rectify the error, if any. Hospitals do not seem to be evenly distributed in the state. Patna, Munger, Dhanbad, Hazaribagh and Lohardaga, for example, have ten or more government hospitals each, while other districts have one to nine public hospitals.

The statistics, as given in Appendix 1, appear to be highly misleading. They suggest that there are only 3 non-government hospitals in urban areas of Patna district, while the actual number of non-government hospitals in the city of Patna alone must not be less than 50. There are many districts against which no figure has been specified under column 3 (number of non-government hospitals), but it is hard to believe that there exists no private hospital in those districts.

The number of beds in proportion to the population is far from being satisfactory. There are only 248 beds per lakh population. This is inadequate because the vast majority of rural population has to depend on health care facilities available in urban areas. It is a well-known fact that in rural Bihar the health care facilities are nearly next to nil.

As is evident from Appendix 2, the State of Bihar has got 14,794 health sub-centres to cater to the needs of 8.6 crore population which means there are about 20 sub-centres per lakh population. Of all the districts, Singhbhum (777) has got the largest number of health sub-centres. But in terms of proportion to population Ranchi (53%) has got a greater number of health sub-centres.

There are 1915 primary health centres in the State of Bihar which means there are only 2.6 PHCs per lakh population in the state. Like sub-centres, PHCs are also not evenly distributed in the state. Among all the districts Lohardaga tops the list with 6 PHCs per lakh population, while districts of Gopalganj, Saharsa, Madhepura, Godda and Deoghar have less than 2 PHCs per lakh population. The situation is not satisfactory in respect of number of health sub-centres, but compared to some other states the proportion of PHCs per lakh population is believed to be somewhat better, though not with respect to quality of services rendered.

The state has got only 139 child health centres. The number is quite insufficient to meet the needs of people. There is not even a single district with at least 10 CHCs. On the other hand, districts of Darbhanga, Madhepura, Deoghar and Dhanbad have got one CHC each and we have no information about Araria, Kishanganj and Lohardaga. Though data are not available about these districts, it can be inferred that the situation would be more or less the same there too. As regards the distribution of CHCs the situation is not very good in the sense that there is not even one district in Bihar with one CHC per lakh population. Godda is the only district where there is 0.6 CHC per lakh population and the situation in all other districts is still worse.

The total number of doctors posted in the state is 3868. The district of Dhanbad (677) has got the highest number of doctors. It appears from Appendix 3 that the distribution of number of doctors among different districts has nothing to do with the population size of the districts. The districts of Dhanbad, Ranchi and Patna have got 52,21 and 19 doctors per lakh population respectively, and all other districts have got less than 10 doctors per lakh population. One can say on the basis of available data that the ratio of doctors to the population served is quite unsatisfactory.

The information available relating to the para-medical staff is not complete. When I enquired with the officials of the health department, it was discovered that even the state government did not have any firm information about the number of sanctioned posts of

para-medical staff in position. There is a total lack of information about 17 districts in the state. Despite the incompleteness of data it can be safely concluded from available statistics that the distribution of para-medical staff per lakh population is relatively better compared to that of doctors in rural areas.

With respect to the number of family welfare centres, it may be noted that there are 105 family welfare centres run by the government in urban areas of Bihar. Patna (12) has recorded the highest number of family welfare centres in the state, while the districts of Aurangabad, Jahanabad, Nawada, Saran, MuzafFarpur, Vaishali, Darbhanga, Madhepura, Purnia, Araria, Kishanganj, Katihar, Khagaria, Godda, Sahebganj, Dumka, Deogarh, Lohardaga and Gumla have got one family welfare centre each. When we analyse the data in terms of distribution of number of family welfare centre per lakh population, we find that in urban areas on the whole there is not even one family welfare centre per lakh population in the state. Here, it may also be pointed out that the number of family welfare centres or public health centres hardly assumes any importance now because these public institutions have miserably failed in discharge of their duties. People tend to depend more and more on private health services, for they are more efficient and easily available.

Despite numerous efforts the necessary data relating to the number of doctors and other para-medical staff for rural and urban areas separately could not be available. Again the available data relate mainly to allopathic system of treatment. Information relating to the indigenous medical services classified by rural and urban areas is not available. Based on the personal observation it can be said that in addition to the allopathic system of treatment the people, especially the poor, heavily depend on the indigenous system of treatment as well. We often see a large crowd of people at the clinics of practitioners of homeopath *ic,Ayurvedic* and *Unani* medicines. Rural people in case of minor ailment usually depend on such quacks.

The general opinion of the people about the existing medical facilities in the state is not really so positive. Due to the general decline in work culture and poor sensitivity on the part of government to the cause of people, the quality of the health services has been gradually deteriorating. Doctors seldom attend their offices. They stay away from the place of posting. Although the private practice by the government doctors has been banned by the state government, they are publicly defying the ordinance and are running their own private clinics at places of their convenience. Those who can afford private health services hardly like to take recourse to the government facilities in case of need. Private health centres are becoming more and more popular. The poor and the needy have to suffer a lot under such a state of affairs of health services. In a nutshell, to the people of Bihar the quality of health services rendered matters much more than the number of doctors, para-medical staff and health institutions in service or supported by the State Government.

Infant and Child Mortality

Compared to the national average Bihar recorded a higher rate of infant and child mortality during the last three-four decades. The IMR has declined very slowly in Bihar. Bihar recorded an IMR of 108 per 1,000 live births during 1978-82 which came down to 89 per

1,000 live births during 1988-92. During the same period child mortality declined from 57 to 42. The pace of decline was somewhat greater in rural than in urban areas. Both infant and child mortality rates seem to hinge more on education of mothers than on the availability of health facilities provided by the government in the sense that it is negatively associated with the education of women. It is obvious from the fact that the sections of society characterized by poor female education exhibit higher infant and child mortality. Since female education is quite low among women belonging to the Muslim community, scheduled castes and scheduled tribes, they tend to record a higher rate of infant mortality than other categories of people. However, the role of good public health facilities as an important determinant of infant and child mortality is not underplayed.

Differences in infant and child mortality by sex are quite conspicuous. All mortality measures except for neonatal mortality reveal that the female children are much more disadvantaged than the male children which can be partly attributed to the social and cultural values system of the society.

The Reproductive Behaviour

There is a fairly marked difference between current fertility (TFR) and cohort fertility. The National Family Health Survey (Bihar) 1993 data reveal TFR as 4.0 and cohort fertility (at ages 40-49) as 5.2, suggesting a conspicuous decline in fertility. The data have also revealed that the decline has been slightly greater in the case of urban areas. The current and cohort fertility rates for women with high school education are 2.6 and 3.4 respectively as against 4.3 children and cohort fertility of 5.4 children ever-born per illiterate woman. It suggests a clear differential in fertility by mothers' education.

Differences in fertility by caste and community are also quite pronounced in Bihar. The scheduled castes tend to show a higher level of fertility than other categories of Hindu population. Muslims show a higher rate of fertility than Hindus by 37% (i.e., equivalent to almost one and a half children, on the average). The TFR for Muslims and Hindus are respectively 5.2 and 3.4. The fertility has tended to decline among Muslims as well, but the pace of decline has been relatively slower compared to that of Hindus. This is ostensible from the fact that the TFR and cohort fertility are respectively 4.8 and the 5.1 for Hindus as against the TFR and cohort fertility rate of 5.2 and 6.1 for Muslims in a respective order. The decline is more marked in urban than in rural areas.

The Family Planning Programme

The National Family Health Survey data suggest that the knowledge of at least one modern method of family planning is nearly universal in Bihar, with 97 and 94 percent of ever-married women in urban and rural areas respectively had knowledge. People tend to know more about modern than traditional methods of family planning both in rural and urban areas. Among the modern methods, sterilisation (particularly female) is the most popular method same as anywhere else in India (Ramesh *et al*, 1996). Copper T and injection are very uncommon methods of family planning. They are particularly more uncommon in rural

than in urban areas. The use of contraception varies markedly between rural and urban areas. The current level of the use of contraception is considerably higher in urban (43 per cent) than in rural areas (20 per cent).

Education and religion are two important differentials of the use of contraceptive. As anywhere else in the country there is a strong positive relationship between education and the level of use of contraception. Similarly religious differential in the prevalence of contraception is also very substantial. This is obvious from the fact that the prevalence rate for modern methods is merely 6 percent for Muslims, as against 25 for Hindus. Scheduled castes and scheduled tribes who are characterized by lower level of literacy than Muslims show a much higher level of the use of contraception. The current level of the use of contraception among scheduled castes and scheduled tribes is between 15 and 16 percent. This clearly bears out that Islam is a very pronatalist religion. As they constitute about 14.8 percent of the total population of Bihar, they significantly account for higher fertility rate. However, the role of low female education (about 23 percent) and a strong preference for son as determinants of high fertility are not to be underestimated in Bihar. The contraceptive practice is reported to be very low among couples with one son and nearly nil in case of those who have no son. The rate of adoption of family planning method becomes really conspicuous only when couples have three or more issues.

Contraceptives and services relating to family planning are provided largely through the government agencies such as family welfare centres and primary health centres and sub-centres. Private hospitals and clinics also provide valuable services to the people relating to family planning services. Sterilisation camps organized by the government are highly irregular, rare and that too are mostly confined to urban areas. Private shops are the major sources of pills and condoms.

Of all the methods used for birth control, sterilisation accounts for 80 percent. As sterilisation is irreversible, infant and child mortality so high and the preference for son so strong that the temporary methods should be encouraged more than sterilisation. Temporary contraceptive methods allow women who may want children in the future to control their fertility now. The prevalence rate of temporary methods is very low particularly in rural areas. The NFHS statistics suggest that the modern temporary methods of birth control are used by merely 3 percent of married women aged 15-49, as against about 6 percent at the all-India level.

About 25 percent of the married women in Bihar have an unmet need for family planning.[2] Altogether 48 percent of currently married women (including those who are current users -23 percent) have a demand for family planning. This suggests that if unmet need becomes met needs, the level of users of contraceptive would touch nearly half of the currently married women. About 4.4 million woman tend to experience unmet need for family planning in Bihar. Both in terms of number and proportion, unmet need is much greater in rural than in urban areas. This clearly indicates that the family planning services are far from being

[2] Currently married women who say that they either do not want any more children or that they want to wait for two or more years before having another ehild. hut are not using contraception are said to have unmet need for family planning

satisfactory in Bihar. If this situation is improved, the fertility rate can drop down from the current rate of 4.0 to 2.3 children per woman.

Some Concluding Remarks

In view of the fact that Bihar is characterized by poor development and high fertility, the state increasingly owns enormous responsibility of promoting female education on a massive scale and substantially improving the health administration with a view to exercising greater grips over the rapid rise in population without much loss of time. Improvement in female education alone can help further promote increase in the age at marriage, reduction in infant and child mortality and adoption of temporary methods of family planning and the value of smaller family size. With a view to achieving substantial decline in fertility within a relatively shorter period of time there is a need to work intensively particularly among such pro-natalist sections of society as Muslims (14.8 percent), scheduled castes (14.6) and scheduled tribes (7.7 percent) who together comprise about 37 percent of the total population of Bihar according to the 1991 census. These segments of population are known for low female education and higher infant mortality and larger family size. From the demographic point of this is the grey area of Bihar's population.

If the present state of demographic events is allowed to prevail for some more time for one reason or the other, the total population of Bihar is likely to be around 103 million by the turn of this century and 122 million by 2011, resulting in a population density of over 700 persons per sq km in the state. As Bihar happens to be an economically stagnating state, the balance between population and its economic needs has to deteriorate still further, causing immense miseries to the masses which can be experienced in the form of still greater rise in unemployment, food crisis, inflation, crimes, corruption, pollution and over-crowding of towns, further deterioration in quality of life, power supply, political stability and numerous other unintended consequences. The need of the hour is then to revitalize the functioning of the family welfare department and other allied public programmes and services. Efforts should also be made to mobilize the voluntary organizations and seek their co-operation in achieving the targets of social and economic developments which form the core of programmes and policies of population control.

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APPENDICES

Appendix 1

DISTRICT-WISE NUMBER OF HOSPITALS, DISPENSARIES AND HEALTH POSTS IN URBAN AREAS FOR ALLOPATHIC SYSTEM

State Districts	A'o. *of hospitals*		*No. ofgovt. dispensaries*	*No. of beds in govt. hospital*
	Govt.	*Non-govt.*		
Bihar	162	60	1293	28307
Patna	14	3	61	3308
Nalanda	2	-	36	405
Bhojpur	4	6	N.A.	1037
Rohtas	3	2	42	644
Aurangabad	1	-	21	141
Jahanabad	1	-	36	-
Gaya	8	-	71	1421
Nawada	1	-	40	264
Saran	3	-	54	451
Siwan	1	-	52	353
Gopalganj	2	-	N. A.	274
West Champaran	2	-	N. A.	458
East Champaran	3	I	36	460
Sitamarhi	2	-	69	270
Muzat'farpur	4	2	28	1041
Vaishali	1	-	24	260
Begusarai	5	-	28	378
Samastipur	4	-	61	329
Darbhanga	4	-	45	1187
Madhubani	2	-	N. A.	410
Saharsa	3	-	42	471
Madhepura	1	1	N. A.	112
Purnia*	4	-	97	597
Araria	-	-	-	-
Kishanganj	-	-	-	-
Katihar	3	-	18	379
Khagaria	1	-	7	82
Munger	10	1	82	578
Bhagalpur	5	2	45	1303
Godda**	9	10	59	106
Sahebganj	-	-	-	231
Dumka	-	-	-	573
Deoghar	-	-	-	388
Dhanbad	19	5	17	1700
Giridih	1	-	35	827
Hazaribagh	14	2	71	1433
Palamu	4	3	61	318
Lohardaga***	17	16	13	173
Gumla	-	-	-	235
Ranchi	-	-	-	5253
Singhbhum	4	6	42	360

* Including Purnia. Araria and Kishanganj
** Including Godda. Sahebganj, Dumka and Deoghar
*** Including Ranchi. Lohardaga and Gumla
Source: Department of Health. Govt. of Bihar. Patna.

Appendix 2

DISTRICT-WISE NUMBER OF SUB-CENTRES, PHCs CHCs PER LAKH RURAL POPULATION FOR ALLOPATHIC SYSTEM

State/Districts	*Total rural population 1991*	*Sub centres*		*PHC**		*CMC*	
		No. of sub-centres	*Sub-centres per lakh Population*	*No. of PHC*	*PHC per lakh Population*	*No. of CHC*	*CHC per lakh Population*
Bihar	74969964	14794	19.75	1915	2.56	139	0.18
Patna	2247686	417	18.95	68	3.09	5	0.22
Nalanda	1707497	308	18.12	41	2.41	4	0.24
Bhojpur	2541310	523	20.92	58	2.32	3	0.12
Rohtas	2594659	443	17.72	70	2.80	4	0.15
Aurangabad	1419987	254	18.14	65	4.64	6	0.42
Jahanabad	1099085	64	6.40	38	3.80	4	0.36
Gaya	2309734	550	23.91	72	3.13	4	0.17
Nawada	1263982	225	18.75	41	3.42	3	0.24
Saran	2328672	413	17.96	47	2.04	4	0.17
Siwan	2045923	370	18.50	45	2.25	3	0.15
Gopalganj	1604822	283	17.69	29	181	2	0.12
W. Champaran	2095376	394	19.70	45	2.25	3	0.14
E. Champaran	2869365	507	18.11	61	2.18	4	0.14
Sitamarhi	2255443	402	18.27	50	2.27	3	0.13
Muzaffarpur	2672488	480	18 46	60	2.31	2	0.07
Vaishali	2000795	340	17.00	42	2.10	3	0.15
Begusarai	1635649	290	18.13	37	2.31	2	0.12
Samastipur	2580537	433	17.32	55	2.20	1	0.04
Darbhanga	2290809	405	18.41	51	2.32	3	0.13
Madhubani	2726080	490	18.15	74	2.74	6	0.22
Saharsa	2343141	544	23.65	41	1.78	5	0.22
Madhepura	1101249	64	5.82	20	1.82	1	0.09
Purnia**	4116122	726	17.71	90	2.20	8	0.19
Araria	-	-	-	-	-	-	-
Kishanganj	-	-	-	-	-	-	-
Katihar	1650241	282	17.63	35	2.19	3	0.18
Khagana	927501	34	3.78	19	2.11	1	0.11
Munger	2547925	587	23.48	79	3.16	6	0.23
Bhagalpur	2809320	504	18.00	68	2.43	5	0.18
Godda	835046	210	26.25	14	1.75	5	0.60
Sahebganj	1202692	236	19.67	35	2.92	2	0.16
Dumka	1405565	733	52.36	72	5.14	5	0.36
Deoghar	793170	123	17.57	11	1.57	1	0.12
Dhanbad	1319367	226	17.38	47	3.62	1	0.08
Giridih	1880546	324	18.00	47	2.61	5	0.26
Hazaribagh	2325976	396	17.22	54	2.35	3	0.13
Palamu	2320211	466	20.26	66	2.87	5	0.21
Lohardaga	256848	48	24.00	12	6.00	N. A.	N. A.
Gumla	1102271	179	16.27	32	2.91	3	0.27
Ranchi	1474799	744	53.14	49	3.50	5	0.34
Singhbhum	2268075	777	35.32	75	3.41	6	0.26

* Including add PHCs

** Including Purnia, Araria, Kishanganj

Source: Same as for Appendix 1.

Appendix 3

DISTRICT-WISE NUMBER OF DOCTORS AND PARA-MEDIC Al. STAFF POSTS SANCTIONED AND IN POSITION

State/ Districts	*Population in rural areas, 1991*	*Doctors' posts sanctioned***	*Doctors in Position***	*Doctor per lakh population*	*Para-medical staff post sanctioned**	*Para medical staff per lakh population*
Bihar	74969964	N. A.	3868	5.16	N. A.	N. A.
Patna	2247686	N. A.	419	19.05	N. A.	N. A.
Nalanda	1707497	N. A.	59	5.24	407	23.92
Bhojpur	2541310	N. A.	96	3.84	380	14 88
Rohtas	2594659	116	96	3.69	373	14.31
Aurangabad	1419987	N. A.	70	5.00	N. A.	N. A.
Jahanabad	1099085	94	.	-	193	17.54
Gaya	2309734	N. A.	208	9.04	593	25.68
Nawada	1263982	N. A.	65	5.42	42	3.32
Saran	2328672	103	80	3.48	261	11.16
Siwan	2045923	18	76	4.22	N. A.	N. A.
Gopalganj	1604822	48	75	4.69	268	16.67
West Champaran	2095376	66	96	4.80	315	15.01
East Champaran	2869365	175	104	3.71	303	10.56
Sitamarhi	2255443	N. A.	112	5.09	348	15.41
Muzaffarpur	2672488	N. A.	222	8.54	N. A.	N. A.
Vaishali	2000795	N. A.	72	3.60	N. A.	N. A.
Begusarai	1635649	N. A.	101	6.31	N. A.	N. A.
Samastipur	2580537	135	91	3.64	419	16.23
Darbhanga	2290809	47	172	7.82	258	11.25
Madhubani	2726080	N. A.	58	2.15	301	11.03
Saharsa	2343141	N. A.	92	4.00	338	14.67
Madhepura	1101249	N. A.	35	3.18	N. A.	N. A.
Purnia	4116122	N. A.	126	7.41	N. A.	N. A.
Araria	-	N. A.	-	-	N. A.	N. A.
Kishanganj	-	N. A.	-	-	N. A.	N. A.
Katihar	1650241	110	62	5.64	343	20.74
Khagaria	927501	58	24	2.67	N. A.	N. A.
Munger	2547925	227	191	7.64	N. A.	N. A.
Bhagalpur	2809320	N. A.	185	6.61	N. A.	N. A.
Godda	835046	N. A.	31	3.88	N. A.	N. A.
Sahebganj	1202692	82	49	4.08	394	32.67
Dumka	1405565	N. A.	68	4.86	N. A.	N. A.
Deoghar	793170	38	40	5.00	190	23.51
Dhanbad	1319367	46	677	52.08	304	23.52
Giridih	1880546	126	269	14.94	214	11.37
Hazaribagh	2325976	N. A.	211	9.17	397	17.04
Palamu	2320211	86	90	3.91	427	18.40
Lohardaga	256848	27	15	7.50	64	24.89
Gumla	1102271	N. A.	47	4.27	N. A.	N. A.
Ranchi	1474799	78	296	21.14	532	35.86
Singhbhum	2268075	106	57	2.59	718	31.64

* These figures could not be available.

**Figure for doctors in position refer to 1985, while the figures for the rural population belong to the 1991 census. Therefore, number of doctors per lakh population in the next column can be somewhat underestimate.

Source: Immunisation Report of the district concerned for the year, 1992-93, published by the concerned District Medical Officer-cum-Civil Surgeon.

Appendix 4

DISTRICT-WISE FAMILY WELFARE CENTRES PER LAKH URBAN POPULATION

State/ Districts	*Urban population, 1991*	*Family welfare centre*	*Family Welfare centre per lakh Population*
Bihar	11368889	105	0.90
Patna	1375539	12	0.87
Nalanda	295816	2	0.67
Bhojpur	326008	3	0.92
Rohtas	295506	4	1.36
Aurangabad	117959	1	0.84
Jahanabad	73986	1	1.34
Gaya	355483	2	0.59
Nawada	94451	1	1.05
Saran	234258	1	0.43
Siwan	113423	1	0.86
Gopalganj	96543	2	2.06
West Champaran	235230	2	0.85
East Champaran	172938	2	1.15
Sitamarhi	133379	2	1.50
Muzaffarpur	270113	1	0.36
Vaishali	143457	1	0.70
Begusarai	177565	2	1.12
Samastipur	134760	3	2.22
Darbhanga	218274	1	0.46
Madhubani	102560	2	1.95
Saharsa	171610	4	2.33
Madhepura	76811	1	1.30
Purnia	157004	1	0.63
Araria	102157	1	0.98
Kishanganj	98821	1	1.01
Katihar	171349	1	0.58
Khagaria	59230	1	1.70
Munger	507210	6	1.18
Bhagalpur	389151	5	1.29
Godda	23632	1	4.23
Sahebganj	94699	1	1.05
Dumka	91701	1	1.10
Deoghar	125153	1	0.80
Dhanbad	1389803	8	0.50
Giridih	343460	4	1.58
Hazaribagh	512860	8	3.00
Palamu	130837	4	3.00
Lohardaga	31737	1	3.10
Gumla	51286	1	1.01
Ranchi	730235	3	0.41
Singhbhum	1138891	5	0.44

Source: Health Department, Govt. of Bihar, Patna.