PATTERNS OF SOCIAL DEPRIVATION IN BIHAR: A SPATIO-TEMPORAL STUDY

Dissertation submitted to Jawaharlal Nehru University in partial fulfillment of the requirement for the award of the degree of

MASTER OF PHILOSOPHY

RAVINDRA KUMAR

CENTRE FOR THE STUDY OF REGIONAL DEVELOPMENT
SCHOOL OF SOCIAL SCIENCES
JAWAHARLAL NEHRU UNIVERSITY
NEW DELHI-110067
INDIA
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जवाहरलाल नेहरू विश्वविद्यालय

JAWAHARLAL NEHRU UNIVERSITY

Centre for the Study of Regional Development
School of Social Sciences
New Delhi-110067

26 July, 2012

DECLARATION

I, RAVINDRA KUMAR, hereby declare that the dissertation entitled,**"PATTERNS OF SOCIAL DEPRIVATION IN BIHAR: A SPATIO-TEMPORAL STUDY"**submitted by me for the award of the degree of **MASTER OF PHILOSOPHY** is my bonafide work and that it has not been submitted so far in part or in full, for any degree or diploma of this university or any other university.

Ravindra Kumar

RAVINDRA KUMAR

CERTIFICATE

It is hereby recommended that the dissertation may be placed before the examiners for evaluation.

Prof. P.M. Kulkarni
(Chairperson)

Centre for the Study of Regional Development
School of Social Sciences
Jawaharlal Nehru University
New Delhi-110067

Dr. Sachidanand Sinha
(Supervisor)

Centre for the Study of Regional Development
School of Social Sciences
Jawaharlal Nehru University
New Delhi-110 067

Tel. :(011) 26704463Ext. 2466, 2463 Gram: JAYENU Fax: 91-11- 26717586, 26197603

To:

Millions of Destitute Across

the World.....

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Date: 27-07-12 *Ravindra Kumar*

Place: New Delhi

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INTRODUCTION:

1.1 Introduction:

Social deprivation is the reduction or prevention of culturally normal interaction between an individual and the rest of society. This social deprivation is included in a broad network of correlated factors that contribute to social exclusion; these factors include mental illness, poverty, poor education, and low socio-economic status. The term "social deprivation" is slightly ambiguous and lacks a concrete definition. That being said, there are several important aspects that are consistently found within research on the subject. With social deprivation one may have limited access to the social world due to factors such as low socio-economic status or poor education. The socially deprived may experience "a deprivation of basic capabilities due to a lack of freedom, rather than merely low income.[1]" This lack of freedoms may include reduced opportunity, political voice, or dignity.

Part of the confusion in defining social deprivation seems to stem from its apparent similarity to social exclusion. Social deprivation may be correlated with or contribute to social exclusion, which is when a member in a particular society is ostracized by other members of the society. The excluded member is denied access to the resources that allow for healthy social, economic, and political interaction[2]. Pierson has identified five key factors that set social exclusion in motion – poverty; lack of access to jobs; denial of social supports or peer networks; exclusion from services; and negative attitude of the local neighbourhood. It is also associated with abusive caretaking, developmental delay, mental illness and subsequent suicide.

Although a person may be socially deprived or excluded, they will not necessarily develop mental illness, experience a lack of perpetuate the cycle of deprivation. Such

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[1]Bassouk, E.L.; Donelan, B. (2003)."Social Deprivation". In Green, B.L. (ed.), *Trauma Intervention in War and Peace*. New York City: Kluwer Academic Publishers.

[2]Pierson, J. (2002), *Tackling Social Exclusion*. London: Routledge.

groups and individuals may have completely normal development and retain a strong sense of community.

It is the inability of a person to get the minimum needs fulfilled with respect to consumption for leading a simple and healthy life. These minimum needs include food, clothing, housing, education and basic health requirements. Thus, deprivation is the state where a person is in want of basic necessities of human existence[3]. The capacity of the persons to acquire the necessities of life divides them into the category of economically better off or poor. At the individual level, it inflicts perpetual hardships and sufferings. At the national level it manifests as shortage of resources and non-availability of essential goods and services to meet the requirement of a growing population[4].

India is the second largest populated country in the world. The total population of India crossed one billion at the beginning of the twenty first century. According to government estimates, more than a quarter of the country's population remains below the poverty line at present. To distinguish the poor from the non-poor, a poverty line acts as a cut-off. The minimum calorie intake has been defined by the medical council and this has been converted into monetary value and those who falls below this comes under the poverty line. There has been much debate and discussion over the years on this issue. The Planning Commission estimates the number and proportion of the poor in urban and rural areas in the country. It has claimed that the proportion of the poor has declined steadily over the years. The extent of poverty, however, is determined by how poverty is defined. At present the poverty line is based on a minimum standard of living and sets a norm in terms of per capita consumption or income, and those who do not meet the norm are identified as the "poor". Government has a social obligation to eradicate poverty by designing appropriate policies and implementing them effectively. A poverty line serves a monitoring function in determining trends in poverty and assessing the impact of poverty-reduction policies.

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[3] Ganguli B.N (1976), *"Challenge of Poverty in India"*, Vikas Publications, New Delhi, p.3.
[4] Ramaswamy, T. (1980), *"The Cure for Poverty"*, Anand Press, Cochin, pp. 1-12.

1.2 Statement of the Problem:

Deprivation can involve not only the lack of the necessities of material well-being, but the denial of opportunities for living a tolerable life. Life can be prematurely shortened. It can be made difficult, painful or hazardous. It can be deprived of knowledge and communication. And it can be robbed of dignity, confidence and self-respect as well as the respect of other. All are aspects of poverty that limit and blight the lives of many millions in the world today. Through the passage of time different methodology has been given by the large number of the scholars, governmental and non- governmental institutions.

In the Pre-Independence India, the earliest attempt to define poverty line was made by Dadabhai Naoroji in his classic paper on *"Poverty in India"* that he read in1876 before the Bombay Branch of the East Indian Association of London[5]. After independence Government of India formed different committees under the chairmanship of the notable economist of the country and they suggested the norms for poverty line. Most of these includes consumption of food and non-food items and finally converted into the monetary value and a poverty cut-offs are defined and those who fall below the cut-offs are regarded as the poor.

But this expenditure (proxy of income) based poverty line is unable to capture the true nature of the poverty. The well-being of a population and, hence its poverty, which is a manifestation of insufficient well-being, depend on both monetary and non-monetary variables. It is certainly true that with a higher income or consumption budget a person may be able to improve the position of some of his/her monetary and non-monetary attributes. But at the same time it may be the case that markets for some non-monetary attributes do not exist, for example, with some public goods. It may also happen that markets are highly imperfect, for instance, in the case of rationing. Therefore, income as the sole indicator of well-being is inappropriate and should be supplemented by other attributes or variables, e.g., safe drinking water, electricity, literacy, housing and provision of public goods and so on.

Therefore, it would be important to analyse the inter-relationship of poverty with different aspects of social and human development. Lack of education, poor health

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[5]Srinivasan, T.N. (2007), "Poverty lines in India: Reflections after the Patna Conference", *Economic and Political Weekly*, Vol. XLII, No. 41, 13–19 October.

and inadequate access of safe drinking water and sanitation are closely associated with higher level of poverty. Absolute poverty takes into consideration not only income or consumption expenditure but also indicators like calorie intake, health, education and some of the important basic amenities. This gives a multi-dimensional approach to reach at an accurate understanding of nature of poverty. The human development report clearly defines the need for enlarging dimensions of poverty from a mere per-capita income/expenditure to social indicators to arrive at a comprehensive index of poverty. During 1990s some states have achieved increase in income and consumption expenditure growth but in social sectors they have not shown any such improvement, while some states are totally different. Kerala is well-known for its remarkable achievements in social (human) development. Despite high level of social development, the disappointing performance of the economy led to a series of debate and discussion. Kerala is referred to as a "paradox of social development and economic backwardness".

There is a mismatch between social development and economic growth. Punjab has the highest gross domestic product per capita among the major states of the country but with a lower human development index value. Some others states like Bihar, Madhya Pradesh, Rajasthan, Uttar Pradesh and Orissa are not only impoverished but also have a low human development index value compared to most of the major states as well as the national average. Thus, economic measures along with non-economic measures which include political as well as social indicators seemed to provide a holistic approach to measuring social deprivation. The present debate regarding the issue of measurement of the poverty is associated with the notion that what should be included in the measurement of the poverty and what will be the methodology for it. The notion of objective and subjective poverty is also under debate. Most of the work on poverty is based on the field work and it includes a large number of the indicators related to income, social, capability and others. Different governments are attempting to define poverty in their own ways.

In India the estimate has been done by Planning Commission based on the data obtained from the household monthly per-capita consumption expenditure data by National Sample Survey Organization. The problem associated with the measuring poverty is that the methodology and the indicators which should be uniform across the space but due to the subjective notion of poverty this pose a problem. The union

approach and the intersection approach are also suffers from its own over estimation and under estimation. The politics at the national level are also posing serious problems for measuring poverty. Lack of data at the district and local level is also a hindrance for calculation of poverty by using any appropriate methodology. In India poverty has been calculated at state level and there is dearth of district level data on poverty. As far as social deprivation is concerned there is very little or no work on the issue of social deprivation in India and hence it needs to look over the issue of poverty in human development perspective. However, the genesis of this has been founded by United Nations Development Programme in 1990 when the concept of human development index has been introduced by Prof. Mahbub-ul-haq and Prof. Amartya Sen. In 1997, United Nations Development Programme has introduced the concept of human poverty and thus enlarged the notion of poverty and deprivations suffered by the people.

1.3 Significance of the Study:

Economic deprivation has been in existence for many years and continues to exist in a large number of countries. Therefore, targeting of poverty alleviation remains an important issue in many countries. In order to understand the threat that the poverty poses, it becomes important to understand its dimension and the process through which it seems to be deepened. A natural question that arises here is that how to quantify the extent of poverty. In this regard, Sen[6]viewed the poverty measurement problem as involving two questions: (i) the identification of the poor, and (ii) aggregation of the characteristics of the poor into overall indicators. In literature, the first problem has been solved mostly by the income (or consumption) method, which requires the specification of a subsistence income level, referred to as the poverty line. A person is said to be poor if his/her income falls below the poverty line.

On the aggregation issue, Sen criticised two crude poverty measures, the head count ratio (proportion of persons with incomes less than the poverty line) and the income gap ratio (the gap between the poverty line and average income of the poor, expressed as a proportion of the poverty line), because they are insensitive to the redistribution of income among the poor and the former also remains unaltered if the position of a poor worsens. He also suggested a more sophisticated index of poverty using an

[6] Sen, A.K. (1976), "Poverty: An Ordinal Approach to Measurement", *Econometrica*, 44, pp. 219–231.

axiomatic approach.[7]However, the well-being of a population and hence poverty, which is a manifestation of insufficient well-being, depends on both monetary and non-monetary factors. It is certainly true that with a higher income or consumption budget a person may be able to improve the position of some of his/her monetary and non-monetary attributes. But at the same time it may be the case that markets for some non-monetary attributes do not exist, for example, with some public goods. It also may happen that markets are highly imperfect, for example, in the case of rationing. Therefore, income as the sole indicator of well-being is inappropriate and should be supplemented by other attributes or variables, e.g., housing, literacy, life expectancy, provision of public goods and so on. The need for such a multidimensional approach to the measurement of inequality in well-being was already emphasised, among others, by Kolm[8], Atkinson and Bourguignon, Maasoumi[9] and Tsui[10]. Concerning poverty, Ravallion[11]argued in a recent paper that four sets of indicators can be defended as ingredients for a sensible approach to poverty measurement. These are:

(i) real expenditure per single adult on market goods,
(ii) non-income indicators as access to non-market goods,
(iii) indicators of intra-household distribution such as child nutritional status and
(iv) indicators of personal characteristics which impose constraints on the ability of an individual, such as physically handicap.

In other words, a genuine measure of poverty should depend on income indicators as well as non-income indicators that may help in identifying aspects of welfare not captured by incomes. Further rationales can be cited for viewing the problem of measurement of wellbeing of a population from a multidimensional structure. For instance, the basic needs approach advocated by development economists regards development as an improvement in an array of human needs and not just as growth of

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[7]Atkinson, A. and Bourguignon, F. (1982), "The Comparison of Multidimensional Distributions of Economic Status", *Review of Economic Studies*,49,pp. 183–201.
[8]Kolm, S.C. (1977), "Multidimensional Egalitarianisms", *Quarterly Journal of Econometrica*. 91, pp. 1–13.
[9] Maasoumi, E. (1986), "The Measurement and Decomposition of Multidimensional Inequality", *Econometrica*, 54, pp. 771–779.
[10] Tsui, K.Y. (1995), "Multidimensional Generalizations of the Relative and Absolute Indices: the Atkinson– Kolm–Sen Approach", *Journal of Economic Theory* 67, pp. 251–265.
[11]Ravallion, M. (1996), "Issues in Measuring and Modelling Poverty", *Economic Journal*. 106,pp. 1328–1343.

income[12]. Finally, wellbeing is intrinsically multidimensional from the view point of 'capabilities' and 'functioning', where functioning deal with what a person can ultimately do and capabilities indicate the freedom that a person enjoys in terms of functioning[13]. In the capability approach functioning are closely approximated by attributes such as literacy, life expectancy, etc. and not by income per se. An example of multidimensional measure of well-being in terms of functioning achievements are the human development index suggested by United Nations Development Programme[14]. It aggregates at the country level functioning achievements in terms of the attributes life expectancy, per capita real gross domestic product and educational attainment rate.

For the reasons stated above the present study deviates from the single dimensional economic approach to the measurement of social deprivation and adopt an alternative approach which is of multidimensional in nature. In our multidimensional framework instead of visualising poverty or deprivation using income or consumption as the sole indicator of well-being, we formalise it in terms of functioning failures, or, more precisely, in terms of shortfalls from threshold levels of attributes themselves. The consumption expenditure based poverty line as formulated by Planning Commission of India is highly debatable and poses serious problems with the underestimation of the poverty count in India. Thus, there is an urgent need of the concept of poverty which measure the poverty not only in terms of the income or consumption expenditure but also able to capture the non-monetary dimensions. The present study is a positive direction in this regard in which we will measure the social deprivation at the district level in one of the poorest state of India i.e. Bihar.

1.4 Area of the Study:

The state of Bihar has been chosen as the area of study. Bihar is a state in eastern India. It lies mid-way between West Bengal in the east and Uttar Pradesh in the west. It is bounded by the country of Nepal to the north and by Jharkhand to the south. It has a vast stretch of fertile plain. It is drained by the Ganges River, including its

[12]Streeten, P. (1981), *"First Things First: Meeting Basic Human Needs in Developing Countries"*, Oxford University Press, New York.

[13] Lipton, M. and Ravallion, M. (1985), "Poverty and policy, In: J. Behrman and T.N. Srinivasan (eds.), *Handbook of Development Economics"*. Vol. 3, North-Holland, Amsterdam.

[14]United Nations Development Programme (1990), "Human Development Report", Oxford University Press, New York.

northern tributaries Gandak and Koshi, originating in the Nepal Himalayas and the Bagmati originating in the Kathmandu Valley that regularly flood parts of the Bihar plains. The total area covered by the state of Bihar is 94,163 square kilometre. It is the 12th largest state in terms of geographical area and 3rd largest by population. The density of population is 880 persons per square kilometer, according to 2001 census and having 37 districts (2001). Bihar is a rural state as around 90 per cent of the people of the state are living in the villages and they are primarily dependent upon the agricultural activities for their lively hoods. About 58 per cent of the population of the state is below the age of 25, which is the highest proportion in India.

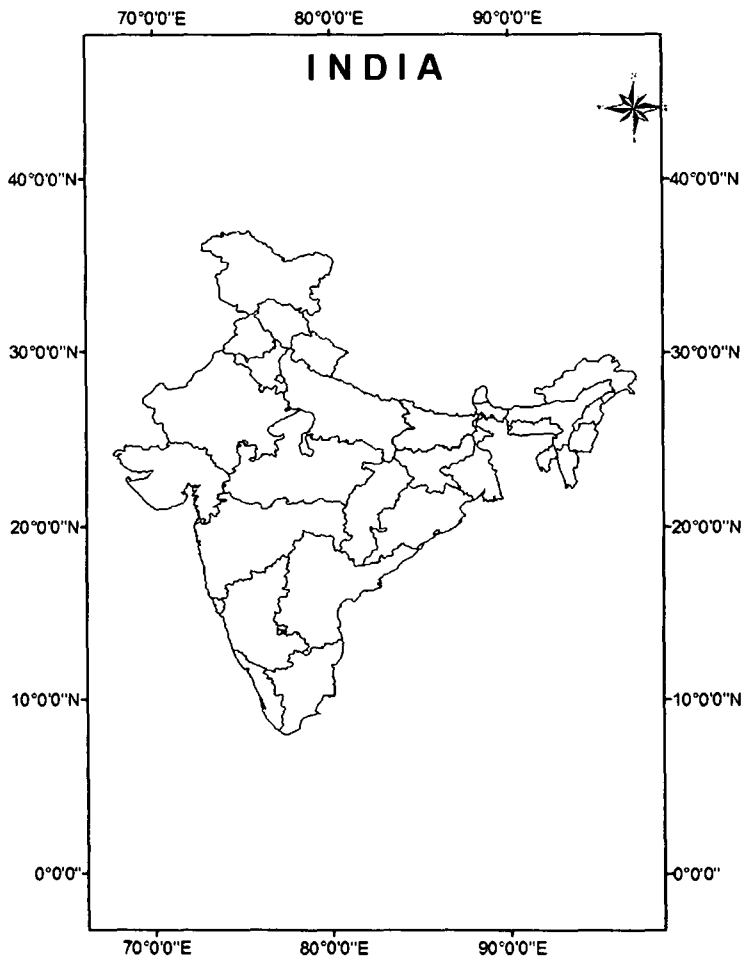
Ancient Bihar (which consisted of Anga, Videha/Mithila, Magadha and Vajji/Vrijji) was a centre of power, learning and culture in ancient and classical India. Out of five "The Greats" from India, four greats belonged to this region of India, Magadh: Chandragupta Maurya, Ashoka, Samudragupta and Vikramaditya. From Magadha arose India's first and greatest empire, the Maurya Empire as well as one of the world's most widely adhered-to religions, Buddhism. Magadha empires, notably under the Maurya and Gupta dynasties, unified large parts of South Asia under a central rule. Its capital Patna, earlier known as Pataliputra, was an important centre of Indian civilization. Nalanda was a centre of learning established by the 5th century CE in Bihar, which is also counted among the oldest and truly international universities, where people all over the world came for study. Bihar has distinction of giving the world its first democracy through Lichchivi (modern days Vaishali) during ancient era.

But today, Bihar lags behind the other Indian states in terms of human and economic development. Economists and social scientists claim that this is a direct result of the skewed policies of the union government, such as the freight equalization policy, its apathy towards Bihar, lack of Bihari sub-nationalism (resulting in no spokesperson for the state), and the Permanent Settlement of 1793 by the British East India Company. The current state government has however made significant strides in improving governance. The improved governance has led to an economic revival in the state through increased investment in infrastructure, better health care facilities, greater emphasis on education, and abatement in crime and corruption. Indian and global

business and economic leaders feel that Bihar now has good opportunity to sustain its growth and thus have shown interest in investing in the state.

The state which was once a protagonist in India is now facing a serious problem of poverty and the factors which is responsible for this problem is related to both supply and demand side indicators. Supply side indicators are the facilities which has been provided solely by the state includes roads, schools and hospitals. Due to absence of these basic services children's are unable to get the basic education which is necessary to improve the living standard. Absence of primary health care facilities also makes people to suffer from a wide range of diseases. The service which has been provided by the doctors available at the primary health centres is also not satisfactory and due to this people have to seek the private practitioners. Most of the people of the state is illiterate and hence they are unaware of the modern medicines and still they believes in quacks and conventional healing approaches which having no scientific base. The high incidence of the birth rate is also positively associated with the mass illiteracy and the (high) death rate. In the 1960s and 70s the infant mortality rate was very high but due to the advancement in medical sciences there is substantial reduction in the infant mortality rate. But people are still living in the old days and reproduce more and more children and thus the size of the household increased and this is one of the reasons of the rampant poverty prevailing in the state. Absence of roads seizes the mobility of the people and hence the economy has been stagnating since a longer duration of time. Women are not allowed to do outside work and hence there is an adverse impact on the family income. This is certainly increasing the extent of poverty in the state and also they are unable to get benefits from the different schemes launched by the union and state government. Hence, there is an urgent need to consider the issue seriously and tries to understand the different dimensions of social deprivation in the state.

Location Map of the Study Area



Map 1.1

1.5 Objectives of the Study:

Most of the contemporary studies of level of living and deprivation concentrate only on state-level averages. In view of the growing divergence both between and within the states, disaggregated studies are necessary for accurate identification of the critical areas calling for policy intervention. There is a strong indication that the improvement in the level of living might not have been distributed well and certain pockets of the states might have remained impoverished in spite of their overall growth. Thus, dealing merely with state-level aggregates may not reveal the true extent of disparity prevailing and there has been a serious dearth of studies on these issues at the sub-state (district) level. It is also necessary to examine how far the assumption of state as homogeneous units for socio-economic studies, is tenable. Very few studies have been attempted at any district level analysis.

Again, most of them were based on a small segment of the country. Sastry[15]had discussed the feasibility of using the National Sample Survey Organisation, Consumer Expenditure Survey data for district-level poverty estimates in its entirety based on the National Sample Survey Organisation, 1999-2000 (55thround) survey. But the main bottleneck that refrained researchers from generating sub-state or district-level estimates from National Sample Survey Organisation data was the nature of sampling design[16]. Thus, for getting an accurate picture of social deprivation it is necessary to look over the other socio-economic dimensions which have not been captured by National Sample Survey Organisation. No single indicator can capture the complexities of deprivation. A given state may perform extremely well on all indicators but there may be districts within that state that are among the most deprived in the country. Or a state may have very high level of attainment on economic development and health and very low levels of attainment on education and gender parameters. Thus, it is necessary to see the holistic picture of social deprivation at district level in one of the poorest state of India i.e. Bihar.

From the problems set above, the present study has been designed to assess the deprivations in the social indicators in different districts of Bihar with the objectives of identifying the districts which needs immediate development interventions.

- To measure health deprivation in terms of basic health facilities for different districts of Bihar and analyse the changes of districts in terms of health deprivation over the period of time.

- To measure educational deprivation in terms of educational opportunities and attainments and explore the opportunities and challenges in the education sector in Bihar.

- To measure basic amenities deprivation in terms of supply of civic amenities and explore the opportunities and challenges in the accessibility of these basic services by the people.

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[15]Sastry, N S (2003): "District Level Poverty Estimates: Feasibility of Using NSS Household Consumption Expenditure Survey Data", *Economic & Political Weekly*, 25 January, pp. 409-413.

[16]The two-stage stratified sampling design followed in NSS surveys prior to its 61st round (2004-05) did not use districts as strata in the urban sector and thus allowed generation of unbiased estimates of population parameters at most at NSS region level.

- To measure social deprivation based on health, education and basic amenities deprivation for different districts of Bihar for the period of 1981 to 2001 and makes a comparison between economic deprivation and social deprivation.

- To understand the determinants of economic deprivation and to give some feasible solutions to uproot this menace from the society depending upon the context of deprivation in health, education and basic amenities in the different districts of Bihar.

1.6 Database:

Data is a basic requirement for any study. Appropriate and up-to-date data must be available to achieve the objectives. The aim of the present study is to understand the spatio-temporal patterns of social deprivation for which secondary data is needed. The data on health, education, sanitation, housing and economic variables for the districts of Bihar has been collected from a wide range of sources which are mentioned below.

- Census of India 1981, Occasional Paper 5 of 1988, Child Mortality Estimates of India, Demography Division, Office of the Registrar General, India, Ministry of Home Affairs, New Delhi.

- Infant and Child Mortality in India: District Level Estimates/ Population Foundation of India, May 2008.

- District Level Households and Facility Survey II, (Reproductive and Child Health Projects), Ministry of Health and Family Welfare, Government of India, 2002-04.

- Census of India, 1981, 1991 and 2001 (C-Series and H-Series of the each Census).

- Primary Census Abstract, 1981, 1991 and 2001, Census of India, Bihar, Directorate of Census Operations, Bihar, Patna.

- Bihar Statistical Handbook, 1980 and 1991, Directorate of Statistics and Evaluation, Bihar, Patna.

- Planning Commission, 1999-2000, Government of India, New Delhi.

- Chaudhuari, Siladitya and Nivedita Gupta (2009), "Levels of Living and Poverty Patterns: A District-Wise Analysis for India", Volume XLIV. No. 9, Economic and Political Weekly, 28 February, 2009, pp.94-110.

- National Human Development Report, Planning Commission, Government of India, New Delhi, 2001 and 2005.

1.7 Research Questions:

An attempt has been made to answer the following research questions in this study.

- Is social deprivation and economic deprivation are the same? Out of the two measures which one is the appropriate to capture the true nature of deprivation?

- Is social deprivation and economic deprivation always moves together? If yes then what is the direction of the movement?

- If social deprivation and economic deprivation do not always move together then what is the underlying forces responsible for this dissimilar kind of movement although seem to be move together, as the general notion of the deprivation is largely associated with economic deprivation.

- Is profile of economic deprivation describes the root and satisfactory causes of deprivation? If not then, to explore the fundamental causes and represents a "missing middle" that makes it difficult to define a successful anti-deprivation strategy.

- Is the same set of policies issued by the Government of India having the equal impact on reducing the social deprivation across the Indian states? If not then what is the plausible explanations for this uneven impact of the same set of policies which were meant to eradicate/ mitigate the incidence of deprivation?

1.8 Methodology:

Data has been obtained from the above mentioned sources analysed and compiled according to the need of the study. A simple technique of ratio, percentages and ranking along with tabular analysis has been applied to analyse the data for achieving the desired objectives. Data has been adjusted at the 1981 level because the number of

districts has been changed from 1981 to 2001 and also the state has been divided on 15thNovember, 2000. For the adjustment of the district at the 1981 level the absolute figure for the newly created districts after 1981 and 1991 has been added to their parent district and then the percentage and other calculation has been done. For constructing, index of social deprivation, deprivation in health, education and living standard dimensions (i.e. basic amenities) has been equally weighted. The concept of human poverty index introduced in the annual human development report of 1997, concentrates on deprivation in three basic elements of human life- longevity, knowledge and a decent living standard. Deprivation in knowledge leads to social deprivation, which further results in economic deprivation. Although economic deprivation decreased significantly at all India level still some states are having higher levels of poverty e.g. Orissa, Bihar and M.P.[17]. Deprivation is the sum total of a multiplicity of factors that included not just income and calorie intake but also access to land and credit, nutrition, health and longevity, literacy and education, safe drinking water, sanitation and other infrastructural facilities[18].

1.8.1 Selected Indicators:

Ten indicators have been used in the study for analysis of social deprivation for the year 1981, 1991 and 2001. These indicators are infant mortality rate and uncovered population by primary health centres, grouped under health dimension. Adult illiteracy rate for male and female (in per cent), percentage of out of school children both male and female which is in the school going age (i.e. between the age of 6 and 14 year) grouped under educational dimension. And the third dimension is termed as living standard dimension which includes households without access to safe drinking water (in per cent), households without access to electricity (in percent), households without access to toilet facility (in per cent) and households living in Kutcha houses (in per cent).

1.8.2 Health Deprivation:

Health deprivation has been calculated by using infant mortality rate and the number of people which is out of the ambit of primary health centre. Infant mortality rate is a

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[17]Ramakrishna, R. (2007), "Economic Reforms: Poverty and Inequality" http://www.ramtej.org/nss/ods/rrk.pdf. Last accessed on 17th August, 2011.

[18]Mehta, A.K and A. Shah (2005), "Chronic Poverty in India: Overview Study", Working Paper 7, www.chronicpoverty.org/resources/ cp07. htm- 19K.

negative indicator and thus the other indicator must be negative in order to combine them. For this, population per primary health centre has been calculated by dividing the total population by number of primary health centre and then the threshold limit (i.e. 30000) has been subtracted from this figure which gives the population out of ambit of primary health centre. Since, the two indicators are in different units therefore it cannot be combined directly and thus standardisation has been done for both the indicators by ''division by mean'' method. Now, add the two which gives us a value called health deprivation index and rank them. Ranking has been given as higher the value higher the rank which means greater deprivation and vice versa.

Following example clears the above methodology of health deprivation.

Example for, Patna (1981)

Infant mortality rate = 103

Average infant mortality of the state = 94

Standardised IMR = 103/94 = 1.096

Total population = 3019201

Number of primary health centres = 30

Population per primary health centre = Total population/Number of PHCs

= 3019201/30

= 100640

Population uncovered by PHC = 100640-30000

= 70640

Average population in the state which is uncovered by PHC = 47180

Standardised population uncovered by PHC= 70640/47180

= 1.497

Therefore, health deprivation index = Standardised IMR + Standardised population uncovered by PHC

= 1.096+1.497

= 2.593

1.8.3 Educational Deprivation:

Knowledge or educational deprivation has been calculated by using adult illiteracy rate for both male and female and percentage of out of school male and female

children which is in the school going age (i.e. between the age of 6 and 14 year). First off all, standardised all the indicators by ''division by mean method'' and add them which gives the value of educational deprivation index and rank them according to index value.

1.8.4 Living Standard Deprivation:

This Deprivation has been calculated by using the following indicators:

(i) Households without access to safe drinking water

(ii) Households without access to electricity

(iii) Households without access to toilet facility and

(iv) Households living in Kutcha houses

All the indicators has been standardised and add them and this gives the value of basic amenities deprivation and ranking has been done.

In order to construct, social deprivation index the arithmetic mean of the three deprivations i.e. health, education and basic amenities has been calculated. The rationale behind the arithmetic mean is the substitutionality of the indicators between or among themselves. Social deprivation is due to the absence of multiple amenities and hence the substitution is necessary which is absent in the economic measurement of deprivation. Suppose, a district is not performing good in health dimension but good in education and basic amenities then the deprivation in health is compensated by the other two and vice versa.

- In order to see the movement of the social deprivation and economic deprivation scatter diagram has been made. On the X-axis composite index value of social deprivation has been plotted and on the Y-axis percentage of people below the poverty line (economic deprivation) has been plotted. A regression line will be drawn in order to see which district is below and above the line. Which district is making a progress in reducing social deprivation over the period of time and which one in reducing economic deprivation.

- Regression technique has been used to understand the determinants of economic deprivation in the state. But two things should be kept in mind.

> First, it is very difficult to separate causation from correlation. For instance, we know that poor people tend to have low levels of education; but are they poor because they have little education, or do they have little education because they are poor? A statistical association alone is not enough to establish causality, and additional information is likely to be required. Second, most of the "causes" of poverty that we identify in the literatures are immediate (or "proximate") causes, but not necessarily "deep" causes.

For instance, suppose that we can demonstrate that low levels of education do indeed increase the risk of poverty. This is interesting, but now begs the question of why some people have low levels of education in the first place: Were the school fees too high? Was there no school nearby? Was the quality of the education abysmal? Were their parents unsupportive, or even hostile to education? Was there a concern that an educated woman could not find a husband? The weakest part of poverty analysis – what "White" calls the "missing middle" – is developing a clear understanding of the fundamental causes of poverty. Such an understanding is needed if one is to develop an effective strategy to combat poverty.

Since, there is no reason to believe that the root causes of poverty are the same everywhere, state -specific analysis is essential. And this is a positive work in this regard and helps the further researcher to analyse the deep causes of poverty in other state of India at district level. Finally review of the different governmental policies has been done in order to analyse the role of the state government in order to reducing poverty over the period of time. The role of different set of institutions across the state and their historicity may also play a major role in the success or failure of the different governmental programmes. It can largely be argued that the same set of the Mahatma Gandhi National Rural Employment Guarantee Scheme functioning very well in some of the Indian state while not in others. What is the inherent characteristic of the state where it is functioning well and where it is not? So, if it is functioning well it can directly reduce the economic deprivation in the state but the other lag behind where it is not functioning properly. Similar questions can be raised regarding the different initiative taken by the government of India for education and to provide some of the basic amenities to the poor masses across the country. The result of this has been presented in the respective chapters. Finally, the suggestions regarding mitigation of deprivation have been given in each and every chapter.

1.9 Choice of Indicators:

Although systematic efforts to understand and measure deprivation through a set of indicators began very early, efforts are still continuing to improve on the indicators both in terms of the number and types of indicators to be selected to justifiably reflect the essence of poverty and to reliably measure them. The choice of indicators seems to vary from selecting overall indicator to the deprivation of an index combining several indicators, to the matrix of poverty profile. Very often these choices are not necessary contradictory, but complimentary to each other although they may emphasize the aspects of the human well-being more than the other in projecting the essence of poverty. Also the choice of indicators and the terminologies to connote poverty (deprivation) is found to be greatly influenced by the perspective of the individual, scholars who tend to define the term from their own disciplinary and ideological preferences. Following are the list of dimensions and indicators selected for the present study.

Table 1.1 Lists of Dimensions and Indicators for the Present Study

Dimensions	Indicators
Health	(i)Infant Mortality Rate (ii)Population Uncovered by Primary Health Centre
Education	(i) Percentage of Out of School Male Children (ii) Percentage of Out of School Female Children (iii) Percentage of Adult Male Illiterate (iv) Percentage of Adult Female Illiterate
Living Standard	(i)Percentage of Households Without Access to Safe Drinking Water (ii)Percentage of Households Without Access to Electricity (iii)Percentage of Households Having No Toilet Facilities (iv)Percentage of Households Residing in Kutcha Houses

1.9.1 Identification of Indicators:

Quality of life has varying connotation for different people depending upon their professions and backgrounds. However, for social scientists it is a term used to describe the living conditions of people. Measuring social deprivation is a very

difficult task due to the subjectivity of the matter and the absence of the relevant data. It is fraught with many problems including the identification of the indicators to be used for such a measurement, unit of observation, method of data collection and monitoring of variables over time.

Selection of variables to measure social deprivation is one of the most discussed topics among those who are concerned with such a measure which indicators should be selected that would represent the living conditions of the people? Should they encompass all the aspects of life that are critical, for survival? Should they be social, economic or cultural? These are some of the questions which need to be considered while identifying the indicators. The indicators selected to represent the living conditions of the people should concentrate largely on the social and economic aspects since it is possible to make policy interventions in these and bring about changes in the quality of life of the people.

Three dimensions have been selected for constructing social deprivation in the state of Bihar. In health dimension the indicators chosen as infant mortality rate which represent the overall backwardness of the household. It is both a household level characteristics of poverty as well as regional level characteristics of poverty. Because in the absence of the primary health centres the health of the pregnant women is not well and she is not reporting to the primary health centres and unable to get the capsules related to different minerals such as iron and folic acid. The illiterate family members are also not aware regarding the safe delivery of the child and due to this there is high incidence of infant mortality rate among the poor households. Lack of nutrition leads to underweight of the children and hence the growth of the child is adversely affected. Education is little among the poor households due to several factors and has been discussed in detail in the relevant chapter of the dissertation.

Among the basic amenities four indicators has been chosen such as absence of safe drinking water, electricity, toilet facility and those residing in kutcha houses. Water is a very basic need and without safe water no one can live a healthy life. Hence, data regarding safe water has been taken. In this modern era of 21st century even most of the villages of Bihar does not having electricity supply and people are still living in the dark age of 1950s and 60s. Electricity can help the rural population on many ways. It can directly reduce the poverty if utilised properly. Irrigation can save the

money of the small and marginal farmers as the rate of the private irrigation facility is very high. They can utilise the modern means of information and communication technology if there is assured supply of electricity in the villages. They can get news regarding weather and other programmes broadcast by the Ministry of Agriculture for the well-fare of the farmers and can improve their productivity. In the absence of the toilet facility with in the household premises having a very negative impact on the health and hygiene of the people and thus they became sick and their productivity decreased. Union and state governments are providing assistance to the below poverty line families (BPLs) families in order to build pucca houses but still majority of the people are residing in the kutcha houses with absence of the basic needs. So, it becomes essential to include these indicators in our analysis of social deprivation since all these having a greater impact on the living conditions of the people of Bihar. After a long year of independence still people are suffering from a huge range of problems which is very basic to human existence.

1.10 Organisation of the Study:

The study has been divided into seven chapters. First chapter of the dissertation makes an attempt to introduce the topic, spell out of the objectives, significance of the study, introduction of the study area and the causes of the selection of the study area, research questions, database, and methodology, choice and identification of indicators and limitations of the study.

Second chapter is devoted to survey of the literature to establish the framework of research. Present study is highly debated and hence there is an urgent need to go through in-depth reading regarding the conceptualisation and the measurement issues of the economic deprivation (poverty) in the west and in India.

The next four chapter forms the main body of the dissertation. The third chapter deals with the health issue and health deprivation has been calculated for the entire districts of Bihar for the period of 1981, 1991 and 2001. Opportunities and challenges have been discussed and some suggestions have been given in order to mitigate the problems of accessing health facilities by the people.

The fourth chapter deals with the deprivation in educational attainments of the people of Bihar, with the help of adult illiteracy rate and out of school children. Programmes

and policies of the union and state governments have been discussed and suggestions have also been given.

The fifth chapter has discussed about the issue of the basic amenities in one of the most backward state of India. All the four basic amenities have been discussed one by one and deprivation in basic amenities has been calculated for the three period of time.

The sixth chapter makes a concluding discourse on the issue of deprivations and development. Index of social deprivation has been computed with the help of the three deprivations namely health, education and basic amenities. Arithmetic mean of the three has been taken as the index of social deprivation. A comparison between social deprivation and economic deprivation has been done and the determinant of economic deprivation has been discussed precisely.

The last chapter of the dissertation deals with the summary of conclusion of the entire work.

1.11 Limitations of the Study:

Present work is purely based on the secondary data which is obtained from the different government sources. A good work on social deprivation should be based on the household survey which must be based on Q^2-approach (i.e. qualitative as well as quantitative). There are various indicators which cannot be captured quantitatively and hence qualitative work is necessary for any kind of deprivation analysis. In health dimension number of primary health centres has been captured and the underlying assumption is that if the number is high then the people of that district will suffer less in access of health facilities but in reality this may not be the case. Because, the quality of services delivered by doctors and other medical staffs having also a greater impact on the health issue of the people. This cannot be captured quantitatively and it may distort the true picture of deprivation suffered by the people. Other indicators such as doctor population ratio, number of paramedical staffs, number of beds, percentage of immunization of children etc. has not been captured because of the non-availability of data at district level for the study period of 1981, 1991 and 2001.

Estimated data on infant mortality rate at district level for the period of 1981 and 1991 has been taken as the exact data for this has not been available. In case of safe drinking water, water which has been taken from the closed sources is taken as safe due to the definitional issue of the Census of India but in reality this is not the case and due to this the percentage of household having safe drinking water is high in the case of Bihar for all the three census decade. But it has no scientific base as we cannot say that any water taken from a closed source is safe for drinking purpose. Households having electricity connection is taken but whether electricity is there or not is not captured by data. Quality of supply must be taken into consideration while talking about the basic services. Social deprivation is so complex that it cannot be captured into three or four dimensions and thus other dimensions are remains untouched when social study is solely dependent upon the secondary data sources.

CHAPTER-2

CHAPTER: - 2

AN OVERVIEW OF THE LITERATURE

2.1 Introduction:

Human concerns as deprivation in income, education, medical and public health, etc. have been focal themes before policy makers, scholars and institutions since last quarter of 20thcentury and it continues unabated today. This has led world-wide debate on these issues which strengthen further through publication of human development report of United Nations Development Programme in 1990, and 1997 and launch of the millennium development goals at the millennium summit in New York in September 2000. Poverty amid plenty is the world's greatest challenge today. Of the world's 6 billion people, 2.8 billion, almost half – live on less than $ 2 a day and 1.2 billion – a fifth – live on less than $ 1 a day with 44 percent living in South Asia.[19]Most of the economists/ scholars have examined the structure of poverty in terms of income only.

But, since the publication of the human development report in 1997 by United Nations Development Programme and launch of the Millennium Development Goals at the millennium summit in New York in September 2000, an exciting debate has emerged world-wide on the issues of human poverty. The world Development Report 2001 clearly states that now traditional view of poverty as encompassing not only material deprivation (measured by an appropriate concept of income or consumption) but also deprivation of education and health. Recently, world development report, 2007 has observed that reducing in poverty and ensuring better opportunities in term of education, medical and public health, especially in youth, should be assigned top priority[20].Measuring deprivation in the dimensions of health and education has a tradition that can be obtained in the writings of classical economists too like Malthus, Ricardo and Karl Marx. Rowntree's[21], primarily income based approach to measuring

[19]World Bank (2001), "Attacking Poverty", World Development Report, Oxford University Press, New York.
[20]World Bank (2007), "Development and the Next Generation", World Development Report, Oxford University Press, New York.
[21] Rowntree, Benjamin Seebohm (1901), *Poverty: A Study of Town Life*,Macmillan, London.

poverty; has devoted a full chapter of his work to the relation of poverty to health. Empirical studies revealed that there exists a close and inverse relationship in between human poverty and human development. Human Development, as defined by United Nations Development Programme, 1991 is a process of enlarging people's choice, including living a long and healthy life, to educate and to have access to resources needed for a decent living standard. In fact, human development has two sides. One is the formation of human capabilities –such as improved health, knowledge of skills. The other is the use people make to their acquired capabilities for productive purpose. If the scales of human development do not finely balance the two sides, much human frustration emerge.[22] In particular, human development is measured through human development index which is composite of three basic components: income, education and health, while human poverty is measured in terms of deprivation index. Human development is possible either by raising the value of human development index closer to unity or by reducing the deprivation index closer to zero. Thus, human poverty which is measured in terms of deprivation indices can be minimized through reducing the value of deprivation indices.

In light of aforesaid facts, it is important to discuss different conceptual and measurement issue regarding poverty. The conceptualisation and measurement of poverty has been a debated issue since the late nineteenth century. The two central questions of poverty measurement debate have been arises as how to identify the poor and how to aggregate them.

These questions have been addressed and debated by a huge volume of literatures which reflect the changing conceptualisation of poverty and also the evolution of data collection and analysis methods. The industrial urbanised cities in the western countries have prompted the studies of poverty. The poverty debate in west is largely dominated by the studies of urban underclass and poverty neighbourhood etc. In the third world countries rural poverty complements the urban poverty, thus poverty studies have focussed on various regional units. India has been the pioneer in the poverty studies among the third world countries; however, poverty literature in India has been largely affected by the on-going poverty debate in the global literatures. The poverty measurement literatures can be broadly divided under two heads of Western

[22]United Nations Development Programme (1995), "Human Development Report", Oxford University Press, New York.

Literature and Indian Literature for ease of discussion but this division will not very sharp as the scholars of India have contributed significantly in the western literature and vice versa. The literature can be divided according to different paradigm also but that too will not be a sharp division as different paradigms and concepts have run parallel.

The objective of the present chapter is to build up a chronological sequence of the shifting paradigm of poverty measurement literature and associated shift in the measurement methods. The study separately discusses India's poverty measurement debate but it follows the same sequence of evolution as the world debate on poverty. It tries to identify major issues regarding poverty measurements research.

2.2 Poverty Debate in West:

The early studies in poverty started in the industrialised and highly polluted urban areas of Britain where the living conditions of the urban industrial labourers led the scholars to study the poverty and deprivation of the urban poors. Pioneer was Seebohm Rowntree's book based on the investigations in York he tried to define poverty as a condition in which earnings were insufficient to meet the minimum requirements of healthy and productive life. These included nutrition, clothing, fuel, rent etc. However after 40 year of his first publication published a second copy where he realised the varying reality of social life across space and time and here he laid the groundwork for the two concepts of 'relative' as against 'absolute' poverty.

In US poverty studies became more popular after Second World War and there also the focus has been the urban underclass that is the socially vulnerable section of the urban poor who are prone to committing crime and are isolated from urban life. That is why in Britain and US poverty studies have been a domain largely of sociologists.

George (1976)[23],her classic work *"How the Other Half Dies"* was written after the World Food Conference in 1974. Yet the needs remain the same and the book's relevance, its ability to shock and its power to enrage have in no measure diminished. Hunger is not a scourge but a scandal. This is the premise of Susan George's classic study of world hunger. Contrary to popular opinion, malnutrition and starvation are

[23] George, Susan (1976), *How the Other Half Dies: The Real Reasons for World Hunger*,Penguin Books, Great Britain, United Kingdom.

not the result of over-population, of poor climate or lack of cultivatable land. The reason why hunger exists on such a vast scale is because world food supplies are controlled by the rich and powerful for the wealthy consumer. The multinational agribusiness corporations, Western governments with their food 'aid' policies and supposedly neutral multilateral development organizations share responsibility for the fate of the undeveloped countries. Working with local elites, protected by the powerful West, the United States paves the way and is gradually imposing its control over the whole planet.

Human Development Report (1997)[24],the concept of the human poverty index has been introduced in this report. The human poverty index concentrate on deprivation on three essential elements of human life already reflected in the human development index- longevity, knowledge and a decent standard of living. The first deprivation relates to survival- the vulnerability to death at a relatively early age. The second relates to knowledge- being excluded from the world of reading and communication. The third relates to a decent living standard in terms of overall economic provisioning.

In constructing the human poverty index, the deprivation in longevity is represented by the percentage of people not expected to survive to age 40 (PI) and the deprivation in knowledge by the percentage of adults who are illiterate (P2). The deprivation in a decent living standard in terms of overall economic provisioning is represented by a composite (P3) of three variables-the percentage of people without access to safe water (P31) the percentage of people without access to health services (P32) and the percentage of moderately and severely under- weight children under five (P33).

The composite variable P3 is constructed by taking a simple average of the three variables P31, P32 and P33.

Thus,

P3= P31+P32+P33/3

And finally they devised the formula for human poverty index and thus created Human Poverty Index which represents the multidimensionality of poverty.

[24]United Nations Development Programme (1997),"Human Development Report", Oxford University Press, New York.

Bourguignon and Chakravarty (2003)[25], paper suggests that an alternative way to take into account the multi-dimensionality of poverty is to specify a poverty line for each dimension of poverty and to consider that a person is poor if he/she falls below at least one of these various lines. The paper then explores how to combine these various poverty lines and associated one- dimensional gaps into multidimensional poverty measures. An application of these measures to the rural population in Brazil is also given with poverty defined on income and education. But the union approach which is followed by the author is misleading because a person may be suffering in one dimension not due to the causes of the poverty but the kind of the society in which they are residing. Necessarily all the dimensions does not having equal weightages and deprivation in one dimension having a greater impact than the deprivation in other(s) dimensions.

Harris (2004)[26],tries to reduce poverty by means of the new technology which is broadly a feature of 21st century in which (all) / some the nations of the world is endowed with the (most) sophisticated technology. In this modern era various governmental agencies are talking about e- governance and this prefix 'e' becomes so common that everybody is using this without any hesitation. The author is however utilising the role of ICT in reducing poverty in a sensible manner. Alleviating poverty with ICTs is not as straightforward as merely installing the technology, but it is not conceptually complex either. Provided a few relatively simple principles can be followed, it seems likely that widespread poverty alleviation can be achieved with ICTs. The main challenges are not actually in the technology; they lie in the coordination of a disparate set of local and national factors, each of which can derail efforts if not taken into account. In summary, the following five principles emerge from the ICT for Poverty Alleviation Framework:

- Strategize for poverty alleviation, not for ICT
- Reform telecommunications through privatization, competition and independent regulation

[25]Bourguignon, Francois and Satya R. Chakravarty, (2003), "The Measurement of Multidimensional Poverty", *Journal of Economic Inequality* 1: 25–49, 2003.Kluwer Academic Publishers.Printed in the Netherlands.

[26] Harris, Roger W. (2004), "Information and Communication Technologies for Poverty Alleviation", United Nations Development Programmes, Asia-Pacific Development Information Programme (UNDP-APDIP), Kuala Lumpur, Malaysia.

- Promote public access: aggregate demand for sustainability (which is not only financial)
- Reform institutions to achieve transformational benefits
- Develop appropriate approaches for listening to the poor

As a crosscutting multidimensional approach to development, ICTs can stretch implementation energies to the full. They also challenge traditional approaches to development. But they promise substantial improvements in the daily lives of millions of poor people. The framework for poverty alleviation is offered as a tool for guiding efforts towards achieving this potential. The framework allows for a full consideration of the range of relevant critical factors prior to embarking on implementation as well as for post-hoc reflections on outcomes. It represents a first effort, and it is acknowledged that other, similar tools exist. Through a combination and further synthesis of experiences and observations, the framework can become a practical tool for use by planners and policy-makers with general applicability in multiple contexts.

Luzzi et.al (2005)[27],the measurement of poverty has often been criticized for relying solely on measures of financial deprivation. Poverty being a multidimensional state, related to health, schooling, living environment, psychological state as well as social tides, and hence care should be taken to these various components to have a proper picture of poverty. This is also true for rich countries where often, poor financial conditions are alleviated by social policies, like minimum income, unemployment or housing benefits, whereas social exclusion and poor health can dominate the poverty feeling. They illustrate that how some descriptive statistical tools can offer new insights in the context of multidimensional poverty. Factor analysis is used to construct poverty indicators based on many possible dimensions without posing too many a priori restrictions. These variables are examined to identify common factors which convey some aspect of multidimensional poverty. By ascribing individual scores on each factor, they use cluster analysis to see what populations subgroups are more affected by the various dimensions of poverty. Finally, a survival analysis is run

[27] Luzzi, Giovanni Ferro, Yves Flückiger and Sylvain Weber (2005) , "Multidimensional Poverty and Cluster Analysis: An Illustration with Switzerland, Paper presented at the International Conference on the "Many Dimensions of Poverty" Organised by IPC, Brasilia, 29-31 August, 2005.

to find the determinants of falling into poverty.

Thorbecke (2005)[28], author review a number of issues related to poverty, while taking stock of the on-going research. He asserted that most of the unresolved issues in poverty analysis are related directly or indirectly to the multi-dimensional nature and dynamics of poverty. Before the development, community can become more successful in designing and implementing poverty-alleviation strategies, within the context of growth, we need to identify and understand the various dimensions of poverty and how the latter interact over time and across space. Some households are endowed with portfolios of attributes that keep them in a poverty trap under which they remain permanently (chronically) poor, while others with somewhat different portfolios move in and out of poverty or can escape altogether falling into a state of poverty. He discusses issues related to the concept of multi-dimensional poverty; and reviews a number of multidimensional poverty measures. He also devoted analysis of multidimensional poverty and vulnerability over time and addresses further issues related to the measurement of multi-dimensional poverty.

Wagle (2005)[29], in his work on the "Multidimensional Poverty Measurement" in Kathmandu, Nepal suggests that the unidimensional measurement of poverty is not appropriate and hence there is a need to capture the other facets of the poverty. They include economic well-being, Capability and social inclusion. While all of these dimensions are integral the capability dimension appears to be highly influential, affecting every other poverty dimension. This paper identifies some of the indicators which are appropriate to measure different poverty dimension.

The indicator related to the economic well-being include income, wealth, consumption and other subjective views regarding the adequacy of income for food and non-food expenses and the effect of increase in income on food and non-food expenses. They also talk about the objective and subjective notions of poverty. The

[28] Thorbecke, Erik (2005), "Multi-dimensional Poverty: Conceptual and Measurement Issue, Paper prepared for The Many Dimensions of Poverty International Conference", UNDP, International Poverty Centre, Brasilia, August 29-31, 2005.

[29] Wagle, Udaya, (2005), "Multidimensional Poverty Measurement with Economic Well-being, Capability, and Social Inclusion: A Case from Kathmandu, Nepal", *Journal of Human Development*, Vol. 6, No. 3, November 2005.

former is measured through income and consumption and the later through householder's views on the adequacy of income for food and non-food expenses. Second the indicators of capability may include educational status, health and nutritional status, gender discrimination within households and then ethnic discrimination in neighbourhoods. Third the potentially relevant indicators of economic inclusion include employment status, occupation, industry of employment, caste and ethnic discrimination in economic activities and access to financial resources. Fourth the theory suggest that the political inclusion can be measured employing citizenship card holding, voter registration, participation in political activities, participation in informal policy talks, headship of political positions, visits from politicians and communication with politicians. Fifth the indicators of civic and cultural inclusion may include organizational membership, participation in social activities, participation in joint activities, family contacts, social networks and ties, access to non-economic help and availability of friends for children in the neighbourhood. The core indicators of the capability are the education by means of which an individual can participate in the labour market and deriving adequate income and consumption to escape poverty. The author finally classified the poor on the basis of the number of dimensions in which a particular household comes.

Households experiencing poverty on all three dimensions are considered 'abject poor' as they are deeply entrenched in poverty, with minimal likelihood of escape. Households experiencing poverty on two dimensions are considered 'very poor,' as they are at risk of being the abject poor but are slightly better positioned. All other households that are poor on only one of the three dimensions are considered 'poor,' which are relatively better off with much higher chance of escaping poverty.

The author concludes that providing educational opportunities especially for women and providing health care facilities appear to be more fundamental at enhancing capability. Education can be a prerequisite to having adequate income or consumption. More educated or more informed people, for example, are less likely to be poor not only because they are better prepared for employment, but also because they make more informed decisions in acquiring or managing resources as well as making other life decisions.

Dewilde (2007)[30] in his article measure the concept of poverty by using both monetary and non-monetary indicators. A latent class measurement model is used, allowing us to take account of the multidimensionality of the data and the discrete nature of most available multidimensionality indicators. The proposed measurement instrument allows for poverty to manifest itself in different ways or forms for different subgroups in the population. Special attention has been paid to the feasibility of constructing a multidimensional poverty measure which can be used to study poverty dynamics with longitudinal panel data. He presented figures on the size and the social distribution of the poor population in Belgium and Britain. He selected three dimensions for poverty/deprivation namely housing, housing environment and financial problems. A large numbers of indicators have been taken under different dimensions to capture the deprivation quantitatively and finally construct a composite index which distinct poor from non-poor. He also identifies that different groups are suffering different degree of deprivation.

Hulme and Toye (2007)[31],in their book they explores the different dimensions of well-being, poverty and inequality. A person's sense of wellbeing is compounded of many elements including economic, political and social psychology. Poverty and inequality are aspects of a lack of well-being in multiple dimensions and, this texts argues, development should be considered a process that overcomes these multiple deficiencies .This book examines the advantages of analysing poverty and development by multi-discipline research. Economists, political sociologists and anthropologists put forward an idea of well-being from their own perspective, using their own research material, while the editors argue in their introduction that bringing to bear of many disciplines can enrich the research output of all.

Alkire and Foster (2008)[32], they introduced an intuitive approach to identifying the poor that uses two forms of cut-offs. The first is the traditional dimension-specific

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[30] Dewilde, Caroline, (2004), "The Multidimensional Measurement of Poverty in Belgium and Britain: A Categorical Approach", *Social Indicators Research,* Vol. 68, No. 3 (Sep., 2004), pp. 331-369, Published by: Springer.

[31] Hulme David and John Toye, (2008), "Understanding Poverty and Well-being: Bridging the Disciplines", *Routledge,* Southampton, United Kingdom.

[32] Alkire, Sabina and James Foster (2008), "Counting and Multidimensional Poverty Measurement", Oxford Poverty & Human Development Initiative (OPHI), Working Paper Number 7.

poverty line or cut-off, which identifies whether a person is deprived with respect to that dimension. The second delineates how widely deprived a person must be in order to be considered poor. Their benchmark procedure uses a counting methodology, in which the second cut-off is a minimum number of dimensions of deprivation. The 'dual cut-off' method of identification naturally suggests an approach to aggregation that is likewise sensitive to the range of deprivations a poor person experiences. They derive a new class of 'dimension-adjusted' multidimensional poverty measures based on the traditional FGT measures of poverty.

The new methodology satisfies an array of desirable axioms for multidimensional poverty measures including 'decomposability' – a property that facilitates targeting. They also satisfy a new requirement of 'dimensional monotonicity', by which an expansion in the range of deprivations experienced by a poor person is reflected in the overall level of poverty. However the identification method which is based on cut-offs is sensitive to some changes and insensitive to others. For example, small changes in individual achievements around a cut-off can lead to a change in the poverty status of an individual, and can cause the poverty level to vary discontinuously in achievements. It would be interesting to see whether a fuzzy approach to identification might remove the discontinuity, or whether there are other modifications that might address this directly.

On the other hand, the poverty status of a person will be unaffected by certain large changes in achievements: a poor person can never rise out of poverty by increasing the level of a non-deprived achievement; a non-poor person will never become poor as a result of decrease in the level of a deprived achievement. This is perhaps not unexpected, given their interest in applying the method to ordinal data and in avoiding aggregation before identification. However, there are tensions here that should be evaluated as part of a more systematic investigation of identification methods. By this suggested methodology they find out the multidimensional poor in Indonesia and USA by taking a large number of dimensions which manifest the different facets of poverty. The following indicators has been used by them in order to identify a multidimensional poor namely expenditure, body-mass index (BMI),schooling, cooking fuel, drinking water, sanitation, sewage disposal, solid waste disposal and find out the spear man's rank correlation among the indicator for both the country. And finally this paper has provided a clear and practical methodology for

multidimensional poverty measurement that will be a useful touchstone in future research efforts.

Nunes (2008)[33], started with the different approaches of the poverty and the first approach is the absolute approach. The World Bank president McNamara articulated the concept of absolute poverty. He implicitly defined it as a condition of life so degrading as to insult human dignity. This approach having a fixed value over time and space. In contrast with the absolute approach, Peter Townsend developed the relative approach as an alternative measure to poverty. They said that the fixing the amount of money as an proxy indicator of the poverty is misleading because people needs are conditioned by the society in which they live and to which they belong. Both these approach can be club into the objective approach. The subjective poverty line developed in the 1970s casts' doubts over the objectivity of using basic needs in poverty measurement including nutritional requirements. The author is also talking about the multidimensionality of the poverty and said that many factors should be included such as political, economic, social and cultural forces while we identify and aggregates the poor in a society.

Rynell (2008)[34], he tries to find out the causes of poverty in USA and the finding of the author is like this. Poverty is widespread and will touch the majority of Americans at some point during their lifetimes. What emerges out of a review of the literature is a picture of a heterogeneous poor population with different triggers for entry into poverty. Certain groups are disproportionately impacted and certain events are more influential for various subgroups within the risk of poverty population than they are for others. Some of the important causes identified by him are like this. Nearly 20 percent of people enter poverty when the head of household loses a job. Half of poverty spells begin with the household experiences a decline in earnings. Households headed by someone without a high school degree have a high likelihood of entering in to poverty. When a two-adult household becomes a female-headed household 20.1 per cent entered poverty. 8.6 percent of poverty entries happen when a child is born into household. When a head of household becomes disabled, 6.5 per cent of households

[33] Nunes, Celso (2008), "Poverty Measurement: The Development of Different Approaches and Its Techniques", ECINEQ, *Society for the Study of Economic Inequality.*

[34] Rynell, Amy (2008), "Causes of Poverty: Findings from Recent Research, The Jim Lewis, Chicago Community Trust Amy Terpstra", The Heartland Alliance Mid-America Institute on Poverty.

enter in to poverty.

Basarir (2009)[35], a notable writer has done their empirical work on the multidimensional measurement of poverty in South Africa. He said that income may not be used to alleviate certain deprivations and the assumption of the complete markets is not realistic in a developing country context. In other words having the financial power to pay for a service is meaningless if the market for that service does not exist and hence income-based approach can be misleading. This paper looks at the same picture from different perspective to see if this would help us to suggest alternative solutions to various deprivation problems faced in South Africa.

In total 14 distinct dimensions have been considered to identify and aggregate the poor in South Africa. The author makes a comparison between the unidimensional measurement of poverty methods which has been suggested by the Foster- Greer and Thorbecke[36] and the multidimensionality of poverty measurement which has been suggested by Anand-Sen[37] and Alkire- Foster family of measures. Dimensional weighting is a significant aspect of multidimensional analysis since depending on the context of the study, unequal weights might be more appropriate than equal weights for each dimension.

The indicators which has been used by the author is housing, drinking water, sanitation, electricity, cooking fuel, rubbish removal, home/cell phone, years of schooling, hunger, households expenditure, sexual/physical harassment, assets, health proximity and employment ratio. It turns out that employment, housing and education are the most important three dimensions according to the poor. The main driver of the employment is the desire to earn money and education is seen as a key for access to income. Author has assigned higher weights for the human development index dimensions namely health, education and income and divided the rest among the other eleven dimensions equally. Human development index dimensions are generally-agreed dimensions that affect the well-being of an individual most directly.

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[35] Basarir, Hasan (2009) "On the Multidimensional Measurement of Poverty: An Empirical Stud on South Africa", University of York, Accessed on 24th February 2011.

[36] Foster, James E; Greer, Joel and Thorbecke, Erik, (1984), "A Class of Decomposable Poverty Measure", *Econometrica*, 52, pp. 761-766.

[37] Anand, Sudhir and Sen, Amartya K. (2003), "Concepts of Human Development and Poverty: A Multidimensional Perspective", *Readings in Human Development*, pp. 228-244.

Alkire and Santos (2010)[38], in his paper named as "Multidimensional Poverty Index" published by University of Oxford, introduced the concept of the multidimensional poverty index which has also been adopted by the United Nations Development Programme, in its Human Development Report, 2010. The MPI is an index of acute multidimensional poverty. It reflects deprivations in education to health outcomes to assets and services for people across 104 countries. The poverty which is reflected by the income has been different from the poverty which has been shown by this methodology.

The MPI has three dimensions namely health, education and standard of living. These are captured through 10 indicators and poor households are identified on the basis of the methodology which has been proposed by the Sabine Alkire and James E Foster. Each dimension is equally weighted and each indicator within a dimension is also equally weighted. The key findings of the paper are like this. Half of the world's multi dimensionally poor people are living in South Asia and just over a quarter in Africa. The interesting finding of the paper is that poor people are not necessarily income poor. The data from the Niger shows that only two- thirds of Niger's people are income poor, whereas 93% are poor by the MPI methodology.

There is a huge range of intra country variation in MPI and data from the two state of India prove this. State of Bihar where the percentages of people who are multi dimensionally poor are 81 % on the other hand the state like Kerala where this percentage is just only 16. They also found five types of poverty and suggested that the policy to tackle this poverty should be different. Different country is reducing their poverty by achievement in different dimensions. For example the country like Ethiopia are reducing poverty by improving nutrition and water, whereas Bangladesh improved it by sending children to school. Ghana improved several aspects of MPI poverty at once. Although limited by data the MPI is robust. 95 % of the ranking do not change if we look at people who are poor in as little 20 % or as many as 40 % of deprivations.

[38] Alkire, Sabina and Maria Emma Santos (2010), "Acute Multidimensional Poverty: A New Index for Developing Countries", Oxford Poverty & Human Development Initiative (OPHI), Working Paper Number 38.

Laderchi et al. (2010)[39], discusses about the different approaches of the poverty. They starting their argument by saying that there is a world -wide agreement on poverty reduction as an overriding goal of development policy, but there is a little agreement on the definition of poverty. They discuss four approaches of poverty. The monetary approach defines poverty with a shortfall in consumption or income from some poverty line. The use of a monetary approach to poverty can however be justified in two quite different ways.

Firstly, the minimum rights approach, where a certain basic income is regarded as a right without reference to utility but rather for the freedom of choice it provides[40]. Secondly the use of a monetary indicator is often invoked not because monetary resources measure utility, but because it is assumed it can appropriately proxy other aspects of welfare and poverty.

It can be justifiable up to some extant because when a person having enough amount of money then he/ she can enjoy the healthy life and decent standard of living. Let us put my argument in some another ways that how the monetary approach having a robust role while measuring poverty or say multiple deprivation in the society. A rich person in Bihar and a rich person in Punjab or say in Gujarat can enjoy the same level of facilities and he may not be suffered from any kind of deprivation or at least some kind of deprivation. But the story of deprivation of the people of Bihar, Punjab or Gujarat is not the same. Those who are in Bihar have to suffer a lot of deprivation against those who are in the most developed parts of the state.

The second approach which has been given by Amartya Sen[41] argues that development has to be seen as the expansion of human capabilities, not the maximization of utility or its proxy, money income. In the course of the debate regarding the basic capabilities of the human being Martha Nussbaum[42] has listed some of the capabilities by which every individual must possessed. However this approach does not captures the fundamental causes or dynamics of the poverty. Two

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[39] Laderchi, Caterina Ruggeri; Ruhi Saith and Frances Stewart, (2010), "Does it Matter that We do not Agree on the Definition of Poverty? A Comparison of Four Approaches", http://www.informaworld.com/terms-and-conditions-of-access.pdf dated on 24th February 2011.

[40] Atkinson, A.B. (1989), *Poverty and Social Security*, London, Harvester Wheat sheaf.

[41] Sen, A.K. (1985), *Commodities and Capabilities*, Amsterdam, North-Holland.

[42] Nussbaum, M. C (2000), *Women and Human Development: A Study in Human Capabilities*, Cambridge, Cambridge University Press.

individual living in the same society having different capability and during their lifetime they suffer from different kinds of the problems or deprivation.

The third approach dealing with the concept of social exclusion which has been arises in the industrialized parts of the world. It describes the processes of marginalization and deprivation that can arise even in rich countries with comprehensive welfare provisions.

The fourth approach is participatory methods which has been given by Chambers[43] aims to change the existing notions of the poverty and to get people themselves to participate in decisions about what it means to be poor and the magnitude of poverty. This review of the different approaches to the identification and measurement of the poverty makes clear that there is no unique or objective way of defining and measuring poverty. All definitions of poverty contain some arbitrary and subjective elements, often imposed by the outside observer. Thus we come to a conclusion that definition does matter. Clearer and more transparent definitions of poverty are an essential prerequisite of any development policy that puts poverty reduction at its centre.

Human Development Report (2010)[44] has introduced a new ways to calculate the poverty by taking three dimensions mirroring the human development index - health, education and living standard- which are reflected in 10 indicators, each with equal weight within its dimension. These indicators are child mortality, nutrition, years of schooling, children enrolled, cooking fuel, toilet, safe drinking water, electricity, floor and assets. A household is multi dimensionally poor if it is deprived in at least two to six indicators. The cut-offs are austere, reflecting acute deprivations, and most are linked to the millennium development goals.

The interesting result of the MPI is like this. Countries with higher multidimensional poverty head counts tend to have more deprivations. At the same time, interesting outliers emerge- countries with a low poverty headcount but high intensity of poverty (such as Myanmar, Philippines, and Vietnam) and countries with a high headcount but

[43]Chambers, R. (1994), "The origins and practice of PRA", World Development, 22, No. 7, pp. 953–969.
[44]United Nations Development Programme(2010), "Human Development Report", Oxford University Press, New York.

low intensity of poverty (such as Bangladesh, Cambodia and democratic republic of Congo.)

However the MPI has some drawbacks mainly due to data constraints. First the indicators include both inputs (such as years of schooling) and outputs (such as cooking fuel) as well as one stock indicator (child mortality, which could reflect a death, that was recent or long ago), because the flow data are not available for all dimensions.

Nussbaum (2011)[45],creating capabilities is a significant achievement. Nussbaum has managed to accomplish four major tasks with her book, any of which would have made this a good book: write an accessible version of the Capabilities Approach; clearly differentiate her view from Amartya Sen's, who stands as the standard bearer of the approach; address some common criticisms of the Capabilities Approach that have arisen over the past decade; and to synthesize a large portion of her work over the past 15 or so years into a coherent whole.

The territory she covers is very familiar to those who know the Capabilities Approach. Capabilities are "substantive freedoms" – "a set of (usually interrelated) opportunities to choose and act" in one's life. They involve a choice between a set of activities for one's life, which are also known as functionings.

So, functionings are the active usage of one of your capabilities (e.g. voting (functioning) to participate effectively in political decisions (capability)). She also maintains the view that there are ten Central Capabilities, all of which must be grounded in a common sense understanding of what a just society must have: human dignity. One new feature of Nussbaum's approach is to split capabilities into two types: internal and combined. Internal capabilities are the general characteristics of a person (physical/mental/emotional) that are developed through interaction with external features of society. Combined capabilities are the "totality of opportunities [one] has for choice and action in [one's] specific political, social, and economic situation," which are the result of nurtured internal capabilities.

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[45] Nussbaum, Martha. C (2011), *Creating Capabilities: The Human Development Approach*, Cambridge, Cambridge University Press.

As such, the two types of capabilities are interrelated, and cannot be separated within a society. Another addition to the approach lays out specific principles which support the aim of a basic minimum or threshold of capabilities: Nussbaum utilizes the Stoic notion of the equal worth of all humans, as well as the Aristotelian notion of human vulnerability, the latter of which requires that governments provide citizens with the option to lead a dignified life via the freedom of choice. These two notions are crucial to her inclusion of the disabled, as well as efforts to include non-human animals in her sufficientarian theory of justice. Competing theories of justice struggle to include both of the aforementioned groups, since the simple fact that all sentient beings are vulnerable to some degree, which does include animals as well, means that no theory can capture what the average human or most humans require having sufficient capabilities. She contrasts this with Sen's view, which gives us an evaluative framework concerning quality-of-life, but does not seek to fully adjudicate what, is just. In this sense, Sen's view has more in common with contemporary welfarist views on justice, and less in common with the development of the capabilities approach over the last decade. If there's one problem I do have with the book, it's that I don't know that her version of the capabilities approach will convince many egalitarians to adopt it.

For all the objections Nussbaum does try to address, it's not clear how she would address inequalities in society after the threshold of Central Capabilities has been met. That is, is an injustice committed if some citizens, say, live significantly longer than others, or are able to move freely with less of a threat of violence than others, simply because the affluent can afford to do so? So long as all other citizens live a normal life, and face a sufficiently small threat to move freely, Nussbaum seems committed to saying that this is acceptable. But one might argue that simply having the income to purchase such benefits doesn't demonstrate that the inequalities between the two sets of citizens are just. For specific goods like one's respect within the community, a citizen's basic education, or health, it isn't clear why the Capabilities Approach should allow any segment of citizens to face significantly more vulnerability or a set of drastically reduced capabilities, simply because of wealth. She could counter by saying she has only set out conditions for what is minimally just, but this wouldn't address why some injustices should be allowed, and some (below the threshold) wouldn't be.

Ravallion (2011)[46], there has been a growing interest in what have come to be termed "multidimensional indices of poverty." Advocates for these new indices correctly point out that command over market goods is not all that matters to people's well-being, and that other factors need to be considered when quantifying the extent of poverty and informing policy making for fighting poverty. However, the author argues that there are two poorly understood issues in assessing these indices. First, does one believe that any single index can ever be a sufficient statistic for poverty assessments? Second, when aggregation is called for, should it be done in the space of "attainments," using prices when appropriate, or that of "deprivations," using weights set by the analyst? The paper argues that the goal for future poverty monitoring efforts should be to develop a credible set of multiple indices, spanning the dimensions of poverty most relevant to a specific setting, rather than a single multidimensional index. When weights are needed, they shouldn't be set solely by an analyst measuring poverty. Rather, they should be, as much as possible, consistent with well-informed choices made by poor people.

2.3 Poverty Debate in India:

The western debates on poverty have subsequently affected the poverty debates in India which has been a pioneer in poverty studies. A large proportion of India's population is poor. To distinguish the poor from the non-poor, a poverty line acts as a cut-off. The income which is needed to provide each individual with a certain specified minimum number of calories per day forms the basis for defining the official poverty line. There has been much debate and discussion over the year on this issue. The Planning Commission, Government of India, estimates the number and proportion of the poor in urban and rural areas in the country. It has claimed that the proportion of the poor has declined steadily over the years. The extent of poverty, however, is determined by how poverty is defined. Government has a social obligation to eradicate poverty by designing appropriate policies and implementing them effectively. A poverty line serves a monitoring function in determining trends in poverty and assessing the impact of poverty-reduction policies. The present section describes the early definition and subsequent development of poverty lines in India, and then assesses the limitations of the poverty line as an indication of real

[46] Ravallion, Martin (2011), "On Multidimensional Indices of Poverty, The World Bank Development Research Group", Director's Office February, 2011, Policy Research Working Paper 5580.

deprivation. It demonstrates that use of the official poverty line results in considerable underestimation of the extent of poverty, and oversimplifies the nature of poverty by disregarding or disguising the reality of the lived experiences of poor people.

Deaton and Dreze (2002),[47] in their paper presents a new set of integrated poverty and inequality estimates for India and Indian states for 1987-88, 1993-94 and 1999-2000. The poverty estimates are broadly consistent with independent evidence on per capita expenditure, state domestic product and real agricultural wages. They show that poverty decline in the 1990s proceeded more or less in line with earlier trends. Regional disparities increased in the 1990s, with the southern and western regions doing much better than the northern and eastern regions. Economic inequality also increased within states, especially within urban areas, and between urban and rural areas. They briefly examine other developmental indicators, relating for instance to health and education. Most indicators have continued to improve in the nineties, but social progress has followed very diverse patterns, ranging from accelerated progress in some fields to slow down and even regression in others. They find no support for sweeping claims that the nineties have been a period of unprecedented improvement' or 'widespread impoverishment'.

Gaur (2010),[48] the present paper attempts to measure human poverty (inter-state) in India for the period 1981-2002. For this purpose, deprivation indices related to three parameters i.e. per capita State Domestic Product, per capita expenditure of states on Education, Medical & Public Health, have been calculated in case of twenty major states of India during 1981-02. The empirical findings of the present paper are quiet astonishing and shocking. For example excepting education, average deprivation in terms of per capita SDP and expenditure on medical and Public health, for twenty states has risen significantly during the period 1980-2002. Inter-state deprivation indices for per capita SDP and medical and public health stood at 0.6177 and 0.8294 respectively in 1980-81 while these indices increased further and were noted at 0.6202 and 0.8756 in 2001-2002.

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[47]Deaton, Angus and Jean Dreze (2002), "Poverty and Inequality in India: A Re-Examination", Special Articles pp.3729-3748, *Economic and Political Weekly* September 7, 2002.

[48] Gaur, Achal Kumar (2010), "Estimating Deprivation and Inequality in Human Well Beings: A Case Study of Indian States", Paper Prepared for the 31st General Conference of The International Association for Research in Income and Wealth, St. Gallen, Switzerland, August 22-28, 2010.

However, in case of education, inter- state deprivation indices have shown declining trend during the period 1980-2002. Significant to mention that deprivation indices in terms of per capita SDP, per capita expenditure on medical and public health and education for BIMARU states like UP, MP, Orissa, Rajasthan and Bihar were found higher than average deprivation indices throughout during the period 1980-2002. Deprivation indices related to per capita SDP and medical and public health were also found higher than average deprivation indices in case of hill states like Assam, Meghalaya and Tripura. This paper also examines the impact of economic reforms, introduced by Government of India in 1991, on existing inter-state deprivations.

For this purpose, the technique of slope as well as intercept dummy variables has been employed with 1991 as shift period, if any. Eventually, empirical results of the paper do not reveal any significant change in deprivation indices in aforesaid parameters during economic reform (1992-2002) than 1980-91. Thus, in view of increasing inter-state human poverty in India as obvious through surge in deprivation indices during 1981-2002, there is an urgent need to introduce the reforms for Human Development at State level and to implement it effectively for effective redressel of inter-state poverty in human concerns like per capita SDP, education, medical and public health etc.

2.4 Evolution of the Definition of the Poverty line:

In the pre-Independence India, the earliest attempt to define a poverty line was made by Dadabhai Naoroji in his classic paper on "Poverty in India" that he read in 1876before the Bombay Branch of the East Indian Association of London[49]. He defined subsistence as "what is necessary for the bare wants of a human being, to keep him in ordinary good health and decency". He based the necessary consumption on the scale of diet prescribed by the Government Medical Inspector of Emigrants. His subsistence-diet-based poverty line excludes not only energy requirements for work but, as Naoroji himself states, also "all the luxuries, social or religious wants, expense on occasions of joy and sorrow, and any promise for bad season"[50]. Some of these expenses are unavoidable and are socio-culturally determined.

[49] Srinivasan, T.N. (2007), "Poverty lines in India: Reflections after the Patna conference", *Economic and Political Weekly*, Vol. XLII, No. 41, 13–19 October.
[50]Naoroji, Dadabhai (1899), *Poverty and Un-British Rule in India*, Swan Sonnenschein, London.

The second poverty line is contained in a note prepared for the guidance of subcommittees of the National Planning Committee of India of 1938. In popular discourse in the colonial period it was generally accepted that India, once a prosperous economy, experienced a severe decline after the advent of the British. Consequently, the entire nationalistic discourse was rooted in the belief that the increasing impoverishment of Indians was due to colonial rule. In 1938, the Indian National Congress constituted a National Planning Committee headed by Jawaharlal Nehru, which declared that the social objective of planning in independent India would be "to ensure an adequate standard of living for the masses, in other words, to get rid of the appalling poverty of the people".[51]

There was widespread poverty in India that had deepened during colonial rule. After political independence in 1947, therefore, reducing poverty was a priority. India embarked on the path of planned development of the country with the objective of removing "backwardness" through industrialization. In rural areas, redistribution of land was expected to bring about positive changes in the lives of the people. In reality, while the process of industrialization was boosted, especially through the Second Five-year Plan (1956–1961), land reforms were largely not implemented. The decade of the 1960s was truly turbulent, with two wars, unprecedented food scarcity and resultant inflation. By the late sixties, it was clear that even two decades after gaining political independence, a large proportion of the people remained poor. Social scientists, mainly economists, undertook the task of measuring the extent of poverty in the country and this became a major area of research in the 1970s. The focus on "poverty" was best captured by the slogan "Garibi Hatao"("Remove Poverty") used by Prime Minister Indira Gandhi at the time of the general elections in 1972.

2.4.1 Required Minimum Consumption:

The first definition of the poverty line in post-independence India was attempted in 1962 by a working group of eminent economists. This group took into account recommendations on balanced diet made by the Nutrition Advisory Committee of the Indian Council of Medical Research and derived the poverty line by putting a price on

[51]Mahendra Dev, S. and C. Ravi (2008), "Revising Estimates of Poverty", *Economic and Political Weekly*, Vol. XLIII, No.10, 8–14 March.

the minimum required consumption levels of food, clothing, shelter, fuel, etc[52]. The group recommended that the national minimum for each household of five persons (with a total consumption need equivalent to that of four adults) should be not less than Rs.100 per month (Rs20 per capita per month) at 1960/61 prices. For urban areas the figure was raised to Rs125 per month per household, to account for higher prices of commodities. This national minimum excluded expenditure on health and education as it was expected that these would be provided by the state. The Working Group also did not include housing costs as it assumed that there would be rent subsidy to the extent of 10 per cent of the minimum consumption.

The seminal work on *Poverty in India* by Dandekarand Rath[53] was published in 1971. It generated much debate although it was not part of government effort to define the poverty line. It used National Sample Survey Organisation data on the distribution of consumer expenditure by major items for the rural and urban population. These data give the pattern of consumption of "food grains and substitutes" and "other items of food" for the rural and urban population. Based on the recommendation of nutritional experts, the authors claim that the availability of 2,250 calories per capita per day for both rural and urban areas is "adequate at least in respect of calories" under Indian conditions. The next step is to find the level of expenditure at which this calorie intake is possible. The level of expenditure needed is the total expenditure that the consumers make including "fuel and light", "clothing" and "others".

The authors state that "others" is an important category in urban areas as people have to spend on items such as housing. This is one of the reasons why expenditure required being above the poverty line in urban areas is higher than in rural areas. In addition to prices being higher in urban areas, urban people take their calories from more expensive items of food (such as edible oil, ghee and butter, sugar, milk, meat and fish). Thus, though it is the calorie norm that is used for identifying the poor, the expenditure on food and non-food items together gives the required level of total expenditure needed to attain the level of calorie consumption that defines the poverty line. When converted into expenditure in rupees it is Rs.180 per capita per annum for rural areas andRs.270 per capita per annum for urban areas, both at 1960/61 prices.

[52] EGEP (1993), "Report of the Expert Group on Estimation of Proportion and Number of Poor", Perspective Planning Division, Planning Commission, Government of India. New Delhi.
[53]Dandekar, V.M. and N. Rath (1971). "Poverty in India", *Indian School of Political Economy,* Pune.

The authors provided for variation in prices in different states and worked out poverty lines pertaining to individual states.

The Planning Commission, Government of India, set up a Task Force on Projections of Minimum Needs and Effective Consumption Demand[54] in 1979 which redefined the poverty line. The Task Force used the age-sex-activity-specific calorie allowances recommended by the Nutrition Expert Group to estimate the average daily per capita requirements for rural and urban areas. Thus the impact of differences in age, sex and occupation on average calorie requirement was captured to the extent made possible by the data. The daily calorie norms accepted were 2,400 for the rural consumption basket and 2,100 for the urban basket. The monetary equivalent of these norms or the poverty line was based on the 28th round of National Sample Survey Organization for 1973/74. It was found that, on average, at 1973/74 prices, the consumer expenditure of Rs.49 per capita per month was associated with intake of 2,400 calories per day in rural areas and Rs.57 per capita per month with intake of 2,100 calories per day in urban areas. State-specific poverty lines were arrived at by valuing the consumption at state-specific prices. Over the years, the poverty lines have been updated by adjusting for inflation, retaining the calorie norms based on the National Sample Survey Organization data for 1973/74.

In 1993 the "Expert Group on Estimation of Proportion and Number of Poor"[55] or the Lakadawala committee appointed by the Planning Commission submitted its report. This committee was expected "to look into the methodology for estimation of poverty at national and state level and also to go into the question of re-defining the poverty line, if necessary". The Committee recommended that "the poverty line approach anchored in a calorie norm and associated with fixed consumption basket to be continued". It defined rural and urban poverty lines as levels of household per capita consumption expenditure at which average rural and urban energy norms respectively were met, in the distribution of per capita household consumption expenditure (and its energy content), as in the 28th round (1973/74) of National Sample Survey Organization. The consumption baskets bought by the households with per capita

[54] Task Force on Projections of Minimum Needs and Effective Consumption Demand, (1979), Planning Commission, Government of India, New Delhi.

[55] EGEP (1993), "Report of the Expert Group on Estimation of Proportion and Number of Poor", Perspective Planning Division, Planning Commission, Government of India, New Delhi.

expenditures around the poverty lines were chosen as the poverty baskets.

Thus, the Committee attempted both to anchor the poverty lines rigidly to average energy norms and also to ensure that the poverty baskets would be bought by consumers. It also recommended that the norms of per capita daily intake of 2,400 calories in rural areas and 2,100 calories in urban areas be continued for all states in the country. For maintaining consistency, it recommended that use of 1973/74 as a base should be retained. The Committee also recommended some modifications to the previous approach. It suggested poverty should first be assessed per state, and that these values should then be aggregated for deriving all-India estimates. It also recommended the adoption of price indices and deflators related to consumption around the poverty lines. Further, it recommended the abandoning of the NSS–NAS adjustment procedure, which was as follows. The National Accounts Statistics (NAS) gives estimates of Private Final Consumption Expenditure. The NSS estimates of Household Consumption Expenditure were found to be significantly lower than PFCE. Thus the practice was to "adjust the NSS-based size distribution by uniform scalar correction obtained by shifting the NSS distribution uniformly to the right by the ratio of per capita PFCE to per capita HCE"[56]. As recommended by the Committee, this procedure is no longer used.

The latest large sample survey by the National Sample Survey Organization covers the period from July 2004 to June 2005. This is the 61st round of the National Sample Survey Organization, and gives data on distribution of household consumer expenditure. The all-India official poverty line for 2004/05 is Rs.356.30 per person per month for rural areas and Rs.538.60 per person per month for urban areas. The minimum calorie intakes remain at 2,400 per day per person for rural areas and 2,100 for urban areas. By merely adjusting the 1973/74 poverty line for changes in prices, the poverty line for subsequent years is estimated. The Consumer Price Index of Agricultural Labourers for rural areas and Consumer Price Index for Industrial Workers for urban areas are used for updating the poverty line. This method therefore assumes that the consumption basket has not changed in rural and urban areas since 1973/74. The rural and urban poverty lines are computed for each state separately.

[56] Sundarm K. and Suresh D Tendulkar (Jan. 2001), "NAS-NSS Estimation of Private Consumption for Poverty Estimation: - A Disaggregated Comparison for 1993-94", *Economic and Political Weekly.*

2.4.2 Shortcomings in the Official Poverty line:

The methodologies used for the estimation of poverty lines and the resultant poverty estimates, have been widely debated. There are two main strands of criticism on methodological issues in the measurement of poverty. The first strand accepts the calorie-norm framework but raises many important issues within it, including various deficiencies in the method of determining calorie requirements. The second strand of criticism states that calorie-based poverty estimates do not reflect the real extent of deprivation that poor people suffer. This strand suggests extending the definition of poverty beyond the "calorie norm" and supports inclusion of other essentials like expenditure on housing, education, health services and basic amenities essential for a "decent" life. Others have pointed out that there are serious weaknesses overall in the poverty-line approach, and argue that it involves making assumptions and choices which can undermine attempts to reduce poverty.

- The first critique of poverty lines based on calorie consumption as being too narrow was made by V.K.R.V. Rao (1977, cited in Dandekar, 1994). He observes that "Poverty has to be identified with deficiency in the total level of living. And total level of living includes not only energy requirements but also balanced diet needed for health, and other components of basic needs essential for human existence at tolerable level."

- Sukhatme[57]argues that human bodies can adapt to extended bouts of low nutrition while maintaining normal energy output. He denies the vicious-cycle hypothesis that adaptation to lower intake will lead increasingly to low productivity, low levels of income and hence greater poverty. Sukhatme criticizes the methodology adopted also by Dandekar and Rath, and later the Lakadawala Committee. The main thrust of his argument is that those authors have mistaken the average energy needs of an individual for the minimum need, ignoring the fact that energy needs vary between and within individuals even of the same age–sex groups. He argues that the energy needs of an individual are subject to considerable inter- and intra-individual variation. An individual's capacity for work is not determined by their intake but by the

[57]Sukhatme, P.V. (1982), "Poverty and Malnutrition" in P.V. Sukhatme (editor), Newer Concepts in Nutrition and their Implications for Policy, *Maharashtra Association for Cultivation of Science,* Pune.

efficiency with which they convert food energy into metabolism energy over their homeostatic range of intake.

- The poverty-line methodology has been criticized by nutritionists on two counts. Firstly, they argue that merely being dependent on calorie norms for poverty estimation is not correct because adequate calorie consumption may not ensure sufficient intake of other dietary elements such as proteins, fats and micro-nutrients which are essential for a healthy life. Secondly, there is a distinction between gross calorie intake and net calorie absorption. If there are gastro-intestinal problems, then even with adequate calorie intake a person may suffer from malnutrition[58]. It has also been pointed out that the calorie requirement norm does not take into account the higher energy intake required for the hard and extended labour usually performed by poor workers[59].

- Further, the income-poverty approach does not take into account the levels of asset ownership that determine the ability of households to face fluctuations in income. In using the household as the basic unit it also ignores the gender inequality and intra-household disparities in access, consumption and other entitlements. As each household is treated independently, all relational dimensions are missed and the high level of spatial and identity-based social exclusion that the poor suffer is omitted. The poverty-line approach also excludes insights of the poor themselves on their deprivation. This self-perception is crucial for designing developmental intervention.

- The need to go beyond the prevailing paradigm of income-poverty and adopt a rights-based approach to poverty eradication is also expressed by Chelliah and Sudarshan[60]. They argue that after more than five decades of fighting poverty with less than satisfactory results, the time might have come to adopt a rights-based approach to poverty eradication: "A rights-based approach focuses not only on the protection (appropriate in the case of civil and political liberties) but also on the promotion of a more comprehensive set of rights through positive public action.... There is an advantage in perceiving these necessities

[58] Sen, P. (2005), "Of Calories and Things: Reflections on Nutritional Norms, Poverty Lines and Consumption Behaviour in India", *Economic and Political Weekly,* Vol. XL, No. 43, 22, October.
[59] Dasgupta, P. (1993), *An Enquiry into Well-being and Destitution,* Oxford University Press, Oxford.
[60] Chelliah, Raja and R. Sudarshan (editors), (2001), *Income Poverty and Beyond,* Social Science Press, New Delhi.

of human life as an integral part of human rights, which would imply recognition that poverty is a brutal denial of human rights."

- This criticism of the narrow definition of the official poverty line based on the calorie norm, because it fails to capture the multifaceted deprivation faced by the poor, suggests the need to develop a new methodology to ascertain the real extent of deprivation. Some of the weaknesses in the conventional methodology related, for example, to gender bias or social exclusion of the poor are connected with the wider processes of social change. Although these problems are part of the reality of the lives of poor, it is not easy to accommodate them in the measurement of poverty. Analysts have not suggested in concrete terms how this can be achieved.

In view of the above mentioned debate and the existing problems in the calorie based approach of the poverty line, Planning Commission set up an expert group under the chairmanship of Professor Suresh Tendulkar[61] to examine the issue and suggest a new poverty line and estimates. The expert group has considered this issue in detail and has suggested new methodology to arrive at state wise and all- India rural and urban poverty lines for 2004-05, the latest available major National Sample Survey round on household consumer expenditure which provides the database for the calculation of poverty estimates by the Planning Commission.

2.4.3 Following are the Salient Features of the Proposed Poverty lines:

1. While acknowledging the multi-dimensional nature of poverty, the estimates of poverty will continue to be based on private household consumer expenditure of Indian households as collected by the National Sample Survey Organization.

2. The expert group has also taken a conscious decision to move away from anchoring the poverty lines to a calorie intake norm in view of the fact that calorie consumption calculated by converting the consumed quantities in the last 30 day as collected by National Sample Survey Organization has not been found to be well correlated with the nutritional outcomes observed from other specialized surveys either over time or across space (i.e. between states or rural and urban

[61] Planning Commission (Nov. 2009), "Government of India", Report of the Expert Group to Review the Methodology for Estimation of Poverty, New Delhi.

areas).

3. The quinquennial National Sample Surveys of household consumer expenditure surveys carried out by the National Sample Survey Organization provide the basic data set for official poverty calculations. For canvassing household expenditure on a recall basis, the National Sample Survey Organization has decided to shift to mixed reference period for all its consumption surveys in future, namely, 365 day for low frequency items (clothing, footwear, durables, education and institutional health expenditure) and 30 day for all the remaining items. This change captures the household consumption expenditure of the poor households on low frequency items of purchase more satisfactorily than the earlier 30 day recall period. The Expert Group decided to adopt the mixed reference period based estimates of consumption expenditure as the basis for future poverty lines as against the previous practice of using Uniform reference period estimates of consumption expenditure.

4. Underlying consumption poverty line is the reference poverty line basket of household goods and services consumed by those households at the borderline separating the poor from the non-poor. Given an inescapable element of arbitrariness in specifying the numerical nominal level of poverty line basket, the Expert Group considered it desirable to situate recommended reference poverty line basket in some generally acceptable aspect of the present practice. The estimated urban share of the poor population (described as headcount ratio or poverty ratio) in 2004-05, namely, 25.7 per cent at the all-India level, is generally accepted as being less controversial than its rural counterpart at 28.3 per cent that has been heavily criticized as being too low. In the interest of continuity as well as in view of the consistency with broad external validity checks with respect to nutritional, educational and health outcomes, it was decided to recommend mixed reference period equivalent of urban poverty line basket corresponding to 25.7 per cent urban headcount ratio as the new reference poverty line basket to be provided to rural as well as urban population in all the states after adjusting it for within state urban relative to rural and rural and urban state relative to all -India price differentials.

5. Even while moving away from the calorie norms, the proposed poverty lines have been validated by checking the adequacy of actual private expenditure per capita near the poverty lines on food, education and health by comparing them with normative expenditures consistent with nutritional, educational and health outcomes. Actual private expenditures reported by households near the new poverty lines on these items were found to be adequate at the all-India level in both the rural and the urban areas and for most of the states. It may be noted that while the new poverty lines have been arrived at after assessing the adequacy of private household expenditure on education and health, the earlier calorie anchored poverty lines did not explicitly account for these. The proposed poverty lines are in that sense broader in scope.

6. It may be noted that although those near the poverty line in urban areas continue to afford the original calorie norm of 2100 per capita per day, their actual observed calorie intake from 61st Round of National Sample Survey Organization of is 1776 calories per capita. This actual intake is very close to the revised calorie intake norm of 1770 per capita per day currently recommended for India by the Food and Agriculture Organization. Actual observed calorie intake of those near the new poverty line in rural areas (1999 calories per capita) is higher than the Food and Agriculture Organization norm.

7. The proposed reference poverty line basket is situated also in the latest available data on the observed consumption patterns from the household consumer expenditure survey of National Sample Survey Organization for the year 2004-05 and takes into account all items of consumption (except transport and conveyance) for construction of price indices. Separate allowance for private expenditure on transport and conveyance has been made in the recommended poverty lines.

8. The proposed price indices are based on the household level unit values (approximated price data) obtained from the 61st round (July 2004 to June 2005) of National Sample Survey Organization on household consumer expenditure survey for food, fuel and light, clothing and footwear at the most detailed level of disaggregation and hence much closer to the actual prices paid by the consumers in rural and urban areas. Price indices for health and education were also obtained from unit level data from related National Sample Surveys

Organisation. The proposed price indices (Fisher Ideal indices in technical terms) incorporate both the observed all-India and the state level consumption patterns in the weighting structure of the price indices. For rent and conveyance, actual expenditure share for these items were used to adjust the poverty line for each state. The recommended price indices take care of most of the criticisms of the earlier population segment specific consumer price indices with outdated base used for updating poverty lines. An added and a significant advantage is that the recommended procedure permits the derivation of new poverty lines and the corresponding headcount ratios for all the states including the north-eastern states. In the judgment of the Expert Group, these advantages outweigh the problem of ignoring the quality differences in consumption of commodities across households that is involved in equating unit values with approximated prices.

9. The new poverty lines seek to enable rural as well as urban population in all the states to afford the recommended all-India urban poverty line basket after taking due account of within state rural urban and inter-state differentials (rural and urban) incorporating observed consumer behaviour both at the all-India and state levels.

10. The new poverty lines have been generated for all the states including the north-eastern states. However, in the absence of adequate data, the expert group has suggested use of poverty line of the neighbouring states for union territories.

2.5 Concluding Remarks:

On the basis of the above surveyed literature some temporary conclusion can be made. The term temporary here is used because the concept of the economic deprivation (poverty) is dynamic and it has gone significant changes through the passage of time. There was a period when all of the poverty measurement work was mainly confined to either consumption expenditure or income. But with the passage of time this notion of poverty has been changed and a large number of non- monetary indicators are also incorporated into the measurement of the multidimensional poverty. The methodology which capture income or consumption expenditure as the proxy indicator of the well-being only reflect the partial picture of the reality and rightly be termed as the unidimensional measure of poverty. It is unable to capture multiple dimensions of poverty. Thus, there is a need to focus on deprivation by which the people are suffering in the society. There are certain services which cannot

be obtained by means of money like social capital, political participation and the command over the resources in the society where one is living.

The argument can be illustrated by saying that suppose there are two people living in the same society and having almost same level of income but belong to different caste or class certainly enjoyed different degree of command over the resources and the decision making process over a common issue. The decision will certainly goes into the favour of those who belong to the high class/caste. The kind of the attention which a patient has by the doctor or says by nurse in a hospital or dispensary is largely determined by your social status. This social status is not only a function of the level of income you are earning but a whole range of things which are highly interrelated to each other and very difficult to draw a line between or among the indicator that which one affects the other. It may be that some indicators having the higher weightage but the others cannot be ignored. The argument is that the level of discrimination one is facing in a society is not only determined by the level of his/her income but others factors are also playing their significant role. This kind of approach has been applied by some of the scholar while they are constructing multidimensionality of poverty and termed as the "social exclusion approach".

One of the interesting finding of the human development report, 2010 is that there is very weak correlation between the economic growth and the indicators related to the health and knowledge. Hence, income or consumption expenditure data is no more reliable source for measuring the poverty. Poverty is multifaceted and hence multidimensional. In view of this present work is based on the concept of social deprivation which captures a wide range of indicators and surely reflects the deprivation more accurate than the deprivation reflected only by consumption expenditure data or say by income. Most of the work on poverty in the western world has been based on the field work and hence there is more scope to incorporate both qualitative and quantitative data and the result thus obtained is more reliable than any other published data. In India most of the work is primarily based on the data published by National Sample Survey Organisation based on the household survey. There is some study on the field work in some region of India but very little study has been done on the district level mainly because of dearth of appropriate data on different indicators which is necessary for the construction of any index which is multidimensional in nature. The debate is still on and hopes to be continuing until all the people of the world will enjoy a minimum decent standard of living. Hope, the day will come.

CHAPTER-3

CHAPTER: -3

DEPRIVATIONS IN BASIC HEALTH FACILITIES, OPPORTUNITIES AND CHALLENGES FOR IMPROVEMENTS

The health of the people is really the foundation upon which all their happiness and all their powers as a state depend.

...Benjamin Disraeli

3.1 Introduction:

Good health is necessary for human wellbeing. It is a fundamental human capacity that enables every individual to actively participate in the process of social, economic, political and other decision making. In particular, a growing body of evidence highlights the importance of the early years in the development of individual potential. Therefore, optimum care, nutrition and protection of children from infection, at birth and during their first three year of life, not only ensure survival but importantly form the foundations for lifelong development. Overall, improving the health of its large population, especially among the most economically and socially vulnerable sections of the society, is central to the achievement of human development of any nation. The entire approach of socio-economic development must be centred on the development of the human being.

Thus, the importance of health sector is vital and must be emphasised by the government of a country in order to provide the basic health services to their masses. Health is one of the fundamental aspects which affect the life of the people in multiple ways. In this modern era of the 21st century there is a wide gap between the people of a nation in terms of the different indicators of well- being. A society cannot be said to be developed if its majority of the people are malnourished and lead a sub-standard life. Health has a greater impact on the other facets of life as well. It directly effects the mental capacity of the individual and in the absence of a good health one is unable to performs their best and hence their productivity decreased and trapped in the cycle of poverty. Once someone trapped in this cycle of poverty then it becomes very difficult for them to break this and he perpetuate to live in poverty. Poverty means low intake of food and nutrients, it leads to under nutrition, it leads to high incidence

of nutrition related diseases and infection, it leads to stunted development of children, it leads to small body size of adult, it leads to impaired productivity, it leads to low earning capacity and it ultimately leads to incidence of poverty and again the other stage of poverty takes place and thus the cycle remains intact.

There is a close link between health and economic prosperity of the individual. Health and socio-economic developments are so closely interlinked that it is almost impossible to achieve one without the other. The economic development in India has been improving over the last two decades but our health system is not keeping pace with the developmental process. However the government's efforts in some of the areas having catalysing effect in some of the important indicators of the health dimension but not up to the satisfactory level. This can also be proved by the World health organisation report. World health organisation ranked Indian health system at 118 out of the 191 World health organisation member's countries on overall health performance.

Traditionally, poverty is measured through the income approach by means of the income or the monthly per capita consumption expenditure. However this approach has certain assumptions like the services of health and education have been provided by the state at free of cost. With the introduction of liberalisation policy in India in the early 1990s there has been changing in the role of the state in terms of providing the basic health facilities to their masses. State partially withdraws themselves from the health sector and thus introduction of the private sector in this life saving/taking sector. A huge range of health insurance policies, private medical colleges and hospitals has been established by the multinational corporations as well as the corporate of the country. It always works on the principle of profit maximisation and having no concept of the welfare of the people, which is a bounded responsibility of the state.

The notion of the poverty measurement has been changed with the introduction of the human development report published by the United Nations Development Programme in its first report of 1991. In 1997 United Nations Development Programme, in its annual report introduced a new concept called "Human Poverty Index" and thus broaden the scope of measurement of poverty not only in terms of income based

poverty but also includes deprivations in non-monetary dimensions. Human poverty which may be measured in terms of deprivation indices can be minimized through reducing the value of deprivation Indices. Therefore it is essential to evaluate a nation's/region's performance in the areas of health, education and basic amenities and examine the role of government expenditure in promoting these non-income objectives. Here, it is significant to observe that state's expenditure, especially on social sector like education, medical and public health and basic amenities has been deteriorating after eighties.

India's economic growth since 1980s has been among the most rapid and Government of India presents average growth rate in gross domestic product is more than 5%. Contrary to it, the World Bank in its report in, May, 2006, has clearly mentioned that poorer states stayed at exactly the same level of growth since 1970s while other states have enjoyed significant gain. India cannot attain the millennium development goals without significant progress in millennium development indicators in its poorest states – Bihar, Orissa, Uttar Pradesh, Madhya Pradesh and Rajasthan. The performance of the above mentioned state is far below the other states of India and it cannot achieve the target setup in the millennium development goals meeting in New York. Accordingly, the present paper attempts to measure Human Poverty in terms of social deprivation (Inter-Districts) in Bihar. For this purpose, three dimensions namely health, education and basic amenities has been taken for the period 1981-2001.

3.2 Health Deprivation:

It is a kind of deprivation which includes the percentage of people which is out of ambit of primary health centre and infant mortality rate. Presence of Primary health centre is the first and foremost indication of the level of the health facilities enjoyed by the masses. Over the period of time the number of Primary health centres has been increasing but not up to a level of satisfaction that can bring the entire gamut of the population in its ambit. Therefore, identifying one of the major dimensions of social deprivation is become necessary by means of its two important indicators namely infant mortality rates and percentage of people which is out of ambit of primary health centre.

3.3 Choice of Indicators:

For the present study health deprivation has been constructed with the help of two important indicators of health dimension, i.e. infant mortality rate and population uncovered by primary health centre. The logic behind the selection of these two indicators is like this. The level of infant mortality reflects the contemporary socio-economic milieu of a region. Infant mortality rate, considered to be one of the most sensitive indicators of health and development, is defined as number of infant (under age one) deaths per thousand live births in a given year.

Various dimensions of prenatal, natal and postnatal care get reflected in the socio-economic differentials in neonatal and post-neonatal mortality, which is discussed at length in the demographic literature on infant mortality, one of the most widely discussed and; closely associated variables is maternal literacy and education. Education and awareness coupled with economic independence reduces the IMR significantly. So, if we take a single indicator of IMR then it reflects not only the death of children in a given year in relation to the live birth in that year but also a wide range of the indicators directly or indirectly related to this. The probability of dying a children is maximum between the period of birth and one year and if there is assured health facilities provided by the state then this risk has been mitigated up to a satisfactory level.

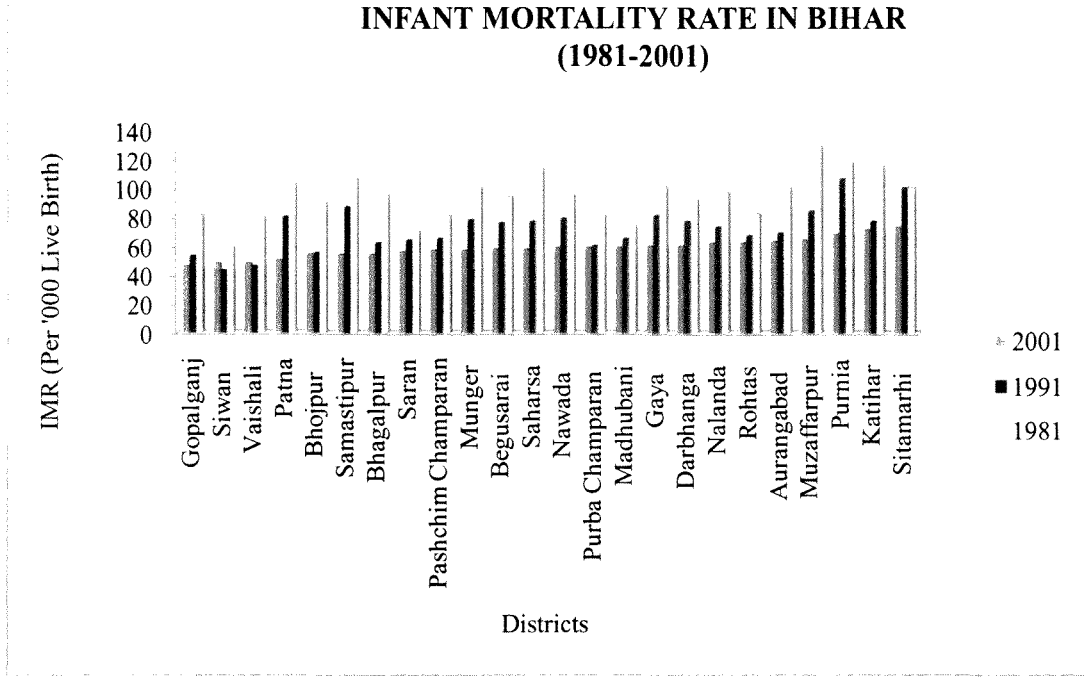
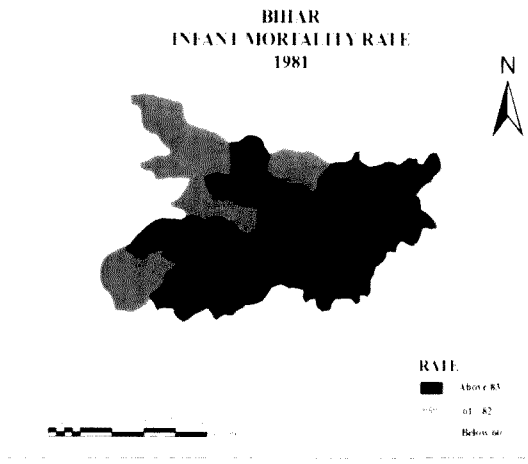


Figure 3.1

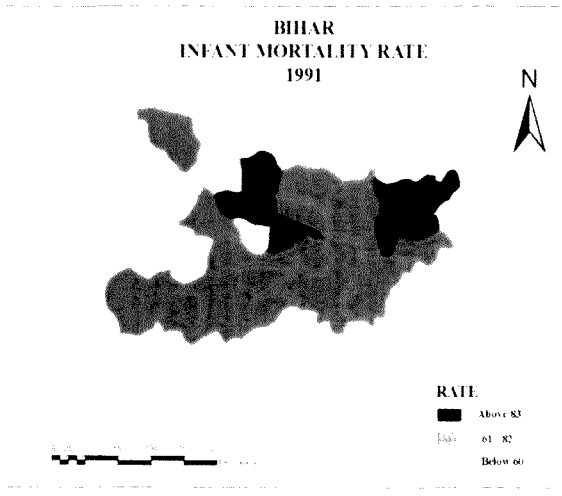
Source: Census of India 1981, 1991 and 2001

Other indicator is population uncovered by primary health centre. Primary health centre is the cornerstone of rural health services- a first port of call to a qualified doctor of the public sector in rural areas for the sick and that whodirectly report or referred from Sub-centres for curative, preventive and pro-motive health care. It acts as a referral unit for 6 sub-centres and refers out cases to Community Health Centres (CHCs-30 bedded hospital) and higher order public hospitals at sub-district and district hospitals. The concept of Primary Health Centre (PHC) is not new to India. The Bhore Committee in 1946 gave the concept of a PHC as a basic health unit to provide as close to the people as possible, an integrated curative and preventive health care to the rural population with emphasis on preventive and pro-motive aspects of health care.

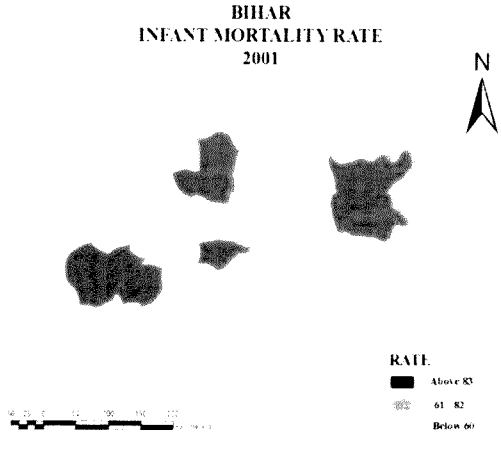
Spatial Distribution of Infant Mortality Rate in Bihar: 1981-2001



Map 3.1



Map 3.2



Map 3.3

Source: Census of India, 1981, 1991 and 2001

The above map of the infant mortality rate shows the significant reduction of the infant mortality in different districts of the state over the period of time. There were 16 districts in 1981 where infant mortality rate was more than 83 and only one district where infant mortality was 59 and the remaining 7 districts having infant mortality between 61 and 82.

In 1991 the number of districts became only 4 where infant mortality rate was higher than 83. As many as 15 districts were in the range of 61 an 83 and only five districts where infant mortality rate was below 60.

In 2001 there was no any district where infant mortality rate was above 83 and 7 districts having infant mortality rate between 61 and 82 and all the remaining 17 districts having below 60 infant mortality rate. This shows the tremendous improvements in the health infrastructure of the country after 1990s and also the economic growth of the country. Interventions by the donor agencies such as world health organisation having also a significant role in the reduction of the infant mortality rate in the state.

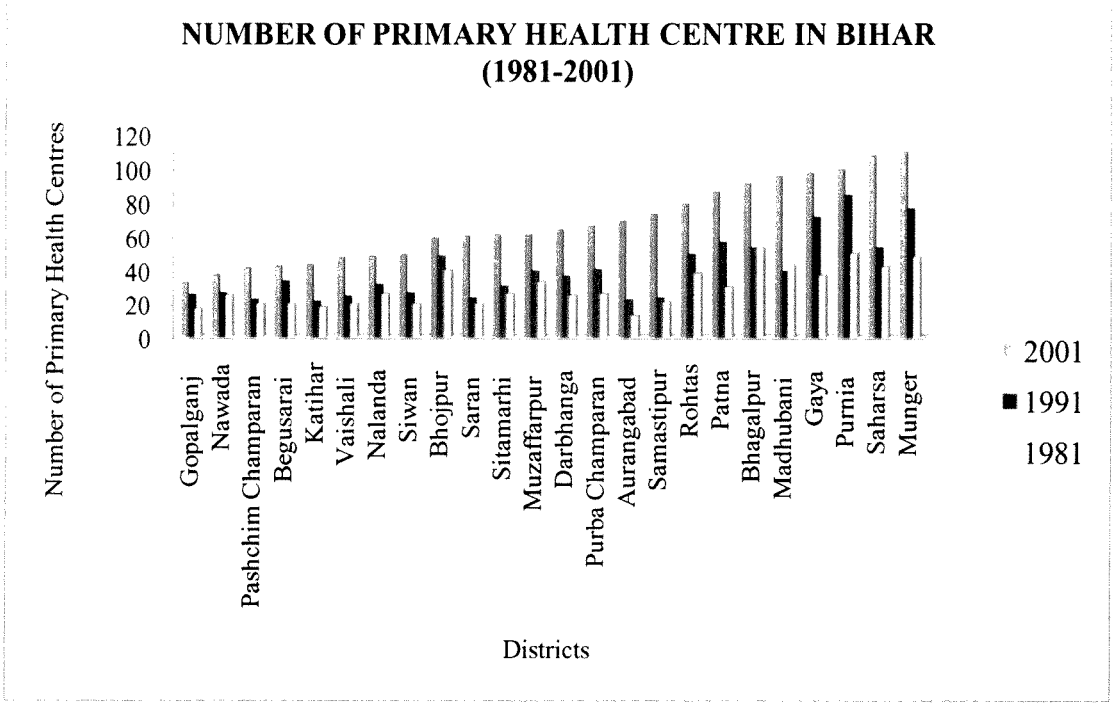
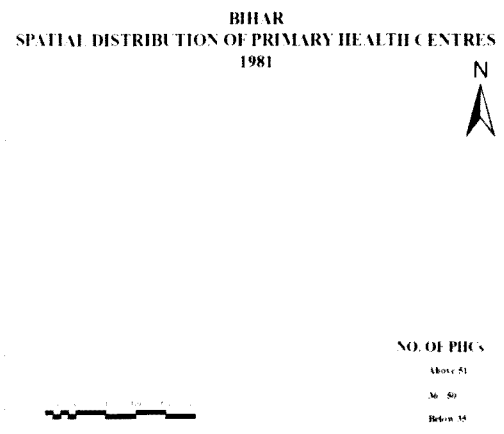


Figure 3.2

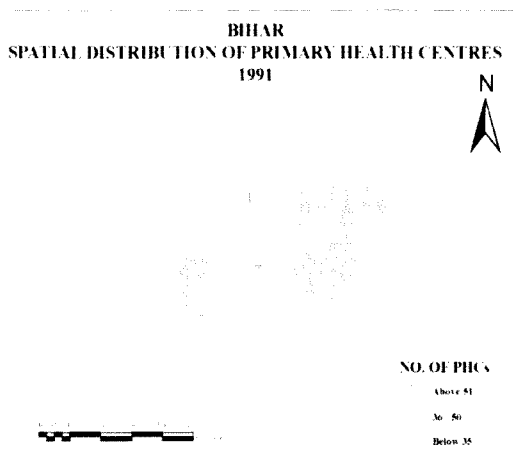
Source: Bihar Statistical Handbook, 1980, 1991 and 2001, Directorate of Statistics and Evaluation, Bihar, Patna.

The health planners in India have visualized the PHCs and its Sub-Centres(SCs) as the proper infrastructure to provide health services to the rural population. The Central Council of Health at its first meeting held in January 1953 had recommended the establishment of PHCs in community development blocks to provide comprehensive health care to the rural population. These centres were functioning as peripheral health service institutions with little or no community involvement. Increasingly, these centres came under criticism, as they were notable to provide adequate health coverage, partly, because they were poorly staffed and equipped and lacked basic amenities. The 6th Five year Plan (1983-88) proposed reorganization of PHCs on the basis of one PHC for every 30,000 rural populations in the plains and one PHC for every 20,000 population in hilly, tribal and backward areas for more effective coverage. Since then, 23,109 PHCs have been established in the country (as of September 2004). This becomes the supply side indicator for the health dimension because the presence of PHCs is first and foremost for the services provided to the folks of the area.

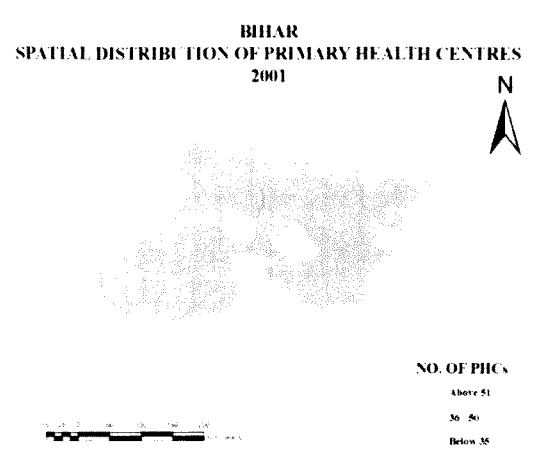
Spatial Distribution of Primary Health Centres in Bihar: 1981-2001



Map 3.4



Map 3.5



Map 3.6

Source: Bihar Statistical Handbook, 1980, 1991 and 2001, Directorate of Statistics and Evaluation, Bihar, Patna.

3.4 Analysis of the Health Deprivation in Bihar:

Bihar, with a population of 83 million, is the third most populous State in India. The population density in the State is 880 persons per sq. km., which is more than double the national average of 324 persons per sq. km. The State has recorded the highest decadal growth during the nineties. While all-India decadal growth rate of population was 21.34%, the population of Bihar rose by 28.45% between 1991 and 2001. Around 40% of the population is below poverty line.

The major health and demographic indicators of the State like infant mortality rate (IMR),maternal mortality ratio (MMR), total fertility rate (TFR), etc. are much higher than the all-India level and reflect a poor health status in the State. The Human Development Index (HDI), a composite of literacy, life expectancy and per capita income, has increased for Bihar like the rest of India. But the State still lags at 0.367 compared to the Indian average of 0.472. Amongst the major States, the HDI of Bihar has been the lowest for the last three decades. In view of the large population size, high poverty ratio, and high decadal growth indices in the State, Bihar is one of the States covered by the National Rural Health Mission. Some of the important statistics related to health and demographic indicators has been given below and a comparison has been made between India and Bihar.

Table 3.1 Selected Health and Demographic Indicators

Unit	Bihar	India
Population (2001) Million	82.88	1027.02
Decadal Growth (1991-01) Percentage	28.43	21.34
Population Density (2001) Per Sq. Km.	880	324
Maternal Mortality Ratio (2005-06) Per Lakh Live Births	371	301
Total Fertility Rate (2005-06) Per Thousand	4.2	3
Infant Mortality Rate (2005) Per Thousand Live Births	61	58
Birth Rate (2005) Per Thousand	30.4	23.8
Death Rate (2005) Per Thousand	8.1	7.6
Full Immunization (2005-06) Percentage	33	44

Source: Census of India, 1991 and 2001

The table 3.1 shows that the condition of the health status of the people of Bihar is far below from the averages of the India. The rate of growth of population is outnumbered with respect to the all India average and thus in other positive indicators its lag behind. The pressure of the population on the limited land area of the state in increasing year after year and this high growth rate of population is manifestation of so many factors.

Health is one of the major factors that can play an important role in the reduction of the population growth. Infant mortality rate in Bihar was 58 in 2001 and it increased and became 61 in 2005 which reflects a negligence of the health sector by the state. If people assured that their born children is not going to die then they go for one or two children but due to the high incidence of infant mortality they go for the more number of children and make sure themselves that if one or two will die then at least they have one or two children. The advancement in the science and technology has been greatly reduces the infant mortality but people are still living in the 70s and due to this there is high birth rate and high natural growth rate of population in the state. This could be due to lack of proper education and awareness campaign by the state agency. The problem of poverty is not uni-dimensional it has to be seen in multiple way and hence becomes necessary to see in the broader context of the socio-cultural setting of the state. Cultural factor like the concept of ''kuldeepak'' (male child) is one of the major causes of the high growth rate and declining trends of the sex ratio in different districts of the state and state as a whole. Lack of educational institution and lack of systemic support from the first generation learners are the major hindrance in the educational attainment of the children in the state. The attitude of the parents and grandparents towards the education of the female child is one of the basic reasons of the very low female literacy rate in the state. All these combined and effect the income status of the people and the people trapped in the cycle of poverty. Lack of proper education is manifested in the form of little bargaining power in the different decision making processes in the community. Health and poverty are intertwined; one cannot be studied in isolation of the other. Hence, there is a pre-condition to understand the different aspects of health and poverty in great detail. Who is the cause and who the effect is, becomes very difficult to conclude. Poverty and Health each influence each other directly and indirectly. Here are some examples.

Poverty---> poor food/living condition ---> poor health

Poor health---> low income since cannot work---> poverty

Poor health---> cannot go to school---> bad jobs---> poverty

Poverty---> no schooling ---> not taught health related practices---> poor health

There are so many relationships between poverty and health. The important part is realizing this fact, because no policy will be effective in combating these issues unless

both are taken into account. The result is a poverty trap in which people cannot escape.

In addition, there are so many other economic factors that need to be taken into account when discussing these topics, like equality among men and women, cultural and historical concerns, environmental and political factors etc. So, the link between health and poverty is not really clear cut, but one important thing to remember is that they both affect each other. The health deprivation which has been constructed with the help of the two indicators namely infant mortality rate and the percentage of people uncovered by the primary health centre for the three decade of 1981, 1991 and 2001 reveals some of the important information regarding the status of the health condition of the people of Bihar.

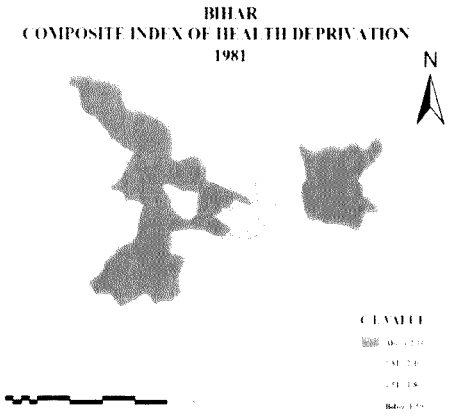
Children are important assets of a nation, therefore reduction in infant and child mortality is likely the most important objective of the Millennium Development Goals (MDG). Infant and child mortality rates reflect a country's level of socio-economic development and quality of life and are used for monitoring and evaluating population, health programs and policies. It is an outcome rather than a cause and hence directly measures results of the distribution and use of resources, Haines[62]. There is a wide range of variation in Infant Mortality Rate (IMR) across various countries of the world. While countries like Australia and Canada have IMRs well below 10 per1,000 live births, most of the African countries are struggling with mortality levels over 50 and in some cases 100 deaths per 1,000 live births. According to the United Nations estimates, 10 million infant deaths occur annually in the world. India accounts for a quarter of those. Thus any study of Indian infant mortality has global significance. India has experienced an impressive decline in infant mortality since the1970s. From 130-140 deaths per 1,000 live births in the early 1970's, mortality levels have declined to as low as 60 deaths per 1,000 live births in 2000. Bihar is also consistence with the result and significantly reduces their infant mortality rate from 94 in 1981 to 58 in 2001. This represents an annual rate of decline

[62] Haines, M. (1995), "Socio-economic Differentials in Infant and Child Mortality during Mortality Decline: England and Wales, 1890-1911", *Population Studies* 49 (2), pp. 297-315.

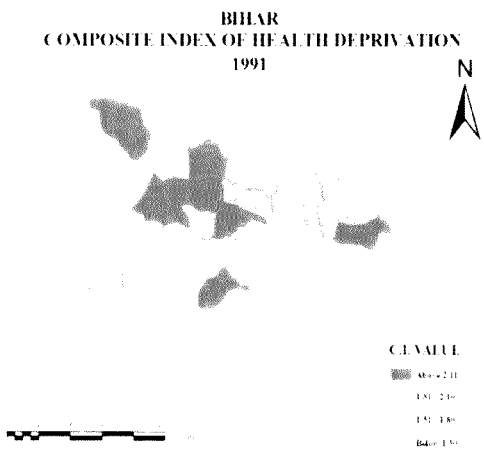
of around 2.6 per cent. However the absolute levels of infant and child mortality are still too high (about 68 infant and 95 child deaths per 1,000 live births in 1998-99).

According to the Registrar General of India, the IMR for the country as a whole is 57 infant deaths for every 1,000 live births in the year 2006. The National Population Policy of 2000 aims at achieving IMR of 30 by the year 2010, Government of India (2000). The MDG is to reduce infant and child mortality by two-thirds between 1990 and 2015. In the case of India this would imply a reduction of the IMR to 27 and of the under-five mortality rate to 32 by 2015, The World Bank (2004). IMR has also declined both in the urban and rural areas. The latest data from the sample registration system shows that the infant mortality rates for the urban and rural regions are 40 and 64, respectively, for every 1,000 live births in the year 2004, Government of India (2006). While there has been a significant decline in IMR in India over the last three decades, its performance with respect to other countries in Southeast Asia is not that impressive. Countries such as Indonesia, Sri Lanka, and Bangladesh have managed to reduce their IMR levels by between 3-5% annually. Thus it becomes clear that why infant mortality is a matter of great concern and why the selection of IMR in the construction of health deprivation becomes necessary. It has been affected by so many other factors and hence special attention has been paid to female literacy, female labour force participation rates, urbanization and some socio-economic variables. The prime intention of this analysis is to see which variables, economics or social, have greater impact in reducing infant mortality levels and in which quintile the impact is the strongest.

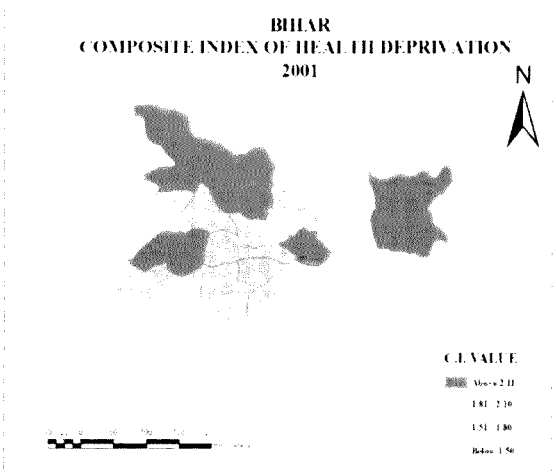
Status of Health Deprivation in Bihar: 1981-2001



Map 3.7



Map 3.8



Map 3.9

Source: Census of India 1981, 1991 and 2001

Health deprivation profile of the different districts of Bihar has been constructed and it is found that the ranking of the districts in terms of the health deprivation varies with the different decade. A total of 24 districts are there in Bihar, after adjustment of the data at the 1981 level. The performance of some of the districts is really appreciating. Districts like Samastipur, Patna, Aurangabad, Gaya, Saharsa and Saran improved the health infrastructure in their districts. The ranking of Samastipur in health deprivation in 1981 and in 1991 was one but in 2001 it came at the bottom level of 20. It indicates that there is a great improvement in the health infrastructure and other socio-economic conditions of the people of Samastipur over a span of 10 year. The similar story in other good performing districts is also a matter of worth mentioning. Patna, the capital of the state was at the ranking of 2^{nd} in 1981, improved its condition in 1991 and became at the rank of 13^{th} and finally in 2001 its ranking became 14^{th}. Thus Patna ultimately downgrades its ranking by 12 points and improves its position in health deprivation. There are some districts which are poor performer over the period of time and upgrade their ranking which shows their poor condition of the health infrastructure. Such districts are Pashchim Champaran, Purnia, Bhojpur, Gopalganj, Muzaffarpur, Begusarai and Sitamarhi. The worst performer is Pashchim Champaran whose ranking was 5^{th}in 1981 became 4^{th} in 1991 and ultimately tops in health deprivation in 2001 and its ranking became 1^{st}. Similarly Purnia and other poor performing districts reduce their ranking over the period of time. There are 11 districts which are in the category of medium performer in which their ranking remains more or less constant. These districts are Bhagalpur, Madhubani, Nawada, Nalanda, Siwan, Munger, Vaishali, Darbhanga, Purba Champaran, Katihar and Rohtas. Now, the status of infant mortality has been shown with the help of the following table for the period of 20 year and their changes.

Table 3.2 Changes in Infant Mortality Rate between Two Decades in Bihar

Districts	1981	1991	2001	1981-1991 Changes (in Points)	1991-2001 Changes (in Points)	1981-2001 Changes (in Points)
Patna	103	80	50	23	30	53
Nalanda	97	73	62	24	11	35
Nawada	95	79	59	16	20	36
Gaya	101	81	60	20	21	41
Aurangabad	100	69	63	31	6	37
Rohtas	82	67	62	15	5	20
Bhojpur	90	55	54	35	1	36
Saran	70	64	56	6	8	14
Siwan	59	43	48	16	-5	11
Gopalganj	81	53	46	28	7	35
Pashchim Champaran	81	65	57	16	8	24
Purba Champaran	81	60	59	21	1	22
Sitamarhi	100	100	73	0	27	27
Muzaffarpur	129	84	64	45	20	65
Vaishali	80	46	48	34	-2	32
Begusarai	94	76	58	18	18	36
Samastipur	107	87	54	20	33	53
Darbhanga	92	77	60	15	17	32
Madhubani	74	65	59	9	6	15
Saharsa	113	77	58	36	19	55
Purnia	117	106	68	11	38	49
Katihar	115	77	71	38	6	44
Munger	100	78	57	22	21	43
Bhagalpur	95	62	54	33	8	41
Mean	**94**	**72**	**58**	**22**	**14**	**36**

Source: Calculated from Census of India, 1981, 1991 and 2001

Thus, it is evident from the table 3.2 that all the districts of the state have improved their infant mortality rate over the period of 20 year. The average decline in infant mortality rate for the state is 36 for the period of 1981-2001. In 1981 the average infant mortality rate was 94 and it came down to 72 in 1991 and finally 58 in 2001. There were significant changes in infant mortality rate between 1981 and 1991. The average decline was 22 and different rate of decline was observed in all the districts of the state. Some were managed to decline more than the state average and some were below and the other were in the medium category. Aurangabad, Bhojpur, Gopalganj, Muzaffarpur, Vaishali, Saharsa, Katihar and Bhagalpur were districts which declined

their infant mortality rate more than the state average. Those who were in the medium category were Patna, Nalanda, Munger and Sitamarhi. The rest of twelve districts declined their infant mortality rate below than the state average.

In 1991-2001 the average decline for the state was 14 and there were eleven districts which were above this average decline. Except Siwan and Vaishali all the districts has also reduced their infant mortality rate. For Siwan the IMR was 43 in 1991 and it goes to 48 in 2001 and for Vaishali the figure was 46 and 48 for the same period and thus these two districts needs immediate policy intervention in order to reduce infant mortality rate.

When a comparison of the data for 1981- 2001 has been done then it comes to know that the average decline for the state was 36 and all the districts have declined their infant mortality over the period of 20 year. There were nine districts that reduced their infant mortality more than the state average and these were Patna, Gaya, Muzaffarpur, Samastipur, Saharsa, Purnia, Katihar, Munger and Bhagalpur. There were four districts which were in medium category and these were Nawada, Aurangabad, Bhojpur and Begusarai. The rest of eleven districts reduced their infant mortality below the state average reduction. This period of 1981-2001 is coinciding with the high economic growth of the country and in spite of this high economic growth rate the condition of the health infrastructure is so pathetic in Bihar. This clearly indicates the lack of political will in the investment of this sector by the government at the union level as well as at state level.

Health is a state subject in India. However, many states do not have a clear health policy. The strategies of the states are mostly guided by the National Health Policy and National Health Programmes. There is no systematic effort at the state level to plan and monitor the delivery of health services. Health services in India (obviously Bihar is not an exception) continue to be supply pushed than demand driven. In short, managerial challenges are many to ensure availability, access, affordability and equity in delivering health services to meet the community needs efficiently and effectively. Health and socio-economic development follow each other. One cannot grow without the other. The total expenditure on health infrastructure in our country as well as in Bihar is very low with comparisons to the other countries of the world. When we are talking about the developing countries then we are again lagging behind in the

expenditure on this sector. Over the period of time public health investment has declined from 1.3 % of GDP to 0.9 % by 2001 (comparable figures for China, Sri Lanka and Nepal are 2 %, 1.8 % and 1.6% respectively). Thus we can see that the country like Nepal is also far ahead of us in this sector. Government share of the total expenditure is only 17 % and therefore out -of-pocket expenditure is as high as 83%. Union contribution to overall public health spending in states is limited to 15 %. Union budgetary allocation for health has remained static at 13% of the total union budget. Similarly state budgetary allocations have declined from 7 % to less than 5.5 % in many states including Bihar. There is therefore an urgent need to scale up financial resources in the health sector. The notion that it is the bounded responsibility of the state to provide the free medical facilities to their masses has been faded. Now a day's people in general and poor in particular spending a significant amount of their income in order to avail the medical facilities.

There is an urgent need to identify the political-economy of the state of the negligence of this prime sector. Why state is not willing to spend a significant amount of money on this life saving sector. Health is an issue for the poor and vulnerable section of the society and those who are on the top of the leadership and decision making body of the country are less affected by the vagaries of the health. Due to this it always remains a neglected sector in our country. With the introduction of the liberalisation policy in the early 90s there became a paradigm shift in health sector. The state role has been reduced significantly and the role of the private sector has been greatly increased. This leads to the over exploitation of the poor and vulnerable section of the society. Government hospital, dispensaries and other unit of the medical institutions became the symbol of the poor people and thus the quality of services provided by the doctors and other staffs of the institute also became a question mark. Because these poor people cannot take any initiative against these corrupt doctors and staffs and hence they started practicing in private and started the process of money making. The lack of political participation from bottom to top level of the people of the marginalised section also deteriorated their situation from bad to worse.

But now a day's due to the effective implementation of the reservation policy in the Panchayati raj institution election the situation has been hopefully changing in positive direction. Women empowerment, representation of SCs and STs in the local body election has given them chance of at least raising their voices for the welfare of

their community. The government unwillingness can also be seen by their action in terms of the opening of the medical colleges and government hospitals after the independence of the country. Before independence there were 20 government medical colleges and hospitals and only one private medical college and hospital. In 2001 this number became reversed and the share of private medical colleges and hospitals has been increased significantly. 106 new medical colleges and hospitals were open in the private sector and only 31 were open by the government. This is the direct result of the 1991 liberalisation policy of the government in which government withdraw themselves from the public spending and invited the private sector to invest in the different sector which were initially the sole responsibly of the government. All this political drama also significantly affected the state of Bihar in many ways. When we turn our attention of the performance of districts then it became clear that very few are good in health infrastructure in relative way and only one or two districts are in a good position in absolute way of providing good health infrastructure of their masses.

In the present scenario Bihar is performing somewhat well in terms of the reduction of their infant mortality rate due to the intervention by the some of the international philanthropic organisations like WHO, World Bank, Asian Development Bank and the Bill and Melinda Gates Foundation (Avahan) for combating HIV/AIDS. There is a need to identify the plausible causes of perpetual backwardness of the state in terms of health facilities. The first and foremost thing which is essential is the supply side constraints i.e. lack of primary health centre in different districts of Bihar. The presence is essential for their effective and efficient utilisation.

Number of primary health centre has been increased from the year 1981 to 2001 but does not kept pace with the increasing trend of the population growth. In 1981 the total number of primary health centres in the state is 711 and it became 1615 in 2001. The average number of people in Bihar uncovered by primary health centre in 1981 was 47180 and reduced to 44495 in 1991 and finally in 2001 it became 22917. There seems to be improvement but there is not real improvement in absolute terms because a huge segment of the population still outside the ambit of the coverage. One of the important things here to worth mentioning is that we are only talking about the presence of the PHCs and not about the quality of the services provided by the doctors. The following table shows the number of primary health centres and their changes between two decades in Bihar.

Table 3.3 Changes in Number of Primary Health Centres between Two Decades in Bihar

Districts	1981	1991	2001	1981-1991 Changes (in Points)	1991-2001 Changes (in Points)	1981-2001 Changes (in Points)
Gopalganj	17	25	32	8	7	15
Nawada	25	26	37	1	11	12
Pashchim Champaran	20	22	41	2	19	21
Begusarai	20	33	42	13	9	22
Katihar	18	21	43	3	22	25
Vaishali	20	24	47	4	23	27
Nalanda	26	31	48	5	17	22
Siwan	20	26	49	6	23	29
Bhojpur	40	48	59	8	11	19
Saran	20	23	60	3	37	40
Sitamarhi	26	30	61	4	31	35
Muzaffarpur	33	39	61	6	22	28
Darbhanga	25	36	64	11	28	39
Purba Champaran	26	40	66	14	26	40
Aurangabad	13	22	69	9	47	56
Samastipur	21	23	73	2	50	52
Rohtas	38	49	79	11	30	41
Patna	30	56	86	26	30	56
Bhagalpur	53	53	91	0	38	38
Madhubani	43	39	95	-4	56	52
Gaya	37	71	97	34	26	60
Purnia	50	84	99	34	15	49
Saharsa	42	53	107	11	54	65
Munger	48	76	109	28	33	61
Total	**711**	**950**	**1615**	**239**	**665**	**904**

Source: Calculated from Bihar Statistical Handbook, 1980, 1991 and 2001, Directorate of Statistics and Evaluation, Bihar, Patna.

Thus, it is evident from the table 3.3, that there is steady increase in the number of primary health centre in all the districts of Bihar over the 20 year. In the period of 1981 and 1991 in Madhubani distrcit the number of primary health centre has been decreased from 43 to 39 and thus a decrese of 4 but in 2001 there has been significant improvement and the number of PHCs in madhubani became 95. A total of 239 increase between the period of 1981 and 1991 and 665 in the period of 1991-2001. A total of 904 increase in the period of 1981-2001. The maximum increase in the distrcit of Saharsa (65) and the minimum is in Nawada (12) in the same period of 20 year.

Table 3.4 Performance of Districts on the Basis of Changes in the Number of PHCs and IMR in Bihar :1981-2001

Performance	District Name
Good	Samastipur, Aurangabad, Patna, Saran, Saharsa, Gaya
Medium	Bhagalpur, Madhubani, Nawada, Nalanda, Siwan, Munger, Vaishali, Darbhanga, Purba Champaran, Katihar, Rohtas
Poor	Pashchim Champaran, Purnia, Gopalganj, Bhojpur, Muzaffarpur, Begusarai, Sitamarhi

Source: Calculated from Census of India 1981, 1991 and 2001

Thus, it is evident from the table 3.4, that the good performers are Samastipur, Aurangabad, Patna, saran, Saharsa and Gaya. We look over the plausible reasons that why these districts performs good in relation to the other districts of Bihar. The health policy and other socio-economic developmental policies of the union and state government is equally prepared for the entire districts of Bihar but some of them became good performer, some medium and some poor performer. Hence, it realizes to understand the mechanism by which the good performers performs well and improves their health infrastructure. It can be the ideal districts for the rest of the districts, so understanding the underlying mechanism becomes essential tool. In Samastipur the number of primary health centre in 1981 was 21 and it became unexpectedly as high as 73 in 2001 and the infant mortality rate was 107 in 1981 reduced to 87 in 1991 and finally just 54 in 2001 is the remarkable achievement of the districts and hence it performs very well in the overall health deprivation. In Patna district also the number of primary health centres has been increased from 30 to 86 in the period of 20 year and the infant mortality rate has been decreased from 103 in 1981 to just 50 in 2001. In both the cases the infant mortality rate in 2001was less than the average of the state. Other good performer's districts having the similar story. The number of people uncovered by primary health centres has also been decreased significantly over the period of time in all these good performers' districts. The reverse is the story of the poor performer's district.

In the list of the poor performers Pashchim Champaran is at the top, where the number of primary health centre in 1981 was 20 and it became 41 in 2001 and infant mortality rate has been decreased to 57 in 2001 as against 81 in 1981. Here also seems improvement in both the indicators but in spite of that the districts performs poor in overall health deprivation. The reason behind this is that the improvement is not keeping pace with the increasing population and also the performance with respect to

the other districts of Bihar. Similarly story can be seen in the other districts. The medium are the majority of the districts of the state. Out of the 24 districts 11 came under the category of the medium performers which by and large maintain their ranking over the period of time. On the basis of the above we can conclude that there seems to be the two ways by means of which we can improve the health status of the people of Bihar. The one way is to increase the number of primary health centre in relation to the increasing population. If there is a sufficient number of primary health centre in a particular district and if it is uniformly distributed across the district then the pressure per unit of PHC got reduced and the quality of services delivered by the doctors significantly improved. For this political will is necessary because no individual can establish a primary health centre of its own in spite of the economic status of the individual.

State must assured that no any single children die due to lack of proper health care facilities and the ante-natal, natal and post-natal care must be provided by the state in order to insure the health of the mother and children. The other way by means of which it can be improved is huge investment in the education sector. Because the life of the newly born children is largely dependent upon the education and awareness level of the mother of the child and their family members and the overall environments in which she is residing. There is very little percentage of institutional delivery in Bihar and most of the delivery has been carried out by the untrained female workers and due to this the probability of death of children has been significantly increased. Absence of proper number of bedding in the primary health centre (4-6 beds as per the norms) and lack of infrastructural facilities in rural areas is one of the major reasons of the non-institutional deliveries in Bihar.

Usually the distance between the primary health centre and the remotest village who comes under the ambit of that health centre is greater than 5 kilometres and it takes around one and half hour to reach the PHC. This also demotivated the female to come to PHC for regular health check-up during their pregnancy. As per the norms a pregnant woman has to see PHC thrice before pregnancy for health check-up, must take Iron and Folic acid tablets for 90 day and at least 2 doses of Tetanus. But due to infrastructural constraints the willing and aware women also discouraged to see the PHC. The kind of services provided by the doctor and the ruthless attitude of the staffs also demotivated the female to see PHC again and again for her health check-

up. Lack of literacy and education is also a major hindrance in improvements of the health status of the people. The income of the poor discouraged them to travel for 5 or more kilometre of the health check-up and increased the risk of the infant mortality. Most of the people of Bihar are engaged in agricultural sector and few are also in unorganised sector. Around 40% of the population of the state is living below the poverty line and they any how sustain their life by working as a daily wagers in the agricultural fields. Complete absence of industry in the state compels poor to either migrate from the state or work as agricultural labours. As all of us know the elasticity of the agriculture sector is very low and hence it cannot afford the labour after a fixed level. Seasonal unemployment is another feature of the agriculture which left the majority of the labour class unemployed in almost 4-5 months in a year which drastically reduced their average income of the year. Daily wagers do not want to forge their daily wage for the health check-up until or unless an acute problem arises.

If the primary health centre is in the reach of the poor and easily available public transport then it can significantly reduce the infant mortality. The first contact level of health centre is generally by-passed by the people mainly because of the inefficient working and hence the number of private practitioners has been increased significantly. These Jholachhap doctors are easily available in the vicinity of the poor and easily brainwashed by these quacks and exploited by these untrained medical practitioners. They charged exorbitantly from the poor and thus poor suffered from this double disadvantages in the form of loss of health and money.

In order to curb this menace government has to be assured the proper functioning of the sub-centre which is the first contact level of the qualified doctors and the patient. Undernourishment of the pregnant mother is also a cause of the high infant mortality rate of the newly borne child and also the death of the pregnant mother. Pregnant women (especially poor) are suffering from anaemia during pregnancy which aggravated the situation by lack of proper food and thus the health of the mother affected negatively and it directly affected the growth of the child. Most of the child born under-weight and if proper care is not taken it becomes very difficult to survive for the child. Post natal care is also affected by the socio-cultural factors. There is differential treatment in the case of the male and female children. The mortality rate is higher among the female infant, which is against the fact that female is biologically more resistant to disease than their male counterpart. This is also reflected in the

surviving male and female that the life expectancy of the female is more than that of male. But the case in Bihar is just reverse. Here the life expectancy of male is higher than that of female. The female infant mortality is higher than the male infant mortality rate which shows the highly negligence attitude of the parents and grandparents toward the female child. This can be tackled up to some extent by means of insuring the proper implementation of the governments programmes related to the food and nutrition like Public Distribution System, Annapurna Ana Yojana, MNREGA and all the other welfare programmes by state and union government. The role of the local elected body is also significant in disbursement of the different funds by the union and state government. Sanitation in the form of toilet facilities and the community drainage and proper maintenance of the roads are essential in order to avoid the water borne diseases.

Bihar is the state where most of the rainfall occurs through the south-west monsoon within a short span of 45-60 day and due to this water logging on the road and in the low lying areas is the major reason for the mosquitoes breading and severely affected the people in general and poor in particular. Most of the districts of Bihar witness flood after every two to three year and causes serious havoc in public life. Diarrhoea, Malaria, Typhoid's and other water borne disease are common in the state. This is a usual phenomenon in the state but government is not positively ready to tackle this menace wholeheartedly. This greatly affected the productivity of the people and hence the state as a whole also became poor with respect to the other states of India. The role at the individual level is also essential in order to prevent the water borne diseases and this is improved by the awareness campaign and mass education. Children's are the most valuable assets of any nation because the future of the nation is dependent upon the healthy, educated and skilled population. Hence in order to be developed it becomes necessary to reduce the infant mortality rate as targeted by the Millennium Development Goals. Union as well as state governments should intervene in this sector by formulation of different policies and programmes and health should be at the top of the priority set up by the government. Government should spend at least 4 to 5 % of the GDP in health sector in order to insure the proper health care of the masses of the country. Infant mortality rate has been affected by so many factors and here an analysis has been given below.

3.4.1 Mother's Education:

Female education is one of the most powerful factors that affect infant mortality. Education of the mother has often been treated as a proxy indicator for the socio-economic status of the households. Caldwell[63] (1979) has argued that it has a more direct effect on child mortality through improved child-care. Mothers who are more educated tend to get married upon adult-hood, this in turn delays child bearing. An educated mother is likely to be more knowledgeable about nutrition, health care and hygiene of the infant(for example washing and feeding practice, taking better care of the sick child, immunization etc.). This aspect of maternal education is particularly significant since large parts of state still practice childcare which is deficient in nature.

For example, it is still quite common in villages to cut the umbilical cord with unsterilized sickles, keep the cooked food uncovered and exposed, leave the child un-immunized or follow orthodox methods to cure common childhood diseases like tetanus and diarrhoea. If the mother is educated she can take advantage of public health services and request other members of the family to tend to the child's need. There can also be an effect due to income levels as more educated mothers are likely to have higher in-come.

In Asia, the mortality among children of uneducated Nepalese women is almost 15 times greater than it is among those of Malaysian women with seven more years of schooling. Caldwell (1979) examines education as a factor in mortality decline using the Nigerian data. He stresses on the role of parental education, particularly, that of the mother, in reducing infant and child mortality. He argues that a well-educated mother can change the range of feeding and child care practices without imposing significant extra cost on the household, she is more capable of handling the modern world and that the education of women greatly changes the traditional balance of familial relationships with profound effects on child care.

Thus, a priori, holding other factors constant, one would expect female education to help in lowering IMR. The education of the female mother also became more significant in a state like Bihar where there is less number of primary health centres

[63]Caldwell J, (1979), "Education as a Factor in Mortality Decline", *Population Studies,* Vol. 33, No. 3, pp. 395-413.

and lack of willingness of the illiterate mother for health check-up and taking the doses of immunization. Proper utilisation of the limited resources can be managed by the educated mother than the illiterate one. The cultural taboo of being female only as responsible for the household chores has also been challenged by her and she can also went outside world for earning for the betterment of their family. Hence there is a negative relationship between education of the mother and infant mortality rate.

3.4.2 Female Labour Force Participation:

The status of a woman in society can be measured by her ability to participate in economically gainful work outside the household. Gainful employment outside the house not only gives the women increased bargaining power within the household, Blumberg[64], it also increases the potential economic \worth of female children due to higher discounted parental value for them. Various studies in the literature have reiterated the connection between female work participation and female worth.

Work status of the mother can have a two way effect on mortality. The need to work outside the house may affect child survival rates simply by preventing the mother from caring for the infant. The dual burden of employment and household work can reduce the time available for childcare activities. This could lead to substantial effect through a lack of feeding, especially breast feeding early in life. On the other hand, working outside the home leads to higher family income and gives the mother a modern outlook, both of which could increase the probability of survival. Kishor & Parasuraman[65], using data from the 1992-93 National Family Health Survey, found that mother's income translates into greater control over the expending of resources, increased exposure and access to relevant information about childbearing and childrearing practices, and an enhanced ability to engage the world outside the home to better meet the nutritive, medical and survival needs of infants. Their study showed that mothers who are employed have a 10 per cent higher infant mortality rate and a 36 per cent higher child mortality rate than mothers who are not employed. The study also found that male mortality increases more than female mortality if mothers work.

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[64] Blumberg, R. (1991), "Income under Female vs. Male Control: Hypothesis from a Theory of Gender Stratifications and Data from the Third world`. Gender, Family, and Economy: The Triple Overlap", pp. 97- 127.

[65] Kishor, S. & Parasuraman, S. (1998), "Mother's Employment and Infant and Child Mortality in India", International Institute for Population Sciences.

In the case of a girl child higher levels of female labour force participation may increase the importance attached to the survival of the girl child.

In Bihar, female work outside the house is largely influenced by local customs and traditions. Miller[66] found a clear relationship between female labour force participation rates and regional pattern of female seclusion. In the state of Bihar the participation of female worker is around 34% and most of them are engaged in the agricultural sector. As we know the seasonal nature of the agriculture gave sufficient times for the female to taken care of their offspring and hence in Bihar the participation of female in the work has not a major constraint in the infant mortality. With the introduction of NREGA the percentage share of the women has been significantly increased and the income level of the households also increased and hence there is reduction in the infant mortality rate.

3.4.3 Other Influences:

Apart from the educational and economic impact discussed earlier, several other variables affected mortality. To begin with it is worth investigating whether infant mortality rates vary across social groups. Scheduled Caste/Scheduled Tribe (although STs are practically absent in the state) along with the female-headed households is among the poorest in the country as well as in the state. The vulnerability of SC/ST households to acute poverty is evident in the arrangements for job reservations made for these groups in India. Other backward class households are also relatively poor compared to general class households in the state.

While one would argue that given their scarcity of resources on account of poverty, probability of male and female infant deaths could be expected to be greater in these households that might be just one side of the coin. Studies done by Liddle & Joshi[67], Basu[68] and Miller have found that SC/ST households have a higher value for female children than their non-SC/ST counterparts. This is because originally bride price was

[66] Miller, B. (1982), "Female Labour Participation and Female Seclusion in Rural India: A Regional View', Economic Development and Cultural Change, pp. 777-794.
[67] Liddle, J. & Joshi, R. (1989), *Daughters of Independence: Gender, Caste, and Class in India,* Rutgers University Press.
[68] Basu, A. (1990), "Cultural Influences on Health Care Use: Two Regional Groups in India", Studies in Family Planning 21(5), pp. 275-286.

more prevalent among lower castes and tribes. This would give less reasons of discrimination between male and female children.

Another issue of interest is whether urbanization plays an important role in influencing mortality levels. Greater urbanization should lead to lower mortality levels. The level of urbanization in the state is lowest in the country and only 10 % of the people are residing in the urban areas. Due to availability of the health centres and some sorts of the awareness in the urban areas reduces the risk of infant mortality. Finally, the relationship between poverty and mortality is worth noticing. Does poverty have a strong effect on mortality rates after controlling for the other explanatory variables? This is one of the complex question that whether poverty leads to higher number of infant mortality or the vice versa. In short we can say that both acts as a cycle, one affect the other but becomes very difficult to establish who starts the process. Those who are poor unable to get the proper diet during their life time as well as during the period of her pregnancy and hence the growth of the children severely affected and the chances of the borne baby is more being underweight and more prone to disease. The probability of their death is also higher than their wealthy counterpart. One the other hand if the newly borne baby survives then the chances of being stunted and illiterate more and hence it directly affects their productivity and hence having lower income and became poor. So the cycle of poverty remains strong until or unless there is a serious policy intervention by the government and huge investment in the education and creating more and more health infrastructure in the approach of the masses.

3.5 Challenges in the Health Sector in Bihar:

Substantial Gaps in Primary Health Care Infrastructure:

In Bihar, there are substantial gaps in sub-centres, primary health centres, and a very large gap in community health centres. The State has a shortage of 1210 health sub-centres, Primary Health Centres (PHCs), and 389 Community Health Centres. Besides, out of the 38 districts, only 24 districts hospitals are currently functional.

Shortage of Manpower, Drugs and Equipment's Necessary for Primary Health Care:

There are also substantial gaps in essential requirements in terms of manpower, equipment, drugs and consumables in the primary health care institutions. Moreover, there are no specialists at the Community Health Centres. There is a shortage of 3376 Medical officers and 19945 Auxiliary Nurse Midwife (ANM). Percentage of PHCs adequately equipped with equipment's stands at only 6.2% compared to the national figure of 41.3%. There is inadequate and erratic availability of essential Drug supplies, ORS packets, weighing scales, etc. There is a big shortage of gynaecologists and obstetricians to provide maternal health services in peripheral areas of the State.

Lack of Training Facilities:

The status of training facilities in the State (both in terms of infrastructure and human resources) remains far from satisfactory at all levels. At the State level, there is only one Training Institute {the State Institute of Health and Family Welfare (SIHFW)} that imparts training to health personnel. The SIHFW is facing a severe shortage of faculty and related facilities. At the regional level too there is an acute shortage of good Training Centres.

Very High Fertility Rate:

The Total Fertility Rate in the State is second highest in the country (4.2 compared to the national figure of 3.0). The Birth Rate is also second highest in the State (30.4 compared to the national figure of 23.8). Besides, birth order 3 + is 54.4% compared to the national figure of 42%. Roughly 51.5% of the girls get married below the age of 18 years as compared to the national figure of 28%. The couples practicing any method of contraception are only 34% against the national figure of 53.9%.

Low Institutional Deliveries and High Level of Maternal Death:

The Maternal Mortality Ratio in Bihar (371 per 100,000 live births) is the 4th highest in the country. The high level of MMR can be attributed to low level of institutional deliveries (23.2% compared to national figure 41%), high level of anaemia among women (63.4% compared to national figure of 51.8%), low provision of iron and folic

acid tablets to ante natal cases (8.1% compared to national figure of 20.4%), and low level of full ante-natal coverage (5.4% compared to national figure of 16.4%).

Under-Nourishment among Women:

Bihar is a State with lowest per capita income and with very high level of poverty. Diet surveys carried out by the Department of Women & Child Development indicate that the State ranks very low in terms of dietary intake (not more than 2000 calories). Under-nutrition rate is very high in the State, because of low dietary intake, high morbidity and also closely spaced pregnancies. Roughly 39.3% of women are undernourished (BMI of less than 18.5 kg/m^2). The State has very low overweight and obesity rates in women. The percentage of women with chronic energy deficiency is also higher (39.3%) compared to the national figure of 35.8%. Loop hole in the public distribution system is also a major reason in the under-nourishment among women and children.

Under-Nourishment among Children:

In the State, 54.4% of children under the age of three year, as assessed by weight-for-age, are underweight in comparison to the national figure of 47%. About 53.7% of the children are stunted, as assessed by height-for-age in comparison to the national figure of 45.5%. Number of infants receiving semi-solid foods at the age of six months is much lower than the national level and as a result, under nutrition rate in children is much higher than the national level. About 54.4% children are under weight and 81% are anaemic.

Very Low Coverage of Full Immunization:

The coverage under routine immunization and Pulse polio is low. As per 2001 census, full immunization in the State was only 11% against the national average of 54%. As a result, a large number of polio cases are still reported in the State. Coverage of Vitamin-A dose (10%) is also very low in the State. Due to improvement in the immunization services in the State, the coverage of immunization is at present 33% (NFHS 3).

Low Level of Female Literacy:

Low female literacy rate in the State, particularly in rural areas, is one of the major reasons for poor health conditions in the State. According to 2001 census, female literacy rate in the State is 33.57% against the national average of 54.28%. Due to illiteracy, there is a lack of awareness among women about ante natal, intra natal and post natal care, especially in rural areas.

Poor Status of Family Planning Programmes:

Key indicators related to Maternal and Child Health (MCH) and Family Planning clearly shows the poor health status in Bihar. Roughly 51.5% of the girls in the State get married below the age of 18 year compared to the national figure of 28%. The proportion of couples practicing any method of contraception is 34% against the national figure of 53.9%. Some of the reasons affecting the implementation of the Family Planning programme in the State are: lack of health facilities, both in terms of physical infrastructure and skilled human resources to deliver quality family planning services, evidently low exposure to mass media in Bihar, leading to lower exposure of family planning messages in the community, particularly among rural and socio-economically disadvantaged groups. There is a failure of the programme to effectively undertake measures to increase median age at marriage and first childbirth, etc.

3.6 Union and State Government's Plans and Programmes:

Janani Evam Bal Suraksha Yojana:

Janani Evam Bal Suraksha Yojana under the overall umbrella of the National Rural Health Mission integrates the benefit of cash assistance with institutional care during delivery, coupled with antenatal care and immediate post-partum care. This is to reduce maternal as well as infant mortality. Under this scheme, pregnant women from BPL (Below Poverty Line) families will receive Rs. 1400 in rural areas and Rs. 1000 in urban areas for registering with a clinic and giving birth either in a government or private hospital. The scheme has been implemented in the State since 1stJuly, 2006 and so far 3.5 lakh registrations and 89839 deliveries have taken place. To include the private nursing homes in this scheme, so far 53 private nursing homes have been accredited. This can be considered a good progress in the programme.

Reproductive and Child Healthcare (RCH) Services:

These services basically include three major packages. First is package for mothers, which includes early registration, antenatal care, institutional deliveries and deliveries by skilled Birth Attendants, home based post natal care and increased facilities for MTP. Second is package for new born which includes skilled care at birth, integrated management of Neonatal and Childhood Illness (IMNCI) for common childhood illness and immunization. Other services include increased choice and availability of family planning services, gender sensitization and gender equality, and prevention and management of RTIs & STIs etc.

Anaemia Control Programme:

Decrease in the haemoglobin level which affects the oxygen carrying capacity of blood is known as Anaemia. Under this programme, Pregnant and Lactating mothers are given IFA (Iron and Folic acid) tablets to prevent anaemia during pregnancy. Therefore, IFA tablets are distributed to all the pregnant and lactating mothers through Anganwadi Centres.

Vitamin – A Supplementation Programme:

Government of Bihar and State Health Society have been successfully implementing Vitamin 'A' supplementation Programme for pre-school children. It has, therefore, been decided to undertake the respective programmes for the children of the age group 9 month to 5 year in all the 38 Districts of the State, following the biannual fixed day strategy linked with Routine immunisation. Children of 9 month to 5 year of age would be covered with six monthly doses of Vitamin A syrup. The State has been conducting catch-up rounds of Vitamin-'A' and has got exceptional success in it as its coverage soared to 95%. As a long term strategy, diet management has been included in all training and communication materials.

Routine Immunization & Pulse Polio:

The year 2006 was declared Routine Immunization year by the State Government. The efforts of year 2006 have yielded results, as the dismal figure of 11% complete immunization has improved to 34% and the projected figure by the end of the year 2007 was 60-70%. Polio rounds are also being taken up regularly. The target of the

State Government is that by year 2010, all the districts in Bihar would provide timely and safe immunization with all antigens (plus 2 dosages of Vitamin 'A') to all children between 12-23 months (100% coverage) and all pregnant women with 2 doses of TT (100% coverage). Under Intensive Pulse Polio Immunization, micro-plans including area maps are available and special emphasis has been given on information, education and communication (IEC) and social mobilization.

National Rural Health Mission:

Bihar is one of the focused States. It has as its key components provision of a female health activist in each village (in case of focus State); a village health plan prepared through a local team headed by the Health & Sanitation Committee of the Panchayat; strengthening of the rural hospital for effective curative care made measurable and accountable to the community through Indian Public Health Standards (IPHS); integration of vertical health & family welfare programmes for optimal utilization of funds and infrastructure and strengthening delivery of primary healthcare. It seeks to revitalize local health traditions and mainstream AYUSH into the public health system. It aims at effective integration of health concerns with determinants of health like sanitation & hygiene, nutrition and safe drinking water through a District Plan for health. The State has set up the institutional arrangements for implementing the activities under the NRHM. If NRHM is implemented effectively, it is expected that State may have indicators like other better performing States.

Programme for Elimination of Iodine Deficiency Disorders:

Iodine deficiency continues to be a public health problem in Bihar. The Median urinary Iodine is 85.6ug/L, which is indicative of iodine deficiency in the population. A high proportion of the population (31.5%) has very low urinary iodine excretion-suggesting existence of severe iodine deficiency in many pockets. Only 40.1% of the households consume adequately iodized salt. This is a drastic reduction in household coverage, compared to the findings of NFHS-2 done in 1998-99. IDD elimination programme was initiated in the State in the late 1960s in few districts. It was realized later that iodine deficiency constituted a public health problem in all the districts of the State. By 1988, legislative measures were put in place to ban the sale of non-iodized salt in the entire state.

National Vector Borne Diseases Control Programme (Kala-azar):

Insecticidal residual Spray of DDT is being done in all 31 Kala-azar endemic districts. Drugs for Kala-azar treatment, like SAG (Sodium Antimony Gluconate), are available at primary health centres and Amphotericin-B available in District hospitals and medical colleges. There is a provision of free diet for Kala-azar patient and one attendant. Currently, selection of beneficiaries is in progress. To meet the gap in demand and supply, rate contract for Amphotericin-B has been done.

All Districts & Medical Colleges have been authorized to purchase Amphotericin-B up to

Rs. 50,000 & Rs. 1 lakh, respectively, so that treatment of Kala-azar patient is not interrupted in case of shortage of drugs. For quick & effective diagnosis, rk-39, rapid diagnostic kits are being introduced in Bihar. Miltefosine & Ambisone which are new drugs in this field are being introduced in the State.

National Vector Borne Diseases Control Programme (Malaria and Filariasis):

Currently, a three pronged strategy is being implemented through Primary Health Care for prevention and control. This includes disease management, Integrated Vector Control, and supportive interventions like behaviour change communication.

Revised National Tuberculosis Control Programme (RNTCP):

RNTCP started in 1993 in India but real expansion started in early 1999 with a well-planned strategy where shortcomings of the previous programme were especially taken care of. Results are very encouraging. In Bihar, this programme has been launched in all the 38 districts. Adequate personnel have been recruited, procurement process has been streamlined, and the new sputum positive case detection rate has increased from 25% to 41%. In the year 2006-07, 11,157 patients were put on treatment for TB.

National Leprosy Eradication Programme:

A 100% centrally sponsored National Leprosy Control Programme (NLCP) had been in operation since 1954-55. With the introduction of highly effective MDT for cure of leprosy, the programme was redesigned as National Leprosy Eradication Programme

(NLEP) in 1983. The current Prevalence Rate (PR) of Leprosy in Bihar is 1.6 per 10,000 populations at the end of November 2005. Registered Case on record at the beginning of November 2005 is 16196. In the beginning of 2006-07, there were 12166 cases of leprosy on record. During the year, 21350 new cases were detected and 23358 cases were released from treatment leaving only 10158 cases of Leprosy on record, under treatment. By the end of March 2007, Prevalence Rate has come down to 1.06, which is very close to its elimination point. Presently, there are 16 districts where PR is less than 1 and 22 districts where PR is in the range of 1 to 2. Under this programme in the State, MDT drugs are available at all district hospitals, Sub divisional hospitals, Medical College Hospitals, Referral Hospitals, PHCs, Central Govt. Establishment like Railways, Army, Referral Hospitals and ESI Hospitals. 90% of Medical Officers have started diagnosing cases at PHC and Addl. PHC. NLEP and contract staffs have already been deputed to District hospitals/Sub-Divisional hospitals/Referral Hospitals/Medical College Hospitals/PHC/APHC as per availability.

National AIDS Control Programme:

Bihar is among low prevalence States based on HIV prevalence data. District is the basic unit of implementation in Phase III of the programme, which is being implemented through Bihar State AIDS Control Society.

Integrated Disease Surveillance Programme (IDSP):

IDSP has been started in the State with the objective to detect early warning signals of impending outbreaks and help initiate an effective response in a timely manner. It is also expected to provide essential data to monitor progress of on-going disease control programmes and help allocate health resources more optimally.

Blindness Control Programme:

National Programme for Control of Blindness (NPCB) was launched in the year 1976 as a100% centrally sponsored scheme with the goal of reducing the prevalence of blindness in the State. The goal set for the terminal year of the 10th Plan was to reduce the prevalence of blindness to 0.8% by 2007.

3.7 Conclusion:

On the basis of the above discussion regarding the health deprivation in one of the poorest state of India we come to the following conclusion. The health system of Bihar becomes sick and its sickness is reflected by the absence of primary health centre and the other infrastructure related to the health sector. There is an improvement in case of the infant mortality rate over the period of time but is still higher than the all India average. In 1981 the infant mortality rate was 94 per 1000 of live birth and it became 58 per 1000 of live birth in 2001. The supply side indicators have also been improving but not keeping pace with the economic growth of the nation and the population growth of the state. The number of Primary health centres in 1981 was 711 and it became 950 in 1991 and finally it became 1615 in 2001. The average people which was out of the ambit of the PHCs in 1981 was 47180 and became 44495 in 1991 and reduced to 22917 in 2001, which shows the improvements in the supply side constraints but need to intensify the pace of improvement. Due to lack of proper infrastructure the rate of full immunization in the state is very low and it was just 33 per cent in 2001 compared to the all India average of 44 per cent.

In 1981, Samastipur was the poorest district in terms of health deprivation and Madhubani was the least poor. In 1991, Samastipur maintain its position but in the category of least poor it became Bhojpur and Madhubani became on 15^{th} position. In 2001, Pashchim Champaran became the most poor and Aurangabad became the least poor and the Samastipur improves its health infrastructure and came at 8^{th} position and Madhubani again improves its health infrastructure and came at 23^{rd} position in 2001. The state capital, i.e. Patna was on the 2^{nd} position in the ranking but improves to 13^{th} and 14^{th} in 1991 and 2001 respectively, which shows the improving infrastructure of the district after globalisation. Over the period of twenty year there were six districts which improve their health and related infrastructure and it was Samastipur, Aurangabad, Patna, Saran, Saharsa and Gaya. The greatest achiever is Samastipur. Seven have degraded their health infrastructure and they were Pashchim Champaran, Purnia, Gopalganj, Bhojpur, Muzaffarpur, Begusarai and Sitamarhi. As many as eleven districts were in the medium category and try to maintain their health infrastructure over the period of time.

There is a wide range of the challenges in the health sector of Bihar and majority of them is related to the supply side constraints. Substantial Gaps in primary health care infrastructure, lack of training facilities, low institutional deliveries and high level of maternal death, under-nourishment among women and children and poor status of family planning programmes are some of the challenges which requires worth mentioning. Programmes and policies have been there for the betterment of the health issue of the child and the mother but these are rarely implemented on the ground because of the lack of will to do so. Lack of education is aggravating the situation and people are not aware of their health right. Some of the programmes are Janani Evam Bal Suraksha Yojana, Reproductive and Child Healthcare (RCH) Services, Anaemia Control Programme, Routine Immunization & Pulse Polio and National Rural Health Mission are worth mentioning. Very few are working properly and due to this the health problems of the people of Bihar is in a pathetic condition and contributing in the poverty of the state. Finally some suggestion has been given in view of the ground reality and the problems facing by the people in general and poor in particular in order to avail the health services.

3.8 Suggestions:

Based on the analysis of the health situation in the state few suggestions have been given for the effective utilisation and efficient network of the health infrastructure.

- Government must have political will to implement the programmes. If everything is available and there is no will to implement the programmes and policies then no one can improve the situation of the state. In this process the role of the bureaucrats became very important.

- Government should provide low cost generic medicine to the people and must control the sky rocketing prices of the lifesaving medicines.

- It must be the duty of the state to insure the proper functioning of the public distribution system so that those who are directly dependent upon these schemes can get their right share and the problems of malnourishment got reduced.

- It is the duty of the state government to promote social health insurance which should be low cost subsidized insurance packages specifically developed for the poor and lower socio-economic classes.

- Government should encourage the initiatives by NGOs and SEWAs and other similar organisation which is primarily works on the philanthropic approaches.

- There must be increment in the expenditure on the health sector of our country. It must be between 4 and 5 % of our GDP.

- Government has to substantially improve the management information system and accountability mechanism so that the health professionals perform their functions adequately. This will require improving management capacities in the health systems at various levels and through training and creating new posts of management positions.

- The government should set up standards for hospitals and health centres at various levels. It should catalyse the development of a system of accredition of health facilities in the public as well as in private sector. The accredition status of the hospitals should be widely disseminated. Quality improvement efforts should also include non-clinical and support services.

- Medical education should include new areas of clinical practices and respond to the rapidly changing health scenario of the state as well as of the country. These institutions should facilitate updating the technical knowledge of the existing medical professionals through continuing medical/health education.

- Medical Council of India must take strict action against violators of PC and PNDT Act and our police department also take serious action against those performing this. Court should give exemplary punishment to the people so that others are not encouraged to do this again.

- Last but not the least is the punitive measure by the Medical Council of India towards the intentional misuse of their know-how by doctors. Some of the doctors of the state as well as of the country are engaged in the corrupt

practices of the female foeticide and other heinous crime. All these must be stopped by exemplary punishment in the form of permanent cancelation of the licenses of these corrupt doctors as is the case in some of the developed countries of the world. In this case the role of the Medical Council of India becomes very important and it must be vigilant towards the mushrooming of the Jholachhap doctors in rural areas.

CHAPTER-4

CHAPTER: - 4

DEPRIVATIONS IN EDUCATIONAL OPPORTUNITIES ANDATTAINMENTS

Education is a human right with immense power to transform. On its foundation rest the cornerstones of freedom, democracy and sustainable human development.

...Kofi Atta Annan

4.1 Introduction:

It is often said that, 'knowledge is power'. This power comes only when a person will be educated and the facilities for the education must be provided by the every government to its citizens. The importance of education is most evident in developing countries in general and India in particular. It is a means to alleviate poverty and engineer social change. Education has a fundamental role to play in personal and social development. While it isn't a magic pill to solving the problems of the world, it is a ladder that can be used to climb out of poverty, exclusion, ignorance, oppression and war. The children and youth of our times, who will take over from today's adults, need to be equipped with knowledge to usher in a better future. Education in India is mainly provided by the public sector, with control and funding coming from three levels: federal, state, and local.

Education in India falls under the control of both the union government and the states, (i.e. in concurrent list) with some responsibilities lying with the union and the states having autonomy for others. The various articles of the Indian Constitution provide for education as a fundamental right. India has made progress in terms of increasing primary education attendance rate and expanding literacy to approximately two thirds of the population. India's improved education system is often cited as one of the main contributors to the economic rise of India. Much of the progress especially in Higher education, scientific research has been credited to various public institutions. However, India continues to face stern challenges. Despite growing investment in education, 35% of its population is still illiterate; only 15% of Indian students reach high school, and just 7% graduate. One of the major problems of the education in India is the high dropout rate among girls and boys at the different stage of schooling.

At the 1990 World Conference on Education for All, governments agreed to a broad range of education goals including that of attainment of Universal Primary Education (UPE) by the year 2000. Sadly the millennium year had come and gone but the UPE goal is still a distant dream more so in developing countries like India.

The millennium development goals as drawn up by the UNs now directs nation to ensure that all boys and girls complete a full course in primary education by the year 2015. While the government has been making concerted efforts aimed at expanding the reach of education, the phenomenon of school dropouts remains a blot on the progress of education in India. What is cause for particular concern is the enormity of the problem in all states of the Indian union and at all stages of school education where unacceptably high dropout rates have been reported. Clearly considerable progress has been achieved in the last 65 year notwithstanding the occasional hiccup.

The year 1992-93 was perhaps a particularly bad year with all stages of education showing increased dropout rates across the board. However the heartening fact is the significant progress made in the reduction of female dropouts. Sex differentials in dropout rates have also reduced considerably over the years. Still then out of every 100 students enrolled in class I, 39 per cent discontinued schooling and dropped out in the primary stage while two-thirds did not go on to complete class X (dropout rate for 2001-02), a worrying situation indeed. Another disturbing angle of dropout statistics is the fact that dropout rates have consistently remained higher for girls as compared to boys.

Apart from the issue of drop out there is also some of the important issue like that majority of the children in the age group of 6 and 14 year is out of school. The situation is bad in the context of India and worse in the context of state like Bihar, where out of school children is very high in the school going age. There is gender discrimination in terms of the opportunities of education for male and female and it is always in the favour of the male child. Throughout the time immemorial female has less literacy rate and having very bad impact on the different dimensions of social and economic development of the state. Adult illiteracy rate is also a major hindrance in the progress of the society in Bihar. The lack of education among the first generation learners impacted the educational attainments of the children of the present generation and this affected the educational opportunities available to the next generation

learners and hence this vicious circle of illiteracy continues. Literacy and education impacted the employment opportunities of the individual and hence the productivity and the income level and thus the households trapped in the clutches of poverty. Once someone comes in the domain of poverty then it becomes very difficult to provide a good education to their child to break this cycle of poverty and this cycle remains intact in the long run until or unless there is some kind of strong policy intervention by the state. Thus in this context the role of state becomes very much important. The supply side constraints can only be mitigated by a welfare state. Some individual can come across from this supply side constraints but majority of the population needs government's intervention. In the state like Bihar where around 40 % of the population are still living in the below poverty line needs special attention in the infrastructural improvement for the educational opportunities so that the impediment of the supply side constraints got reduced.

People of Bihar are unable to understand the importance of education even in this modern era of 21st century, which was once a centre of great learning. This is mainly because of the fact that they are unable to manage their very basic needs of ''Roti, Kapda aur Makan" (i.e. food, clothing and shelter). In their hierarchy of needs education is nowhere and if it is there constrain by so many socio-cultural and economic factors. It is the female child who affected more both in terms of getting opportunities for education, employment and any kind of personnel liberty. Thus, it becomes necessary to see this deprivation of the basic needs of the people of Bihar and to explore the areas of opportunities, challenges and the possibility of improvements in this sector of human development.

4.2 Educational Deprivation:

For present study educational deprivation has been defined in terms of percentage of out of school children and percentage of adult illiterate and gender dimension has also taken for the proper understanding of the discrimination in terms of educational attainments. There are so many people in the state of Bihar which do not have basic formal education and this affected them in multiple ways and one of the resultant of this is the income poverty of the people. However, it is very difficult to isolate educational effects on poverty based on secondary data. It leads to other kinds of deprivation as lack of confidence, awareness and power to raise voices in the decision

making processes in the society. Poverty affects education and vice versa. Both are complementary to each other and hence one cannot be seen in isolation to the other. Therefore, a holistic view point is necessary to see the degree and direction of relationship between the two. Which is the cause and which one is the result is still a question to answer before the academic world. One can argue that lack of education is the root cause of poverty, because lack of education means lack of employment opportunities which means low level of income and it ultimately leads to poverty. But, the other way of relationship between the two cannot be neglected. A person is poor and hence he is unable to provide education to his child and it leads to further poverty, so here poverty becomes the root cause of lack of education. In a nutshell, it can be said that both are intertwined and cannot be studied and understand separately. Both are the two faces of a single coin. One cannot ignore the fact that education is not the magic wand which can eradicate all the problems of the world but it certainly improves the living standards of the people in developing world in general and India in particular.

Education has immense potential not only to change the life of an individual or household but also it has potential to transform the entire world in such a way that it fits for the human being to live a decent standard of life. Therefore, it becomes an urgent need of the hour to see the educational deprivation in one if the most backward state of India in a temporal framework across the length and breadth of the state.

4.3 Selection of the Indicators:

Educational deprivation has been constructed with the help of deprivation in two indicators of education namely percentage of out of school children and percentage of adult illiterate. This has further sub-divided into gender level. Thus, now we have four indicators of educational deprivation, namely percentage of out of school male children, percentage of out of school female children, percentage of adult male illiterate and percentage of adult female illiterate. All these indictors has been standardised and an index of educational deprivation has been constructed for the decade of 1981, 1991 and 2001. The logic behind the selection of these indictors is like this. Out of school children is a function of so many factors varies from economic, social, cultural and infrastructural. So, if we just capture the extent of out of school children then we are in a position to say the overall conditions of the above

mentioned factors of the district. The problem of out-of-school children is deeply rooted in the socio-economic structure of our nation in general and Bihar in particular. Children are out of school because of various reasons. Poverty and lack of educational infrastructure emerges to be the most important among the other reasons. Factors like availability of lucrative job opportunities for the children, lack of consciousness among the parents, gender discriminations, etc. are also very much prevalent. The reasons may vary across the districts. In Bihar around 90 % of the people are dependent upon the agriculture for their livelihood and hence children substitute adult labour doing domestic duties and also working in family farms. Boys are withdrawn from school and sent to work, the initial brunt falls on the girls who are withdrawn much before their brothers to simply stay at home and help their mothers in household chores.

Children of poor families are less likely to enrol in and complete schooling because of the associated costs of attending school even when it is provided "free". The cost of uniforms, supplies and transportation may well be beyond the means of a poor family, especially when the family has several children of school going age. This means that choices have to be made, and the choice is often to drop out of school or, worse yet, to deny schooling to girls while enrolling the boys thereby contributing directly to maintaining the inferior status of women. And as poor children who are enrolled grow older, the opportunity cost (their lost labour and the forgone income it may entail) becomes greater, thus increasing the likelihood of abandoning school. Furthermore, dropping out of school because of poverty virtually guarantees perpetuation of the poverty cycle since the income-earning potential of the child is reduced, not to mention overall productivity, receptivity to change, and capacity to improve quality of life. Lack of education perpetuates poverty, and poverty constrains access to schooling. Eliminating poverty requires providing access to quality education.

The relationship between education and poverty reduction is thus quite straight and linear as education is empowering; it enables the person to participate in the development process; it inculcates the knowledge and skills needed to improve the income earning potential and in turn the quality of life. Moreover, education of girls and women helps in improving the number of other indicators of human development. Second indicator for the present study is adult illiteracy which is also a major cause of

the poverty. Adult illiteracy has direct impact on various social problems like child labour, female infanticide, witchcraft etc., which are still prevalent in alarming rate in India as well as in Bihar. Adult illiteracy prevents the present generation learners to go in to the school. The illiterate parents unable to understand the importance of education and hence they do not send their children in school. Here the role of female illiteracy having much more adverse impact on the overall human development than the male illiteracy. Educating a male means you are educating an individual but if you are educating a female means you are educating an entire family. From the first day of life the role of mother is crucial in the health and hygiene of the child, moral education and household becomes the first school of any children and if the teacher (mother) of the household is illiterate then the future of the child is in danger. Hence, the education of the female becomes an urgent need of the hour. In this process the role of the family and the orthodoxy has to be subsumed. Female child has not to be seen as the "Paraya Dhan" (Others property). The female children of the present day will become the mother of tomorrow and hence to educate the girl child and eliminate all forms of discrimination must be the motto of the union as well as state government.

Therefore, these two indicators have been selected and finally breaking them in to male and female because educational opportunities are not equally available to both genders. The continuing challenge for education is to ensure that all people have the knowledge and skills necessary for continuing human and economic development and for breaking the poverty cycle. The linear relationship between education, poverty and empowerment is, however, governed by the circumstances of a country and within a country in a particular region. Education, thus, influences and is influenced by the context in which it is developed. This synergistic relationship implies that education must be in a constant state of change as it responds to changing social and economic needs and that education in itself is a force for social and economic change as people become more empowered and more productive.

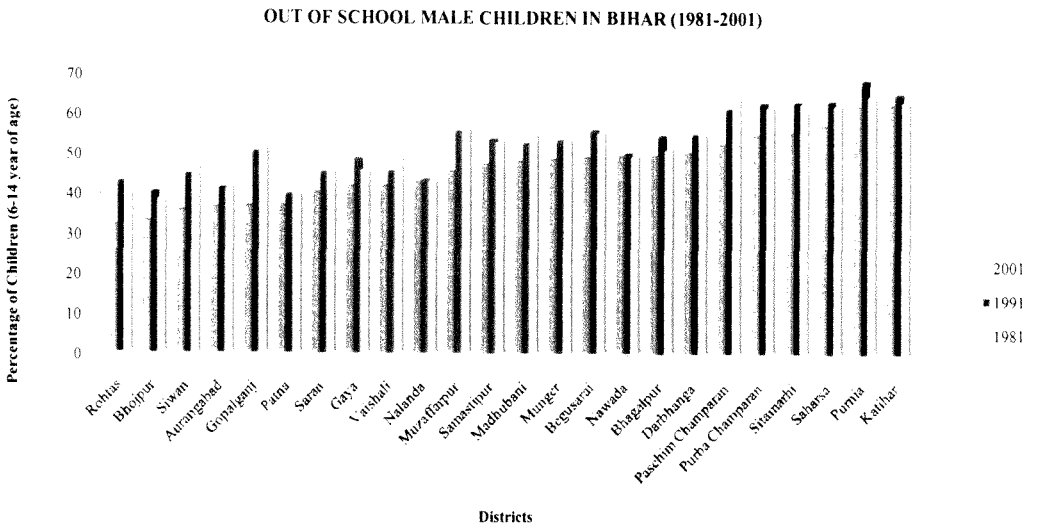

Figure 4.1

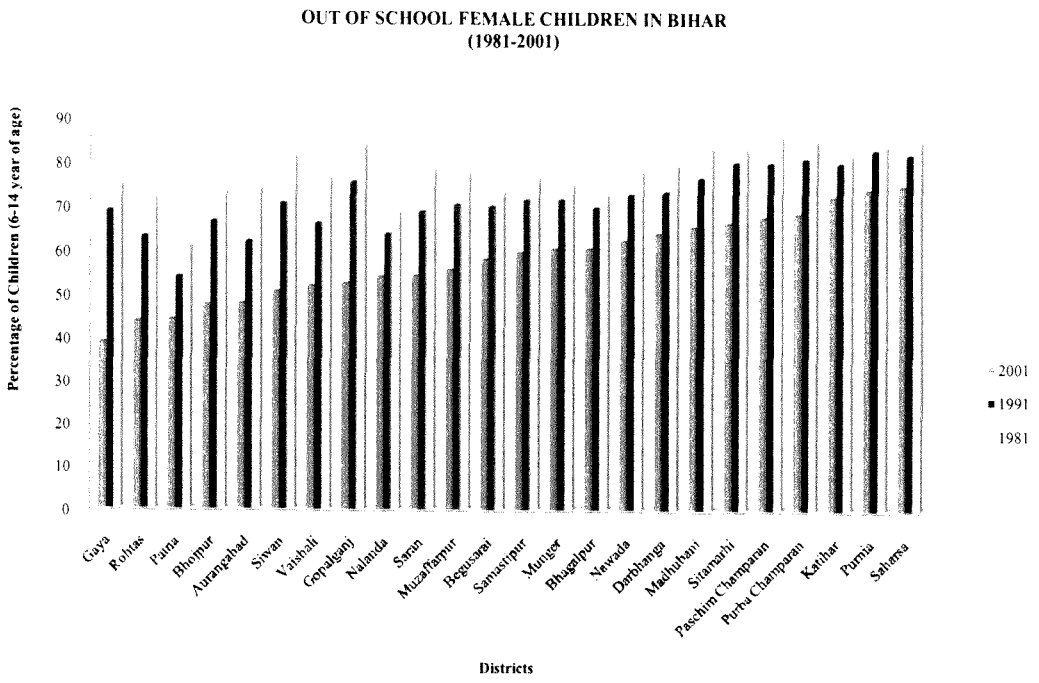

Figure 4.2

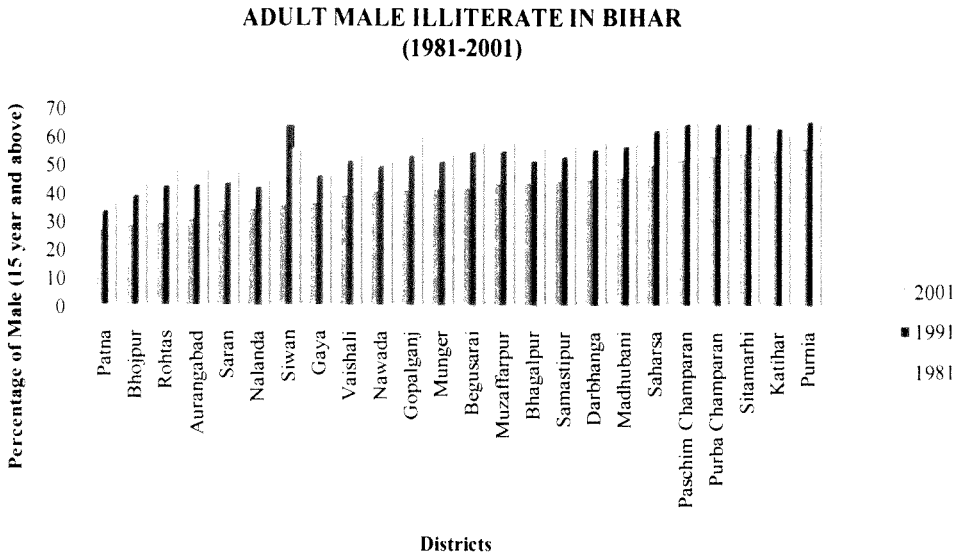

Figure 4.3

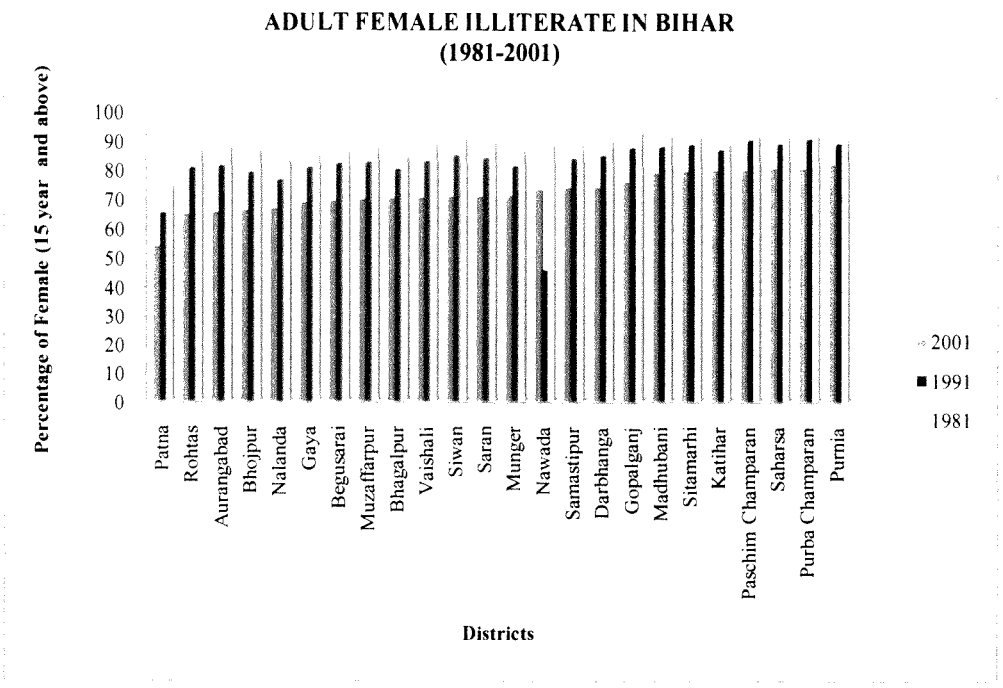

Figure 4.4

Source: Calculated from Series C- of Census of India, 1981, 1991 and 2001

4.4 Analysis of the Educational Deprivation in Bihar:

State of education in Bihar is in a very bad shape. The population of Bihar in 2001 was 83 million which have been growing at the rate of 2.4 per cent per annum. About 90 per cent of the population is rural. The sex ratio is low at 911 females per thousand males and has been declining sharply over the years. Among the various states in India, Bihar has the largest proportion of population below the poverty line, female literacy is less than 20 per cent as against 43.31 per cent among males in rural areas, land-less agricultural population is about half of the working population – characteristics that symbolise various forms of exploitation and deprivation. Improvement of literacy and educational achievement may be viewed in this context as one of the sustainable efforts to fight deprivation and inequality. Access to education itself is unequal and the educational system tends to perpetuate such inequality. To say that bringing about basic change in such a situation is a challenge is an understatement. It has the lowest per capita income among the major states of India. "Bihar's per capita income, which was about 60 per cent of the average for India during the early 1960s, declined to about 40 per cent in 1993-94 and further to 34 per cent in 1997-98"[69]. The growth rate of state domestic product for Bihar was just 2.69 per cent per annum from 1991-92 to 1997-98 compared with 6 per cent for all the major states of the country[70].

While the population growth rate in India declined from 23.9 per cent during the 1980s to 21.3 per cent during the 1990s, corresponding estimates for Bihar increased from 23.4 per cent to 28.4 per cent during the same period. Consequently, the population density of Bihar stands at a high level of 880 as against 324 for the country as a whole. In absolute terms, the number of those below the poverty line in Bihar is still among the highest; Bihar alone accounts for about one-fifth of the country's rural poor. In this perspective it becomes essential to see the relationship between the educational deprivation among the masses and the persistent poverty of the state. 53% of the people in the state are illiterate, which is highest among the state of India and also the rate of poverty is highest except Orissa. Some of the statistics related to education and demography of the state versus India has been given below.

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[69]Sharma, Alakh N. (2005), "Agrarian Relations and Socio-Economic Change in Bihar", *Economic and Political Weekly*, 40 (10), March 5.

[70]Ahluwalia, Montek S. (2000), "Economic Performance of States in the Post-Reforms Period", *Economic and Political Weekly*, 35 (19), May 6-12, 1637-48.

Table 4.1 Selected Educational and Demographic Indicators

Unit	Bihar	India
Population (2001) Million	82.88	1027.02
Decadal Growth (1991-01) Percentage	28.43	21.34
Population Density (2001) Per Sq. Km.	880	324
Out of School Children's (2009) Percentage		
Male	6.21	3.92
Female	8.19	4.71
Adult Illiteracy Rate (1998) Percentage		
Male	40.94	30.25
Female	71.85	56.38
Teacher Pupil Ratio (2000-01)		
Primary	1:57	1:34
Upper Primary	1:62	1:38
Literacy Rate (2001) Percentage		
Male	60.32	75.85
Female	33.57	54.16
Total Primary Schools (2007-08) Number	49868	805667
Schools with Girl's Toilet (2006-07) Percentage	10.28	34.06
Schools Having Ramps (2006-07) Percentage	15.52	25.82
Primary Schools Established Since 1994, Percentage	12.44	33.2
Repetition Rates in Primary Schools (2005-06) Percentage	13.5	6.3
Dropout Rates in Primary Schools (2005-06) Percentage	51.6	29
Dropout Rates in Upper Primary Schools (2005-06) Percentage	74.7	50.8

Sources: Census of India and District Information System for Education, 2009

The table 4.1 of educational and demographic indicators shows that the condition of the education in Bihar is far below from the averages of the India. The rate of growth of population is outnumbered with respect to the all India average and thus in other positive indicators its lag behind. The pressure of the population on the limited land area of the state in increasing year after year and this high growth rate of population is manifestation of so many factors. Literacy and education is one of the major factors that can play an important role in the reduction of the population growth. Lack of education is playing a dominant role in the deprivation in many aspects of the life of the people. The linkage between the two can be understood in the following ways.

- investment in education as a poverty reduction strategy which can enhance the skills and productivity among poor households;
- poverty as a constraint to educational achievement both at the macro-level (poor countries generally have lower levels of enrolment) and the micro-level (children of poor households receive less education).

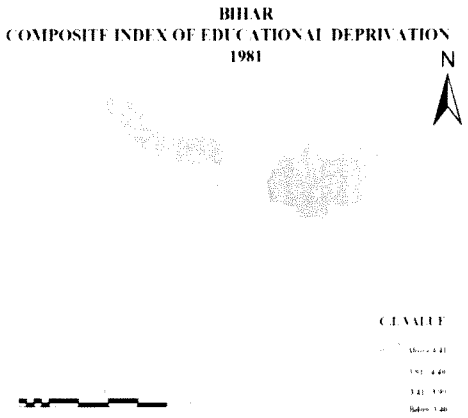
Females in developing countries (applicable to India as well as in Bihar also) typically receive less education than do males. Although it is generally true those countries with high GNP have greater educational equality for males and females, amongst poor countries there is considerable variation, both in overall levels of enrolment and in female/male enrolment ratios. Female disadvantage in enrolment is thus not simply a matter of overall development. Factors such as social and cultural attitudes, and policy priorities are clearly also significant. Research into the constraints to girls' schooling explains the persistence of gender gaps and indicates how the combined effects of household poverty and gender reduce educational opportunity for girls. The opportunity costs of girls' schooling are most significant for poor households. Girl's labour is used to substitute for their mother's, e.g. by caring for siblings. The loss of girls' labour during school hours thus has an impact on women's ability to raise household income either through food production or wage labour. Not only are the costs of schooling girls greater but the private returns (to the household) are often perceived to be less, because of wage differentials between educated women and men, because daughters are expected to leave the household upon marriage, (female considered as Paraya Dhan) or because tradition favours female seclusion, or women remaining within the home. Other constraints to girl's schooling include concerns about girl's safety both in school and journeying between home and school, especially at puberty, and worries about girls becoming sexually active outside of social sanction.

For poorer households, these safety concerns may be increased because children from the poorest households are often furthest from schools, particularly at secondary level. The cultural factors is also became one of the factors of the low level of education and the mass illiteracy among the female. The rampant illiteracy among the female having a multiplier effects on the life of their siblings. For the proper understanding of the effects of being out of school and the illiteracy among the adult members of the

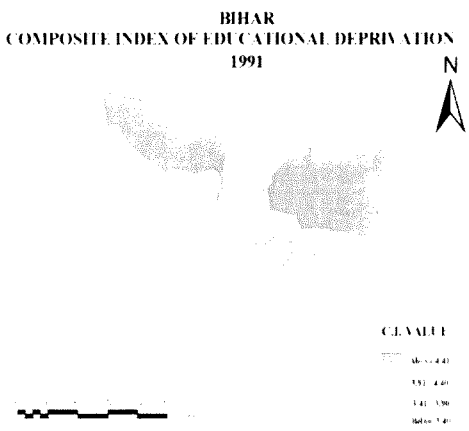
household in general and among female in particular, index of educational deprivation has been constructed for the entire districts of Bihar for three decade. Profile of educational deprivation the different districts of Bihar has been constructed and it is found that the ranking of the districts in terms of the educational deprivation varies with the different decade. A total of 24 districts are there in Bihar, after adjustment of the data at the 1981 level. The performance of some of the districts is really appreciating.

Districts like Pashchim Champaran, Gopalganj, Siwan and Muzaffarpur performs well in improving their educational infrastructure and that is reflected in their performance in reduction of out of school children for both male and female and improving adult illiteracy. On the other side there are five districts which perform poorly and their ranking has been upgraded in educational deprivation and these districts are Katihar, Bhagalpur, Nawada, Nalanda and Samastipur. Rest of the 15 districts tries to maintain their position in terms of the educational attainment of the people in spite of the rapid population growth. In 1981 Pashchim Champaran was on the top of the educational deprivation but in 1991 it improves and became on 6^{th} and also maintains their ranking in 2001. Gopalganj was on 8^{th} in 1991 and became 9^{th} and 15^{th} in 1991 and 2001 respectively. Others well performers also improves their ranking. Among poor performers Katihar is on the top. Its ranking was 6^{th} in 1981 and became 5^{th} in 1991 and 2^{nd} in 2001 and thus deteriorates its educational attainments. Other poor performer is Bhagalpur which was on 17^{th} in 1981 and its ranking became 15^{th} and 10^{th} in 1991 and 2001 respectively. Number of medium performing districts is more than the combined of good and poor performers which indicates that the situation of education in most of the districts of Bihar has not improved since 1981. One of the amazing facts is that this was also the period of high economic growth rate of our country and in spite of this high economic growth there is little or almost no improvement in educational indicators in one of the most backward state of India, which was once a centre of great learning. The medium performing districts are Purnia, Purba Champaran, Sitamarhi, Saharsa, Madhubani, Darbhanga, Begusarai, Munger, Vaishali, Saran, Gaya, Aurangabad, Rohtas, Bhojpur and the state capital, i.e. Patna.

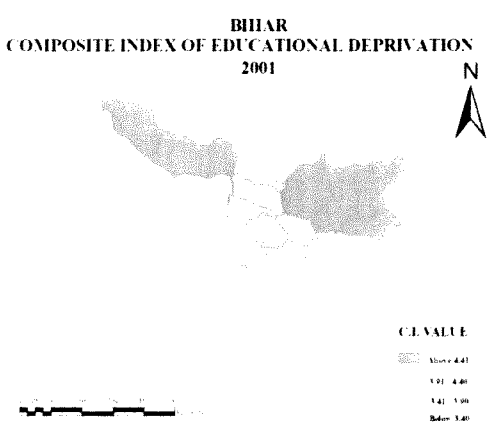
Status of Educational Deprivation in Bihar: 1981-2001



Map 4.1



Map 4.2



Map 4.3

Source: C-Series of Census of India, 1981, 1991 and 2001

Composite index of educational deprivation and the ranking of the districts in different decade in terms of deprivation in educational opportunities has been shown with the help of the following table.

Table 4.2 Educational Deprivation and their Ranking: 1981-2001

Districts	CI_Educ. Deprivation 1981	Ranking	CI_Educ. Deprivation 1991	Ranking	CI_Educ. Deprivation 2001	Ranking
Patna	3.061	24	2.934	24	2.912	24
Nalanda	3.468	22	3.452	22	3.577	17
Nawada	3.880	16	3.462	20	4.092	11
Gaya	3.658	19	3.748	17	3.373	20
Aurangabad	3.635	20	3.457	21	3.225	21
Rohtas	3.606	21	3.479	19	3.005	23
Bhojpur	3.466	23	3.399	23	3.101	22
Saran	3.789	18	3.677	18	3.568	18
Siwan	3.985	13	4.093	10	3.449	19
Gopalganj	4.202	8	4.095	9	3.705	15
Paschim Champaran	4.595	1	4.611	6	4.619	6
Purba Champaran	4.510	3	4.662	2	4.721	4
Sitamarhi	4.503	4	4.626	3	4.712	5
Muzaffarpur	4.119	10	4.089	11	3.918	14
Vaishali	3.926	15	3.779	16	3.684	16
Begusarai	3.992	12	4.080	12	3.993	13
Samastipur	4.003	11	4.047	13	4.105	9
Darbhanga	4.154	9	4.161	8	4.261	8
Madhubani	4.256	7	4.213	7	4.322	7
Saharsa	4.465	5	4.617	4	4.809	3
Purnia	4.531	2	4.796	1	5.064	1
Katihar	4.398	6	4.615	5	4.996	2
Munger	3.945	14	3.976	14	4.038	12
Bhagalpur	3.858	17	3.967	15	4.104	10

Source: Calculated from C-Series of Census of India, 1981, 1991 and 2001

Thus, it is evident from table 4.2 that there are only nine districts which have changed their status of educational infrastructure over a period of 20 year. Five districts preform poor as their ranking has been upgraded means they deteriorate their educational infrastructure. Only four out of twenty four districts have been able to

improve their educational infrastructure. This is a serious matter that why this happened that with the passage of time most of the districts of Bihar deteriorating their educational infrastructure. The period of 1981-2001 is also coinciding with the high economic growth of the country and in spite of this high economic growth rate the condition of the educational infrastructure is so poor in Bihar. This clearly indicates the lack of political will in the investment of this sector by the government at the union level as well as at state level.

Before 42nd constitutional amendment (1976) education was state subject in India. After this amendment education was placed in the concurrent list of the seventh schedule of Indian constitution which means that the responsibility of the education lies both on the union government and of the state government. In some matter union having exclusive power and state is autonomous in other. Hence, it became the joint responsibility of both union and state for the development of the educational sector of our country. Education sector in India continue to be supply pushed than demand driven. In short, managerial challenges are many to ensure availability, access, affordability and equity in delivering educational infrastructure to meet the community needs efficiently and effectively. Education and socio-economic development follow each other. One cannot grow without the other. The total expenditure on educational infrastructure in our country as well as in Bihar is very low with comparisons to the other countries of the world. When we are talking about the developing countries then we are again lagging behind in the expenditure on this sector.

On the recommendation of the Education Commission (1966), the Indian government fixed a target of investing six per cent of GNP in education by 1986, but this has never been achieved. In the early 1950s, it was as low as 1.2 per cent, it moved up steadily to around 4 per cent of GNP (4.2 in 2000-01)[71]. According to Human Development Report (2001), among the 143 countries listed, India ranked 104th with respect to the share of GNP spent on education. And, a recent UNESCO study indicates that countries spending much less than India are getting better results.[72]For example country like Myanmar spent only 1.4 % of their GDP on education and their

[71]Financing Education in India, edited by Jandhyala B. G. Tilak.
[72]Global Education Digest, 2003, UNESCO, (data from 2000-01 school years).

dropout rate in primary education is 45 %, similarly Nepal spent 2.5 % and their dropout rate is 35-38%. On the other hand India spent 4.1 % of their GDP on education and the dropout rate in primary education in our country is as high as 53 %. Cambodia and Bangladesh also spent less than us but their drop out is very less than our dropout rate. Belatedly recognizing the importance of primary education, the government has in recent year shifted the focus of its funding to primary and upper primary in an attempt to boost overall literacy levels.

Therefore, there is an urgent need to scale up financial resources in the education sector. The notion that it is the bounded responsibility of the state to provide the free educational facilities to their masses has been faded. Now a day's people in general and poor in particular spending a significant amount of their income in order to educate their children. There is an urgent need to identify the political-economy of the state of the negligence of this prime sector. Why state is not willing to spend a significant amount of money on this sector. Education is an issue for the poor and vulnerable section of the society and those who are on the top of the leadership and decision making body of the country are less affected by the increasing cost of education. Due to this there is a tendency of negligence of this sector in our country. With the introduction of the liberalisation policy in the early 90s there became a paradigm shift in this sector. The state role has been reduced significantly and the role of the private sector has been greatly increased. This leads to the over exploitation of the poor and vulnerable section of the society. Government schools, colleges and other unit of the educational institutions became the symbol of the poor people and thus the quality of education provided by the government teachers and other non-teaching staffs of the institute also became a question mark. The poor people cannot take any initiative against these irresponsible teachers and staffs and hence they started private coaching and tuition and charged exorbitantly and make education a matter of wealthy and elite class of our society.

This can be seen as the mushrooming of private coaching and tuition bureau in many parts of the state and particularly the growth of Patna as the hub of engineering and medical courses centre. The lack of political participation from bottom to top level of the people of the marginalised section also deteriorated their situation from bad to

worse. But now a day's due to the effective implementation of the reservation policy in the Panchayati Raj Institution election the situation has been hopefully changing in positive direction. Women empowerment, representation of SCs in the local body election has given them chance of at least raising their voices for the welfare of their community. The government unwillingness can also be seen by their action in terms of the opening of the government schools and colleges after the independence of the country. Opening of the large number of private and convent schools in different parts of the state as well as of the country is a direct result of the 1991 liberalisation policy of the government in which government withdraw themselves from the public spending and invited the private sector to invest in the different sector which were initially the sole responsibly of the government. All this political drama also significantly affected the state of Bihar in many ways.

In terms of performance there were very few districts which were good in educational infrastructure in relative way and only two or three districts were in a good position in absolute way of providing good education to their masses. In the present scenario Bihar is performing somewhat well in terms of the reduction of illiteracy and reducing dropout ratio of children at different stages of education due to the intervention by the some of the international philanthropic organisations and the programmes of the union government in the form of Sarva Siksha Abhiyan (SSA) and Bihar Education Project (BEP) by the state government. There is an urgent need to identify the plausible causes of perpetual educational backwardness of the state. The first and foremost thing which is essential is the supply side constraints i.e. lack of educational institutions in different districts of Bihar. The presence is essential for their effective and efficient utilisation. The number of primary schools has been increasing from the year 1981 to 2001 but does not kept pace with the increasing trend of the population growth. The following table show the performance of the districts in terms of the educational deprivation over the period of 20 year.

Table 4.3

Changes in the Position of Districts of Bihar in terms of Educational Deprivation:

1981-2001

Changes	District Name
Good	Pashchim Champaran, Gopalganj, Siwan, Muzaffarpur
Medium	Purnia, Purba Champaran, Sitamarhi, Saharsa, Madhubani, Darbhanga, Begusarai, Munger, Vaishali, Saran, Gaya, Aurangabad, Rohtas, Bhojpur and Patna
Poor	Katihar, Bhagalpur, Nawada, Nalanda, Samastipur

Source: Calculated from C-Series of Census of India, 1981, 1991 and 2001

Thus, it is evident from table 4.3 that the good performers are Pashchim Champaran, Gopalganj, Siwan and Muzaffarpur. We look over the plausible reasons that why these districts performs good in relation to the other districts of Bihar. The educational policy and other socio-economic developmental policies of the union and state government is equally prepared for the entire districts of Bihar but some of them became good performer, some medium and some poor performer.

Hence, it realizes to understand the mechanism by which the good performers performs well and improves their educational infrastructure. It can be the ideal districts for the rest of the districts, so understanding the underlying mechanism becomes essential tool. In Pashchim Champaran the percentage of out of school male children in 1981 was 64.82 % and it became 52.35 % in 2001. In the period of 20 year there has been reduction of 12.47 percentage point. In case of female children the figure was 85.92 % in 1981 and became 80.04 % in 1991, just a five percentage point's improvement but in 2001 there is an improvement of more than 12 percentage points and percentage of female children out of school became 67.62 %. In case of female enrolment there has been increasement of more than 18 %. Percentage of adult male illiterate was 67.45 % in 1981 and the figure came down to 50.73 % in 2001, means a reduction of 17 percentage point. The percentage of adult female illiterate

was as high as 91.19 % in 1981 slightly came down in 1991 and became 89.87% and finally in 2001 it became 79.54%. There has been a total reduction of 11.65 percentage point. Due to this supply side improvement the ranking of the district has been improved which was on the top in 1981 become at the 6th position in both 1991 and 2001. There is similar story of the other three good performing districts namely Gopalganj, Siwan and Muzaffarpur. All the four districts improve in these two indicators of educational dimension.

The poor performing districts also improve their educational indicators over the period of time but less than the average improvements of the rest of the districts of the state and hence they became the poor performer in the educational improvement. Among the poor performer districts Katihar is on the top and in 1981 the percentage of out of school male children was 63.19 and it increased to 64.99 % in 1991 and finally came down to 62.35 % in 2001. There is just a reduction of less than one percentage point over the period of 20 year and hence became the poor performer. In case of the out of school female children the reduction has been around 10 percentage point. It was 81.89 % in 1981 and became 72.29 % in 2001. 63 % of the adult male was illiterate in 1981 and the figure came down to 54 % in 2001. In case of female the percentage was 88, 86 and 79 for the year of 1981, 91 and 2001 respectively. Other poor performer districts like Bhagalpur, Nawada, Nalanda and Samastipur also improves up to some extent but their progress was less than the average progress made by the state over the span of 20 year. The number of the medium performing districts is more than half of the total number of districts in the state. They by and large remain their ranking intact over the period of 20 year.

For example, the medium performing district is Patna which was at 24th position, i.e. on the bottom in 1981 remains at the bottom in 1991 and 2001 also. Another medium performing district is Purba Champaran which was at the 3rd in 1981 and became 2nd in 1991 and finally at the fourth position in 2001. This is condition of almost all the medium performing districts. But these medium performing districts cannot be said in a good position because with the improvement of the economy they also have to improve their educational infrastructure so that masses can benefit from this. On the basis of the above discussion we can say that there is a huge potential of the

improvement in all the districts of Bihar when there is necessary supply of the educational infrastructure both by the union and the state government. People are now more aware and they have now understood the economic and other importance of education and hence everybody wants to educate their children.

However, there is gender biasness. The awareness of the parents can be seen by the opening of the huge number of private schools and coaching in all the districts of Bihar. The increased attendance rate and enrolment in the primary schools are some of the indicators of the increasing awareness of the parents to educate their child. If government school will provide good education then children will go into the government school and do not spend their money on the private education and utilize this money on other sector. Hence, it can directly reduce the economic burden of the parents for their children education. The role of education in economic and other improvement has to be understood in terms of the improving the living standards of the people and make them capable of living a decent standard of life. The direction of causality between poverty and education linkages has been shown to flow both ways. On one hand poverty acts as a factor preventing people from getting access to education. On the other hand those with education are considered to be at less risk of poverty. Appleton[73], states that each year of primary schooling is associated with a 2.5 per cent fall in the risk of poverty, and that lower secondary schooling has roughly twice this effect. Overall, the effects of education on the probability of being poor were found to be very strong. The relationship between education and poverty reduction is thus quite straight and linear as education is empowering; it enables the person to participate in the development process; it inculcates the knowledge and skills needed to improve the income earning potential and in turn the quality of life. Moreover, education of girls and women helps in improving the number of other indicators of human development. Education thus helps to lay the foundation for the following pillars of poverty reduction: Empowerment, human development, social development and good governance.

[73] Appleton, S. (1997), "Leaping into the Ark: Some Reflections on Free Primary Education in Uganda", Centre for the Study of African Economies, University of Oxford.

Basic education empowers individuals as:

- It opens up avenues of communication that would otherwise be closed, expands personal choice and control over one's environment, and is necessary for the acquisition of many other skills.
- It gives people access to information through both print and electronic media, equips them to cope better with work and family responsibilities, and changes the image they have of themselves.
- It strengthens their self-confidence to participate in community affairs and influence political issues.
- It gives disadvantaged people the tools they need to move from exclusion to full participation in their society.
- It empowers entire nations because educated citizens and workers have the skills to make democratic institutions function effectively, to meet the demands for a more sophisticated workforce, to work for a cleaner environment, and to meet their obligations as parents and citizens.

Social and economic gains: Investing in women's education results in substantial social and economic gains.

- Educated women have fewer children. In South Asia, women with no education have seven children on average; women with at least seven years of education have fewer than four children.
- Educated women have healthier children; in Africa, one out of five children dies before the age of five if the mother has no education; the probability is more than halved for children whose mothers have seven years of education. Educating women has a stronger positive effect on children's health than educating men.
- Mothers are also much more closely involved in the immediate care of children and in the critical decisions about food, sanitation and general nurturing, all of which influence children's health and development. Longer spacing between births leads to healthier children.

- Education provides women with greater opportunities for employment and income, and raises the opportunity cost of their time in economic activities compared to child rearing. Such economic gains motivate families to have fewer children.

- The vicious cycle of high birth rates, high maternal and infant mortality and endemic poverty has been transformed into a virtuous circle through investment in human capital-enhancing labour productivity, reducing fertility and mortality, raising economic growth and thus securing domestic resources for further investments in people.

Social development:

- Education is an important means of facilitating and directing social change. Children (and adults) who attend school are exposed to new ideas and concepts and attitudes that form part of the basis for social change.

- The socialisation obtained by attending school includes such values as punctuality, following instructions, managing time, planning work, focusing attention, adhering to rules and receptivity to new concepts, thus helping to develop persons better suited, function effectively in a changing society.

- Education also plays an important role in cultural transmission. Transmission of culture, appreciation of cultural heritage, understanding of national history, inculcation of cultural values are all increasingly left to the schooling process as traditional societies change.

Education is a powerful tool for introducing members of a society to the system of government and the concept of governance. The school curriculum always includes considerable attending to the essential ideas of nationhood and government and to the operation and structure of government. Participation by children in classroom committees and school government lays the foundation for participation as adults in local government.

Educated persons are more likely to vote and participate in local and national government. They are more likely to demand better and more accountable government, thus creating demand for improved governance. Education is linked to

empowerment, and a major manifestation of empowerment is the demand for better governance. The continuing challenge for education is to ensure that all people have the knowledge and skills necessary for continuing human and economic development and for breaking the poverty cycle. The linear relationship between education, poverty and empowerment is, however, governed by the circumstances of a country and within a country in a particular region. Education, thus, influences and is influenced by the context in which it is developed. This synergistic relationship implies that education must be in a constant state of change as it responds to changing social and economic needs and that education in itself is a force for social and economic change as people become more empowered and more productive.

4.5 Challenges in the Education Sector in Bihar:

Lack of primary education in India is particularly serious due to insufficient government commitment[74], low level of budget allocation[75], the general public's weak monitoring of education and indifference to education in general and primary education in particular[76] and restrictive use of fiscal transfers from the union government. Education, not only has intrinsic value, but also has instrumental value to gain higher earnings and economic growth.

Bihar educational progress would play a key role in the economic development of the state to catch up with the rest of India."Education for All "in Bihar would be also important in the government's recent strategy of "inclusive growth" in India as a whole. Basic education provision has been largely ignored by the Bihar government. Education deprivation is caused not merely by poverty, but also by other related factors. These factors in the case of Bihar might be closely related to gender, caste, the quality of learning and facilities in schools, labour market opportunities and so on.

- Attendance of the children in the primary and upper primary school is low. It is due to the negligence of the parents in the early year of schooling and the opportunity cost of the children when they enter in the age of 12 and above.

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[74]Basu, A. (1995), *Public Expenditure Decision Making: The Indian Experience,* New Delhi: Sage Publications.

[75]Tan, J.and A. Mingat (1992), "Education in Asia: A Comparative Study of Cost and Financing", Washington D. C. World Bank.

[76]Dreze, J. And H. Gazedar (1996), *Uttar Pradesh: The Burden of Inertia, in Dreze J. and A. Seneds. Indian Development: Selected Regional Perspectives,* New Delhi: Oxford University Press.

- Access to school differs across religious groups. Muslims, who made up 16.5% of the total population in Bihar in the 2001Census, are less likely to send their children to school. The Gross Enrolment Ratio (GER) in primary school in 2006 was 75.0% for General Caste, 72.2% for Scheduled Caste and 51.3% for Muslims; even the state government recognize some Madrassa as a part of formal schooling[77].

- The ratio of primary schools to upper primary schools is 3.7, while the national average is 2.4, when the number of upper primary schools for every two primary schools is the national norm. The low transition rate from grade 5 to 6 in Bihar can be reflected by less availability of upper primary school.

- It is acknowledged that an adequate number of trained teachers play an important role in education development[78]. The number of teachers per-primary school is 3.7 in Bihar, which is more than 3.0 at national average.

- The number of female teachers, which is regarded as making appositive impact on attendance of female students in South Asia[79]. In Bihar, 50% of teacher positions are reserved for females. However in 2002, the percentage of female teachers in primary school was 22.0% when all India figure was 66.0%[80].

- An adverse school environment, as well as an inadequate quality and quantity of teachers are likely to affect learning outcome. Pratham, an educational NGO, carries out learning achievement tests in rural India. In Bihar, learning levels at Grade 1 and 2 are lower than the national average; however, learning achievement performance is better than grade 3 to 5.

- School of Bihar is much less equipped with infrastructure, particularly girl's toilets and kitchen sheds. Furthermore, the percentage of having electricity

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[77]Government of Bihar (2007), "Report of the Common School System Commission", Submitted on 8th June 2007.

[78]Govinda,R. and M. Bandyopadhyay (2008), "Access to Elementary Education in India: Country Analytical Review", Consortium for Research on Educational Access, Transitions and Equity,July,2008.

[79]Watkins, K. (2000), *The Oxfam Education Report,* Oxford: Oxfam.

[80]National Council of Educational Research and Training (2005), "Seventh All India Educational Survey", New Delhi: NCERT.

and furniture for all students (primary to senior secondary schools) is only 3.6% and 7.7%, respectively.

4.6 Union and State Government's Plans and Programmes:

Bihar Education Project (BEP):

The Bihar Education Project (BEP) represents the first major attempt in India to include the broad range of national EFA concerns, issues, approaches, and/strategies in one large-scale operational program. The Government of India, the state of Government of Bihar, NGO's teacher representatives and distinguished women and educationists are represented in these bodies so that planning and monitoring are done in a participatory manner. This project covers all components of elementary education and expanded in a phased manner in 20 districts. Village Education Committees play an important role in the implementation of the project at the village level. Initially this project emphasized mobilization and literacy activities in 1991, which has shifted the focus to primary education.

Sarva Shiksha Abhiyaan (SSA):

With the acceleration of "education for all" efforts, union government initiated large scale intervention in the 1990s, namely District Primary Education Programme, funded by the World Bank. Subsequently, *Sarva Shiksha Abiyaan (SSA)*, launched in 2000-01, is India's flagship programme to universalize primary education by 2010. In Bihar, it has been implemented by the Bihar Education Project Council, a state government agency. Characteristic of the SSA is community ownership of education, which involves members from Vidyalaya Shiksha Samiti (a body of parents), women's groups and Panchyats. According to union government guidelines, each state has to meet the specified norms in 21 areas of interventions, such as school facility, class room, text books, teachers, civil work, and so on. There has not been a rigorous nation-wide analysis of SSA to my knowledge. Some studies argued that the SSA needs to focus on improving school's quality of infrastructure and teaching standards in government schools[81], and tackling gaps in gender aspects[82].

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[81] Das. A. (2007), "How far Have We Come in Sarva Siksha Abhiya?" *Economic and Political*

Mid-Day Meal Scheme:

In Bihar, MDM was launched in January 2005. At school level, *Vidyalaya Shiksha Samiti* (VSS), a body of parent, which is attached to every school, is basically responsible for implementing MDM. VSS appoint cooks, procure the ingredients for menu and so on. Grains, mainly rice, are brought from the nearest FCI godown by a PDS dealer. Government funds are transferred to a joint bank account of the head teacher and a VSS chairperson. Mid-day meals (MDM) were launched in 1995 as a union sponsored scheme. It was, however, a Supreme Court order in 2001, which paved the way to achieve a near universal programme. Each state government provides cooked mid-day meals in all government and government-aided primary and upper primary schools, Education Guarantee Scheme schools and Alternative, Innovative Education Centre, and recognized Madrassas and Maktabs as of the end of 2008. Union government guidelines set the minimum calories, protein and micro-nutrient for primary and upper primary students respectively. The objectives of MDM are to improve school enrolment, attendance and retention, to enhance children's nutrition and to promote social equity, i.e. all children, regardless of their castes, eat together. Dreze and Goyal[83], argued that MDM have a huge potential to improve school attendance, meet children's nutritional requirements and enhance social equity, although they admitted there are some flaws and regional differences in MDM.

4.7 Conclusion:

The study regarding educational deprivation in the state of Bihar reveals certain salient features which are worth mentioning. State of education in Bihar is in a very bad shape and is reflected by so many of the educational indicators like literacy rate, enrolment ratio, male-female literacy gap, percentage of out of school children (both male and female), adult illiteracy rate for male and female so on and so forth.

District profile of educational deprivation across the period of time reveals the following facts. In 1981, Pashchim Champaran was on the top of the educational

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Weekly, January. 6.

[82] Kainth, G. S. (2006), "A Mission Approach to Sarva Shiksha Abhiyan", *Economic and Political Weekly*, July 29.

[83] Dreze, J. and A. Goyal (2003), "Future of Mid-Day Meals," *Economic and Political Weekly*, November 1.

deprivation but in 1991 it improves and became on 6th and also maintains their ranking in 2001. Gopalganj was on 8th in 1991 and became 9th and 15th in 1991 and 2001 respectively. Others well performers also improves their ranking. Among poor performers Katihar was on the top. Its ranking was 6th in 1981 and became 5th in 1991 and 2nd in 2001 and thus deteriorates its educational attainments. Other poor performer was Bhagalpur which was on 17th in 1981 and its ranking became 15th and 10th in 1991 and 2001 respectively. The number of medium performer was more than the combined of good and poor performers which indicates that the situation of education in most of the districts of Bihar has not improved since 1981. One of the amazing facts is that this was also the period of high economic growth rate of our country and in spite of this high economic growth there is little or almost no improvement in educational indicators in one of the most backward state of India, which was once a centre of great learning. Medium performers were Purnia, Purba Champaran, Sitamarhi, Saharsa, Madhubani, Darbhanga, Begusarai, Munger, Vaishali, Saran, Gaya, Aurangabad, Rohtas, Bhojpur and the state capital, i.e. Patna.

Districts like Pashchim Champaran, Gopalganj, Siwan and Muzaffarpur performs well in improving their educational infrastructure and that is reflected in their performance in reduction of out of school children for both male and female and improving adult illiteracy. On the other side there are five districts which perform poorly and their ranking has been upgraded in educational deprivation and these districts are Katihar, Bhagalpur, Nawada, Nalanda and Samastipur. Rest of the 15 districts tries to maintain their position in terms of the educational attainment of the people in spite of the rapid population growth.

The situation of education in Bihar is a matter of grave concern as in independent India it always remains on the bottom of the educational report card. It means that there is some of the persistent hindrance which compels people to live out of the ambit of knowledge world. So, I have tried to explore some of the challenges in the education sector in Bihar and the important one need worth mentioning here.

Attendance of the children in the primary and upper primary school is low. It is due to the negligence of the parents in the early year of schooling and the opportunity cost of the children when they enter in the age of 12 and above. Access to school differs across religious groups. Muslims, who made up 16.5% of the total population in

Bihar in the 2001 Census, are less likely to send their children to school. The Gross Enrolment Ratio (GER) in primary school in 2006 was 75.0% for General Caste, 72.2% for Scheduled Caste and 51.3% for Muslims; even the state government recognize some *Madrassa* as a part of formal schooling. The ratio of primary schools to upper primary schools is 3.7, while the national average is 2.4, when the number of upper primary schools for every two primary schools is the national norm. The low transition rate from grade 5 to 6 in Bihar can be reflected by less availability of upper primary school. These are some of the socio-economic and supply side constraints which become the major hindrance in the educational attainments of the children of Bihar.

Since, education in India comes under concurrent list it is the responsibility of both union as well as of state government to provide education to their people. After the introduction of the Right to Education (RTE Act, 2010) it becomes the constitutional responsibility of the state to provide elementary education to the children between the age of 6 and 14 year. For this some of the programmes are working in the state like Bihar Education Project, Sarva Siksha Abhiyaan and Mid-day Meal Scheme but not functioning properly due to several political and other factors. Finally, some suggestions have been given so that the levels of education can be improved in the state and Bihar come out from the educationally backward state and again attain its position of being a centre of great learning.

4.8 Suggestions:

Based on the analysis of the condition of education in the state few suggestions have been given for the effective utilisation of the educational opportunities for the entire population of the state.

- Recruitment of teachers must be on the basis of the competitive examination rather than just on the marks obtained in the senior secondary, higher secondary and graduation.
- There must be minimum interference of the block level officer like CDPO, BDO and also less political interference of the Mukhiya for the disbursement of the grains for mid-day meal and Aanganwadi Scheme.

- State government should insure the proper roads and public transport so that children from the remotest village come to the city for upper primary or high schooling.

- Government should insure the irrigational facilities for the farmers so that the money which is spent on the irrigation can be saved and thus farmer invest these money to the education of their child.

- Electricity should be provided to each and every households so that it can improves the environs of reading and also became a medium of knowledge by providing power supply to electronic gadgets.

- Payments in MGNREGA must be disbursed on the time so that the parents can manage school fees and other necessity of the children and also of the daily household economic routine.

- Reduce nepotism as it is always in the favour of the high-caste family. A similarly educated son or daughter of a poor family with limited contacts outside the village and a stigmatized social identity is less likely to find suitable employment and were more likely to join the ranks of the educated unemployed. Conversely, a high-caste family's social position and influential contacts outside the village enhance the returns to education for these households, and thus may render them more likely than the poor to invest in the education of children.

- Top priority for filling up the vacant posts of teachers.

- Separate toilets for girls.

- Revitalisation and restructuring of Village Education Committees.

- Immediate need for looking into rude and threatening behaviour of teachers.

- Linking with the district health authorities for periodical health check-up in schools as well as for health education.

CHAPTER-5

CHAPTER:-5

DEPRIVATION IN BASIC AMENITIES

To deprive a man of his natural liberty and to deny to him the ordinary amenities of life is worse than starving the body; it is starvation of the soul the dweller in the body.

... Mohandas Karamchand Gandhi

5.1 Introduction:

The availability of basic amenities such as safe drinking water, electricity, housing, clean fuel for cooking, and sanitation facilities for the masses indicates the quality of life of the people. With the absence of these basic amenities people cannot enjoy the minimum dignified life. Hence, it becomes the foremost duty of the state to provide at least these basic amenities to their masses irrespective of their economic, social and other status. There should not be rural- urban divide and the gender gap. In the modern world the notion of welfare of the people has been changed. Traditionally, it was seen merely by taking income or monthly per capita consumption expenditure data but now the scenario has been changed and the concept of multidimensionality of poverty has been introduced.

When we come to the issue of measurement then the role of the basic amenities becomes crucial. Now the different countries of the world are accepting this notion and the report of the UNDP (HDR-2010) also introduced the concept of multidimensionality of poverty and hence the importance of the basic amenities has been increased, when we are measuring the welfare of the people of any nation. So in this perspective it becomes necessary to look over the basic amenities data and tries to explain their impact on some of the welfare aspects of the human life. In spite of a high rate of economic growth in the last twenty years, full coverage of the population in terms of access to safe water supply, toilet facilities, housing and electricity remains a major challenge in India in general and Bihar in particular. The reasons for the lack of full coverage are many and complex for they include not just the demand-supply gap due to high population growth and the financial weaknesses of the country but also political choices in the prioritizing of these facilities and institutional

problems in their effective delivery[84]. Since the economic reforms of 1991, several alternate arrangements for the creation and delivery of these services have been proposed but as yet we have no clear-cut picture of their effectiveness across the country and their contribution to fill the demand-supply miss match. A lack of basic amenities has important implications for the quality of life and increasingly, it is being realized that key dependencies exist between water supply and sanitation and improvements in health, education, population stabilization and overall human development[85].

The dependencies are two-way. For instance, the adoption of household sanitation is facilitated by literacy[86]. At the same time, water and sanitation have an all pervasive developmental role contributing to the reducing of income poverty, reducing of child mortality, breaking of life cycle disadvantages such as premature mortality and higher morbidity, holding down wider health costs due to better overall health, improving girl's education, freeing girl's and women's time, and ensuring a sense of human dignity[4]. Though some of these dependencies are not directly observable, there are some empirical studies showing that access to basic amenities, particularly water and sanitation, can have a significant impact on school attendance and child mortality rates. In Bangladesh between 1990 and 2000, a UNICEF school sanitation program was instrumental in increasing the number of girl's enrolling by 11 %[87].

On the other hand the presence of sewerages in urban Nicaragua has reduced the probability of child mortality by 55 %[88]. The positive effects of proper water supply and environmental hygiene on health and education have however, been under stressed in Indian government policy as seen, for instance, in its approach to public

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[84] Chaplin, Susan. E. (1999), "Cities, Sewers and Poverty: India's Politics of Sanitation. Environment and Urbanization", 11 (1): 145-158.

[85] Dreze, Jean and Murthi, Mamta. (2001), "Fertility, Education and Development: Evidence from India". *Population and Development Review,* 27 (1): 33-63.

[86] Shaw, Annapurna. (2003), *Urban Growth, Basic Amenities and Waste Management in India. In Challenge of Sustainable Development: The Indian Dynamics.* Edited by Ram Prasad Sengupta and Anup Sinha, 298-338. Manak Publications: New Delhi.

[87] United Nations Development Programme (2006), "Human Development Report", Oxford University Press, New York.

[88] Mavalankar, Dileep and Shankar, Manjunath. (2004), "Sanitation and Water Supply: The Forgotten Infrastructure. India Infrastructure Report", pp. 314-324. New Delhi: Oxford University Press.

health services. From the early years after independence up till the middle of this decade, there was declining attention given to the public health sector, seen for instance in the merging of public health services with medical services in the 1950s, the atrophy of training facilities for personnel and much greater importance given to curative health services with programs on public health being systematically reduced in size and spending[89].

Those Indian states that have persisted with a pro-active public health policy and provided better basic services have done better in education and infant mortality decline and their strategies can teach lessons to other states. Among all the basic amenities the safe drinking water having a greater role in the overall health conditions of the people. Because due to drinking of contaminated water people are facing a lot of water born disease. Ahmad et al.[90] in their paper worked out on the water quality in Bangladesh and their impact on the health of the pregnant women in the reproductive age group. They studied a group of women of reproductive age (15-49 years) who were chronically exposed to arsenic through drinking water to identify the pregnancy outcomes in terms of live birth, still birth, spontaneous abortion, and pre-term birth. They compared the pregnancy outcomes of exposed respondents with non-exposed respondents. They come to the conclusion that the adverse pregnancy outcomes were more common among women who were chronically exposed to arsenic through drinking water.

Arsenic pollution of groundwater has become a serious environmental health problem in Bangladesh. As revealed in the study, contamination is also a threat to healthy and safe pregnancy outcomes. Hence, there is an urgent need to provide basic amenities to all the masses of a nation so much so that they can enjoy a minimum dignified life in this modern era of 21st century.

5.2 Basic Amenities Deprivation:

It is a kind of deprivation which arises due to the absence of basic amenities such as safe drinking water, housing facilities, and electricity and sanitation facilities. A huge

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[89] Das Gupta, Monica, (2005), "Public Health in India: An overview", World Bank Policy Research, Working Paper 3787. December 2005. 12 pp.
http://unpan1.un.org/intradoc/groups/public/documents/APCITY/UNPAN024731.pdf last accessed on March 30, 2012.

[90] Ahmad, S. Akhtar e.tal. (2001), "Arsenic in Drinking Water and Pregnancy Outcomes", Environmental Health Perspectives, Vol. 109, No. 6, pp. 629-631, Published by: Brogan & Partners.

number of people in Bihar do not have accessibility of basic services and this affected their life in multiple ways and one of the outcomes of this is the poor health condition which ultimately leads to income poverty. The relationship between the two is not linear and hence becomes difficult to quantify the effect of one on the other. Poverty affects the availability of the basic amenities and vice versa. Both are complementary to each other and hence one cannot be seen in isolation to the other.

Therefore, a holistic view point is necessary to see the degree and direction of relationship between the two. In the contemporary world poverty should be defined as a social phenomenon in which a major section of the society is unable to fulfil its basic necessities of life. Sen[91] has argued that poverty can be seen as an absolute inability to pursue certain valuable functioning. Deprivation in capabilities is the outcome of lack of opportunities, which signifies that a particular society has not provided people with access to the basic amenities which resulted into lack of maintain essential human capabilities. This indicates the wider scope of the notion of poverty which was traditionally viewed as a shortfall in a threshold level of income. The contemporary definition of poverty states that it is not only the individual which is solely responsible for his/her poverty but it is the households, society or/and community is also responsible for individual's poverty. Suppose someone living in such a household where he/she is unable to get a good education, proper sanitation, safe drinking water and electricity then how can we expect that, the same individual will having capabilities to live in decent standard of living. He/she is not well equipped with knowledge system, poor health condition which undoubtedly affects his/her performance and productivity which compels them to live a sub-standard life.

The major question arises that why some individual is having privilege to in to a public school and others not. Is this is merely a function of the income of their parents or is affected by other factors also? Then the answer is that it is strongly affected by so many other factors which has little or nothing to do with the income of their parents. The cultural factors playing an important role in the overall life span of an individual. There are various household that say that there is no culture of study in their households. Due to this cultural influence the future of the coming generation is in danger. Similarly absence of the basic amenities such as primary school in the

[91] Sen, A.K. (1985), *Commodities and Capabilities*, North-Holland, Amsterdam.

village also becomes a supply side constrain in the early education of the child. All these cannot be fulfilled by the individual whatever their income may be and thus the efforts of the society and community becomes important in insuring the capabilities of an individual living in a particular society.

And thus, this enables us to establish a relationship between development and deprivation. Deprivation is reflected in the lack of basic-capabilities, when people are unable to reach a certain level of essential human achievements or functioning[92]. Thus, we can see that the availability of proper basic amenities has immense potential not only to change the life of an individual but also has potential to transform the entire world in such a way that fits for the human being to enjoy a decent standard of life. Therefore, it becomes crucial to see the deprivation in basic amenities in one of the backward state of India over the period of time across the different districts of Bihar.

5.3 Selection of the Indicators:

Basic amenities deprivation has been constructed with the help of deprivation in four basic necessities of life namely safe drinking water, electricity, toilet facilities and households living in kutcha houses. Data for all these indicators has been obtained from the Census of India for the different decade and standardised them in order to form the index of basic amenities deprivation for the year of 1981, 1991 and 2001. The logic behind the selection of these indicators is like this. Out of the four indicators of basic necessities the role of safe drinking water and sanitation is very important. Presence of the basic amenities as mentioned above indicates the level of development of the society in a wider sense rather than just the economic development. The problem of poor sanitation is aggravated in Bihar because of the following factors: (i) tropical climate (ii) dense population (iii) low socio-economic status of most of the population (iv) under development (v) lack of education and awareness among masses (vi) very low level of urbanisation and (vii) cultural practices among the Hindu family.

Women and the poor are the more sufferers of the effect of poor sanitation and water supply due to their socially defined roles. There are so many diseases which are caused by poor water and sanitation, such as typhoid, diarrhoea, intestinal worms,

[92] United Nations Development Programme (1996), "Human Development Report", Oxford, New York.

jaundice, etc. Apart from this direct effect, it is also estimated that around 70 per cent of all diseases are water-borne. The economic difficulty of poor health caused by ill-sanitation and contaminated water supply is also substantial. People in general and poor in particular spend a substantial share of their income for treatment of these highly preventable diseases. Surveys have shown that in India on an average people spend Rs 123–136 per case of gastro enteric infection[93]. The costs of treatment have scaled up substantially since 1992 as the costs of medicine have gone up.

This is resulted in the form of loss of workdays each year due to water borne diseases. And it is estimated that around 73 million workdays are lost each year. One of the benefits of the improved water supply and sanitation is the increment of the households saving. In spite of the economic well-being we can also save time and energy. Such saved energy and time can be utilised in other economic or educational activities. Irigoyen[94] has reviewed a number of studies worldwide and has listed the following benefits to education and health due to better sanitation and water supply.

- Water and sanitation affect school attendance and test scores. The lack of piped water reduces school attendance by 2–17 per cent in Africa.
- Doubling the access of rural families to tap and well water would increase enrolment by 20 per cent in rural India.
- Access to clean water reduces probability of child mortality by 55 per cent (42 studies).
- Adequate water supply and sanitation in schools have increased attendance of girls by 15 per cent in Bangladesh.
- Better water and sanitation facilities are associated with reduced absenteeism and improved test scores in Tanzania and Nigeria.
- Presence of sewers in urban Nicaragua reduces the probability of child mortality by 55 per cent.
- Good water supply and sanitation reduces stunting and wasting in children (Nigeria, Guatemala, and Mozambique). There is, therefore, substantial

[93] National Council for Applied Economic Research (1992), "Household Survey of Medical Care", New Delhi, NCAER.

[94] Irigoyen, Jose Luis (2003), "Millennium Development Goals: The Infrastructure Contribution", Transport Forum. URL: www.worldbank.org/transport/forum2003/presentations/irigoyen.ppt. Last accessed on 23rd April, 2012.

evidence to show that adequate water supply and sanitation are important determinants of health, education, and social well-being. It is a moot point if any of these vast positive externalities are at all factored in, in the design of plans and priorities of governments.

The third important basic amenity is the electricity. It is the backbone of the economic development of any country. From industrial development to household's level consumption its role is worth mentioning. Its role in the developmental process can also be seen as the importance given to power sector by different developmental institution at national and international level. Both the Government of India (Planning Commission) strategy for the development of rural India as well as the United Nation's Millennium Development Goals[95] (MDGs) for the next ten years are inherently dependent on the integration of electricity services to achieve a set of varied development goals. Viable and reliable electricity services result in increased productivity in agriculture and labour, improvement in the delivery of health and education, access to communications (such as radio, telephone, television, and mobile telephone), improved lighting after sunset, facilitating the use of time and energy-saving mills, motors, and pumps, and increasing public safety through outdoor lighting[96]. Rural electrification at a household level provides at the very minimum services such as lighting and communications (e.g. radio/television) and can increasingly meet the aspirations of the rural populations to own other household appliances. Household electrification also increases the likelihood that women will read and earn income[97]. Thus, it becomes important to provide the electricity supply to the people in general and the rural folks in particular so that it can impact their life in a positive direction and they also feel that they are residing in the modern era of 21st century.

The last but not the least indicator is the housing facilities. Houses are very important because it protects us from the vagaries of nature and it also became a symbol of status in the society. Housing is one of the most important basic needs of the human being after food and cloth. Housing in India is a state subject and varies greatly and

[95] The Millennium Development Goals (MDGs) were developed in conjunction with the United Nation's, Millennium Declaration, signed by 189 countries in September 2000, as a commitment to pursuing poverty reduction and good governance, and to garner support for increasing aid, fostering trade, and providing debt relief to developing countries. Most importantly, the MDGs have also set the challenging goal of halving worldwide poverty and hunger by the year 2015.

[96] In a recent report, Modi (2005) provides detailed analytic evidence of the benefits of access to reliable electricity.

[97] Annual Report of the "Energy Sector Management Assistance Program" (ESMAP), 2004.

reflects the socio-economic mix of its vast population. So, households must possess their own houses for living. In the present scenario the cost of building a house is exorbitant and the most important input of the house is land and the sky rocketing prices of land is not hidden to anybody. In the state of Bihar around 40 per cent of the people are living below poverty line and some of them are too poor to build their own houses and in this situation the role of state becomes important. Overall the situation of owned houses in the state is fair but most of them are still living in the kutcha houses due to lack of sufficient saving. Government programmes and policies having huge loophole and hence not focusing on the target groups. Thus, it becomes essential to capture this indicator while constructing the basic amenities deprivation.

5.4 Basic Amenities in Bihar:

A good starting point in the analysis of the provision of basic amenities in Bihar is to consider the state averages and compare all these indicators of basic amenities such as safe drinking water, toilet facility, electricity and condition of the houses with all India averages. This gives us idea that what is the position of the state in terms of providing these basic services to their people. Then, look at the changes during the decades of 1981, 1991 and 2001 in terms of the availability of these basic amenities of life in the different districts of Bihar. Some of the important statistics related to basic amenities and demographic indicators has been given below and a comparison has been made between India and Bihar.

Table 5.1 Selected Basic Amenities and Demographic Indicators

Unit	Bihar	India
Population (2001) Million	82.88	1027.02
Decadal Growth (1991-01) Percentage	28.43	21.34
Population Density (2001) Per Sq. Km.	880	324
Households Having Safe Water (2001) Percentage	86.6	77.9
Households Having Electricity Connection (2001) Percentage	10.3	55.8
Households Having Toilet Facilities (2001) Percentage	19.2	36.4
Households Living in Kutcha Houses (2001) Percentage	34.28	18.24
Households Using LPG as Cooking Fuel (2001) Percentage	3.8	17.5
Households Having Owned Houses (2001) Percentage	97	87.01
Bicycle As a Means of Transportation (2001) Percentage	40.64	43.67
Road Length Per 100 Sq. Km. (1997) Kilometre	50.81	74.93
Road Length Per Million Population (1997) Kilometre	9.28	25.82

Source: H-Series of Census of India, 2001

It is evident from table 5.1 that in terms of all these basic amenities Bihar lags behind all-India averages. This indicates toward the lack of efforts of the state towards this prime sector. The above table also shows that the population growth of Bihar is higher than that of all-India average and due to this there arises a problem of demand- supply mismatch. Now, I am going to describe the changes in the availability of the selected basic amenities one by one on all districts basis of Bihar during the period of 1991-1981 and 2001-1991.

5.4.1 Safe Drinking Water:

Water is a fundamental human necessity. Access to clean and safe drinking water is not only a natural fundamental right of citizen but also a fundamental duty of all governments towards their citizens. This duty needs to be performed on a priority basis. There is a close link between health and safe drinking water. If someone who is drinking contaminated water on a regular basis have been more vulnerable towards water-borne diseases and hence their health is going to be affected severely. Due to this their productivity is going to be affected and hence they will surely be poor and trapped in the vicious circle of poverty. Education gets affected by health and an illiterate or semi-literate person have less efficient than an educated and healthy person.

When we turn our attention on the distribution of safe drinking water in Bihar then we come to know that over the period of time the coverage has been extended to the larger segment of population. In 1981 only 46 % of the people in the state were able to get safe drinking water but it has been increased to 68 % in 1991 and became 87 % in 2001. The change has been observed positive in both the decade but the maximum is in 1981-1991, which was 21.75 % in comparison to 18.53% in the next decade.

The following table shows the coverage of the safe drinking water and the change in the coverage during the last two decade in the different districts of Bihar.

Table 5.2 Safe Drinking Water Coverage's and Changes in Coverage between Two Decades in Bihar

Districts	1981 % of HHs	1991 % of HHs	2001 % of HHs	1981-1991 Changes in %	1991-2001 Changes in %
Patna	40.61	54.03	77.46	13.42	23.42
Nalanda	19.05	32.11	63.27	13.06	31.16
Nawada	17.74	38.71	73.96	20.97	35.25
Gaya	22.89	43.43	75.44	20.54	32.01
Aurangabad	32.69	60.74	83.46	28.05	22.72
Rohtas	44.27	67.27	86.48	23.00	19.21
Bhojpur	38.19	64.35	89.77	26.16	25.42
Saran	40.14	68.41	86.91	28.28	18.50
Siwan	50.43	81.44	96.38	31.01	14.93
Gopalganj	47.26	81.21	97.31	33.95	16.10
Pashchim Champaran	67.87	85.59	96.81	17.73	11.22
Purba Champaran	49.33	74.12	93.02	24.78	18.90
Sitamarhi	72.78	90.56	98.02	17.78	7.45
Muzaffarpur	62.66	78.00	93.09	15.34	15.08
Vaishali	24.22	47.89	77.70	23.67	29.81
Begusarai	42.64	65.70	89.20	23.07	23.49
Samastipur	40.17	66.16	86.66	25.99	20.50
Darbhanga	86.63	95.26	98.98	8.63	3.72
Madhubani	72.46	89.38	98.11	16.92	8.72
Saharsa	51.51	83.54	96.88	32.03	13.34
Purnia	55.39	84.79	96.79	29.40	12.00
Katihar	62.20	85.55	96.49	23.35	10.94
Munger	28.61	41.71	60.71	13.09	19.01
Bhagalpur	21.28	37.63	61.61	16.35	23.99
Mean	**46.31**	**68.06**	**86.59**	**21.75**	**18.53**
Maximum	**86.63**	**95.26**	**98.98**	**33.95**	**35.25**
Minimum	**17.74**	**32.11**	**60.71**	**8.63**	**3.72**

Sources: Calculated from H-Series of Census of India 1981, 1991 and 2001

Table 5.2 shows that the maximum gainers in 1991 were Gopalganj, Katihar, Purnia, Saharsa, Bhojpur, Aurangabad, Vaishali, Purba Champaran, Siwan, Samastipur, Begusarai and saran. All these districts have increased their coverage in safe drinking water more than the state average of 21.75 % in 1991.

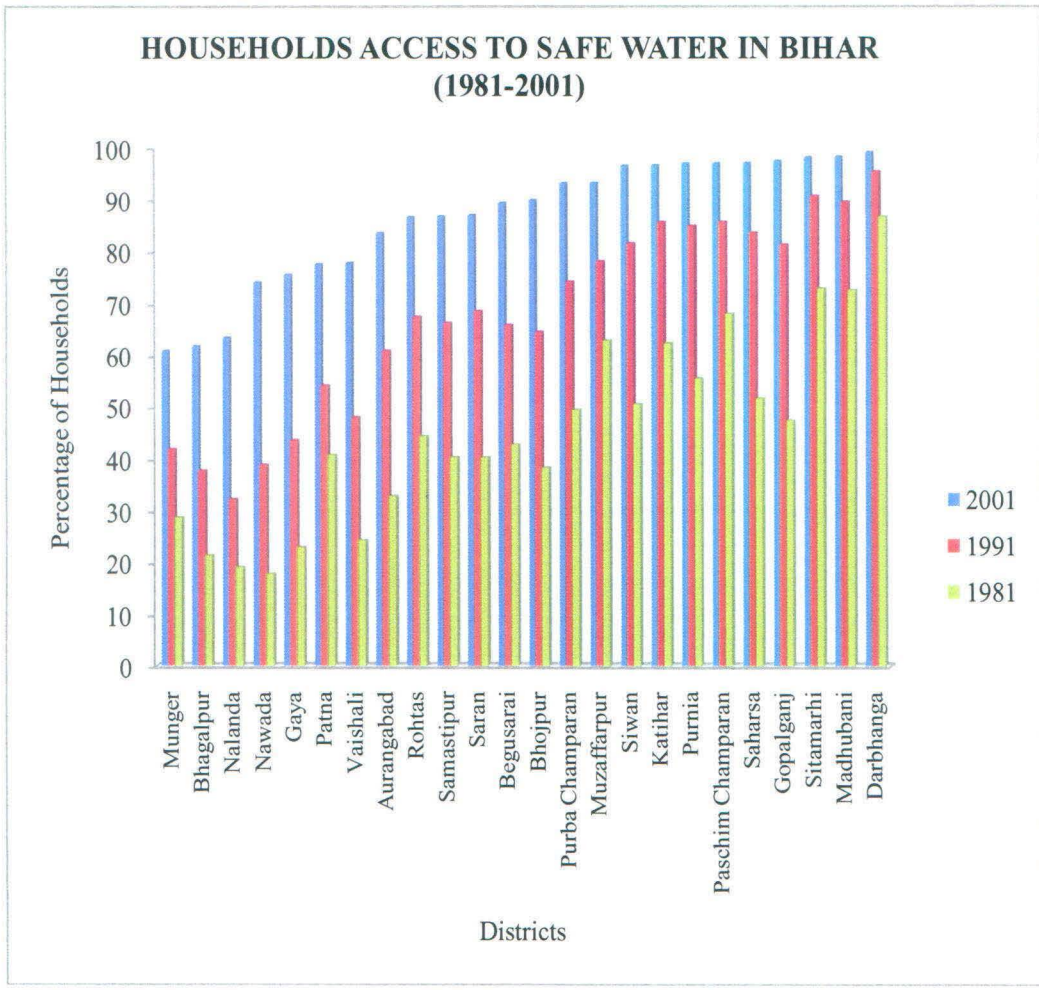


Figure 5.1

Source: Calculated from H-series of Census of India,1981,1991 and 2001

The maximum gainers in 1991 were Gopalganj (33.95%). The percentage of households having safe water in 1981 in Gopalganj were 47.26 % which was just above the state average of the year, 1981 (i.e. 46.31%) and hence having the potential to increase their coverage in the period of ten year and Gopalganj have done the remarkable job in this sector. Districts like Darbhanga, Bhagalpur, Munger, Madhubani, Nalanda, Patna, Pashchim Champaran, Sitamarhi and Muzaffarpur have growth less than the state average. There are 3 districts in 1991 which growth was around the state average and these are Nawada, Gaya and Rohtas. In 2001 there were 13 districts having growth rate more than the state average which was higher than the previous decade. In 1991 the number of such districts was 12.

The maximum gainers in 2001 were Nawada, Bhagalpur, Munger, Samastipur,

Begusarai, Vaishali, Purba Champaran, Bhojpur, Rohtas, Aurangabad, Gaya, Nalanda, and Patna. The medium performers were Gopalganj and saran. The districts which having growth rate lower than the state average were Darbhanga, Katihar, Purnia, Saharsa, Madhubani, Muzaffarpur, Sitamarhi, Pashchim Champaran and Siwan. There were 9 districts which having less growth rate in 2001 and the number was same in 1991. The minimum growth rate was for the district of Darbhanga which was only 3.72 % and the growth rate of the state as a whole was 18.53 % in 2001. The reason for this low growth rate is that it having the highest percentage of households having safe drinking water in all the three decade of 1981, 1991 and 2001. In 1981 the percentage of households having safe drinking water was 87 % and it became 95 % in 1991 and finally 99 % in 2001 having meagre scope to expand further. On the other hand district like Nawada which having the minimum coverage during 1981 (i.e. 17.74 %) and in 1991 the district change and Nalanda became the lowest coverage district (i.e. 32.11 %) and in 2001 it was the chance of Munger (i.e. 60.71 %) which became the lowest coverage district.

5.4.2 Toilet Facilities:

There is an urgent need of toilet facility in the households as this is closely linked with the health status of the family member. There is an improvement in the percentage of households having toilet facilities in the state over the period of time. State as a whole the percentage change was 8.26 in the decade of 1991-2001. It was just 10.49 % in 1991 and became 18.75 % in 2001. Data regarding the toilet facilities in rural areas was not collected in the Census of 1981 in case of Bihar and thus the data for toilet facility for the year of 1981 pertain only to the urban areas and due to this data constrain the percentage change between 1981 and 1991 could not ascertain. The percentage of urban households having toilet facilities in 1981 was 54.93 %. The high percentage figure for the urban areas in the state can be explained in terms of socio-cultural factors of the state. In rural areas of the state people does not feel that toilet is a basic needs and some kind of cultural factors are also playing an important role. Like in some of the middle class Hindus families it is not considered proper to have toilets facilities within the residential premises. The higher percentages for urban

areas have largely been due to private initiatives at the household level and due to high concentrations of household toilets in the larger urban cities. Coverage performance at the rural levels has obviously not been as successful. This has been due to a multiplicity of factors including low awareness of the potential health benefits (and therefore, economic benefits) of better hygiene practices, perception of the costs of having a household toilet as being very high and in most cases unaffordable, the sheer convenience (at least for men) of open defecation (vis-à-vis an enclosed space), high subsidies, and inadequate promotion of awareness. The level of female education is one of the important reasons in having toilet facilities in the households. What is more important is that it must be expanded by the public expenditure in order to ensure the health condition of the people and also government can save a lot on public expenditure on health. As all of us know that around 90 % of the people in the state are living in the rural areas and due to the lower coverage of the toilet facilities in the rural areas the state as a whole having very little percentage.

The following table shows the coverage of the toilet facilities in the state over the period of time and the changes therein.

Table 5.3 Toilet Facilities Coverage's and Changes in Coverage in Bihar

Districts	1981 % of HHs*	1991 % of HHs	2001 % of HHs	1991-2001 Changes in %
Patna	69.38	39.20	50.66	11.46
Nalanda	56.20	17.40	28.71	11.31
Nawada	50.82	11.80	19.56	7.76
Gaya	78.06	14.16	23.90	9.74
Aurangabad	45.88	10.80	19.90	9.10
Rohtas	51.40	10.20	19.81	9.61
Bhojpur	43.32	12.00	19.46	7.46
Saran	45.92	8.90	17.36	8.46
Siwan	54.65	8.40	16.09	7.69
Gopalganj	78.69	4.70	11.57	6.87
Pashchim Champaran	45.48	6.50	11.67	5.17
Purba Champaran	46.07	5.80	12.82	7.02
Sitamarhi	36.13	7.40	16.41	9.01
Muzaffarpur	76.85	11.30	21.83	10.53
Vaishali	37.87	8.90	19.57	10.67
Begusarai	40.41	11.30	24.11	12.81
Samastipur	58.10	6.40	15.82	9.42
Darbhanga	60.25	9.60	22.09	12.49
Madhubani	41.17	5.60	14.34	8.74
Saharsa	32.38	5.20	11.21	6.02
Purnia	34.22	4.23	4.81	0.58
Katihar	51.87	7.70	15.01	7.31
Munger	47.79	11.47	21.26	9.80
Bhagalpur	52.75	12.10	20.28	8.18
Mean	**54.93**	**10.49**	**18.75**	**8.26**
Maximum	**78.69**	**39.20**	**50.66**	**12.81**
Minimum	**32.38**	**4.23**	**4.81**	**0.58**

Sources: Calculated from H-Series of Census of India 1981, 1991 and 2001

*Data available only for the urban areas as there was no collection of data on toilet facilities in rural Bihar in 1981 Census.

Table 5.3 shows that the availability of toilet facilities in Bihar is very low. In the year of 2001 it was just 18.75 % but the national average was 36 %. It is almost half in the state. When we turn our attention on the spatial distribution then we come to the following conclusion.

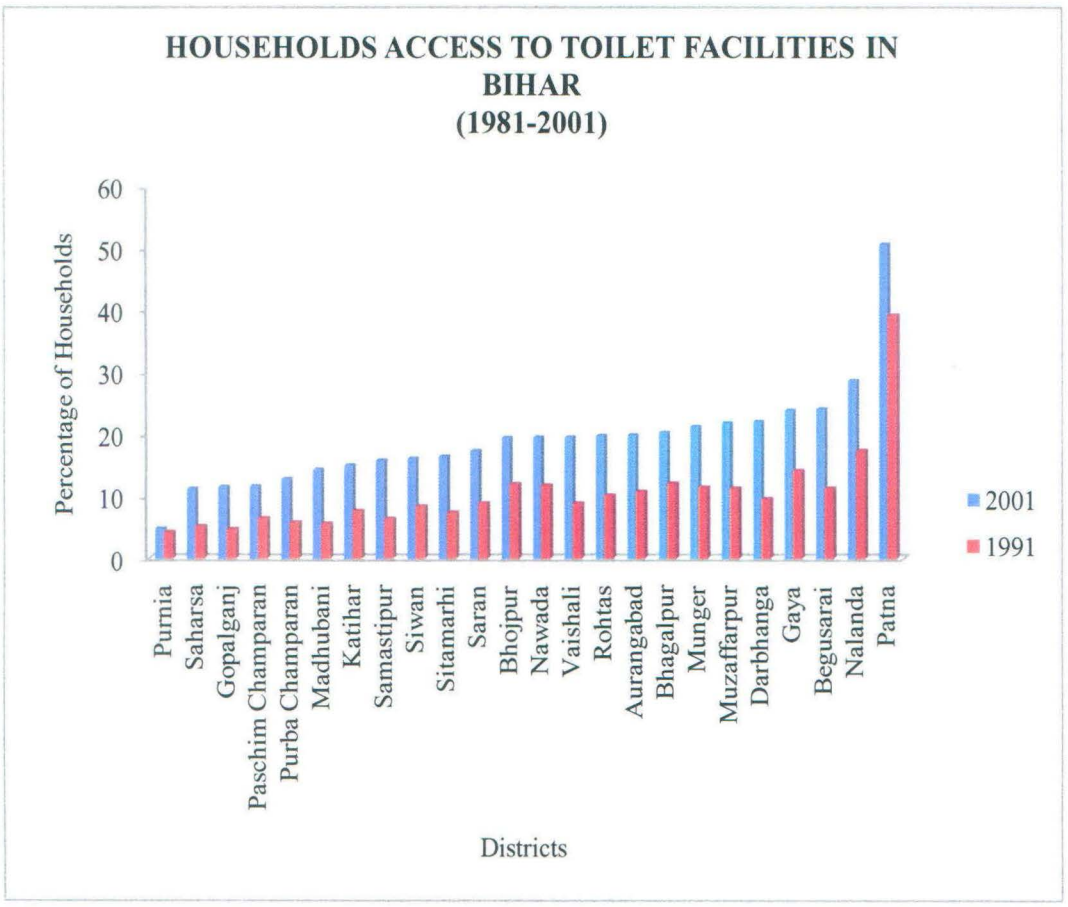


Figure 5.2

Sources: Calculated from H-Series of Census of India 1981, 1991 and 2001

In 1981, the urban households were only surveyed for this purpose and thus we don't have data for rural households. There were seven districts having toilet facilities more than the state average and these districts were Gopalganj, Darbhanga, Muzaffarpur, Gaya, Nalanda, Samastipur and Patna. These districts were more urbanised than the other districts of Bihar and hence the percentage of the households having more toilet facilities. Six districts were in the medium category and there were as many as eleven districts which were below the state averages in terms of having toilet facilities. The maximum were in Gopalganj (78.69 %) and the minimum were in Saharsa (32.38 %).

In 1991, there were nine districts which having above the state average and these were Patna, Nalanda, Nawada, Gaya, Bhojpur, Muzaffarpur, Begusarai, Munger and Bhagalpur. The medium performing districts were Aurangabad, Rohtas and Darbhanga. The lower average districts were twelve and these were Purnia, Saran, Siwan, Gopalganj, Pashchim Champaran, Purba Champaran, Sitamarhi, Samastipur, Madhubani, Saharsa, Katihar and Vaishali. In Patna districts there were 39.20 %

households having toilet facilities and this was the maximum in the state. On the other hand it was Munger where the lowest figure has been observed and it was as low as 4.23 %. The state average for the year 1991 was 10.49 % which is itself low in comparison to the national average.

In the year 2001, there was slight improvement and there were 18.75 % of the households having toilet facilities, however it is almost half in comparison to the all India figure. Eight districts having above average figure and five were in the medium performing category and the rest eleven are below average. The maximum was again in the state capital (50.66%) and the minimum was in the Purnia (4.81%). The maximum gainer is Begusarai and it gains 12.81 % point in the 1991 and 2001. The minimum gainer is Purnia and it just increased the share by 0.58 % in the same period. Female education, urbanisation and the per capita income of the households strongly correlated with the presence of toilet facilities in the households. Bihar lags in all the three indicators and hence the availability of toilet facilities is also very low.

5.4.3 Electricity:

Expanding electrification and scaling up electricity services is critical to both the economic and social development of India as well as of Bihar. The current state of electricity services across Bihar can be said to be in a severe crisis mode. The immediate manifestations of this crisis are severe shortcomings in: a) access to electricity for rural and urban poor, b) generation capacity that cannot meet peak demand and c) reliability of supply, in terms of predictability of outages and quality of power supply.

Viable and reliable electricity services result in increased productivity in agriculture and labour, improvement in the delivery of health and education, access to communications (i.e. radio, telephone, television, and mobile phone), improved lighting after sunset, facilitating the use of time and energy-saving mills, motors, and pumps, and increasing public safety through outdoor lighting. Rural electrification at a household level provides at the very minimum services such as lighting and communications (e.g. radio/television) and can increasingly meet the aspirations of the rural populations to own other household appliances. Household electrification also increases the likelihood that women will read and earn income.

The following table gives us the data regarding the electricity supply in the households of Bihar and the changes in the coverage over the period of time.

Table 5.4 Electricity Coverage's and Changes in Coverage between Two Decades in Bihar

Districts	1981 % of HHs	1991 % of HHs	2001 % of HHs	1981-1991 Changes in %	1991-2001 Changes in %
Patna	25.69	36.10	42.79	10.41	6.69
Nalanda	8.12	11.50	10.44	3.38	-1.06
Nawada	7.39	7.40	6.74	0.01	-0.66
Gaya	11.01	8.97	8.28	-2.04	-0.69
Aurangabad	5.14	8.80	7.81	3.66	-0.99
Rohtas	12.53	12.50	14.72	-0.03	2.22
Bhojpur	8.85	11.80	10.54	2.95	-1.26
Saran	4.14	7.80	7.15	3.66	-0.65
Siwan	5.04	6.70	5.23	1.66	-1.47
Gopalganj	6.78	4.60	5.99	-2.18	1.39
Pashchim Champaran	3.81	6.60	6.25	2.79	-0.35
Purba Champaran	3.13	5.10	6.30	1.97	1.20
Sitamarhi	2.03	5.00	5.01	2.97	0.01
Muzaffarpur	8.10	10.80	12.48	2.70	1.68
Vaishali	4.04	8.50	9.04	4.46	0.54
Begusarai	7.23	12.20	16.84	4.97	4.64
Samastipur	5.87	7.30	7.44	1.43	0.14
Darbhanga	3.83	8.10	8.82	4.27	0.72
Madhubani	2.91	5.60	5.11	2.69	-0.49
Saharsa	3.12	6.03	5.11	2.91	-0.92
Purnia	3.41	4.51	5.17	1.09	0.66
Katihar	5.46	6.60	6.99	1.14	0.39
Munger	10.98	10.84	12.48	-0.14	1.64
Bhagalpur	7.77	12.60	13.28	4.83	0.68
Mean	**7.17**	**9.38**	**10.25**	**2.21**	**0.87**
Maximum	**25.69**	**36.10**	**42.79**	**10.41**	**6.69**
Minimum	**2.03**	**4.51**	**5.01**	**-2.18**	**-1.47**

Sources: Calculated from H-Series of Census of India 1981, 1991 and 2001

Thus, it is evident from table 5.4 that the situation of electricity supply in Bihar is in a severe crisis mode. The state average in the year 2001 was 10.25 % which was less than one fifth of the all India average (i.e. 55.80 %). There is a sign of improvement over the 20 year period but the rate of improvement is too slow to catch-up the all India average in the near future.

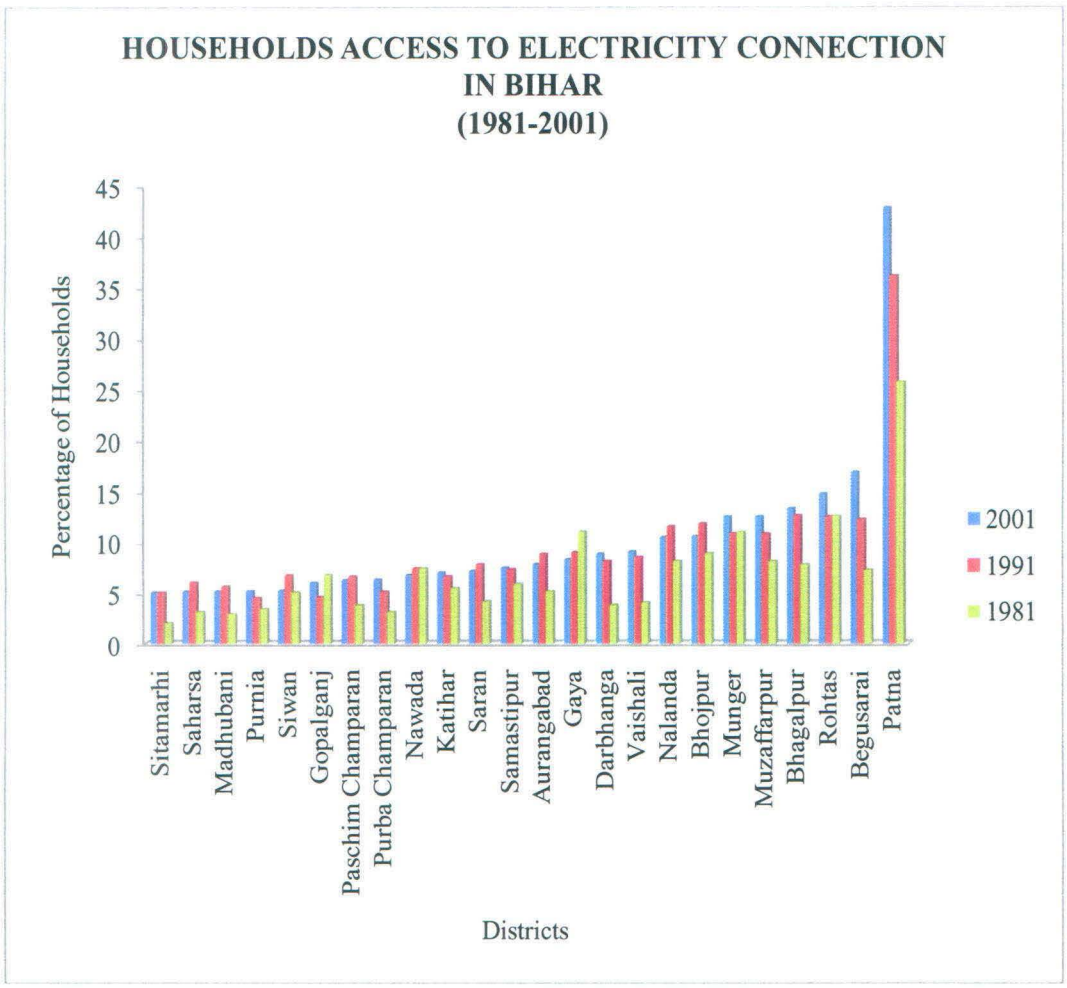


Figure 5.3

Sources: Calculated from H-Series of Census of India 1981, 1991 and 2001

There were four districts which have negative growth rate during the 1981-1991 period and these are Gaya, Gopalganj, Munger and Rohtas. The number of such districts increased to nine in 1991-2001 and these are Nalanda, Gaya, Aurangabad, Bhojpur, Saran, Siwan, Pashchim Champaran, Madhubani and Saharsa. State as a whole the growth was 2.21 % in the period of 1981-1991 and it decline to just 0.87 % in the next decade. Patna is the districts which having the highest coverage during the three decade and the lowest were in Sitamarhi (2.03 %) in 1981, Purnia (4.51 %) in 1991 and again Sitamarhi (5.01 %) in 2001.

5.4.4 Kutcha Houses:

Housing is one of the most important basic needs of the human being after food and cloth. Housing in India varies greatly and reflects the socio-economic mix of its vast population. Housing varies from palaces of erstwhile maharajah in Rajasthan to swanky apartment buildings in big cities to tiny huts in far-flung villages of Bihar. In Bihar majority of the people are residing in the kutcha houses and the following table gives the idea regarding this.

Table 5.5 Kutcha House Coverage's and Changes in Coverage between Two Decades in Bihar

Districts	1981 % of HHs	1991 % of HHs	2001 % of HHs	1981-1991 Changes in %	1991-2001 Changes in %
Patna	67.39	35.85	10.37	31.54	25.48
Nalanda	76.47	53.73	13.92	22.74	39.81
Nawada	86.45	73.64	14.19	12.81	59.45
Gaya	86.39	74.60	20.56	11.79	54.04
Aurangabad	90.86	79.93	14.83	10.93	65.10
Rohtas	79.79	69.77	3.79	10.02	65.98
Bhojpur	80.68	56.51	8.18	24.17	48.33
Saran	81.29	35.28	12.96	46.01	22.32
Siwan	72.18	36.06	17.37	36.12	18.69
Gopalganj	77.07	51.64	36.92	25.43	14.72
Pashchim Champaran	84.25	76.31	52.55	7.94	23.76
Purba Champaran	87.67	72.14	45.83	15.53	26.31
Sitamarhi	87.79	78.05	38.81	9.74	39.24
Muzaffarpur	87.02	64.62	44.35	22.40	20.27
Vaishali	86.24	50.73	27.02	35.51	23.71
Begusarai	84.29	47.57	19.00	36.72	28.57
Samastipur	89.00	55.62	26.25	33.38	29.37
Darbhanga	90.16	64.96	33.15	25.20	31.81
Madhubani	93.75	83.24	63.40	10.51	19.84
Saharsa	93.01	88.24	70.40	4.77	17.84
Purnia	88.34	93.65	68.88	-5.31	24.77
Katihar	84.65	89.80	48.42	-5.15	41.38
Munger	85.14	69.65	21.39	15.49	48.26
Bhagalpur	84.32	73.71	38.80	10.61	34.91
Mean	**84.78**	**67.91**	**34.83**	**16.88**	**33.07**
Maximum	**93.75**	**93.65**	**70.40**	**46.01**	**65.98**
Minimum	**67.39**	**35.28**	**3.79**	**-5.31**	**14.72**

Sources: Calculated from H-Series of Census of India 1981, 1991 and 2001

Table 5.5 shows that there is an improvement in the housing condition of the people of Bihar throughout the 20 year time period. In 1981 the percentage of people residing in the kutcha houses were as high as 84.78 % and it became 67.91 % in 1991 and remains 34.83 % in 2001 which is still much higher than the all India average (i.e. 18.24 %).

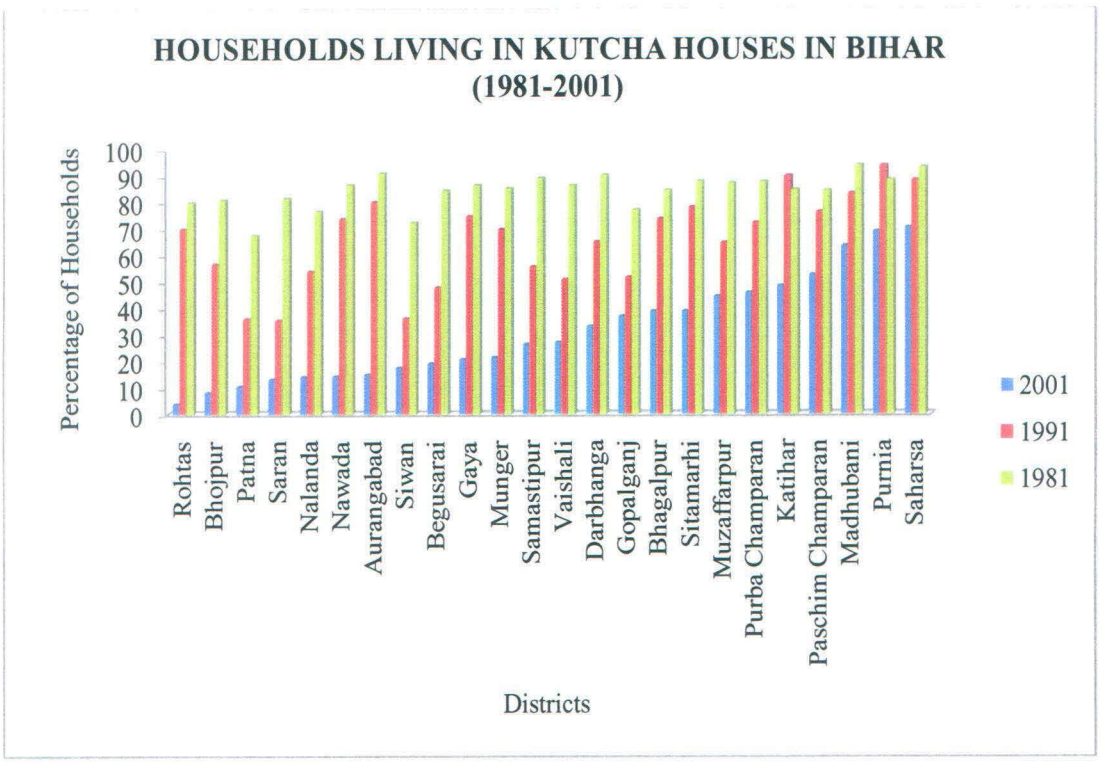


Figure 5.4

Sources: Calculated from H-Series of Census of India 1981, 1991 and 2001

In 1981, there were twelve districts where the percentage of households residing in kutcha houses was more than the state average of 84. 78 %. These districts were Madhubani, Purnia, Saharsa, Darbhanga, Samastipur, Vaishali, Muzaffarpur, Sitamarhi, Purba Champaran, Aurangabad, Gaya and Nawada. Seven districts were in the medium performing category and there were only five districts namely Patna, Nalanda, Rohtas, Siwan and Gopalganj where there was lesser percentage of kutcha houses. The maximum were in Madhubani (93.75 %) and the minimum were in Patna (67.39 %).

In 1991, there were eleven districts that were above the state average and these were Purnia, Bhagalpur, Katihar, Saharsa, Madhubani, Sitamarhi, Purba Champaran,

Pashchim Champaran, Aurangabad, Gaya and Nawada. The percentage of kutcha houses in Munger, Darbhanga and Rohtas having in and around the state average and termed as the medium performing districts. There were ten districts that were below the state average and these were saran, Samastipur, Begusarai, Vaishali, Muzaffarpur, Siwan, Bhojpur, Nalanda, Gopalganj and Patna. This shows that the condition of the housing improved between this period and the improvement was of 16.88 %. The maximum gainer during this period was saran (46.01 %) and the minimum was Purnia (-5.31 %) and Katihar (-5.15 %) respectively where the growth rate was negative. In saran during 1981 there was 81.29 % of the people were residing in the kutcha houses and in 1991 it became 35.28 % and thus gains the maximum. In case of Purnia and Katihar the respective figure for the year 1981 and 1991 were 88.34 %, 93.65 % and 84.65 %, 89.80 % and thus became the greatest losers.

In the millennium year of 2001 the percentage of the people residing in the kutcha houses improved and became 35 % and there were only seven districts that were above the average of the state. The districts were Saharsa, Katihar, Purnia, Madhubani, Muzaffarpur, Purba and Pashchim Champaran. In medium category there were four namely Bhojpur, Darbhanga, Sitamarhi and Gopalganj. As many as thirteen districts that were below the state average and the maximum were in Saharsa (70.40 %) and the minimum was in Rohtas (3.79 %). The maximum gainer was Rohtas (65.98 %) and the minimum gainer was Gopalganj (14.72 %).

5.5 Analysis of Basic Amenities Deprivation in Bihar:

The availability of data regarding access of households to various amenities is of critical significance in any attempt at capturing the broader dimensions of well-being and deprivation of people. In the state of Bihar where there is acute shortage of the basic amenities there is an urgent need of interference by the state so that people can enjoy a minimum dignified life. In general, it may not be possible to rank normatively the importance of various amenities to households, particularly in the modern day context. Also, there are certain amenities, the provisioning and consumption of which adds to well-being or at least makes sense only when they are availed by individuals in a mutually non-exclusive manner. For instance, a household having access to sanitation (safe disposal through sewer) may value the attainment only when it also has access to safe drinking water. The following table gives the composite index of

deprivation in basic amenities and the ranking of different districts of Bihar in terms of deprivation in basic amenities over the 20 year period.

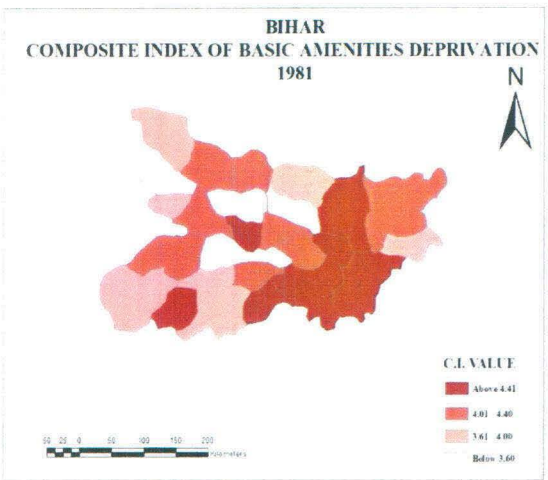
Table 5.6 Composite Index of Basic Amenities deprivation and their Ranking: 1981-2001

Districts	CI_Basic_ Amen_ deprivation 1981	Ranking	CI_Basic_ Amen_ deprivation 1991	Ranking	CI_Basic_ Amen_ deprivation 2001	Ranking
Patna	3.381	21	3.351	22	3.224	19
Nalanda	4.371	9	4.816	5	5.014	3
Nawada	4.641	2	5.011	1	4.378	8
Gaya	3.900	17	4.833	3	4.380	7
Aurangabad	4.548	3	4.409	6	3.672	15
Rohtas	4.000	15	4.021	8	3.054	21
Bhojpur	4.342	10	3.905	13	2.986	23
Saran	4.306	11	3.544	19	3.400	16
Siwan	3.804	19	3.165	23	2.858	24
Gopalganj	3.368	22	3.466	21	3.397	17
Paschim Champaran	3.838	18	3.650	17	3.878	11
Purba Champaran	4.218	12	3.972	10	3.954	10
Sitamarhi	4.015	14	3.528	20	3.349	18
Muzaffarpur	3.225	24	3.616	18	3.726	14
Vaishali	4.841	1	4.406	7	4.442	5
Begusarai	4.384	7	3.734	15	3.212	20
Samastipur	4.108	13	3.947	11	3.816	12
Darbhanga	3.230	23	3.129	24	3.002	22
Madhubani	3.970	16	3.655	16	4.073	9
Saharsa	4.544	4	3.911	12	4.404	6
Purnia	4.373	8	3.979	9	4.446	4
Katihar	3.789	20	3.837	14	3.735	13
Munger	4.451	6	4.824	4	5.488	2
Bhagalpur	4.503	5	4.985	2	5.924	1

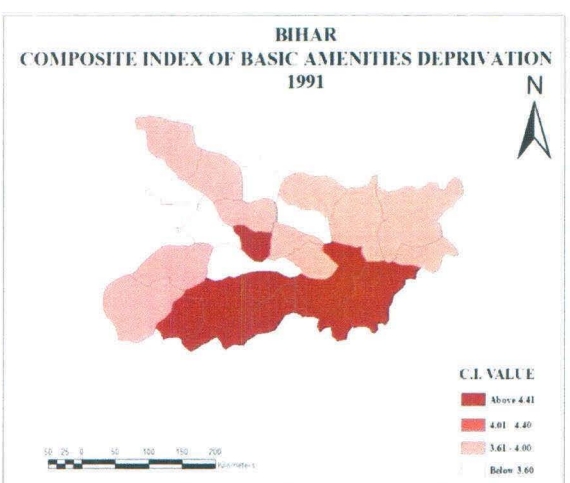
Sources: Calculated from H-Series of Census of India 1981, 1991 and 2001

On the basis of table 5.6 we come to know that there has been changing in the deprivation of the basic amenities over the period of time. There are as many as 18 districts which has changed their ranking. Out of this there are 8 districts which have performs well and these districts are Vaishali, Nawada, Aurangabad, Begusarai, Bhojpur, Saran, Rohtas and Siwan. All these districts have improved their basic amenities and thus their ranking downgraded which shows the less deprivation.

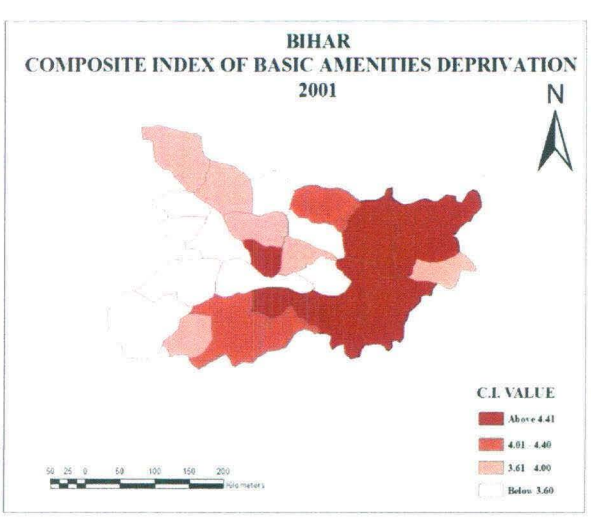
Status of Basic Amenities deprivation in Bihar 1981-2001



Map 5.1



Map 5.2



Map 5.3

Sources: H-series of Census of India, 1981, 1991 and 2001

But there are 10 districts which have improved their ranking and they performed poor in order to provide basic amenities to their masses over the period of time and these districts are Bhagalpur, Munger, Purnia, Nalanda, Madhubani, Gaya, Pashchim Champaran, Katihar, Gopalganj and Muzaffarpur. The rest 6 districts are under the category of medium performing districts which by and large maintain their ranking. The good performers have been improving in the all indicators of the basic amenities such as safe drinking water, electricity, kutcha house and toilet facilities and thus their ranking downgraded in the deprivation index. The poor performer are not catching up with the performance of the rest of the districts of Bihar and hence having maximum deprivation. The medium performing districts remains the same throughout the 20 year time period.

There is a close relationship between/among the different health, educational and developmental indicators and basic amenities. For instance, literacy helps in the dissemination of ideas of hygiene, health and sanitation thereby facilitating, for family expenditure on a latrine/toilet in the households. There is a significant and positive correlation between female literacy rates and the percentage of households having toilet facilities. The other aspect of the relationship between basic amenities, health, education and economic development is also worth mentioning. Just as literacy helps in the dissemination of ideas of hygiene, health and sanitation, achievements in education and health can also be affected by the presence/absence of basic facilities such as sanitation and safe water supply. That the interdependencies between basic amenities and health and education can run both ways is broadly accepted, but is still difficult to establish with actual data. There exist a significant correlation between safe drinking water and the infant mortality rate. Several studies have also shown that there is a close link between the safe water and the health status of the mother and the child. Initially the health of the child is primarily dependent upon the health status of the mother and hence, if mother is drinking contaminated water surely it will have a bad impact on the health of the child. So it seems that welfare of the people can only be possible by inclusive development of all the inter-related indicators.

5.6 Challenges in the Basic Amenities in Bihar:

Even after 65 year of independence the majority of the people of Bihar deprived of the some of the basic amenities which denied them to live a minimum dignified life. The above discussion about the availability of the basic amenities makes it clear that the performance of the state is far below the satisfactory level. Some of the major challenges in this sector in the state of Bihar are given below.

- The problem of drinking water is quite acute in urban areas of the state. The notion of the safe water is also under scrutiny. According to the Census of India the water which has been collected from the closed sources such as hand pump, tube well and tap is considered as ''safe water''. But in reality this is not the case because without chemical testing we cannot say that water is safe or unsafe. In the state major source of the drinking water is hand pump and hence the percentage of households having safe water is high but one should also know that the depth of this hand pump is hardly more than 50 feet. At lower depth there is risk of getting contaminated water and water lack of proper nutrients and hence not fit for human consumption.

- Almost no electricity supply in the rural areas and in the case of urban areas there is no routine supply and huge power cut.

- For the construction of houses to the economically weaker section of the society the centrally sponsored scheme called Indira Awaas Yojna has been always suffering from the huge loopholes and the fund has been utilised and managed by the well-off people of the society and in this the role of the Panchayats representatives such as Ward member, Pramukh and Mukhiya is highly disgusting.

- Most of the people of Bihar are illiterate and the per capita income of the state is also lowest in the country and due to this they gave little attention towards the sanitation. They are unable to understand the health and economic benefits of the sanitation facilities.

- Open defection is one of the severe problems in both urban and rural areas of the state.
- Absence of drainage and if this is somewhere then the uncovered nature of this giving birth of so many water-borne disease.
- Very little community participation for the improvement of the basic amenities in the state and low political will aggravated the situation from bad to worse.

5.7 Role of Public Policy:

Government has to play an important role in providing some of the basic amenities to the people of state. Electricity is one of the major problems existing in the state. But the situation is somewhat 'good' in urban areas so government is giving more emphasis on rural electrification. The RGGVY is the latest national rural electrification scheme launched by the Ministry of Power to execute the vision for rural electrification as enunciated in the NCMP and recommended by the Chief Ministers conference in 2001. The plan was instated in April of 2005, with the following objectives:

- 100% electrification of all villages and habitations in the country.
- Electricity access to all households.
- Free of cost electricity connection to BPL (Below Poverty Line) households.

After electricity, housing is a problem in urban areas because in rural areas majority of the people having their own houses irrespective of the quality of the houses. In India housing is a state subject, but, the union government is responsible for the formulation of policy with regard to programmes and approaches for effective implementation of the social housing schemes, particularly those pertaining to the weaker sections of the society. A new Housing and Habitat Policy 1998 has been formulated to address the issues of sustainable development, infrastructure and for strong public private partnership for shelter delivery. The policy was approved and laid before Parliament on 29th July 1998.

The objectives of the policy are to create surpluses in housing stock and facilitate construction of two million additional dwelling units each year in pursuance of National Agenda for Governance. It also seeks to ensure that housing along with supporting services is treated as priority sector at par with infrastructure. The central theme of the policy is strong public private partnerships for tackling housing and infrastructure problems. The Government would provide fiscal concessions, carry out legal and regulatory reforms and create an enabling environment.

The other flagship programmes of union government is ''Bharat Nirman Yojana'' an action-oriented business plan for rural infrastructure. It is an important step in bridging the gap between rural and urban areas and improving the quality of lives of rural masses. It comprises projects on irrigation, roads (Pradhan Mantri Gram Sadak Yojana), housing (Indira Awaas Yojana), water supply, and electrification and telecommunication connectivity. In spite of the above there are so many programmes which have been launched by the government of India from time to time in order to provide basic amenities to their people. Some of the important programmes are Rajeev Gandhi National Drinking Water Mission, National Rural Health Mission, Total Sanitation Campaign (Nirmal Gram Puraskar Yojana), Jawaharlal Nehru National Solar Mission etc. The role of the public private partnership has been increased today to provide some of the basic amenities to the urban masses. Under this category the construction of public toilet on BOT basis (built and transfer) are worth mentioning. The role of the local urban and rural body has also became important in the monitoring some of the important projects after the 73rd and 74th constitutional amendment of 1993. However, after a long period of independence there is majority of the people in the state which don't access the basic services which is crucial to enjoy a quality of life.

5.8 Conclusion:

The present chapter has discussed about the issue of the basic amenities in one of the most backward state of India. In both the decade of, 1981-1991 and 1991-2001, at the state level, there was progress in the supply of safe drinking water, electricity, access to toilet facilities, and conditions of houses but the rate of progress is too slow to

catch up with the rest of Indian state. There were large variations in the pace of achievement across districts and these became significant in the case of capital intensive and networked facilities such as safe water supply and electricity.

We come to know that the situation of the basic amenities is very low in both absolute and in relative ways. At the districts level analysis we come to know that the districts like Vaishali, Nawada, Aurangabad, Begusarai, Bhojpur, Saran, Rohtas and Siwan were good performer over the duration of 20 year. The poor performers were Bhagalpur, Munger, Purnia, Nalanda, Madhubani, Gaya, Pashchim Champaran, Katihar, Muzaffarpur and Gopalganj. The rest of six was medium performing districts. In the year of 2001 the districts which was on the top in terms of providing basic amenities to their masses was Siwan, Bhojpur, Darbhanga, Rohtas, Begusarai and Patna. The districts which lack the basic amenities were Bhagalpur, Munger, Nalanda, Purnia, Vaishali Saharsa etc. There are several problems in the state in terms of getting the facilities of the basic amenities and some of them are supply side constrain and the others are related to the political interference and the lack of education among the masses. Finally, I have given some practical suggestion in order to improve the quality of life of the people of the state. Hope the day will come and these poor and vulnerable people of the society can also enjoy their life with some sorts of dignity.

5.9 Suggestions:

Based on the above discussion on the issue of the deprivation in basic amenities following suggestions has been given for the betterment of the quality of the life of the people in the state.

- Government should provide hand pump and make sure that they are equally distributed in the locality of the every segment of the society.
- Electricity must be supplied in the rural areas at least for duration of three hour after the sunset so that people can do their cooking and study in night.
- Electricity should also be provided for the agricultural purpose so that the economic burden of irrigation can be minimised.

- Government should encourage people to have toilet facilities and educate them regarding the benefits of sanitation.
- Minimum interference by the Ward Members and Mukhiyas in the allocation of the fund under Indira Awaas Yojana for the construction of the houses.
- Government should provide the toilet facilities in the schools and the other public institutions.
- Community participation is necessary because only the efforts of the government cannot give the desire outcomes.
- Last but not the least is the political will to execute the programmes at the grass root level and in this the role of the local bodies became important. Gram Sabha must audit the work of the local representatives and ensure transparency at all levels of public work.

CHAPTER-6

CHAPTER:-6

DEPRIVATIONS AND DEVELOPMENT: A CONCLUDING DISCOURSE

6.1 Introduction:

Social deprivation is a condition characterized by absence of basic human needs, including food, safe drinking water, sanitation facilities, health, shelter, education and information. It depends not only on income but also on access to services. It includes lack of income and productive resources to ensure sustainable livelihoods; hunger and malnutrition; ill health; limited or lack of access to education and other basic services; increased morbidity and mortality from illness, homelessness and inadequate housing, unsafe environments and social discrimination and exclusion. It is also characterized by lack of participation in decision making and in civil, social and cultural life. It occurs in all countries: as mass deprivation in many developing countries, pockets of deprivation amid wealth in developed countries, loss of livelihoods as a result of economic recession, sudden poverty as a result of disaster or conflict, the poverty of low-wage workers, and the utter destitution of people who fall outside family support systems, social institutions and safety nets and thus few people suffers from some kind of deprivation.

Deprivation is multidimensional and hence it becomes difficult to capture in any single dimension. It is expected that those who are economically well-off suffers less and others a lot. It is very difficult to quantify the extent of social deprivation by the masses. So, in order to capture social deprivation quantitatively most of the work is based on the poverty measurement in India as well as in the other parts of the world based on the income or consumption expenditure data.

However, one should note thatwell-being of the people depends on both monetary and non-monetary variables. Poverty is a manifestation of insufficient well-being.But it is partly true that with a higher level of income or consumption expenditure a person may be capable to improve the position of some of his/her monetary and non-monetary attributes. But at the same time it may be the case that markets for some non-monetary attributes do not exist, for example, with some public good. It may also happen that markets are highly imperfect, for instance, in the case of rationing.

Therefore, income as the sole indicator of well-being is inappropriate and should be supplemented by other attributes or variables, e.g., housing, literacy, safe drinking water, and other provision of public goods. The need for such a multidimensional approach to the measurement of inequality in well-being was already emphasised, among others, by Kolm[98], Atkinson and Bourguignon[99], Maasoumi[100]and Tsui[101]. An appropriate measure of well-being should depend on both incomes as well as non-income indicators that may help in identifying aspects of welfare not captured by incomes.

Further rationalescan be citing for viewing the problem of measurement of wellbeing of a population from a multidimensional structure. For instance, the basic needs approach advocated by development economists regards development asan improvement in an array of human needs and not just as growth of income[102]. There exists a debate about the importance of low incomes as a determinant of under-nutrition[103]. Finally, wellbeing is intrinsically multidimensional from the view point of 'capabilities' and 'functionings', where functionings deal with what a person can ultimately do and capabilities indicate the freedom that a person enjoys in terms of functionings[104]. In the capability approach functionings are closely approximated by attributes such as literacy, life expectancy, etc. and not by income per se. An example of multidimensional measure of well-being in terms of functioning achievements is the Human Development Index suggested by UNDP[105]. It aggregates at the country level functioning achievements in terms of the attributes life expectancy, per capita

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[98]Kolm, S.C. (1977), "Multidimensional Egalitarianisms", *Quarterly Journal Econometric*91, 1–13.

[99]Atkinson, A. and Francois Bourguignon.(1982), "The Comparison of Multidimensional Distributions of Economic Status", *Review of Economic. Studies* 49, 183–201.

[100]Maasoumi, E. (1986), "The Measurement and Decomposition of Multidimensional Inequality", *Econometrica* 54, 771–779.

[101]Tsui, K.Y. (1995), "Multidimensional Generalizations of the Relative and Absolute Indices": the Atkinson– Kolm–Sen approach, *Journal of Economic Theory*67, 251–265.

[102]Streeten, P. (1981), *First Things First: Meeting Basic Human Needs in Developing Countries,* Oxford University Press, New York.

[103]Lipton, M. and Martin Ravallion. (1995), "Poverty and Policy, In: J. Behrman and T.N. Srinivasan (eds), *Handbook of Development Economics*", Vol. 3, North-Holland, Amsterdam.

[104]Sen, A.K. (1985), *Commodities and Capabilities,* North-Holland, Amsterdam.

[105]United Nations Development Programme (1990), "Human Development Report", Oxford University Press, New York, 1990.

real GDP and educational attainment rate. For reasons stated above we deviate in the present paper from the single dimensional income approach to the measurement of well-being and adopt an alternative approach (index of social deprivation) which is of multidimensional in nature. In this multidimensional framework instead of visualising well-being using income or consumption as the sole indicator it formalises in terms of functioning failures, or, more precisely, in terms of shortfalls from threshold levels of different attributes themselves.

6.2Social Deprivation:

Deprivation has degraded human lives for centuries. Deprivation is too complex to be reduced to a single dimension of human life. In order to broaden the scope of well-being the notion of human poverty came in to existence with the introduction of the human poverty index by the United Nations Development Programme in its annual human development report of 1997. However, the genesis of the concept of seeing development in terms of the human development has already been started with the pioneering work of Prof. Amartya Sen and Prof. Mahbub-ul-Haq which became the basis of the publication of the first human development report of the United Nations Development Programme. There is an essential need to capture the non-monetary dimensions while calculating well-being, because it is not only a function of the individual's lack of income but affected by so many other factors. Deprivation can be explained in terms of the individual characteristics, household's level characteristics, community level characteristics, regional characteristics and national level characteristics altogether. But while we take income or consumption expenditure then we look over only the individual level or household's level characteristic and hence it gives only the partial picture of the story.

The assumption behind the selection of these two indicators for the calculation of people living below poverty line is that, with the rise of income or with a threshold level of income people can maintain a certain standard of living and hence he will not suffers any/some kinds of deprivation. It might be correct and reflect the true picture of the story in the 1960s or 70s, when the basic needs of the people were limited only to *Roti, Kapda aur Makaan* (i.e. food, clothing and shelter). The need of these three basic amenities has also been emphasised in our other cultural and political practices. After the independence of our country there was huge poverty and people were dying

because of the lack of food and basic health services. Malnutrition, mass illiteracy and homelessness were at its apex.

Indian cinema made a large number of movies based on this theme which reflects the persistent poverty and social deprivations of the people of that time in different parts of our country. Do Bigha Zamin (1953, Hindi), Newspaper Boy (1955, Tamil), Pather Panchali (1955, Bengali), Mother India (1957, Hindi), Roti, Kapda aur Makaan (1974, Hindi), Pasi (1979, Tamil), and in late 1980s and early 90s as Salaam Bombay (1988, Hindi) by Meira Nair and Rudaali (1993, Hindi) by Kalpana Lajmi are some of the movies which are based on poverty and social deprivation in India. Poverty was rampant from north to south and from west to east part of the country and this was beautifully captured by the directors of that period of time and raises these issues before the masses and the politician of the country. After that poverty got some sorts of priority in the planning process of the country and got politicised. For the first time in the fourth five year plan (1969-74) the term rural development was used and the emphasis has been given both to agricultural and industrial development.

In the fifth five year plan (1974-79) for the first time the term poverty alleviation has been used and since then in every five year plan there has been special focus on poverty alleviation programmes but the result is yet to come in a positive direction.

In India the official estimates on poverty has been done by the planning commission, a non-statutory body of Government of India. The data base of their estimate is National Sample Survey Organisation, which conducts the all India large sample survey on every five year interval. NSSO captures the expenditure of the households on the food and non-food items using a mixed recall period. In non-food items they include tobaccos, foot wear and clothing and capture the expenditure on this with a 365 day reference period and a 30 day reference period for remaining items. They do not capture expenditure on health, education and other basic amenities such as potable water, sanitation and others.

In the present scenario almost all the people are capable of getting two square of meal and hence just the calorie intake should not be the norms for identification of the poor and non-poor. The logic behind not capturing the expenditure data on health and education is that, it is the bounded rationality of the state to provide these two basic services to the masses free of cost. But in reality the people in general and the poor in

particular spend a significant amount of their income on these two services and the very assumption of the government is to provide these services free of cost are fading. Now, people are in a position to manage their 'Roti, Kapda aur Makaan' needs and what they need is 'Paani, Bijali, aur Sadak' (i.e. water, electricity and roads).

Political leaders are now changing their election bids and they use the slogan 'Paani, Bijali aur Sadak'earlier it was mainly focussed in and around Roti, Kapda aur Makaan. It shows that leaders have already been understood that the masses cannot be mobilised just on the basis of the old slogan and promises because majority of them have achieved this. But in practice they are not using while estimating the proportion of poor in the country. Thus, it becomes an urgent need of the hour to capture these dimensions which are directly not related to the income of the households but having a greater impact on the poverty of the households. Poverty is not to be suffered in silence by the poor. Nor can it be tolerated by those with the power to change it. The challenge now is to mobilize action- state by state, organization by organization and individual by individual. But in the state of Bihar nothing seems to be positive because neither state is willing to reduce this menace nor organization or individual. The majority are living on the fate and blame god for their poverty and this is a by-product of their illiteracy and ignorance. Hence, it becomes essential to capture the social deprivation in one of the most backward state of India where around nine per cent of the population of the country are residing and out of them around 40 per cent are living below the poverty line.

6.3 Choice of Dimensions:

Social deprivation has been constructed with the help of three dimensions namely health, education and basic amenities. In health dimension percentage of people out of ambit of primary health centre and infant mortality rate has been taken. In educational dimension two indicators has been captured and further sub-divided into gender level namely percentage of out of school male and female children and percentage of adult male and female illiterate. In basic amenities four indicators have been captured and they are percentage of households without access to safe drinking water, percentage of households without access to toilet facilities, percentage of households without access to electricity connection and percentage of households living in kutcha houses. The rationale behind the selection of these indicators under various dimensions has

been described in great detail in their respective chapters. Here, it is necessary to describe the rationale behind the selection of these three dimensions to construct the index of social deprivation.

Social deprivation describes in this study concentrates on the deprivation in three essential elements of human life already reflected in the human development report with some modification. The first deprivation relates to access to basic health services. In the absence of these services the infant mortality rate will be high because of the lower institutional delivery and the proper health check-up of the pregnant mother. And if the child survives their probability of dying in the early age will be higher. Second dimension relates to knowledge, i.e. being excluded from the world of reading and communication and is measured by the percentage of adult (both male and female) who are illiterate. The second indicator of this dimension is the percentage of out of school male and female children which represent the incapability of the state to provide the basic education to their children on which the future of the state will depend. The third aspect relates to a decent standard of living, in particular, overall economic provisioning. This is represented by a composite of four variables i.e. the percentage of households without access to safe water, health services, electricity and households living in kutcha houses. Basic amenities are the lower orders needs and it is on the bottom of the Maslow's hierarchy of needs and forms the building blocks of the other lower and higher order needs. Hence, it is essential to fulfil the basic needs of every individual irrespective of their social, economic and political status.

A few observations must be made about this last dimension and about why income does not figure in the social deprivation. The logic underlying the construction of the economic provisioning variable is that the gross national product included in the human development index is actually an amalgam of private and public facilities; since public services are paid out of aggregate national income. Private income could not be an adequate indicator of an individual's economic facilities, which also include crucial public services (such as health care arrangements and a safe water supply)[106].

[106]United Nations Development Programme (1997), "Human Development Report". Oxford University Press, New York, 1990.

6.4 Analysis of the Social Deprivation in Bihar:

It is well established that deprivation, particularly in a culturally rich and socially diverse country such as India, cannot be described purely in economic terms[107]. If social deprivation has to define as deprivation in basic human needs, i.e. in terms of health services, education, safe drinking water, sanitation, shelter and electricity, then around two-third of Bihar's population comes under this category. However, Official statistics (i.e. Planning Commission) captures deprivations in income and tells only part of the story. It is an often said that Bihar is a land of riches inhabited by mostly poor people. The large Gangetic plain with its fertile soil, the huge water resources available from a multitude of rivers that flow through the region and the hard-working human resource of the state ought to have ensured the status of the truncated Bihar as the agricultural bowl of India. Unfortunately, Bihar is today a land of misery and poverty where agriculture has turned out to be a loss-making proposition. The result is a mass exodus of hundreds of thousands of people who earned their livelihood from agricultural land.

Bihar is primarily a rural state as 90 per cent of the people of the state reside in the villages. In rural areas agriculture is the primary source of livelihood and for agricultural purposes the main input is land. In Bihar 50.2 per cent of the rural population are landless which is higher than the all India average of 38.6 per cent. 21.8 per cent people are marginal farmers having less than one acre of land. Only 6.4 per cent of the population holding lands size more than of five acres which shows the higher inequality among the land holdings in Bihar. This is also the result of the poor implementation of the land ceiling act in the state and having impacted the life of the millions of people and compel them to live in utter poverty. Not only is this but the socially vulnerable groups also the victims of this unequal land distribution. The scheduled castes are the most disadvantaged social group in terms of land endowment and they constitute significant population of the state. Nearly all of them are landless and this phenomenon of land poverty is also wide among the Muslim's households, and they form the larger part of the population of the state. The following table gives

[107] Kozel, Valerie and Barbara Parker (2000), 'Poverty in Rural India: The Contribution of Qualitative Research in Poverty Analysis', WDR on Poverty and Development, 2000/01, Stiglitz Summer Research Workshop on Poverty, Washington Dc, July 6- July 8, 1999.

the information regarding social deprivation in terms of deprivation in basic amenities, health and education of the people of Bihar in the year of 1981.

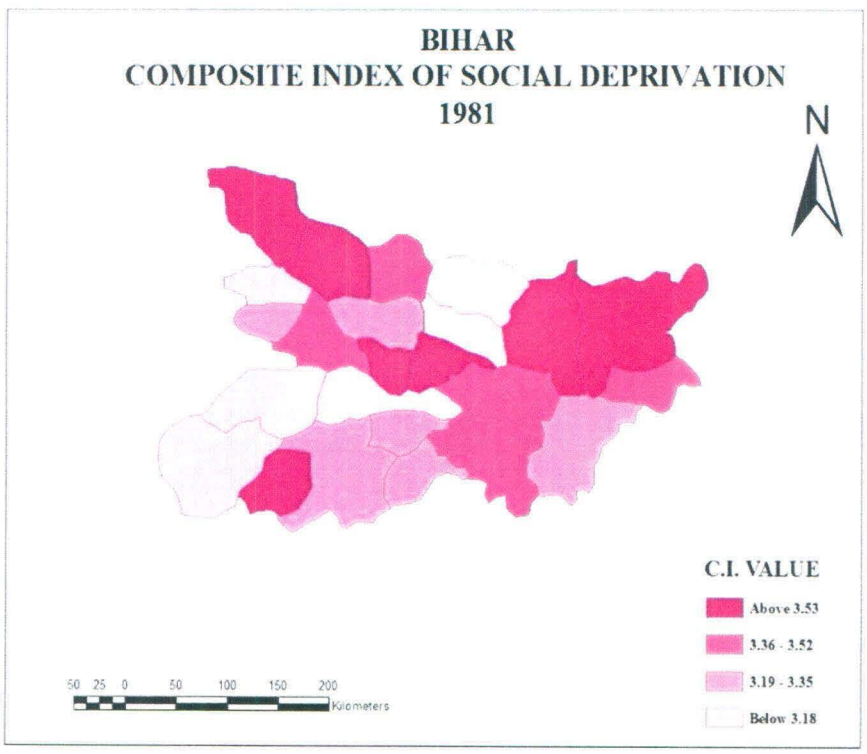
Table 6.1 Measurement of Social Deprivation in terms of Health, Education and Basic Amenities Deprivations in Bihar: 1981

Districts	CI_ Health Deprivation	Ranking	CI_ Educ. Deprivation	Ranking	CI_ Basic Amen. Deprivation	Ranking	CI. Social Deprivation	Ranking
Patna	2.593	2	3.061	24	3.381	21	3.012	24
Nalanda	1.734	19	3.468	22	4.371	9	3.191	18
Nawada	1.307	22	3.880	16	4.641	2	3.276	13
Gaya	2.234	8	3.658	19	3.900	17	3.264	14
Aurangabad	2.445	3	3.635	20	4.548	3	3.543	7
Rohtas	1.556	21	3.606	21	4.000	15	3.054	23
Bhojpur	1.597	20	3.466	23	4.342	10	3.135	22
Saran	2.318	4	3.789	18	4.306	11	3.471	10
Siwan	1.877	18	3.985	13	3.804	19	3.222	16
Gopalganj	1.924	15	4.202	8	3.368	22	3.165	20
Pashchim Champaran	2.316	5	4.595	1	3.838	18	3.583	4
Purba Champaran	2.203	9	4.510	3	4.218	12	3.644	3
Sitamarhi	2.003	13	4.503	4	4.015	14	3.507	8
Muzaffarpur	2.251	7	4.119	10	3.225	24	3.198	17
Vaishali	1.977	14	3.926	15	4.841	1	3.581	6
Begusarai	1.908	16	3.992	12	4.384	7	3.428	12
Samastipur	2.639	1	4.003	11	4.108	13	3.583	5
Darbhanga	2.045	12	4.154	9	3.230	23	3.143	21
Madhubani	1.298	24	4.256	7	3.970	16	3.175	19
Saharsa	2.057	11	4.465	5	4.544	4	3.689	1
Purnia	2.133	10	4.531	2	4.373	8	3.679	2
Katihar	2.270	6	4.398	6	3.789	20	3.485	9
Munger	1.892	17	3.945	14	4.451	6	3.430	11
Bhagalpur	1.423	23	3.858	17	4.503	5	3.261	15

Source: Calculated from Census of India, 1981

From table 6.1 it can be said that there are only a few districts which are good in all the three dimensions and their composite ranking is the outcome of the arithmetic mean of all the three individual indices. All the three dimensions are equally weighted as the United Nations Development Programme does in the case of human

development index. The simple arithmetic means allows the perfect substitution of one dimension by the other. It means that if a district is poor performer in health dimension and if he is good in the other two he can manage his final ranking of social deprivation. As in the case of Patna, which was deprived in health dimension and the ranking of Patna was 2nd in it but it performs very well in the other two dimension and their ranking in educational and basic amenities deprivation was 24th and 21st and thus the final ranks of Patna in social deprivation comes to 24th and thus Patna became the least deprived districts of Bihar in terms of health deprivation in 1981. Similarly Saharsa was poor performer in all the three dimensions as their ranking was 11th, 5th and 4th in health, educational and basic amenities deprivation and thus it became the most deprived district of Bihar in 1981.



Map 6.1

Source: Constructed from Census of India, 1981

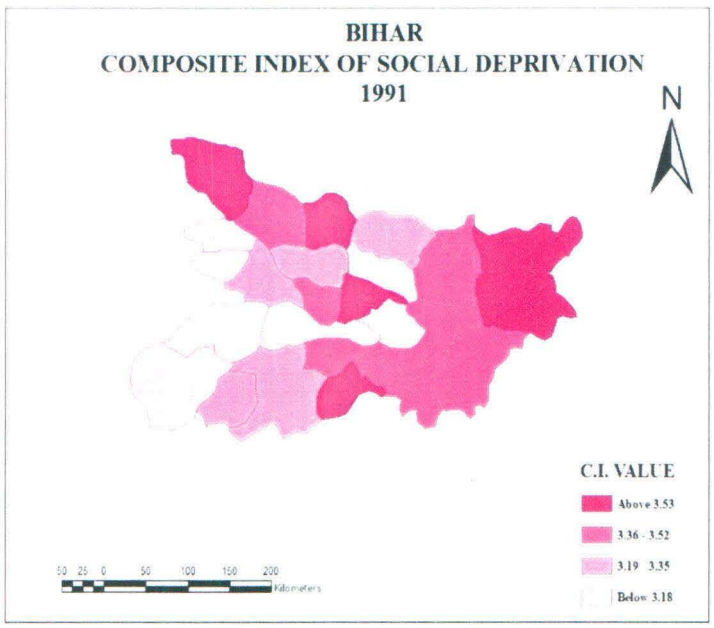
Aurangabad has 3rd ranks in health deprivation, 20th in educational deprivation and again 3rd ranks in basic amenities but their overall ranking in social deprivation has just 7th. This is because of the perfect substitutionality of the dimension. The substitutionality shows that there are various ways to overcome the problems of deprivation and it proves the multidimensional nature of the social deprivation rather than the previous single dimension of income deprivation where there was no substitution of income. In 1981 the top five deprived districts were Saharsa, Purnia, Purba and Pashchim Champaran and Samastipur. The least deprived districts were Patna, Rohtas, Bhojpur, Darbhanga and Gopalganj. Data on different dimensions reveal that all those districts were least deprived were good in any two dimensions of social deprivation and thus they became the least deprived but in the case of the most deprived they were poor performer in all the dimensions and hence they became the most deprived districts of Bihar.

Government can interfere in mitigation of social deprivation by means of different approaches by either in holistic manner and if there is scarcity of funds then invest whole heartedly in any one of the dimension. Education has the greatest potential to break the cycle of poverty and social deprivation. But, governments are not willing to invest this sector because the gestation period of this is very long and they are unable to enjoy the political benefits of this. It has immense potential to overall development of the individual and automatically reduces the government's expenditure on the other programmes and policies which were meant for the awareness of the masses. So, investment in the education sector will be a wise decision by the state government as well as of the union government. Changes in the social deprivation has occurs with the passage of time and the following table shows the social deprivation of 1991 of the different districts of Bihar.

Table 6.2 Measurement of Social Deprivation in terms of Health, Education and Basic Amenities Deprivations in Bihar: 1991

Districts	CI_ Health Deprivation	Ranking	CI_ Educ. Deprivation	Ranking	CI_ Basic Amen. Deprivation	Ranking	CI_ Social Deprivation	Ranking
Patna	1.889	13	2.934	24	3.351	22	2.725	23
Nalanda	1.788	18	3.452	22	4.816	5	3.352	12
Nawada	2.913	2	3.462	20	5.011	1	3.795	1
Gaya	1.369	23	3.748	17	4.833	3	3.317	13
Aurangabad	1.857	16	3.457	21	4.409	6	3.241	17
Rohtas	2.017	8	3.479	19	4.021	8	3.172	18
Bhojpur	0.764	24	3.399	23	3.905	13	2.689	24
Saran	2.729	3	3.677	18	3.544	19	3.316	14
Siwan	1.800	17	4.093	10	3.165	23	3.019	22
Gopalganj	1.594	21	4.095	9	3.466	21	3.052	21
Pashchim Champaran	2.613	4	4.611	6	3.650	17	3.625	3
Purba Champaran	1.869	14	4.662	2	3.972	10	3.501	7
Sitamarhi	2.506	5	4.626	3	3.528	20	3.553	6
Muzaffarpur	2.195	7	4.089	11	3.616	18	3.300	15
Vaishali	1.973	10	3.779	16	4.406	7	3.386	11
Begusarai	1.617	19	4.080	12	3.734	15	3.144	19
Samastipur	3.189	1	4.047	13	3.947	11	3.728	2
Darbhanga	1.963	11	4.161	8	3.129	24	3.084	20
Madhubani	1.861	15	4.213	7	3.655	16	3.243	16
Saharsa	1.944	12	4.617	4	3.911	12	3.491	9
Purnia	1.995	9	4.796	1	3.979	9	3.590	5
Katihar	2.349	6	4.615	5	3.837	14	3.600	4
Munger	1.606	20	3.976	14	4.824	4	3.468	10
Bhagalpur	1.545	22	3.967	15	4.985	2	3.499	8

Source: Calculated from Census of India, 1991



Map 6.2

Source: Constructed from Census of India, 1991

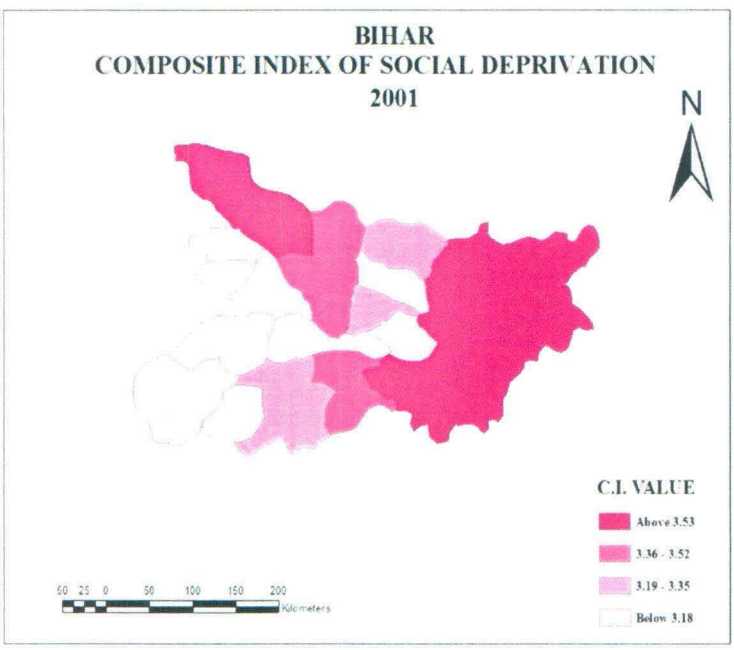
Table 6.2 shows that there is slight change in the ranking of the districts in social deprivation from the period of 1981to 1991. In 1991 Nawada became the most deprived district and Bhojpur became the least deprived. Among the top five deprived there was two new entry and they were Nawada and Katihar. Purba Champaran and Saharsa managed to downgrade their ranking and they were at 7th and 9th position. Among the list of five least deprived there was only one new entry and it was Siwan whose ranking was 16th in 1981 and became 22nd in 1991. Rohtas performs poor and managed 18th in 1991 while it was on 23rd in 1981.

Now, the table for 2001 has been given below for social deprivation.

Table 6.3 Measurement of Social Deprivation in terms of Health, Education and Basic Amenities Deprivations in Bihar: 2001

Districts	CI_ Health Deprivation	Ranking	CI_ Educ. Deprivation	Ranking	CI_ Basic_ Amen. Deprivation	Ranking	CI_ Social Deprivation	Ranking
Patna	1.942	14	2.912	24	3.224	19	2.693	22
Nalanda	1.909	16	3.577	17	5.014	3	3.500	8
Nawada	1.837	17	4.092	11	4.378	8	3.436	9
Gaya	1.963	13	3.373	20	4.380	7	3.239	14
Aurangabad	1.080	24	3.225	21	3.672	15	2.659	23
Rohtas	1.819	18	3.005	23	3.054	21	2.626	24
Bhojpur	2.313	6	3.101	22	2.986	23	2.800	20
Saran	2.014	11	3.568	18	3.400	16	2.994	19
Siwan	1.931	15	3.449	19	2.858	24	2.746	21
Gopalganj	2.415	4	3.705	15	3.397	17	3.172	16
Pashchim Champaran	2.907	1	4.619	6	3.878	11	3.802	3
Purba Champaran	2.307	7	4.721	4	3.954	10	3.661	6
Sitamarhi	2.230	8	4.712	5	3.349	18	3.431	10
Muzaffarpur	2.468	3	3.918	14	3.726	14	3.371	12
Vaishali	2.038	10	3.684	16	4.442	5	3.388	11
Begusarai	2.126	9	3.993	13	3.212	20	3.110	17
Samastipur	1.646	20	4.105	9	3.816	12	3.189	15
Darbhanga	1.967	12	4.261	8	3.002	22	3.077	18
Madhubani	1.345	23	4.322	7	4.073	9	3.246	13
Saharsa	1.629	21	4.809	3	4.404	6	3.614	7
Purnia	2.501	2	5.064	1	4.446	4	4.003	1
Katihar	2.336	5	4.996	2	3.735	13	3.689	5
Munger	1.728	19	4.038	12	5.488	2	3.751	4
Bhagalpur	1.550	22	4.104	10	5.924	1	3.859	2

Source: Calculated from Census of India, 2001



Map 6.3

Source: Constructed from Census of India, 2001

In 2001 the ranking of the districts in terms of social deprivation has changed and Purnia became the most deprived district of the state followed by Bhagalpur. Under the least deprived category the districts were Rohtas, Aurangabad, Patna, Siwan and Bhojpur. In the bottom five there were two new entries and these were Aurangabad and Rohtas in comparison to the 1991 figure but while we make a comparison with 1981 then the new were Siwan and Aurangabad. Among the top the districts which made new entries were Bhagalpur and Munger with comparison to 1991 level and with respect to 1981 the new entrants were Bhagalpur, Munger and Katihar.

The overall social deprivation of the different districts of Bihar between 1981 and 2001 has been given in the following table.

Table 6.4 Index of Social Deprivation for Bihar: 1981-2001

Districts/Year	1981	1981	1991	1991	2001	2001
District Name	CI. Value	Ranking	CI. Value	Ranking	CI. Value	Ranking
Patna	3.012	24	2.725	23	2.693	22
Nalanda	3.191	18	3.352	12	3.500	8
Nawada	3.276	13	3.795	1	3.436	9
Gaya	3.264	14	3.317	13	3.239	14
Aurangabad	3.543	7	3.241	17	2.659	23
Rohtas	3.054	23	3.172	18	2.626	24
Bhojpur	3.135	22	2.689	24	2.800	20
Saran	3.471	10	3.316	14	2.994	19
Siwan	3.222	16	3.019	22	2.746	21
Gopalganj	3.165	20	3.052	21	3.172	16
Pashchim Champaran	3.583	4	3.625	3	3.802	3
Purba Champaran	3.644	3	3.501	7	3.661	6
Sitamarhi	3.507	8	3.553	6	3.431	10
Muzaffarpur	3.198	17	3.300	15	3.371	12
Vaishali	3.581	6	3.386	11	3.388	11
Begusarai	3.428	12	3.144	19	3.110	17
Samastipur	3.583	5	3.728	2	3.189	15
Darbhanga	3.143	21	3.084	20	3.077	18
Madhubani	3.175	19	3.243	16	3.246	13
Saharsa	3.689	1	3.491	9	3.614	7
Purnia	3.679	2	3.590	5	4.003	1
Katihar	3.485	9	3.600	4	3.689	5
Munger	3.430	11	3.468	10	3.751	4
Bhagalpur	3.261	15	3.499	8	3.859	2

Source: Calculated from Census of India, 1981, 1991 and 2001

Thus, it clears from table 6.4 that there were eight districts which were good performer throughout the twenty year period. These districts were Saharsa, Purba Champaran, Samastipur, Vaishali, Aurangabad, Saran, Begusarai and Siwan. Among the medium performing districts the name of Purnia, Pashchim Champaran, Sitamarhi, Gaya, Bhojpur, Rohtas and Patna were worth mentioning. The poor performers were Katihar, Munger, Nawada, Bhagalpur, Muzaffarpur, Nalanda, Madhubani, Gopalganj and Darbhanga. In 2001 the most deprived districts were Purnia and the least deprived were Rohtas followed by Aurangabad and Patna.

6.5 Status of Economic Deprivation in Bihar:

The general notion of poverty and deprivation is closely associated with income deprivation. The underlying assumption behind this is that money can purchase all the attributes of well-being of the person and market is available for all and is highly perfect. But, in practice this is not the case, however up to a certain extent this can be true but this does not tell the true story of the picture. Real view point regarding well-being/deprivation is that it is a product of multiplicity of factors which is not only economic in nature but several other factors are in the for-front. Let us illustrate this with a simple example. Suppose two children takes birth on the same day in two localities. The economic condition of the parents of both children is same and is above poverty line as fixed by the planning commission. Child 'A' having privileged to take birth in an urban area where there is proper water supply by the municipality, public health care centre, electricity supply and other amenities which is essential to live a decent standard of life. In the vicinity of child A's house there is a government school and functioning properly because of their presence in the urban area.

In case of child 'B', he takes birth in a far flung village of the country (in the same district where child 'A' takes birth) having no electricity, no safe water by any means, the distance between the village of the child 'B' and the primary health centre is 6 Km. and due to lack of proper transport facility and the pathetic condition of road it takes around one and half hour to reach PHC for immunization and post natal care. The doctors and staffs are equally qualified as in the urban area but not giving due attention to the patients because nobody is going to take a serious action against them. Primary school is available in the village and the local teacher is employed there and teaching becomes the secondary or says tertiary priority of the employed local teacher because he/she is always busy to do his/her households chores. What the result would you expect? The performance of both the child will be same or different, if other things such as abnormality of any children, school going age will remains constant? Obviously the result will be always in the favour of child 'A'. It is just because of taking birth in an area where there is proper supply of civic amenities improves the condition of child 'A' and child 'B' remains under privileged. Where is the role of the money? Individual cannot have electricity connection in their households until there is electricity supply in their village and this can be only done by the state. Once there is electricity in the village then the role of money starts because even in the case of

electricity supply only those can get connection which can afford at least a minimum monthly user charges. No individuals can build road whatever their economic condition is. Not everybody can afford a private health care. Lack of primary health centre and the mushrooming of the quacks in the rural areas are dangerous to the health and economy of the rural people. No one can insure that the water he/she is drinking is pure or not and it is also not practically feasible to always drink boiled water. Government can insure this with the community participation with little financial investment. Child 'A' will be ahead of child 'B' in every respect throughout his life span until or unless there is state intervention by some kind of reservation given to the under privileged section of our society.

In the village of child 'B' people used to drink water from open sources which is not considered safe for drinking purposes and thus child 'B' has to drink the water from the same source. The probability of being sick due to water borne disease of child 'B' is more than that of child 'A', which is using tap water supplied by the municipality. Parents of child 'B' understand that it is not good to give this water to his child and also can afford packaged drinking water (mineral water) but the market for this is not available in the vicinity and for this he has to travelled the same 6 Km. distance as in the case of PHC and practically it will not be possible for anybody to do that. All these services are easily available in the urban areas either by the market or by the government provisioning and parents of child 'A' need not worry about all these stuffs. Hence, it comes to know that money has very limited role to satisfy the lower order needs of the people because that needs is highly costly and market for that is highly imperfect. Obviously, money has a greater role for the satisfaction of higher order needs such as being an air conditioned house, coloured television (Plasma, LCD, etc.), 3-G mobile communication, high broad band internet connection, organic food, winter and summer tour to the different parts of the country and the world and wearing of branded clothes. Hence, it becomes necessary to make a comprehensive study for the other dimensions of well-being which has not been captured by many scholars of the country in general and for the state like Bihar it's rare. For the reasons described above a comparison between social deprivation and income deprivation (poverty) has been done and tries to establish a correlation between the two. First of all just see the following table to take a look over the income deprivation (poverty) of the districts of Bihar for the year 2004-05.

Table 6.5 Estimates of Percentage of Poor on the Basis of Monthly Per Capita Consumption Expenditure in Bihar: 2004-05

Districts	Total Pop.	Poor Pop.	% of Poor	Ranking
Patna	4718592	1738481	36.84	17
Nalanda	2370528	1043608	44.02	10
Nawada	1809696	715868	39.56	15
Gaya	4987743	2107493	42.25	13
Aurangabad	2013055	1112171	55.25	5
Rohtas	3739822	1470761	39.33	16
Bhojpur	3645540	1672539	45.88	9
Saran	3248701	1752713	53.95	6
Siwan	2714349	836476	30.82	20
Gopalganj	2152638	591390	27.47	21
Pashchim Champaran	3043466	2324328	76.37	1
Purba Champaran	3939773	829808	21.06	23
Sitamarhi	3198681	851141	26.61	22
Muzaffarpur	3746714	2415252	64.46	2
Vaishali	2718421	1154568	42.47	12
Begusarai	2349366	1322297	56.28	4
Samastipur	3394793	1787575	52.66	7
Darbhanga	3295789	1386813	42.08	14
Madhubani	3575281	2094148	58.57	3
Saharsa	4767406	791114	16.59	24
Purnia	5998898	2612557	43.55	11
Katihar	2392638	822673	34.38	19
Munger	5144674	1778969	34.58	18
Bhagalpur	4031945	1936371	48.03	8
Mean			**43.04**	
Maximum			**76.37**	
Minimum			**16.59**	

Source: Estimated on the basis of the article by, Chaudhuari, Siladitya and Nivedita Gupta (2009), "Levels of Living and Poverty Patterns: A District-Wise Analysis for India", Volume XLIV. No. 9, *Economic and Political Weekly,* 28th February, 2009, pp.94-110.

Poverty estimates has been mainly done on the state level data in India by planning commission but due to the diverse economic setting of the country it is not viable to consider state as a homogeneous unit for socio-economic study. There is a dearth of district level study on the deprivation in general and particular in terms of the social

deprivation in the state of Bihar. Income poverty which is shown by the head count ratio of the different districts of Bihar has been shown in the table 6.5. It indicates that those who are living below poverty line are socially deprived. It is the economic deprivation which leads the social deprivation of the individual. But the present study deviates from this assumption and an alternative approach to see social deprivation has been devised.

In terms of head count ratio, Pashchim Champaran (76.37 %) on the top of the income poverty list and the least poor district was Saharsa (16.59 %) followed by Purba Champaran (21.06 %) and Sitamarhi (26.61 %). Patna was on 17th position in terms of income poverty in 2004-05 and 36.84 % of the people were below poverty line. Among the top five poor districts of Bihar there were four from the north Bihar (north of Ganges river) namely Pashchim Champaran, Muzaffarpur (64.46 %), Madhubani (58.57 %) and Begusarai (56.28 %) and one from the south Bihar namely Aurangabad (55.25 %). The five least poor districts of Bihar were from the northern Bihar and they were Saharsa, Purba Champaran, Sitamarhi, Gopalganj (27.47 %) and Siwan (30.82 %).

There were seven districts which having above average poverty from northern Bihar and they were Pashchim Champaran, Saran, Muzaffarpur, Begusarai, Samastipur, Madhubani and Purnia. Only four were from the southern Bihar namely Nalanda, Aurangabad, Bhojpur and Bhagalpur. The number of districts which having below average poverty was thirteen and eight was from northern Bihar and five were from southern Bihar. The northern districts were Katihar, Darbhanga, Vaishali, Sitamarhi, Gopalganj, Siwan, Saharsa and Purba Champaran. The southern districts were Munger, Rohtas, Gaya, Nawada and Patna. The districts of northern Bihar were more economically backward with comparison to the southern districts of the state. The northern districts are more prone to the recurring flood in the state. The size of the land holding among the farmers of the northern Bihar is small compared to the southern Bihar and there is lack of proper water supply for irrigation. The canal in the south having a greater impact on the agricultural production and reduces the incidence of poverty. Lack of industrialisation and proper transport facilities makes agriculture a non-profit vocation and most of the people do the farming for the survival of their family. Mobility is limited and hence there is no instance of other forms of farming such as floriculture and apiculture. There is some sort of pesiculture but limited to domestic markets only. In and around Patna high livelihood potential is utilised to cause low poverty. Extreme centralisation of the public services in the state capital

having a very bad impact of the growth of the other districts of the state and government must adopt the decentralisation procedure as adopted by many other states of the union and giving good result.

6.6 Comparison between Social Deprivation and Economic Deprivation:

Economic deprivation is uni-dimensional and social deprivation is multidimensional and hence do not always move together. The present table gives a comparison between the two.

Table 6.6 Comparison between Social Deprivation and Economic Deprivation in Bihar: 2001

Districts	CI. Value of Social Deprivation	Ranking	Economic Deprivation(% of Poor)	Ranking
Patna	2.693	22	36.843	17
Nalanda	3.500	8	44.024	10
Nawada	3.436	9	39.557	15
Gaya	3.239	14	42.253	13
Aurangabad	2.659	23	55.248	5
Rohtas	2.626	24	39.327	16
Bhojpur	2.800	20	45.879	9
Saran	2.994	19	53.951	6
Siwan	2.746	21	30.817	20
Gopalganj	3.172	16	27.473	21
Pashchim Champaran	3.802	3	76.371	1
Purba Champaran	3.661	6	21.062	23
Sitamarhi	3.431	10	26.609	22
Muzaffarpur	3.371	12	64.463	2
Vaishali	3.388	11	42.472	12
Begusarai	3.110	17	56.283	4
Samastipur	3.189	15	52.656	7
Darbhanga	3.077	18	42.078	14
Madhubani	3.246	13	58.573	3
Saharsa	3.614	7	16.594	24
Purnia	4.003	1	43.551	11
Katihar	3.689	5	34.383	19
Munger	3.751	4	34.579	18
Bhagalpur	3.859	2	48.026	8

Source: Calculated from Census of India, 2001 and NSSO 64th round, 2004-05

On the basis of table 6.6, it comes to know that economic deprivation and social deprivation in the case of Bihar is not moving together. In case of the social deprivation the percentage has not been calculated because the present study do not intended to do so. The proposition is that even if a single household is living in deprivation that is a blot on the civilised society and shows the neutrality of the state towards their citizen. Hence, index of social deprivation has been used to rank the districts according to their deprivation in the state through the period of time.

Index of social deprivation which has been used in the above table has been calculated for the year 2001 but the data related to economic deprivation is for the year of 2004-05. Purnia was on the top in terms of social deprivation in 2001 with a composite index of 4.003 but it was on the eleventh position in economic deprivation in 2004-05. The least deprived district was Rohtas in social deprivation and Saharsa was least in economic deprivation. Rohtas was ranked sixteen in economic deprivation and Saharsa was ranked seventh in social deprivation. Thus, it becomes clear that they are not correlated to each other and moving anonymously.

Regression analysis has also been done in order to see the movement of these two measurements and the result is presented in the following table.

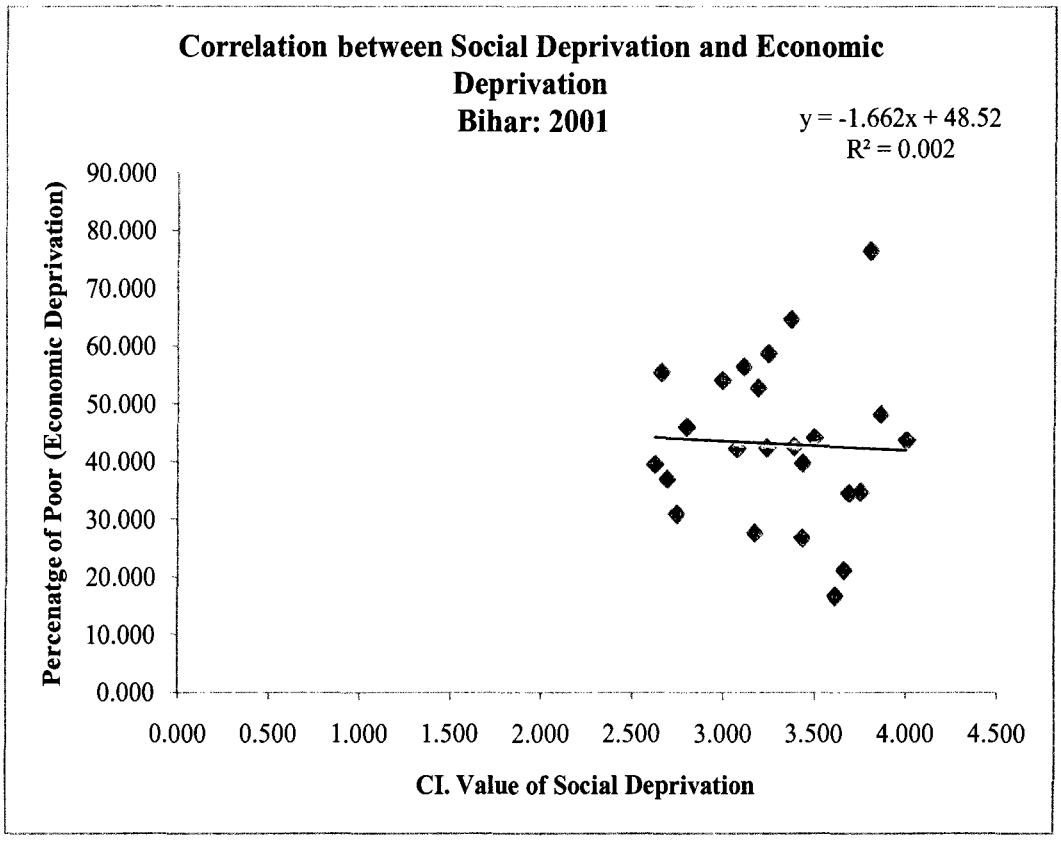


Figure 6.1

Sources: Census of India, 2001 and NSSO 64th round, 2004-05

The above regression analysis indicates a very weak relationship between the economic deprivation and social deprivation. The slope of the regression line shows that there is a negative correlation between the two but the correlation is not statistically significant. Out of the twenty four districts there are only seven which is on the regression line and the remaining are outlier. The correlation co-efficient between the two is 0.048 and the co-efficient of determination (R^2) is 0.0023 which shows the very little dependencies between the two. The same result has been found by many scholars including United Nations Development Programme in its human development report of 2010. So, in monitoring progress, the state should not be focus on economic deprivation alone, but on indicators of social deprivation as well.

6.7 Approaches to Mitigation of Economic Deprivation:

Any developmental effort which aims at increasing employment and income opportunities of expansion of social benefits like education or health is likely to impact the economic condition of the people. But it has been a worldwide general experience that only a small part of the benefits of such macro development

programmes reach the very poor; the process of 'trickling down' of development benefits to the poor is extremely slow. And economic deprivation cannot be eliminated through such interventions alone. Thus, economic deprivation demands programmes that aim to directly help the poor, instead of the entire population. The rationale for such targeted poverty alleviation programme is that their benefits or social returns are higher for the population at lower end of the income distribution than at the upper end. Within this broad objective, the government has launched several targeted poverty alleviation programmes (PAP) in India. For further efforts in this direction, it is desirable to understand the rationale for different types of programmes as well as analyse their impacts. Broadly speaking, these programmes can be grouped into two categories, each trying to remove a particular dimension of the socio-economic disadvantage suffered by the poor.

In the first category, one may group all those poverty alleviation programmes that aim to raise 'directly' the existing income and consumption levels of the poor households. At present, major programmes under this category can again be sub-divided into the following four heads i.e. (a) Self-employment Programmes, (b) Wage-employment Programmes, (c) Public Distribution System (PDS) and Nutrition Programmes, and (d) Social Security Programmes. For promotion of self-employment, most important programmes are Swarnajayanti Grameen Swarojgar Yojana (SGSY). For wage-employment, it is Mahatma Gandhi National Rural Employment Guarantee Programme (MNREGP) which now enjoys the largest resource support. The Public Distribution System now redesigned as Targeted Public Distribution System (TPDS) aims to enhance the food consumption of the poor through provision of subsidized food grains. Finally, there are a number of social security programmes, like National Old Age Pension Scheme (NOAPS), which try to ameliorate the poverty of aged and other seriously disadvantaged persons.

The second category of poverty alleviation programmes has a distinctly different approach to the problem, taking into account the capability poverty of the poor households. This incapability arise from their low literacy rates, poor health and nutrition standards, poor living standards in terms of housing, drinking water and sanitation facilities and some other social constraints. Under these circumstances, the poor should not only be enabled to cross the poverty line through programmes listed before, there should also be simultaneous effort to improve their human development

status in terms of education, health, nutrition, skills and assets so that they can ultimately stay above the poverty line, even without the external government support for income and consumption. This demands adequate resource allocation and increased efficiency for various delivery systems, particularly those for education and health. Two important programmes serving that particular objective are Sarva Siksha Abhiyan (SSA) and National Rural Health Mission (NRHM). In addition, the enhancement of the capability of the poor also demands simultaneous efforts to create appropriate institutions for empowerment of the poor so that they can participate in decisions relating to the delivery system and hold the system accountable when it fails to serve them. Strengthening of Panchayati Raj Institutions (PRIs) is one of the attempts of the government for empowering poor. Collective action is at the core of such empowerment and, therefore, the government has also consciously promoted all institutions that facilitate collective actions, like Self- Help Groups (SHG), Cooperative Societies, Non-Governmental Organizations (NGO), Forest Protection Bodies and the like.

6.8 Understanding the Determinants of Income Poverty:

A poverty profile describes the pattern of poverty, but is not principally concerned with explaining its causes. Yet a satisfactory explanation of why some people are poor is essential if we are to be able to tackle the roots of poverty. This section addresses the question of what causes poverty. Poverty may be due to national, sector-specific, community, household or individual characteristics. Now the brief description of the each cause is given below.

Regional level characteristics:

At the regional level, there are numerous characteristics that might be associated with poverty. In general, poverty is high in areas characterized by geographical isolation, a low resource base, low rainfall, and other inhospitable climatic conditions. For example, economic development in Bihar is severely retarded due to its susceptibility to annual floods and higher dependency on the monsoon for agriculture. In many parts of the state the remoteness of rural areas lower the price farmers get for their goods and raise the price they pay for purchases, due to high transport costs is responsible for generating food insecurity among the poor. Inadequate public services, weak communications and infrastructure, as well as underdeveloped markets are dominant

features of life in rural Bihar as in many other parts of the country, and clearly contribute to poverty.

Community level characteristics:

As with regional characteristics, there are a variety of community level characteristics that may be associated with poverty for households in that community. At the community level, infrastructure is a major determinant of poverty. Indicators of infrastructure development that have often been used in econometric exercises include proximity to paved roads, whether or not the community has electricity, proximity to large markets, availability of schools and medical clinics in the area, and distance to local administrative centres. Other indicators of community level characteristics include average human resource development, access to employment, social mobility and representation, and land distribution. In case of Bihar all these indicators are practically absent which rises the incidence of poverty.

Household and individual level characteristics:

Some of the important characteristics in this category would include the age structure of household members, education, gender of the household head, and the extent of participation in the labour force. In recent times, other components that fall under this category have included domestic violence prevention, and gender-based, anti-discrimination policies. The following discussion organizes these characteristics into groups and discusses them in greater detail. These groups are demographic, economic and social characteristics.

Demographic characteristics:

Indicators of household size and structure are important in that they show a possible correlation between the level of poverty and household composition. Household composition, in terms of the size of the household and characteristics of its members (such as age), is often quite different for poor and non-poor households. The Cambodian CSES of 1993/94 shows that the poor tend to live in larger households, with an average family size of 6.6 persons in the poorest quintile compared to 4.9 in the richest quintile; similar patterns are found in most countries. The poor also tend to live in younger households – with the bottom quintile having twice as many children

under 15 per family as the top quintile – and slightly fewer elderly people over age 60. Better-off households also tend to have heads that are somewhat older.

The dependency ratio is calculated as the ratio of the number of family members not in the labour force (whether young or old) to those in the labour force in the household. This ratio allows one to measure the burden weighing on members of the labour force within the household. One might expect that a high dependency ratio will be associated with greater poverty.

It is widely believed that the gender of the household head significantly influences household poverty, and more specifically that households headed by women are poorer than those headed by men. Women play an important role in the labour force, both in the financial management of the household and in the labour market, but appear to face large degree of discrimination. They are severely affected by both monetary and non-monetary poverty; for example, they have low levels of literacy, are paid lower wages, and have less access to land or equal employment.

Economic characteristics:

Apart from income or consumption, which is typically used to define whether a household is poor or not, there are a number of other economic characteristics that correlate with poverty, most notably household employment and the property and other assets owned by the household. There are several indicators for determining household employment. Within this array of indicators, economists focus on whether individuals are employed; how many hours they work; whether they hold multiple jobs; and how often they change employment. The property of a household includes its tangible goods (land, cultivated areas, livestock, agricultural equipment, machinery, buildings, household appliances and other durable goods) and its financial assets(liquid assets, savings and other financial assets). These indicators are of interest as they represent the household's inventory of wealth and therefore affect its income flow. Furthermore, certain households, especially in rural areas, can be poor in terms of income, but wealthy when their property is taken into consideration. Despite its importance, property is difficult to value in practice in any reliable way. First, one encounters the same problem of under-declaration. Second, it is very difficult to measure certain elements of property such as livestock. Finally, the depreciation of assets may be difficult to determine for at least two reasons: (a) the life span of any

given asset is variable; (b) the acquisition of these assets occurs at different moments in each household. Therefore, property is more difficult to use than certain other elements in the characterization of poverty.

Social characteristics:

Several social indicators are also correlated with poverty and household living standards. The most widely used are measures of health, education and shelter. Under health services nutritional status, disease status, the availability of health care services and the use of these services by poor and non-poor households come under consideration. The level of education achieved by household members and the availability of educational services are the two indicators of educational services. Housing comes as the third category under social characteristics which differentiate between the poor and the non-poor.

6.9 Conclusion:

On the basis of the above discussion on the issue of seeing poverty in terms of human development perspective we come to the following conclusion. The northern districts of the state are poorer than the southern one. Purnia is the poorest district of the state and the least poor district is Rohtas. Districts like Saharsa, Purba Champaran, Samastipur, Vaishali, Aurangabad, Saran, Begusarai and Siwan are the good performer as they reduce their social deprivation over the period of 20 year and the poor performers are Katihar, Munger, Nawada, Bhagalpur and many more. There are nine districts which are poor performer and seven are in medium category and just eight are good performers which shows that the deteriorating condition of the public infrastructure over the period of 1981 to 2001.

The Regression analysis indicates a weak relationship between the economic deprivation and social deprivation. Progress in reducing economic deprivation and progress in reducing social deprivation in human choice and opportunities do not always move together has also been proved in the state of Bihar which is also a major finding of the UNDP, human development report of 2010. Approaches toward the reduction of economic deprivation have been discussed in brief and combined all the government's efforts in this direction into two groups. The first type of programmes aims at directly increasing the income of the poor by creating job opportunities or by

direct cash benefits by different social benefits schemes. Under second category governments focuses on the capability enhancement by investment in health and education are discussed. Finally, the causes of poverty have been explained at various levels. It varies from the regional to community and household's to the individuals level, which justify the multidimensional nature of deprivation and proves the genesis of social deprivation as multidimensional and not only deprivation in economic dimension of the individual and households.

CHAPTER-7

CHAPTER: - 07

A SUMMARY OF CONCLUSIONS

In India more people are socially deprived compared with the France, and within India, in Orissa and Bihar more people are deprived compared to that of Punjab and Haryana. Definition and methods of measuring deprivation differ from country to country and from time to time. Deprivation is a dynamic concept and having both time and space dimension. It involves an infinite variety of circumstantial misfortune experienced both at the household level and the societal level. It has many faces, changing from place to place and across time and has been described in many ways. Deprivation is the syndrome of assetlessness, landlessness, joblessness and helplessness. It is not a pure economic phenomenon.

It has social, cultural, political, historical and geographical dimensions. It is lack of livelihood security and food security. It is hunger, starvation and vulnerability. Deprivation is due to lack of shelter, lack of education and lack of access to health care. It is a situation in which an individual is being sick and not being able to see a doctor either by lack of money or by absence of health centre. It is not being able to go to school and not knowing how to read and write and remains out of the knowledge world. The first chapter of the dissertation deals with all these background and set a framework for the study of the topic in somewhat more detail. In the chapter an attempt has been made to introduce the topic, spell out of the objectives, significance of the study, introduction of the study area and the causes of the selection of the study area, research questions, database, and methodology, choice and identification of indicators and limitations of the study has been discussed.

For any research work it is essential to review the existing stock of knowledge which is directly or indirectly related to the topic of our study. Since, the present topic is highly debatable; an in-depth reading is a prerequisite condition to understand the prevailing debate in the intellectual world. Reviewing of literature gives ideas about the research gap and venturing into the areas of uncertainty and solving the problems. It gives an immense potential to build up the argument upon which the work can rely. It gives ideas to formulate hypotheses, setting up of objectives and research questions. The second chapter deals with all these stuffs. Starting with the poverty debate in the west to east (India) and the evolution of the concept of the poverty line in India has

been discussed in great detail. Shortcoming in the official poverty line has been enumerated and the salient features of the proposed poverty line by Tendulkar committee have been discussed.

The next four chapter forms the main body of the dissertation. The third chapter deals with the health issue and health deprivation has been calculated for the entire districts of Bihar for the period of 1981, 1991 and 2001. It comes to know that the health system of Bihar becomes sick and its sickness is reflected by the absence of primary health centre and the other infrastructure related to the health sector. There is an improvement in case of the infant mortality rate over the period of time but is still higher than the all India average. In 1981 the infant mortality rate was 94 per 1000 of live birth and it became 58 per 1000 of live birth in 2001. The supply side indicators have also been improving but not keeping pace with the economic growth of the nation and the population growth of the state.

The number of Primary health centres in 1981 was 711 and it became 950 in 1991 and finally it became 1615 in 2001. The average people which was out of the ambit of the PHCs in 1981 was 47180 and became 44495 in 1991 and reduced to 22917 in 2001, which shows the improvements in the supply side constraints but need to intensify the pace of improvement. Due to lack of proper infrastructure the rate of full immunization in the state is very low and it was just 33 per cent in 2001 compared to the all India average of 44 per cent.

In 1981, Samastipur was the most deprived district in terms of health deprivation and Madhubani was the least deprived. In 1991, Samastipur maintain its position but in the category of least deprived it became Bhojpur and Madhubani became on 15^{th} position. In 2001, Pashchim Champaran became the most deprived and Aurangabad became the least deprived and Samastipur improves its health infrastructure and came at 8^{th} position and Madhubani again improves its health infrastructure and came at 23^{rd} position in 2001. The state capital, i.e. Patna was on the 2^{nd} position in the ranking but improves to 13^{th} and 14^{th} in 1991 and 2001 respectively, which shows the improving infrastructure of the district after globalisation. Over the period of twenty year there were six districts which improve their health and related infrastructure and it was Samastipur, Aurangabad, Patna, Saran, Saharsa and Gaya. The maximum achiever is Samastipur. Seven have degraded their health infrastructure and they were

Pashchim Champaran, Purnia, Gopalganj, Bhojpur, Muzaffarpur, Begusarai and Sitamarhi. As many as eleven districts were in the medium category and try to maintain their health infrastructure over the period of time.

There is a wide range of the challenges in the health sector of Bihar and majority of them is related to the supply side constraints. Substantial gaps in primary health care infrastructure, lack of training facilities, low institutional deliveries and high level of maternal death, under-nourishment among women and children and poor status of family planning programmes are some of the challenges which requires worth mentioning. Programmes and policies have been there for the betterment of the health issue of the child and the mother but these are rarely implemented on the ground because of the lack of will to do so. Lack of education is aggravating the situation and people are not aware of their health right. Some of the programmes are Janani Evam Bal Suraksha Yojana, Reproductive and Child Healthcare (RCH) Services, Anaemia Control Programme, Routine Immunization & Pulse Polio and National Rural Health Mission are worth mentioning. Very few are working properly and due to this the health problems of the people of Bihar is in a pathetic condition and contributing in the health deprivation in the state. Finally some suggestion has been given in view of the ground reality and the problems facing by the people in general and poor in particular in order to avail the health services.

The fourth chapter deals with the deprivation in educational attainments of the people of Bihar. The study regarding educational deprivation in the state of Bihar reveals certain salient features which are worth mentioning. State of education in Bihar is in a very bad shape and is reflected by so many of the educational indicators like literacy rate, enrolment ratio, male-female literacy gap, percentage of out of school children (both male and female), adult illiteracy rate for male and female so on and so forth.

District profile of educational deprivation across the period of time reveals the following facts. In 1981, Pashchim Champaran was on the top of the educational deprivation but in 1991 it improves and became on 6^{th} and also maintains their ranking in 2001. Gopalganj was on 8^{th} in 1991 and became 9^{th} and 15^{th} in 1991 and 2001 respectively. Others well performers also improves their ranking. Among poor performers Katihar was on the top. Its ranking was 6^{th} in 1981 and became 5^{th} in 1991 and 2^{nd} in 2001 and thus deteriorates its educational attainments. Other poor

performer was Bhagalpur which was on 17th in 1981 and its ranking became 15th and 10th in 1991 and 2001 respectively. The number of medium performers was more than the combined of good and poor performers which indicates that the situation of education in most of the districts of Bihar has not improved since 1981. One of the amazing facts is that this was also the period of high economic growth rate of our country and in spite of this high economic growth there is little or almost no improvement in educational indicators in one of the most backward state of India, which was once a centre of great learning. The medium performing districts were Purnia, Purba Champaran, Sitamarhi, Saharsa, Madhubani, Darbhanga, Begusarai, Munger, Vaishali, Saran, Gaya, Aurangabad, Rohtas, Bhojpur and the state capital, i.e. Patna.

Districts like Pashchim Champaran, Gopalganj, Siwan and Muzaffarpur performs well in improving their educational infrastructure and that is reflected in their performance in reduction of out of school children for both male and female and improving adult illiteracy. On the other side there are five districts which perform poorly and their ranking has been upgraded in educational deprivation and these districts are Katihar, Bhagalpur, Nawada, Nalanda and Samastipur. Rest of the 15 districts tries to maintain their position in terms of the educational attainment of the people in spite of the rapid population growth.

The situation of education in Bihar is a matter of grave concern as in independent India it always remains on the bottom of the educational report card. It means that there is some of the persistent hindrance which compels people to live out of the ambit of knowledge world. Attempt has been done to explore some of the challenges in the education sector in Bihar and the important one need worth mentioning here.

Attendance of the children in the primary and upper primary school is low. It is due to the negligence of the parents in the early year of schooling and the opportunity cost of the children when they enter in the age of 12 and above. Access to school differs across religious groups. Muslims, who made up16.5% of the total population in Bihar in the 2001 Census, are less likely to send their children to school. The Gross Enrolment Ratio (GER) in primary school in 2006 was 75.0 % for General Caste,72.2% for Scheduled Caste and 51.3% for Muslims; even the state government recognize some *Madrassa* as a part of formal schooling. The ratio of primary schools to upper

primary schools is 3.7, while the national average is2.4, when the number of upper primary schools for every two primary schools is the national norm. The low transition rate from grade 5 to 6 in Bihar can be reflected by less availability of upper primary school. These are some of the socio-economic and supply side constraints which become the major hindrance in the educational attainments of the children of Bihar.

Since, education in India comes under concurrent list it is the responsibility of both union as well as of state government to provide education to their people. After the introduction of the Right to Education (RTE Act, 2010) it becomes the constitutional responsibility of the state to provide elementary education to the children between the age of 6 and 14 year. For this some of the programmes are working in the state like Bihar Education Project, Sarva Siksha Abhiyaan and Mid-day Meal Scheme but not functioning properly due to several political and other factors. Finally, some suggestions have been given so that the levels of education can be improved in the state and Bihar come out from the educationally backward state and again attain its position of being a centre of great learning.

The fifth chapter has discussed about the issue of the basic amenities in one of the most backward state of India. In both the decade of, 1981-1991and 1991-2001, at the state level, there was progress in the supply of safe drinking water, electricity, access to toilet facilities, and conditions of houses but the rate of progress is too slow to catch up with the rest of Indian state.

There were large variations in the pace of achievement across districts and these became significant in the case of capital intensive and networked facilities such as safe water supply and electricity. We come to know that the situation of the basic amenities is very low in both absolute and in relative ways. At the districts level analysis we come to know that the districts like Vaishali, Nawada, Aurangabad, Begusarai, Bhojpur, Saran, Rohtas and Siwan were good performer over the duration of 20 year. The poor performers were Bhagalpur, Munger, Purnia, Nalanda, Madhubani, Gaya, Pashchim Champaran, Katihar, Muzaffarpur and Gopalganj. The rest of six was medium performing districts. In the year of 2001 the districts which was on the top in terms of providing basic amenities to their masses was Siwan, Bhojpur, Darbhanga, Rohtas, Begusarai and Patna. The districts which lack the basic

amenities were Bhagalpur, Munger, Nalanda, Purnia, Vaishali Saharsa etc. There are several problems in the state in terms of getting the facilities of the basic amenities and some of them are supply side constrain and the others are related to the political interference and the lack of education among the masses. Finally, some practical suggestions have been given in order to improve the quality of life of the people of the state. Hope, the day will come and these deprived and vulnerable people of the society can also enjoy their life with some sorts of dignity.

The sixth chapter makes a concluding discourse on the issue of deprivations and development. On the basis of the above discussion on the issue of seeing deprivation in terms of human development perspective the following conclusion came in to light. The northern districts of the state are more deprived than the southern one. Purnia is the most deprived district of the state and the least deprived district is Rohtas.

Districts like Saharsa, Purba Champaran, Samastipur, Vaishali, Aurangabad, Saran, Begusarai and Siwan are the good performer as they reduce their social deprivation over the period of 20 year and the poor performers are Katihar, Munger, Nawada, Bhagalpur and many more. There are nine districts which are poor performer and seven are in medium performing category and just eight are good performers which shows that the deteriorating condition of the public infrastructure over the period of 1981 to 2001.

The Regression analysis indicates a very weak relationship between the economic deprivation and social deprivation. Progress in reducing economic deprivation and progress in reducing deprivation in human choice and opportunities do not always move together has also been proved in the state of Bihar which is also a major finding of the United Nations Development Programme, of its human development report of 2010.

Approaches toward the mitigation of economic deprivation have been discussed in brief and combined all the government's efforts in this direction into two groups. The first type of programmes aims at directly increasing the income of the poor by creating job opportunities or by direct cash benefits by different social benefits schemes. Under second category governments focuses on the capability enhancement by investment in health and education are discussed. Finally, the causes of economic deprivation have been explained and discussed the different causes at various levels.

It varies from the regional to community and household's to the individuals level, which justify the multidimensional nature of deprivation and proves the genesis of social deprivation as multidimensional and not only deprivation in economic dimension of the individual and households.

The last chapter of the dissertation, i.e. the present one is the summary of conclusion of the entire work.

In a nutshell, it comes to the conclusion that the deprivation in Bihar is not only a function of the income of the households but is affected by so any other factors. There is spatial variation in the reduction of social deprivation over the study period and needs an in-depth analysis to explain the regional variation across the period of time. A synchronise attempt has been made to the explanation the plausible causes of the different issues and their increasing or decreasing trend but is not possible to explain the exact causes. The issue of deprivation is highly complex and there are so many indicators which cannot be captured quantitavely and thus a Q^2-approach (i.e. qualitative as well as quantitative) is essential in any kinds of analysis of social deprivation. Some suggestions have been given in the core chapters of the study and it is purely based on the existing real problems of the state and if implemented properly it can certainly enhance the health, education and basic amenities accessibility to the people in general and poor in particular and thus social deprivation will be come down and people can enjoy a minimum standard of living in spite of their income increasement. Hope, state will do something for their people and the day will come when even not a single child will be die just because of lack of health centre.

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APPENDIX

Table 3a: Infant Mortality Rate in Bihar

District Name	1981	1991	2001
Patna	103	80	50
Nalanda	97	73	62
Nawada	95	79	59
Gaya	101	81	60
Aurangabad	100	69	63
Rohtas	82	67	62
Bhojpur	90	55	54
Saran	70	64	56
Siwan	59	43	48
Gopalganj	81	53	46
Pashchim Champaran	81	65	57
Purba Champaran	81	60	59
Sitamarhi	100	100	73
Muzaffarpur	129	84	64
Vaishali	80	46	48
Begusarai	94	76	58
Samastipur	107	87	54
Darbhanga	92	77	60
Madhubani	74	65	59
Saharsa	113	77	58
Purnia	117	106	68
Katihar	115	77	71
Munger	100	78	57
Bhagalpur	95	62	54
Mean	**94**	**72**	**58**

Source: Census of India 1981, 1991 and 2001

Table 3b: Number of Primary Health Centres in Bihar

District Name	1981	1991	2001
Patna	30	56	86
Nalanda	26	31	48
Nawada	25	26	37
Gaya	37	71	97
Aurangabad	13	22	69
Rohtas	38	49	79
Bhojpur	40	48	59
Saran	20	23	60
Siwan	20	26	49
Gopalganj	17	25	32
Pashchim Champaran	20	22	41
Purba Champaran	26	40	66
Sitamarhi	26	30	61
Muzaffarpur	33	39	61
Vaishali	20	24	47
Begusarai	20	33	42
Samastipur	21	23	73
Darbhanga	25	36	64
Madhubani	43	39	95
Saharsa	42	53	107
Purnia	50	84	99
Katihar	18	21	43
Munger	48	76	109
Bhagalpur	53	53	91
Total	**711**	**950**	**1615**

Source: Bihar Statistical Handbook, 1980, 1991 and 2001, Directorate of Statistics and Evaluation, Bihar, Patna.

Table 3c: Measurement of Health Deprivation in Bihar: 1981

District Name	IMR	Standardized _IMR	Pop. Uncovered by PHCs	Standardized_ Pop. Uncovered by PHCs	CI._Health Deprivation	Ranking
Patna	103	1.096	70640	1.497	2.593	2
Nalanda	97	1.032	33128	0.702	1.734	19
Nawada	95	1.011	13967	0.296	1.307	22
Gaya	101	1.074	54707	1.160	2.234	8
Aurangabad	100	1.064	65159	1.381	2.445	3
Rohtas	82	0.872	32272	0.684	1.556	21
Bhojpur	90	0.957	30190	0.640	1.597	20
Saran	70	0.745	74216	1.573	2.318	4
Siwan	59	0.628	58947	1.249	1.877	18
Gopalganj	81	0.862	50125	1.062	1.924	15
Pashchim Champaran	81	0.862	68631	1.455	2.316	5
Purba Champaran	81	0.862	63289	1.341	2.203	9
Sitamarhi	100	1.064	44313	0.939	2.003	13
Muzaffarpur	129	1.372	41436	0.878	2.251	7
Vaishali	80	0.851	53126	1.126	1.977	14
Begusarai	94	1.000	42817	0.908	1.908	16
Samastipur	107	1.138	70804	1.501	2.639	1
Darbhanga	92	0.979	50328	1.067	2.045	12
Madhubani	74	0.787	24089	0.511	1.298	24
Saharsa	113	1.202	40329	0.855	2.057	11
Purnia	117	1.245	41914	0.888	2.133	10
Katihar	115	1.223	49368	1.046	2.270	6
Munger	100	1.064	39071	0.828	1.892	17
Bhagalpur	95	1.011	19461	0.412	1.423	23
Mean	**94**		**47180**			

Source: Calculated from Census of India, 1981

Table 3d: Measurement of Health Deprivation in Bihar: 1991

District Name	IMR	Standardized_IMR	Pop. Uncovered by PHCs	Standardized_ Pop. Uncovered by PHCs	CI._Health Deprivation	Ranking
Patna	80	1.111	34611	0.778	1.889	13
Nalanda	73	1.014	34451	0.774	1.788	18
Nawada	79	1.097	80786	1.816	2.913	2
Gaya	81	1.125	10855	0.244	1.369	23
Aurangabad	69	0.958	39999	0.899	1.857	16
Rohtas	67	0.931	48361	1.087	2.017	8
Bhojpur	55	0.764	0	0.000	0.764	24
Saran	64	0.889	81869	1.840	2.729	3
Siwan	43	0.597	53499	1.202	1.800	17
Gopalganj	53	0.736	38172	0.858	1.594	21
Pashchim Champaran	65	0.903	76076	1.710	2.613	4
Purba Champaran	60	0.833	46077	1.036	1.869	14
Sitamarhi	100	1.389	49717	1.117	2.506	5
Muzaffarpur	84	1.167	45741	1.028	2.195	7
Vaishali	46	0.639	59378	1.334	1.973	10
Begusarai	76	1.056	24993	0.562	1.617	19
Samastipur	87	1.208	88127	1.981	3.189	1
Darbhanga	77	1.069	39749	0.893	1.963	11
Madhubani	65	0.903	42616	0.958	1.861	15
Saharsa	77	1.069	38924	0.875	1.944	12
Purnia	106	1.472	23269	0.523	1.995	9
Katihar	77	1.069	56923	1.279	2.349	6
Munger	78	1.083	23253	0.523	1.606	20
Bhagalpur	62	0.861	30424	0.684	1.545	22
Mean	**72**		**44495**			

Source: Calculated from Census of India, 1991

Table 3e: Measurement of Health Deprivation in Bihar: 2001

District Name	IMR	Standardized_ IMR	Pop. Uncovered by PHCs	Standardized_ Pop. Uncovered by PHCs	CI._Health Deprivation	Ranking
Patna	50	0.857	24867	1.085	1.942	14
Nalanda	62	1.063	19386	0.846	1.909	16
Nawada	59	1.011	18911	0.825	1.837	17
Gaya	60	1.029	21420	0.935	1.963	13
Aurangabad	63	1.080	0	0.000	1.080	24
Rohtas	62	1.063	17340	0.757	1.819	18
Bhojpur	54	0.926	31789	1.387	2.313	6
Saran	56	0.960	24145	1.054	2.014	11
Siwan	48	0.823	25395	1.108	1.931	15
Gopalganj	46	0.789	37270	1.626	2.415	4
Pashchim Champaran	57	0.977	44231	1.930	2.907	1
Purba Champaran	59	1.011	29694	1.296	2.307	7
Sitamarhi	73	1.251	22437	0.979	2.230	8
Muzaffarpur	64	1.097	31422	1.371	2.468	3
Vaishali	48	0.823	27839	1.215	2.038	10
Begusarai	58	0.994	25937	1.132	2.126	9
Samastipur	54	0.926	16504	0.720	1.646	20
Darbhanga	60	1.029	21497	0.938	1.967	12
Madhubani	59	1.011	7635	0.333	1.345	23
Saharsa	58	0.994	14555	0.635	1.629	21
Purnia	68	1.166	30595	1.335	2.501	2
Katihar	71	1.217	25643	1.119	2.336	5
Munger	57	0.977	17199	0.750	1.728	19
Bhagalpur	54	0.926	14307	0.624	1.550	22
Mean	**58**		**22917**			

Source: Calculated from Census of India, 2001

Table 3f: Ranking of Districts of Bihar in terms of Health Deprivation

District Name	1981	1991	2001
Patna	2	13	14
Nalanda	19	18	16
Nawada	22	2	17
Gaya	8	23	13
Aurangabad	3	16	24
Rohtas	21	8	18
Bhojpur	20	24	6
Saran	4	3	11
Siwan	18	17	15
Gopalganj	15	21	4
Pashchim Champaran	5	4	1
Purba Champaran	9	14	7
Sitamarhi	13	5	8
Muzaffarpur	7	7	3
Vaishali	14	10	10
Begusarai	16	19	9
Samastipur	1	1	20
Darbhanga	12	11	12
Madhubani	24	15	23
Saharsa	11	12	21
Purnia	10	9	2
Katihar	6	6	5
Munger	17	20	19
Bhagalpur	23	22	22

Source: Calculated from Census of India, 1981, 1991 and 2001

Table 4a: Out of School Children's and Percentage of Adult Illiterates in Bihar: 1981

District Name	% Out _Sch_ M _Child.	% Out_Sch_F_Child.	% _Adlt_ M_ Illt.	% _Adlt_ F_ Illt.
Patna	40.37	60.87	37.02	73.83
Nalanda	43.25	68.94	45.13	82.81
Nawada	49.31	78.03	51.69	88.17
Gaya	46.00	74.82	47.20	84.94
Aurangabad	41.18	73.78	50.23	87.44
Rohtas	42.90	71.58	49.17	86.17
Bhojpur	38.63	73.35	44.59	86.30
Saran	46.64	78.51	48.42	89.27
Siwan	48.18	81.23	55.22	90.17
Gopalganj	51.76	84.05	60.05	92.40
Pashchim Champaran	64.82	85.92	67.45	91.19
Purba Champaran	61.64	85.15	66.33	91.69
Sitamarhi	62.56	82.89	67.19	90.74
Muzaffarpur	56.66	77.32	58.45	86.97
Vaishali	50.28	76.65	54.28	88.13
Begusarai	55.11	73.29	56.84	85.54
Samastipur	52.93	76.50	56.01	87.87
Darbhanga	55.24	79.34	58.98	89.34
Madhubani	54.78	83.09	61.33	91.14
Saharsa	62.36	84.92	63.72	90.89
Purnia	64.58	84.20	65.75	90.59
Katihar	63.19	81.89	62.85	88.47
Munger	53.22	74.98	54.64	86.20
Bhagalpur	51.11	72.40	55.09	84.31
Mean	**52.36**	**77.65**	**55.73**	**87.69**

Source: Calculated from C- Series of Census of India, 1981

Table 4b: Measurement of Educational Deprivation in Bihar: 1981

District Name	Stand_Out_Sch_M_Child.	Stand_Out_Sch_F_Child.	Stand_Adlt_M_Illt.	Stand_Adlt_F_Illt.	CI_ Educational Deprivation	Ranking
Patna	0.77	0.78	0.66	0.84	3.061	24
Nalanda	0.83	0.89	0.81	0.94	3.468	22
Nawada	0.94	1.00	0.93	1.01	3.880	16
Gaya	0.88	0.96	0.85	0.97	3.658	19
Aurangabad	0.79	0.95	0.90	1.00	3.635	20
Rohtas	0.82	0.92	0.88	0.98	3.606	21
Bhojpur	0.74	0.94	0.80	0.98	3.466	23
Saran	0.89	1.01	0.87	1.02	3.789	18
Siwan	0.92	1.05	0.99	1.03	3.985	13
Gopalganj	0.99	1.08	1.08	1.05	4.202	8
Pashchim Champaran	1.24	1.11	1.21	1.04	4.595	1
Purba Champaran	1.18	1.10	1.19	1.05	4.510	3
Sitamarhi	1.19	1.07	1.21	1.03	4.503	4
Muzaffarpur	1.08	1.00	1.05	0.99	4.119	10
Vaishali	0.96	0.99	0.97	1.01	3.926	15
Begusarai	1.05	0.94	1.02	0.98	3.992	12
Samastipur	1.01	0.99	1.01	1.00	4.003	11
Darbhanga	1.06	1.02	1.06	1.02	4.154	9
Madhubani	1.05	1.07	1.10	1.04	4.256	7
Saharsa	1.19	1.09	1.14	1.04	4.465	5
Purnia	1.23	1.08	1.18	1.03	4.531	2
Katihar	1.21	1.05	1.13	1.01	4.398	6
Munger	1.02	0.97	0.98	0.98	3.945	14
Bhagalpur	0.98	0.93	0.99	0.96	3.858	17

Source: Calculated from C- Series of Census of India, 1981

Table 4c: Out of School Children's and Percentage of Adult Illiterates in Bihar: 1991

District Name	% Out _Sch_ M _Child.	% Out_Sch_F_Child.	% _Adlt_ M_ Illt.	% _Adlt_ F_ Illt.
Patna	39.67	53.99	32.69	64.72
Nalanda	43.39	63.83	41.38	76.31
Nawada	50.02	72.74	48.64	45.29
Gaya	48.59	68.96	45.15	80.60
Aurangabad	41.29	62.06	42.01	81.03
Rohtas	42.64	62.98	41.62	80.27
Bhojpur	40.27	66.57	38.17	78.82
Saran	45.23	68.99	42.80	83.68
Siwan	44.70	70.75	63.04	84.65
Gopalganj	50.30	75.63	52.34	87.33
Pashchim Champaran	61.15	80.04	63.58	89.87
Purba Champaran	62.66	81.02	63.62	90.46
Sitamarhi	62.85	80.14	63.60	88.30
Muzaffarpur	55.37	70.49	53.92	82.29
Vaishali	45.46	66.22	50.51	82.71
Begusarai	55.81	70.15	53.61	81.80
Samastipur	53.50	71.58	52.06	83.54
Darbhanga	54.78	73.45	54.63	84.62
Madhubani	52.48	76.57	55.48	87.58
Saharsa	63.17	82.06	61.19	88.66
Purnia	68.43	82.99	64.54	88.76
Katihar	64.99	80.06	62.06	86.57
Munger	53.22	71.60	50.28	80.92
Bhagalpur	54.44	69.84	50.50	79.92
Mean	**52.27**	**71.78**	**51.95**	**81.54**

Source: Calculated from C- Series of Census of India, 1991

Table 4d: Measurement of Educational Deprivation in Bihar: 1991

District Name	Stand_Out_Sch_M_Child.	Stand_Out_Sch_F_Child.	Stand_Adlt_M_Illt.	Stand_Adlt_F_Illt.	CI_Education Deprivation	Ranking
Patna	0.759	0.752	0.629	0.794	2.934	24
Nalanda	0.830	0.889	0.796	0.936	3.452	22
Nawada	0.957	1.013	0.936	0.555	3.462	20
Gaya	0.930	0.961	0.869	0.988	3.748	17
Aurangabad	0.790	0.865	0.809	0.994	3.457	21
Rohtas	0.816	0.877	0.801	0.984	3.479	19
Bhojpur	0.770	0.927	0.735	0.967	3.399	23
Saran	0.865	0.961	0.824	1.026	3.677	18
Siwan	0.855	0.986	1.214	1.038	4.093	10
Gopalganj	0.962	1.054	1.008	1.071	4.095	9
Pashchim Champaran	1.170	1.115	1.224	1.102	4.611	6
Purba Champaran	1.199	1.129	1.225	1.109	4.662	2
Sitamarhi	1.202	1.116	1.224	1.083	4.626	3
Muzaffarpur	1.059	0.982	1.038	1.009	4.089	11
Vaishali	0.870	0.922	0.972	1.014	3.779	16
Begusarai	1.068	0.977	1.032	1.003	4.080	12
Samastipur	1.024	0.997	1.002	1.025	4.047	13
Darbhanga	1.048	1.023	1.052	1.038	4.161	8
Madhubani	1.004	1.067	1.068	1.074	4.213	7
Saharsa	1.209	1.143	1.178	1.087	4.617	4
Purnia	1.309	1.156	1.242	1.089	4.796	1
Katihar	1.243	1.115	1.195	1.062	4.615	5
Munger	1.018	0.997	0.968	0.992	3.976	14
Bhagalpur	1.042	0.973	0.972	0.980	3.967	15

Source: Calculated from C- Series of Census of India, 1991

Table 4e: Out of School Children's and Percentage of Adult Illiterates in Bihar: 2001

District Name	% Out _Sch_ M _Child.	% Out_Sch_F_Child.	% _Adlt_ M_ Illt.	% _Adlt_ F_ Illt.
Patna	36.89	44.21	25.81	53.06
Nalanda	42.78	54.12	33.37	66.36
Nawada	49.35	62.25	39.37	72.80
Gaya	41.83	38.86	35.38	68.40
Aurangabad	36.47	47.90	29.71	64.83
Rohtas	31.73	43.66	28.20	64.17
Bhojpur	32.99	47.58	27.45	65.62
Saran	40.23	54.28	32.87	70.33
Siwan	35.76	50.57	34.53	70.24
Gopalganj	36.78	52.51	39.85	75.37
Pashchim Champaran	52.35	67.62	50.73	79.54
Purba Champaran	54.50	68.39	52.15	80.11
Sitamarhi	55.21	66.35	53.15	79.11
Muzaffarpur	45.42	55.59	42.28	69.40
Vaishali	41.88	51.85	38.07	69.97
Begusarai	49.04	58.15	40.72	68.80
Samastipur	47.33	59.57	43.27	73.30
Darbhanga	50.28	64.01	43.89	73.43
Madhubani	48.10	65.53	44.39	78.36
Saharsa	57.08	74.87	48.95	80.11
Purnia	62.05	74.02	54.87	81.50
Katihar	62.35	72.29	54.20	79.44
Munger	48.59	60.43	40.29	70.74
Bhagalpur	49.59	60.50	42.58	69.79
Mean	**46.86**	**58.50**	**40.94**	**71.85**

Source: Calculated from C- Series of Census of India, 2001

Table 4f: Measurement of Educational Deprivation in Bihar: 2001

District Name	Stand_Out_Sch_M_Child.	Stand_Out_Sch_F_Child.	Stand_Adlt_M_Illt.	Stand_Adlt_F_Illt.	CI_Education Deprivation	Ranking
Patna	0.787	0.756	0.630	0.739	2.912	24
Nalanda	0.913	0.925	0.815	0.924	3.577	17
Nawada	1.053	1.064	0.962	1.013	4.092	11
Gaya	0.893	0.664	0.864	0.952	3.373	20
Aurangabad	0.778	0.819	0.726	0.902	3.225	21
Rohtas	0.677	0.746	0.689	0.893	3.005	23
Bhojpur	0.704	0.813	0.670	0.913	3.101	22
Saran	0.859	0.928	0.803	0.979	3.568	18
Siwan	0.763	0.864	0.843	0.978	3.449	19
Gopalganj	0.785	0.898	0.973	1.049	3.705	15
Pashchim Champaran	1.117	1.156	1.239	1.107	4.619	6
Purba Champaran	1.163	1.169	1.274	1.115	4.721	4
Sitamarhi	1.178	1.134	1.298	1.101	4.712	5
Muzaffarpur	0.969	0.950	1.033	0.966	3.918	14
Vaishali	0.894	0.886	0.930	0.974	3.684	16
Begusarai	1.046	0.994	0.995	0.958	3.993	13
Samastipur	1.010	1.018	1.057	1.020	4.105	9
Darbhanga	1.073	1.094	1.072	1.022	4.261	8
Madhubani	1.027	1.120	1.084	1.091	4.322	7
Saharsa	1.218	1.280	1.196	1.115	4.809	3
Purnia	1.324	1.265	1.340	1.134	5.064	1
Katihar	1.330	1.236	1.324	1.106	4.996	2
Munger	1.037	1.033	0.984	0.985	4.038	12
Bhagalpur	1.058	1.034	1.040	0.971	4.104	10

Source: Calculated from C- Series of Census of India, 2001

Table 4g: Ranking of Districts of Bihar in Educational Deprivation

District Name	1981	1991	2001
Patna	24	24	24
Nalanda	22	22	17
Nawada	16	20	11
Gaya	19	17	20
Aurangabad	20	21	21
Rohtas	21	19	23
Bhojpur	23	23	22
Saran	18	18	18
Siwan	13	10	19
Gopalganj	8	9	15
Pashchim Champaran	1	6	6
Purba Champaran	3	2	4
Sitamarhi	4	3	5
Muzaffarpur	10	11	14
Vaishali	15	16	16
Begusarai	12	12	13
Samastipur	11	13	9
Darbhanga	9	8	8
Madhubani	7	7	7
Saharsa	5	4	3
Purnia	2	1	1
Katihar	6	5	2
Munger	14	14	12
Bhagalpur	17	15	10

Source: Calculated from C- Series of Census of India, 1981, 1991 and 2001

Table 5a: Percentage of Households Having No Basic Amenities in Bihar: 1981

District Name	% HH_No_Elect.	% HH_Kutcha Houses	% HH_No_Safe_Wtr.	% HH_No_Tiolet_Facilt.
Patna	74.31	67.39	59.39	30.62
Nalanda	91.88	76.47	80.95	43.80
Nawada	92.61	86.45	82.26	49.18
Gaya	88.99	86.39	77.11	21.94
Aurangabad	94.86	90.86	67.31	54.12
Rohtas	87.47	79.79	55.73	48.60
Bhojpur	91.15	80.68	61.81	56.68
Saran	95.86	81.29	59.86	54.08
Siwan	94.96	72.18	49.57	45.35
Gopalganj	93.22	77.07	52.74	21.31
Pashchim Champaran	96.19	84.25	32.13	54.52
Purba Champaran	96.87	87.67	50.67	53.93
Sitamarhi	97.97	87.79	27.22	63.87
Muzaffarpur	91.90	87.02	37.34	23.15
Vaishali	95.96	86.24	75.78	62.13
Begusarai	92.77	84.29	57.36	59.59
Samastipur	94.13	89.00	59.83	41.90
Darbhanga	96.17	90.16	13.37	39.75
Madhubani	97.09	93.75	27.54	58.83
Saharsa	96.88	93.01	48.49	67.62
Purnia	96.59	88.34	44.61	65.78
Katihar	94.54	84.65	37.80	48.13
Munger	89.02	85.14	71.39	52.21
Bhagalpur	92.23	84.32	78.72	47.25
Mean	**92.83**	**84.78**	**53.69**	**45.07**

Source: Calculated from H- Series of Census of India, 1981

Table 5b: Measurement of Basic Amenities Deprivation in Bihar: 1981

District Name	Stand_ HH_ No Electricity	Stand_ HH_Kutcha_Houses	Stand_ HH_No_Safe_Wtr.	Stand_HH_ No_Toilet_Facil.	CI_ Basic Amenities Deprivation	Ranking
Patna	0.801	0.795	1.106	0.679	3.381	21
Nalanda	0.990	0.902	1.508	0.972	4.371	9
Nawada	0.998	1.020	1.532	1.091	4.641	2
Gaya	0.959	1.019	1.436	0.487	3.900	17
Aurangabad	1.022	1.072	1.254	1.201	4.548	3
Rohtas	0.942	0.941	1.038	1.078	4.000	15
Bhojpur	0.982	0.952	1.151	1.258	4.342	10
Saran	1.033	0.959	1.115	1.200	4.306	11
Siwan	1.023	0.851	0.923	1.006	3.804	19
Gopalganj	1.004	0.909	0.982	0.473	3.368	22
Pashchim Champaran	1.036	0.994	0.599	1.210	3.838	18
Purba Champaran	1.044	1.034	0.944	1.197	4.218	12
Sitamarhi	1.055	1.035	0.507	1.417	4.015	14
Muzaffarpur	0.990	1.026	0.695	0.514	3.225	24
Vaishali	1.034	1.017	1.411	1.379	4.841	1
Begusarai	0.999	0.994	1.068	1.322	4.384	7
Samastipur	1.014	1.050	1.114	0.930	4.108	13
Darbhanga	1.036	1.063	0.249	0.882	3.230	23
Madhubani	1.046	1.106	0.513	1.305	3.970	16
Saharsa	1.044	1.097	0.903	1.500	4.544	4
Purnia	1.040	1.042	0.831	1.460	4.373	8
Katihar	1.018	0.998	0.704	1.068	3.789	20
Munger	0.959	1.004	1.330	1.158	4.451	6
Bhagalpur	0.994	0.995	1.466	1.048	4.503	5

Source: Calculated from H- Series of Census of India, 1981

Table 5c: Percentage of Households Having No Basic Amenities in Bihar: 1991

District Name	% HH_No_Elect.	% HH_Kutcha Houses	% HH_No_Safe_Wtr.	% HH_No_Tiolet_Facilt.
Patna	63.90	35.85	45.97	60.80
Nalanda	88.50	53.73	67.89	82.60
Nawada	92.60	73.64	61.29	88.20
Gaya	91.03	74.60	56.57	85.84
Aurangabad	91.20	79.93	39.26	89.20
Rohtas	87.50	69.77	32.73	89.80
Bhojpur	88.20	56.51	35.65	88.00
Saran	92.20	35.28	31.59	91.10
Siwan	93.30	36.06	18.56	91.60
Gopalganj	95.40	51.64	18.79	95.30
Pashchim Champaran	93.40	76.31	14.41	93.50
Purba Champaran	94.90	72.14	25.88	94.20
Sitamarhi	95.00	78.05	9.44	92.60
Muzaffarpur	89.20	64.62	22.00	88.70
Vaishali	91.50	50.73	52.11	91.10
Begusarai	87.80	47.57	34.30	88.70
Samastipur	92.70	55.62	33.84	93.60
Darbhanga	91.90	64.96	4.74	90.40
Madhubani	94.40	83.24	10.62	94.40
Saharsa	93.97	88.24	16.46	94.80
Purnia	95.49	93.65	15.21	95.77
Katihar	93.40	89.80	14.45	92.30
Munger	89.16	69.65	58.29	88.53
Bhagalpur	87.40	73.71	62.37	87.90
Mean	**90.62**	**67.91**	**31.94**	**89.51**

Source: Calculated from H- Series of Census of India, 1991

Table 5d: Measurement of Basic Amenities Deprivation in Bihar: 1991

District Name	Stand_HH_No_Elect.	Stand_HH_Kutcha Houses	Stand_HH_No_Safe_Wtr.	Stand_HH_No_Toilet_Facilt.	CI_ Basic Amenities Deprivation	Ranking
Patna	0.705	0.528	1.439	0.679	3.351	22
Nalanda	0.977	0.791	2.126	0.923	4.816	5
Nawada	1.022	1.084	1.919	0.985	5.011	1
Gaya	1.004	1.099	1.771	0.959	4.833	3
Aurangabad	1.006	1.177	1.229	0.997	4.409	6
Rohtas	0.966	1.027	1.025	1.003	4.021	8
Bhojpur	0.973	0.832	1.116	0.983	3.905	13
Saran	1.017	0.520	0.989	1.018	3.544	19
Siwan	1.030	0.531	0.581	1.023	3.165	23
Gopalganj	1.053	0.760	0.588	1.065	3.466	21
Pashchim Champaran	1.031	1.124	0.451	1.045	3.650	17
Purba Champaran	1.047	1.062	0.810	1.052	3.972	10
Sitamarhi	1.048	1.149	0.295	1.035	3.528	20
Muzaffarpur	0.984	0.952	0.689	0.991	3.616	18
Vaishali	1.010	0.747	1.631	1.018	4.406	7
Begusarai	0.969	0.700	1.074	0.991	3.734	15
Samastipur	1.023	0.819	1.060	1.046	3.947	11
Darbhanga	1.014	0.957	0.148	1.010	3.129	24
Madhubani	1.042	1.226	0.332	1.055	3.655	16
Saharsa	1.037	1.299	0.515	1.059	3.911	12
Purnia	1.054	1.379	0.476	1.070	3.979	9
Katihar	1.031	1.322	0.452	1.031	3.837	14
Munger	0.984	1.026	1.825	0.989	4.824	4
Bhagalpur	0.964	1.085	1.953	0.982	4.985	2

Source: Calculated from H- Series of Census of India, 1991

Table 5e: Percentage of Households Having No Basic Amenities in Bihar: 2001

District Name	% HH_No_Elect.	% HH_Kutcha Houses	% HH_No_Safe_Wtr.	% HH_No_Tiolet_Facilt.
Patna	57.21	10.37	22.54	49.34
Nalanda	89.56	13.92	36.73	71.29
Nawada	93.26	14.19	26.04	80.44
Gaya	91.72	20.56	24.56	76.10
Aurangabad	92.19	14.83	16.54	80.10
Rohtas	85.28	3.79	13.52	80.19
Bhojpur	89.46	8.18	10.23	80.54
Saran	92.85	12.96	13.09	82.64
Siwan	94.77	17.37	3.62	83.91
Gopalganj	94.01	36.92	2.69	88.43
Pashchim Champaran	93.75	52.55	3.19	88.33
Purba Champaran	93.70	45.83	6.98	87.18
Sitamarhi	94.99	38.81	1.98	83.59
Muzaffarpur	87.52	44.35	6.91	78.17
Vaishali	90.96	27.02	22.30	80.43
Begusarai	83.16	19.00	10.80	75.89
Samastipur	92.56	26.25	13.34	84.18
Darbhanga	91.18	33.15	1.02	77.91
Madhubani	94.89	63.40	1.89	85.66
Saharsa	94.89	70.40	3.12	88.79
Purnia	94.83	68.88	3.21	95.19
Katihar	93.01	48.42	3.51	84.99
Munger	87.52	21.39	39.29	78.74
Bhagalpur	86.72	38.80	38.39	79.72
Mean	**89.75**	**34.83**	**13.41**	**81.25**

Source: Calculated from H- Series of Census of India, 2001

Table 5f: Measurement of Basic Amenities Deprivation in Bihar: 2001

District Name	Stand_ HH_ No_Electricity	Stand_ HH_Kutcha_Houses	Stand_ HH_No_Safe_Wtr.	Stand_HH_ No_Toilet_Facil.	CI_ Basic Amenities Deprivation	Ranking
Patna	0.637	0.298	1.681	0.607	3.224	19
Nalanda	0.998	0.400	2.739	0.877	5.014	3
Nawada	1.039	0.407	1.942	0.990	4.378	8
Gaya	1.022	0.590	1.831	0.937	4.380	7
Aurangabad	1.027	0.426	1.234	0.986	3.672	15
Rohtas	0.950	0.109	1.008	0.987	3.054	21
Bhojpur	0.997	0.235	0.763	0.991	2.986	23
Saran	1.035	0.372	0.976	1.017	3.400	16
Siwan	1.056	0.499	0.270	1.033	2.858	24
Gopalganj	1.047	1.060	0.201	1.088	3.397	17
Pashchim Champaran	1.045	1.509	0.238	1.087	3.878	11
Purba Champaran	1.044	1.316	0.521	1.073	3.954	10
Sitamarhi	1.058	1.114	0.148	1.029	3.349	18
Muzaffarpur	0.975	1.273	0.516	0.962	3.726	14
Vaishali	1.014	0.776	1.663	0.990	4.442	5
Begusarai	0.927	0.545	0.806	0.934	3.212	20
Samastipur	1.031	0.754	0.995	1.036	3.816	12
Darbhanga	1.016	0.952	0.076	0.959	3.002	22
Madhubani	1.057	1.820	0.141	1.054	4.073	9
Saharsa	1.057	2.021	0.233	1.093	4.404	6
Purnia	1.057	1.978	0.240	1.172	4.446	4
Katihar	1.036	1.390	0.262	1.046	3.735	13
Munger	0.975	0.614	2.930	0.969	5.488	2
Bhagalpur	0.966	1.114	2.863	0.981	5.924	1

Source: Calculated from H- Series of Census of India, 2001

Table 5g: Ranking of Districts of Bihar in Basic Amenities Deprivation

District Name	1981	1991	2001
Patna	21	22	19
Nalanda	9	5	3
Nawada	2	1	8
Gaya	17	3	7
Aurangabad	3	6	15
Rohtas	15	8	21
Bhojpur	10	13	23
Saran	11	19	16
Siwan	19	23	24
Gopalganj	22	21	17
Pashchim Champaran	18	17	11
Purba Champaran	12	10	10
Sitamarhi	14	20	18
Muzaffarpur	24	18	14
Vaishali	1	7	5
Begusarai	7	15	20
Samastipur	13	11	12
Darbhanga	23	24	22
Madhubani	16	16	9
Saharsa	4	12	6
Purnia	8	9	4
Katihar	20	14	13
Munger	6	4	2
Bhagalpur	5	2	1

Source: Calculated from H-series of Census of India, 1981, 1991 and 2001

Table 6a: Measurement of Social Deprivation in terms of Health, Education and Basic Amenities Deprivations in Bihar: 1981

District Name	CI_Health Deprivation	CI_Educ._ Deprivation	CI_Basic_Amen _Deprivation	CI_ Social Deprivation	Ranking
Patna	2.593	3.061	3.381	3.012	24
Nalanda	1.734	3.468	4.371	3.191	18
Nawada	1.307	3.880	4.641	3.276	13
Gaya	2.234	3.658	3.900	3.264	14
Aurangabad	2.445	3.635	4.548	3.543	7
Rohtas	1.556	3.606	4.000	3.054	23
Bhojpur	1.597	3.466	4.342	3.135	22
Saran	2.318	3.789	4.306	3.471	10
Siwan	1.877	3.985	3.804	3.222	16
Gopalganj	1.924	4.202	3.368	3.165	20
Pashchim Champaran	2.316	4.595	3.838	3.583	4
Purba Champaran	2.203	4.510	4.218	3.644	3
Sitamarhi	2.003	4.503	4.015	3.507	8
Muzaffarpur	2.251	4.119	3.225	3.198	17
Vaishali	1.977	3.926	4.841	3.581	6
Begusarai	1.908	3.992	4.384	3.428	12
Samastipur	2.639	4.003	4.108	3.583	5
Darbhanga	2.045	4.154	3.230	3.143	21
Madhubani	1.298	4.256	3.970	3.175	19
Saharsa	2.057	4.465	4.544	3.689	1
Purnia	2.133	4.531	4.373	3.679	2
Katihar	2.270	4.398	3.789	3.485	9
Munger	1.892	3.945	4.451	3.430	11
Bhagalpur	1.423	3.858	4.503	3.261	15

Source: Calculated from Census of India, 1981

Table 6b: Measurement of Social Deprivation in terms of Health, Education and Basic Amenities Deprivations in Bihar: 1991

District Name	CI_ Health Deprivation	CI_Educ._ Deprivation	CI_Basic_Amen _ Deprivation	CI_ Social Deprivation	Ranking
Patna	1.889	2.934	3.351	2.725	23
Nalanda	1.788	3.452	4.816	3.352	12
Nawada	2.913	3.462	5.011	3.795	1
Gaya	1.369	3.748	4.833	3.317	13
Aurangabad	1.857	3.457	4.409	3.241	17
Rohtas	2.017	3.479	4.021	3.172	18
Bhojpur	0.764	3.399	3.905	2.689	24
Saran	2.729	3.677	3.544	3.316	14
Siwan	1.800	4.093	3.165	3.019	22
Gopalganj	1.594	4.095	3.466	3.052	21
Pashchim Champaran	2.613	4.611	3.650	3.625	3
Purba Champaran	1.869	4.662	3.972	3.501	7
Sitamarhi	2.506	4.626	3.528	3.553	6
Muzaffarpur	2.195	4.089	3.616	3.300	15
Vaishali	1.973	3.779	4.406	3.386	11
Begusarai	1.617	4.080	3.734	3.144	19
Samastipur	3.189	4.047	3.947	3.728	2
Darbhanga	1.963	4.161	3.129	3.084	20
Madhubani	1.861	4.213	3.655	3.243	16
Saharsa	1.944	4.617	3.911	3.491	9
Purnia	1.995	4.796	3.979	3.590	5
Katihar	2.349	4.615	3.837	3.600	4
Munger	1.606	3.976	4.824	3.468	10
Bhagalpur	1.545	3.967	4.985	3.499	8

Source: Calculated from Census of India, 1991

Table 6c: Measurement of Social Deprivation in terms of Health, Education and Basic Amenities Deprivations in Bihar: 2001

District Name	CI_Health Deprivation	CI_Educ._ Deprivation	CI_Basic_Amen _ Deprivation	CI_ Social Deprivation	Ranking
Patna	1.942	2.912	3.224	2.693	22
Nalanda	1.909	3.577	5.014	3.500	8
Nawada	1.837	4.092	4.378	3.436	9
Gaya	1.963	3.373	4.380	3.239	14
Aurangabad	1.080	3.225	3.672	2.659	23
Rohtas	1.819	3.005	3.054	2.626	24
Bhojpur	2.313	3.101	2.986	2.800	20
Saran	2.014	3.568	3.400	2.994	19
Siwan	1.931	3.449	2.858	2.746	21
Gopalganj	2.415	3.705	3.397	3.172	16
Pashchim Champaran	2.907	4.619	3.878	3.802	3
Purba Champaran	2.307	4.721	3.954	3.661	6
Sitamarhi	2.230	4.712	3.349	3.431	10
Muzaffarpur	2.468	3.918	3.726	3.371	12
Vaishali	2.038	3.684	4.442	3.388	11
Begusarai	2.126	3.993	3.212	3.110	17
Samastipur	1.646	4.105	3.816	3.189	15
Darbhanga	1.967	4.261	3.002	3.077	18
Madhubani	1.345	4.322	4.073	3.246	13
Saharsa	1.629	4.809	4.404	3.614	7
Purnia	2.501	5.064	4.446	4.003	1
Katihar	2.336	4.996	3.735	3.689	5
Munger	1.728	4.038	5.488	3.751	4
Bhagalpur	1.550	4.104	5.924	3.859	2

Source: Calculated from Census of India, 2001