

**ECONOMIC GROWTH AND HUMAN DEVELOPMENT
IN NAGALAND**

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ECONOMIC GROWTH AND HUMAN DEVELOPMENT IN NAGALAND

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NAGALAND UNIVERSITY

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2012

Dedicated to

My beloved

Dad (Khaüzü Vero)

&

Mom (Late Wekhwelo-u Vero)

NAGALAND UNIVERSITY
HQRS: LUMAMI

Month.....

Year.....

DECLARATION

I, Mr. Yelhi Vero, hereby declare that the subject matter of this thesis “Economic Growth and Human Development in Nagaland” is the record of work done by me. The contents of the thesis did not form basis of the award of any previous degree to me or to the best of my knowledge to anybody else and that the thesis has not been submitted by me for any research in any other University/Institute.

This is being submitted to Nagaland University for degree of Doctor of philosophy in Economics.

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ABBREVIATIONS

ADC	: Additional Deputy Commissioner
ADI	: Agricultural Development Index
CV	: Coefficient of Variation
DIET	: District Institute of Education and Training
DUDA	: Department of Under Developed Area
EDI	: Educational Development Index
EG	: Economic Growth
EnHE	: Enrolment in Higher Education
FCH	: Female Control Household
GC	: Gini Coefficient
GD	: Gender Differential
GDI	: Gender related Development Index
GDP	: Gross Domestic Product
GII	: Gender Inequality Index
GNP	: Gross National Product
HD	: Human Development
HDI	: Human Development Index
HDrIs	: Human Development related Items
HDR	: Human Development Report
HeDI	: Health related Development Index
HIH	: High Income Household
HPI	: Human Poverty Index
HYV	: High Yielding Variety Seeds
IDI	: Industrial Development Index
IMR	: Infant Mortality Rate
InDI	: Infrastructural Development Index
ITI	: Industrial Training Institute
JCH	: Jointly Control Household
KVK	: Krishi Vighyan Kendra
LIH	: Low Income Household
LR	: Literacy Rate

MCH	: Male Control Household
MHHDC	: Mahbub ul Haq Human Development Centre
MIH	: Middle Income Household
MT/Hec	: Metric Tonne per Hectare
NCEAR	: National Council for Educational and Applied Research
NEEPCO	: North East Electric Power Corporation
NEFA	: North East Frontier Agency
NER	: North East Region
NFHS	: National Family and Health Survey
NH	: National Highway
NREGA	: National Rural Employment Guarantee Act
NSDP	: Net State Domestic Product
NSHDR	: Nagaland State Human Development Report
ODI	: Overall Development Index
OECD	: Organization for Economic Corporation and Development
OLS	: Ordinary Least Square
oPt	: occupied Palestinian territory
PBOUNDP	: Plan and Budget Organisation of the Islamic Republic of Iran and UNDP
PCI	: Per Capita Income
PEES	: Public Expenditure in Educational Sector
PEHS	: Public Expenditure in Health Sector
PO	: Post Office
PWD	: Public Work Department
RMSA	: Rastriya Madhyamik Shiksha Abhiyan
SBI	: State Bank of India
SEDI	: Socio-Economic Development Index
SSA	: Sarva Shiksha Abhiyan
SSI	: Small Scale Industry
UNDP	: United Nations for Development Programme
UNESCO	: United Nations for Education, Scientific and Cultural Organisation
VCC	: Village Council Chairman
VDB	: Village Development Board
WWII	: Second World War

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CHAPTER I

INTRODUCTION

1.1: INTRODUCTION AND CONCEPT

Economic growth is the rate of increase in annual total production of goods and services in a country, leading to a rise in National Income. Earlier, the development of a country was measured only in terms of gross domestic product and subsequently per capita income became an important indicator. But, in late twentieth century, a new development concept known as *human development* has evolved in the history of economic literature.

The human development concept does not deny the importance of economic growth and wealth accumulation for the welfare of society. However, it claims that economic growth is though necessary; it is not a sufficient condition for human well-being. The United Nation Development programme (UNDP) rightly asserted that “people are the real wealth of the nation, so the basic purpose of development is to enlarge human freedoms”.¹ Even before great wealth is accumulated, major improvement in the quality of life is possible. Human development is pro-poor, pro-nature, pro-jobs, pro-women and pro-children, enlarging people’s choices, opportunities and enables them to participate in decision-making that is affecting them.² The human development is a concept much broader than the conventional theories of economic development (per capita income).³ It is the *end*, while the tributaries are the *means*; but human development can also acquire *ends*’ characteristics. It has to do with mental health, self-esteem, success in significant relationships and happiness.

A society does not have to be rich to be able to afford democracy. A family does not have to be wealthy to respect the rights of each member. A nation does not have to be affluent to treat women and men equal. Wealth facilitates the development of human aspects, but it is not the only significant factor for the welfare of human beings. Many countries have high Gross National Product (GNP) per capita, but low human development indicators and vice versa, while countries at similar levels of GNP per capita may have different human development indicators. Also, maximisation of wealth and enrichment of human lives need not move in the same direction as

¹ UNDP (1990): *Human Development Report*, Oxford University Press, New York: 11

² UNDP (1994): *Human Development Report*, Oxford University Press, New York.: 13

³ Streeten, Paul (2003): “Shifting Fashions in Development Dialogue” in Fukuda-Parr and Shiva Kumar (eds), *Readings in Human Development (2005)*, Oxford University Press, New Delhi.

many human choices extend far beyond economic well-being. Knowledge, health, a clean physical environment, political freedom and simple pleasures of life are not exclusively dependent on income.⁴

Human beings are the agents, beneficiaries and adjudicators of progress, but they also happen to be directly or indirectly the primary means of all production. The process of development has to expand human capacities by expanding the choices that people have in order to live full and creative lives.⁵ Human development has two facets: one is the formation of human capabilities such as health, knowledge and skills. The other is the ability to use these acquired capacities for productive, economic purposes and for being active in cultural, social and political affairs. There may be growth and development, advancement and realisation of potential available resources, but no resource is more potent than people empowered by confidence in their value as human beings.⁶

Income helps people to realise valuable ends and fulfill many aspirations. It enables people to gain access to many goods and services, which potentially improve the quality of life. But higher income is not the only achievement that people cherish and value. For example, level of environmental pollution, safety, crime and domestic violence, the quality of education and health care may not be necessarily associated with levels of income in any predictable manner.⁷

The acquisition of knowledge, the need to lead a long and healthy life and the need to have access to resources required for a decent standard of living have been identified as three essential choices for the attainment of human development. Further, additional choices that are valued by people include political, economic and social freedom, opportunities for being creative and productive, enjoying personal self-respect and guaranteed human rights.⁸ Hence, 'human development is the *end*, economic growth is the *means*: so the purpose of growth should be to enrich people's live'.⁹

There is a growing realisation of the importance of human development. As plant and machinery and other physical assets are important instruments for production, so is human

⁴ Haq, M (1995): "The Human Development Paradigm", Reproduction of "Reflections on Human Development" in Fukuda-Parr and Shiva Kumar (eds), *Readings in Human Development* (2005), Oxford University Press, New Delhi.

⁵ Sen, A K (1989): "Development as Capability Expansion" in Sakiko Fukuda-Parr and A K Shiva Kumar (eds), *Readings in Human Development* (2005), Oxford University Press, New Delhi (3rd edition): 3

⁶ Singh, Shilpa Shikha (2006): "From Development to Human Development" in S.K. Pant (ed), *Human Development: Concept and Issues in the Context of Globalization*, Rawat Publication, New Delhi.

⁷ Joshi, Seema (2006): "Economic Reforms and Trends in Social Sector Expenditures in India" in S.K. Pant (ed), *Human Development: Concept and Issues in the Context of Globalization*, Rawat Publication: 201-230.

⁸ Kamdar, Sangita and Asoke Basak (2005): "Beyond the Human Development Index: Preliminary Notes on Deprivation and Inequality", *Economic and Political Weekly*, Vol. 34, August, 20: 3759-2765.

⁹ UNDP (1990): *Human Development Report*, Oxford University Press, New York.

development important for production of goods and services. A nation may possess abundant inexhaustible natural and physical resources, necessary machineries and capital equipments, but unless there are people who can mobilise, organise and harness the nature's bountiful resources, a country or state cannot make rapid strides towards economic advancement.¹⁰

The purpose of development policy, therefore, is not necessarily to maximise economic growth (GNP) alone, but to establish a balance between growth in income, on one hand, and social equity, environment quality and public participation in a democratic setting, on the other.¹¹ Hence, human development is a process of widening choices and improving human well-being.¹²

In recent years, considerable attempts have been made to understand the dimensions of economic growth. Understanding the causes and nature of differences in levels and growth of income across the regions (countries) becomes important as even a small difference in the growth rates, if accumulated over a long period of time may have substantial impact on standards of living of people (Barro and Sala-i-Martin, 1995).¹³

Another major shift in development thinking came as a result of the experience of the industrialised countries that the regional disparity has become a global phenomenon. Fisher (1913) has rightly stated that an economic growth could take place together with social ills, such as misdistribution of income, although undesirable. The economic development since Second World War (WWII) has been a spectacular, unprecedented and unexpected success.¹⁴ However, at all levels of development the regional disparity continues to be the major concern in planning strategies, especially developing countries.¹⁵ There has been an unfair and inequitable distribution of wealth around the world: 20% of the world's population consume 86% of the total world goods.¹⁶ There has been increase in diversity of growth among developing countries and increase dualism within many of them. Despite high rate of economic growth, not enough employment

¹⁰ Somvanshi, Vanita (2006): "Empowering Child Labourers Through Education; Hope and Despair" in S.K. Pant (ed), *Human Development: Concept and Issues in the Context of Globalization*, Rawat Publication, New Delhi: 189-191

¹¹ MHHDC (2002): *Human Development in South Asia*, Oxford University Press, Karachi: 192

¹² Kaul, Inge (2005): "Choices that Shaped the Human Development Reports" in Fukuda-Parr and Shiva Kumar (eds), *Readings in Human Development*, Oxford University Press, New Delhi: 86

¹³ Barro and Sala-i-Martin (1995): "Capital Mobility in Neo-Classical Models of Growth", *American Economic Review*, 85, March: 103-115.

¹⁴ Streeten, P (2003): "Shifting Fashion in Development Dialogue, 2003" in Parr and Kumar (eds), *Readings in Human Development*, Oxford University Press. New Delhi.

¹⁵ Shiva Kumar, A K (1996): "UNDP's Gender-Related Development Index, A Computation of Indian States", *Economic and Political Weekly*, Vol 31(14), April 6: 887.

¹⁶ UNDP (1998): *Human Development Report*, Oxford University Press, New York.

has been created for the rapidly growing labour force. In this regard, Sen has stated that “A society can be Pareto optimal and still be disgusting”.¹⁷

Kuznets (1955)¹⁸ and Williamson (1965)¹⁹ claimed that the regional disparities increase in the early stages of economic development due to an uneven spatial coverage of technological progress. The regional disparity therefore, follows the so called “inverted U-shaped”. The privileged position of more developed areas in terms of capital and labour mobility get better advantage in its growth. Thus, the gap would continue unless de-agglomeration effects take place due to diseconomies.²⁰

The neo-classical economists postulated that the disparity is a passing phase and that the market forces would ensure the returns of all factors of production to marginal products. It is argued that the regional disparity is temporary as the initial unbalance growth of an economy would be neutralised through trickle down effect.²¹ The regional disparities in terms of supply and demand for factors of production will be removed, given the sufficient mobility of production factors and commodities.²² There is an opinion that the development can start only in a relatively few dynamic sectors and geographic locations from where it is expected to spread to the remaining sectors and geographical areas of a country.²³ Several studies have predicted that if the economies are similar in technology, taste and preferences, then the lower the initial level of per capita income, the higher is the growth rate of per capita income (Barro and Sala-i-Martin 1991²⁴, Charteji 1992²⁵, Cashin 1995²⁶).

In India, the regional disparity in early post-independence period declined, but in the mid sixties, particularly in the wake of Green Revolution, disparities started mounting.²⁷ Since then, there is no evidence of absolute or conditional convergence in economic development across the

¹⁷ (An Extract) UNDP (2005): *Human Development Report*, Oxford University Press, New York: 55

¹⁸ Kuznets, S (1955): “Economic Growth and Income Inequality”, *American Economic Review*, 45: 1-28.

¹⁹ Williamson, J G (1965): “Regional Inequality and Process of National Development: A Description of the Pattern”, *Economic Development and Cultural Change*, Vol.13(4) pt:2

²⁰ Barrios, S and E Strobl (2005): *The Dynamics of Regional Inequalities*, European Economic Papers, No. 229. European Commission.

²¹ Hirschman, A (1957): *The Strategy of Economic Development*, Duckworth, London.

²² Richard, H W (1973): *Regional Growth Theory*, Mac Millan, London.

²³ Stohr, W (1981): “Development from Above or Below? The Dialectics of Regional Planning in Developing Countries”, Wiley, London.

²⁴ Barro, R J and X Sala-i-Martin (1991): *Convergence Across State and Region*, Brooking Papers on Economic Activity, No. 1: 107-182.

²⁵ Charterji, M (1992): “Convergence Clubs and Endogenous Growth”, *Oxford Review of Economic Policy*, Vol. 8: 787-816

²⁶ Cashin, Paul A (1995): “Economic Growth and Convergence Across the Seven Colonies of Australia: 1961-1991”, *Economic Record*, Vol. 71, June: 132-144.

²⁷ Nair, K R G (1982): “*Regional Experience in a Developing Economy*”, Wiley Eastern, New Delhi.

states in India.²⁸ The disparity particularly in PCI does not show any significant decline in regional disparity, rather it has widened with economic reforms in the country.²⁹

There is a concern in the development process of a nation that the *gender disparity* has become prominent around the globe. Men and women live under the same roof, but they follow distinct life styles. They do not share the same condition of living and privileges. An invisible contract between the two always exists.³⁰ Women are generally assigned vulnerable job especially the task of unpaid kitchen work, particularly in cooking. They play physically demanding and important role in building up a society.³¹ Moreover, women carry out most of the agricultural activities.³² Yet, they are treated as “second sex”³³ and still striving to be not less than equal.

Many tasks of the housewives have alternate market prices as every housewife performs work in the economic sense of the term, irrespective of the fact of direct payment. The famous statement of Alfred Marshall about housemaid and the housewife is pertinent here. Most part of a woman’s work at home is economic in nature. The real income is generated in the household by several tasks, but this could not find its way into the national income estimates due to its operational limitations.³⁴ Therefore, female contribution in the process of development have been realised lately.

There are literature arguing that increase participation of women in the low-skilled labour market is often accompanied by reduction of male participation.³⁵ Also, increase in male child enrolment and increase in female drop out at secondary and tertiary education are the reasons behind increasing gender gap. The new capital-intensive production process employs higher skilled men, while women are stuck in the low-skilled export sector which is more of short-run. Hence, these factors increase gender gap.³⁶

²⁸ Singh, N L, B Bhandari, A Chen and A Khare (2003): “Regional Inequality in India: A Fresh Look”, *Economic and Political Weekly*, Vol. 38, No. 11, March 15: 1069-1073.

²⁹ Dholakia, R H (2003): “Regional Disparities in Economic Growth and Human Development in India”, *Economic and Political Weekly*, Vol. 38 No. 39, Sept, 27: 4166-4172.

³⁰ Sterner, G (2001): “Women and Regional Development”, in Atul Goswami (ed), *Regional Disparities in India*. Akansha Publishing House New Delhi: 132-142.

³¹ Anil, A (1986): “Domestic Air Pollution” quoted in A. Agarwal and S. Narain, “The State of India’s Environment”, *A Citizen’s Report*, CSE, Delhi.

³² UNDP (2007): *Uganda Human Development Report: 27*

³³ Assam Human Development Report, (2003):116.

³⁴ Streeten, P (2005): “Shifting Fashions in Development Dialogue” in Fukuda-Parr and Shiva Kumar (eds), *Readings in Human Development*, Oxford University Press, New Delhi.

³⁵ Elson, D (1999): “Labor Markets as Gender Institutions, Equality, Efficiency and Empowerment Issues”, *World Development*, 27 (3): 611-627

³⁶ Vijaya, R (2003): “Trade, Skills and Persistence of Gender Gap: A Theoretical Framework, Policy Decision”, *Working paper*, International Gender and Trade Network, Washington, DC.

In late 20th century, the development concept has been shifted to broad human development, yet, there still exist close relationship between economic growth and human development. Economic growth provides resources to achieve improvements in human development while improvement in human development plays a significant role in achieving economic growth. Thus, there is a casual connection between economic resource base and human development achievements of a State, but these connections are “not automatic”.³⁷

During the 1980s, several authors proposed a variety of “new growth theories”. In this framework, the long term growth is determined not by exogenous of technical progress alone, but also by the behaviour of people responsible for accumulation of productive factors and knowledge. These have bearing on the relation between economic growth and human development.³⁸

The two-way linkages between economic growth and human development can be easily conceived from both theoretical and empirical evidences. Growth acts on human development mainly through two routes; firstly, household activities like the unpaid works done by women such as managing the household, raising children and caring for elderly and the sick. Secondly, increase in public spending on social sector activity enhances human development.³⁹ An increase in public spending for infrastructure like road connectivity will lead to an improvement in health and better educational facilities. It will also add to higher income, and hence better human development.⁴⁰

Economic growth is the most effective force in the history of development as its effects spread over the generation. Study has shown that women in poor households are less likely to receive antenatal care and to have their births attended by untrained medical assistants. Their children are less likely to survive or to complete schooling.⁴¹ Children who do not complete schooling are more likely to have lower income. Hence, the cycle of deprivation is transmitted across generations. The knowledge paradigm thus needs to be human development and capability theory, not human capital theory.⁴²

Income is an important means of enlarging people’s choices as it leads to higher spending on people’s health and acquiring knowledge. Subsequently, healthier and better knowledge can

³⁷ UNDP (1996), *Human Development Report*, Oxford University Press, New York

³⁸ Barro, R J and X Salai-I-Martin (1995): *Economic Growth*, McGraw Hill, New York.

³⁹ Orissa Human Development Report (2004): 221

⁴⁰ Arunachal Pradesh Human Development Report (India) (2005)

⁴¹ UNDP (2005): *Human Development Report*, Oxford University Press, New York: 57.

⁴² Mehrotra, Santosh (2005): “Human Capital or Human Development? Search for A Knowledge Paradigm” *Economic and Politically Weekly*, Vol. XL (4), Jan, 22: 300-306.

be more productive and can have greater access to opportunities to improve their lives.⁴³ Thus, expenditure (both public and individual) on human development inputs viz; education, health, sanitation, drinking water, etc. constitute strong instruments of improving human well-being (Deolalikar, 1993⁴⁴; Thomas 1990⁴⁵).

Studies showed that at macro level, the distribution of the increased income from economic growth will also have a strong impact on human development. It is also found that poorer households spend a higher proportion of their income on goods which directly promote better health and education than those with higher incomes. At the micro level, household's propensity to spend in something that can contribute to the promotion of human development depends on level and distribution of income across households as well as on who controls the allocation of expenditure within households.⁴⁶

The advent of "endogenous growth models" made the concept of capital to include knowledge and human capital.⁴⁷ These models suggest that educated and skilled manpower is not only more productive, but also more efficient in uses of capital and technology. The core of endogenous growth theory is that human capital and research and development are important determinants of marginal product of (generalise) capital and remain constant rather than diminishing as in the case of neoclassical theories.

There are evidences that education plays an important role in advancing economic growth.⁴⁸ Improvement in human development due to improvement in education, nutrition and health of people advances economic growth by enhancing their capabilities and efficiency in agriculture (Lucas, 1988⁴⁹; Romer, 1990⁵⁰). Improvements in health and nutrition have also found to be positively associated with labor productivity, especially among poorer individuals (Schultz 1988⁵¹, Behrman 1993⁵², 1996⁵³). In agriculture, there exists a positive effect of education on

⁴³ Mahbub ul Haq Human Development Centre (2002): *Human Development in South Asia*, Oxford University Press, Karachi.

⁴⁴ Dholakia, R H (2003): "Regional Disparities in Economic Growth and Human Development in India", *Economic and Political Weekly*, Vol. 38 (39), September, 27: 4166-4172

⁴⁵ Thomas, D (1990): "Intra-Household Resource Allocation: An Inferential Approach", *Journal of Human Resources*, 25: 4.

⁴⁶ Ranis, Gustav, Frances Stewart and Alejandro Ramirez (2000): "Economic Growth and Human Development", *World Development*, Vol. 28 (2).

⁴⁷ Developed by Paul Romer (1986), Lucas (1988) and Rebelo (1991)

⁴⁸ Schultz, T W (1975): "The Value of the Ability to Deal with Disequilibria," *Journal of Economic Literature*, Vol. 13.

⁴⁹ Lucas, Robert E Jr (1988): "On the Mechanics of Economic Development", *Journal of Monetary Economics*, 22, July: 3-42.

⁵⁰ Romer, P M (1990): "Endogenous Technological Change", *Journal of Political Economy*, Vol. 98 (5) (Part 2): 71 – 102.

⁵¹ Schultz, T P (1988): "Educational Investments and Returns" in HB Chenery and TN Srivasan (eds), *Handbook of Development Economics*, Vol 1, North Holland, Amsterdam.

productivity among farmers by using modern technologies.⁵⁴ Studies have shown that farmers with four or more years of schooling in Thailand are likely to be three times higher in adopting fertilisers and other modern input than less educated farmers.⁵⁵ It is argued that the growth of labour productivity in agriculture is strongly determined by the level of health and nutrition.⁵⁶

Education, especially female education has led to many social benefits, such as improvement in the standards of hygiene, reduction in infant and child mortality rates and decline in population growth.⁵⁷ For instance, countries like Kenya, Botswana and Zimbabwe have the highest number of female schooling among African countries; as a result they are lowest in child mortality rates. Human development is thus, the *means* as well as an *ends* in themselves.

1.2: STATEMENT OF THE PROBLEM

The primary focus of developmental planning is to ensure the high growth of the economy and equitable development between regions, individuals and genders in the State or the Country. However, despite all the good intentions in planning strategies, the regional disparity has become a world-wide phenomenon, where the developing countries suffer the most. In India, there are evidences that regional disparity has widened during the era of centralised planning. Measures adopted were rather ad hoc and were influenced by political pressure groups. The trend of regional disparity would continue if no innovative strategy is adopted in low performing region.⁵⁸ The regional disparities in the level of development reflect resource flow biasness towards some favoured region. This leads to differences in accessing social services, basic infrastructure and opportunities.⁵⁹ India is one of the countries facing the dilemma of economic efficiency versus social and regional equality of development,⁶⁰ whereby there is no exception, particularly in Nagaland.

⁵² Behrman, J R (1993): "The Economic Rationale for Investing in Nutrition in Developing Countries", *World Development*, Vol. 21

⁵³ Behrman, J R (1996): "Impact of Health and Nutrition on Education", *World Bank Research Observer*, No.11

⁵⁴ Behrman, J R (1995a): "The Impact of Distributive Policies, Governmental Expenditure Patterns and Decentralization on Human Resources", Philadelphia, PA: University of Pennsylvania, *mimeo*.

⁵⁵ Birdsall, N (1993): "Social Development is Economic Development" World Bank Policy Research Working Papers, WPS, 1123, Washington, DC.

⁵⁶ Strauss, John (1986): "Does Better Nutrition Raise Farm Productivity?" *The Journal of Political Economy*, Vol. 94 (2): 297-320.

⁵⁷ Ainsworth, M, K Beegle and A Nyamete (1995): *The Impact of Female Schooling on Fertility and Contraceptive Use: A Study of Fourteen Sub-Sahara African Countries*, LSMS Working Papers, 110, Washington, DC: World Bank.

⁵⁸ Jha, Satish C (2001): "Regional Disparities in India: A Reappraisal" in Atul Goswami (ed), *Regional Disparities in India*, Akansha Publishing House, New Delhi: 45-46

⁵⁹ UNDP (2009): Oxford University Press, New York.

⁶⁰ Kurian, N J (2000): "Widening Regional Disparities in India: Some Indicators", *Economic and Political Weekly*, Vol.35 (7) Feb: 583-90

In Nagaland, there is concern for inter-district inequality in the development of the state. This has been expressed in government's policies and planning since its Statehood. Hence, out of 16 major tribes in the State, nine tribes are recognised as backward, namely Chakhesang, Chang, Khiamungian, Konyak, Phom, Pochury, Sangtam, Yimchunger and Zeliang. Therefore, special attention and privileges have been given to these regions in budget allocation and employment policies.

The State, in general, has progressed in several aspects of economic and human development. Yet, the extent of inter-district disparity, income inequality and gender disparities are still matters of concern. The relatively less developed districts such as, Mon and Tuensang (including Longleng and Kiphire) are unable to catch up with the rest of the districts particularly in terms of education, income and infrastructure. Consequently, this has reflected in their poorer performance of economic as well as human development. The NSHDR 2004 showed that the HDI value was highest in Dimapur with 0.733, followed by Mokokchung (0.705), Kohima (0.673), Wokha (0.669), Phek (0.651), Zunheboto (0.611), Tuensang (0.512) and the lowest was Mon with 0.450. This indicates that there exists inter-district disparity in human development indicators in Nagaland. Also, the same report provided that the highest per capita income district Dimapur has 3.8 times higher than that of the lowest Mon.⁶¹ Hence, it shows that there is development deficit particularly in Mon and Tuensang districts, which is one of the causes of social unrest leading to the demand for a separate Statehood, the so called "Frontier Nagaland".

Although, there is no open discrimination against women in Naga society, the disparity between the genders is evident, especially in terms of political and socio-economic activities. This is one of the obstacles towards enhancing human development in the State. Further, there is no study on the nexus between economic growth and human development in the context of Nagaland. Hence, it is felt imperative to examine on these issues so as to assist in formulation of future strategies in planning and to ensure equitable development in the State.

1.3: OBJECTIVES

The present study attempts to analyse the following:

- 1) To examine the socio-economic conditions of Nagaland.
- 2) Sector-wise development and sectoral growth of the economy in Nagaland.
- 3) The inter-district disparity in economic and human development indicators, income distribution and gender disparities in Nagaland.
- 4) Government and Households' expenditure pattern on Human Development related

⁶¹ Nagaland State Human Development Report (India) (2004)

Items (HDrIs).

- 5) Two-way linkages between economic growth and human development.
- 6) Relationship between female education and human development.

1.4: HYPOTHESES

The study postulates:

- 1) There is no tendency to converge in inter-district disparity in development, level of income and gender disparities over time in Nagaland.
- 2) The higher the level of average income, the lower is the extent of inequality and vice versa.
- 3) The impact of additional income on expenditure in HDrIs is higher in lower than in higher income households, and when female control the household income, the expenditure towards HDrIs tends to be higher.
- 4) There are two-way positive linkages between economic growth and human development.
- 5) Female education has positive impact on human development.

1.5: AREA OF THE STUDY

Nagaland covers an area of 16,597 Sq. Km with a population of 19,80,602, out of which, 71.03% lives in rural area.⁶² According to 2011 census, the State has eleven districts, mostly inhabited by tribal population having similar socio-economic conditions. Keeping in mind all the common features of development, habits and social life of the people, the present study covers the State of Nagaland. In the analysis, the newly created districts namely, Longleng, Kiphire and Peren are included in the former districts as their required time series data are not available. At macro-level study, all the districts (eight) are taken into consideration in sector-wise analysis. At micro-level, three districts are selected as sample districts, namely Mokokchung, Phek and Tuensang. From each selected district, two villages and their respective headquarters are selected to represent sample rural and urban areas.

1.6: PERIOD OF STUDY

The analyses of sector-wise growth and inter-district disparities have covered the period 1991-2006 at four different points of time with five yearly intervals, i.e. 1991, 1996, 2001 and 2006. In sectoral growth of the State's economy, the study has covered the last twenty five years i.e. 1981-2006 on annually basis. The testing of two-way linkages at macro-level is taken for the

⁶² Census of India 2011.

period 1971 to 2011; while at micro level, it is taken a single time period, based on the sample survey conducted during 2009-10.

1.7: SCOPE OF THE STUDY

The study throws light on the socio-economic conditions of Nagaland which have bearing with direct relation to enhancement of people's well-being. The study brings out the inter-district relative growth rates in indicators of the State's economy and human development in different sectors such as agriculture, industry, infrastructure, education and health. The study also provides the magnitude of inter-district variation in indicators of economic growth and human development, income inequality and gender disparities. It also empirically examined the inducements from economic growth to human development and vice versa at macro as well as micro levels. Furthermore, the impacts of female education on economic and human development have been explored. Hence, this study will provide a reliable source that will assist the policy planners while formulating effective policies for uplifting the standard of living, reducing regional and gender disparities; and enhancement of economic growth and human development for the state of Nagaland.

1.8: METHODOLOGY OF THE STUDY

1.8.1: Data Base: The study is based on both secondary and primary sources. The secondary data are collected from a variety of authentic government and other sources available in published and unpublished forms, such as statistical handbooks, census reports and official records. The primary data are collected by conducting a stratified random sample survey using questionnaire and direct interview methods. The sample survey has been conducted during 2009-10.

1.8.2: Sample Design: In the first stage, districts are stratified into relatively more developed (Dimapur - 0.733, Mokokchung - 0.705 and Kohima - 0.673), moderate (Wokha - 0.669, Phek - 0.651 and Zunheboto - 0.611) and less developed (Tuensang - 0.512 and Mon - 0.450) on the basis of HDI values 2001.

In the second stage, one district from each of the stratum is selected viz; Mokokchung, Phek and Tuensang respectively. Mokokchung district is inhabited by Ao tribe, Phek by Chakhesang and Pochury and in Tuensang district, it has inhabited by Chang, Khimiungan, Sangtam and Yimgunger. According to NSHDR 2004, the per capita income for Mokokchung district was Rs. 12,305/-, while that of Phek and Tuensang were Rs. 9,880/- and Rs. 8,149/- respectively. According to 2011 census, the literacy rate for Mokokchung district is 92.68%, Phek is 79.13%, while that of Tuensang is 73.70%.

Subsequently, the villages are stratified based on socio-economic conditions. Hence, two villages and one town are selected from each sample district. Accordingly, Mokokchung village, Luyong village and Mokokchung Town from Mokokchung district, Kikrūma village, Enhulumi village and Phek Town from Phek district, and Tuensang village, Konya village and Tuensang Town from Tuensang district are selected.

1.8.3: Sample Size: Altogether, 525 households are taken as sample units with a total population of 2,999. Out of sample aggregate, rural area comprises of 412 households and urban area of 113 households, making the composition 78.18% and 21.52% respectively.⁶³ In total sample population, Mokokchung district consists of 26.07%, Phek-41.22% and Tuensang-32.81%.

In *rural* area, the number of sample households taken from Mokokchung village is 99, Luyong - 40, Kikrūma - 98, Enhulumi - 42, Tuensang village - 95 and Konya - 38. These households comprise of 13.2%, 15.63%, 6.32%, 20%, 7.56% and 20.43% of their respective village total households. In *urban* area, 24 households are taken in Mokokchung town, 58 in Phek Town and 31 in Tuensang Town. Thus, these sample units should fairly represent the universe of the study.

1.9: LIST OF INDICATORS

To analyse growth and inter-district disparity at macro-level, 29 indicators are selected. The indicators are disaggregated into economic and human development under five sectors shown below

1.9.1: Economic Indicators

(i) Agricultural Sector: Land Productivity (MT/Hec) (x1), Per Capita Production (in KG) (x2), Total Cultivated Area (in Hec) per 1000 Population (x3), Percentage of Cultivated Area to Total Area (x4) and Percentage of Gross Irrigated Area to Total Cultivated Area (x5)

(ii) Industrial Sector: Number of ITC(s) per Lakh Population (x6), SSI Units per Lakh Population (x7), Employees per SSI unit (x8) and Veterinary Hospital/Dispensary per 100 Sq. Km(x9)

(iii) Infrastructural Sector: Number of Post Office(s) per Lakh Population (x10), Post Office(s) per 100 Sq. Km (x11), Bank(s) per Lakh Population (x12), Bank(s) per 100 Sq. Km. (x13), Telephone(s) per 1000 population (x14), Surfaced Road per 100 Sq. Km (x15), Road Length km per 100 Sq. Km (x16) and Per Capita Electricity Consumption (in Kwh) (x17).

⁶³ The differences in sample representation between rural and urban areas may be justified as the population of the state is predominantly rural (82.26% rural and 17.74% urban according to 2001 census)

1.9.2: Human Development Indicators

(iv) **Educational Sector:** Five indicators chosen in educational sector are Literacy rate (x18), Teacher-Pupil ratio (x19), Children Enrolment ratio (x20), Schools per 1000 Population (x21) and Schools per 100 Sq. Km. (x22).

(v) **Health Sector:** The selected indicators in Health sector are Medical Institutions per 10,000 Population (x23), Medical Institutions per 100 Sq. km (x24), Beds per 10,000 Population (x25), Medical Officers per Lakh Population (x26), Nurses per Lakh Population (x27), Compounders per Lakh Population (x28) and Death Rate (per 1,000 population) (x29).

1.9.3: Sample Data

The data collected from sample survey include individual and household incomes, households' expenditure pattern, gender-wise control over household income, years of schooling, agricultural productivity, adoption of improved methods in cultivation and family size.

1.10: DATA ANALYSIS

The data collected are analysed at the State, district, household and individual levels using appropriate statistical tools, such as:

1.10.1: Mean: Mean (\bar{x}) is the average value of the total set of observations. It is obtained by dividing the summation of value of observations (Σx) by the number of observations (N). It is expressed as:

$$\bar{x} = \Sigma x / N$$

Where, \bar{x} = Arithmetic Mean,

Σx = Summation of value of observations.

N = Total number of observations.

1.10.2: Standard Deviation: The Standard Deviation is also known as root mean square deviation for the reason that it is the square root of the mean of the squared deviation from arithmetic mean. A smaller standard deviation means greater degree of uniformity of the observation. The standard deviation is denoted by the small Greek letter σ (read as *sigma*). It is represented mathematically by:

$$\sigma = \sqrt{\Sigma fd^2 / N - (\Sigma fd / N)^2} \times i$$

Where, i is the class interval.

1.10.3: Variance: The Variance of a set of number is the square of standard deviation. It is expressed as:

$$\text{Variance} = \sigma^2$$

1.10.4: Coefficient of Variation: Coefficient of Variation (CV) is a relative measure of dispersion. It is the percentage variation in the mean. The greater the value of CV, the larger is the variation between the numbers of observation. It is expressed by the formula:

$$CV = \sigma / \text{mean} \times 100$$

1.10.5: Correlation: Correlation is an analysis of the covariation between two or more variables. It is the technique used in measuring the closeness of the relationship between the two variables. Thus, it is useful in determining the dependency of one variable with the other. It is given as:

$$r = \{N\sum dx dy - (\sum dx)(\sum dy)\} \div \{\sqrt{N\sum dx^2 - (\sum dx)^2} \sqrt{N\sum dy^2 - (\sum dy)^2}\}$$

1.10.6: Regression: Regression analysis is a mathematical measure of the average relationship between two or more variables in terms of the original units of the data.⁶⁴ The variable whose value is influenced or predicted is called dependent variable and the variable which influences the values is termed as independent variable or predictor. The regression equation of y and x is expressed as:

$$Y = a + bx \quad \dots \dots \dots \quad \dots \quad (i)$$

Where, Y is the dependent variable and x is the independent variable, while 'a' (y-intercept) is constant and 'b' (slope) is the regression coefficient.

$$b_{yx} = \{N\sum YX - (\sum Y)(\sum X)\} \div \{N\sum x^2 - (\sum X)^2\}$$

1.10.7: Standard Error Estimate: The measure which indicates the precision of the prediction of y is based on x or conversely or how inaccurate the prediction might be is called standard error of estimates. The standard error of regression of y values from y_c is given as:

$$S_{xy} = \{\sqrt{\sum Y^2 - a\sum Y - b\sum XY}\} \div N$$

The smaller the value of standard error estimates, the closer will be the dots to the regression line and the better the estimates based on the equation of this line. If the standard error of the estimates is zero then there is no variation about the line and the correlation will be perfect.

1.10.8: t-Statistics: The t-statistics or t-distribution is a hypothesis statistical test. It is derived mathematically under the assumption of normally distributed population. It is widely used statistical analysis in testing statistical significant of difference between two sample means.

The formulaic representation of 't-statistics' is:

$$t = \{(\bar{a} - \mu) \div S\} \times \sqrt{n - 1}$$

Where, \bar{a} = the mean of the sample,

$$S = \sqrt{\{\sum (a - \bar{a})^2\} \div n - 1}$$

⁶⁴ Gupta, S P (1997): *Statistical Methods*, Sultan Chand & Sons, New Delhi: 11.7

The t-distribution is derived mathematically under the assumption of a normally distributed population. It has the following form:

$$f(t) = C (1 + t^2/v)^{-(v+1)/2}$$

Where, $t = \{(\bar{a} - \mu) \div S\} \sqrt{n}$

C = a constant required to make the area under the curve equal to unity

v = n - 1, the number of degrees of freedom.

1.10.9: Lorenz Curve: Income inequalities in different groups have been examined with the help of Lorenz Curve. It shows the percentage of income received by X percent of population, where X varies from 0 to 100. The degree to which a Lorenz Curve line deviates from the line of equality is a measure of inequality in income distributions. The degree of this inequality at any stage is indicated by the distance from the equal distribution line.

1.10.10: Gini Coefficient: Gini Coefficient (GC) is a measure to describe the extent of inequality. It is an expression of the ratio of the area between the line of equality and the Lorenz Curve. It is expressed as:

$$GC = \text{Area between Lorenz Curve and Diagonal} \div \text{Total Area under Diagonal}$$

The GC value 0 (zero) indicates perfect equality and value 1 (one) indicates perfect inequality. The Gini Coefficient gives mathematical expression of the level of concentration. Although there are no clear threshold points, the value of Gini coefficient above 50 is considered to be in the high inequality category.⁶⁵ It is expressed as:

$$GC = \sum [(P_{i-1} \times Q_i) - (P_i \times Q_{i-1})]^{66}$$

Where, P_i is Cumulative proportion of the character, whose equality is being investigated, Q_i is Cumulative proportion of the variable which is acting as a criterion for the measurement.

1.10.11: Exponential Growth Rates: To analyse the relative growth of different sectors, exponential growth rates were calculated using the formula:

$$Y = ae^{rt}$$

Where, Y is the growth of a particular sector as the case might be and 't' is the time period and 'r' is the growth rate. The least square estimate of the above formula has been worked out to arrive at the exponential growth rate figures.

1.10.12: Annual Average Growth Rate: The Annual Average Growth Rate is the annual percentage change of the variable taking into consideration. It is described as

$$Ar = \{(\text{Last P} - \text{First P}) / \text{First P}\} \times 100 \div N$$

⁶⁵ UNDP (2005): *Human Development Report*, Oxford University Press New York: 55

⁶⁶ Jonhstone, J N (1976): *Indicators of the Performance of Educational System*, IIP Occasional Paper No. 41, UNESCO, Paris, <http://www.eric.ed.gov/PDFS/ED139063.pdf> accessed on 20/05/2010.

Where, Ar is the annual average growth rate, P is the variable and N is the number of years under observation.

1.10.13: Gender Differential (GD) Method: The Gender Differential (GD) equation is the measure used to distinguish the gender inequality in an indicator under observation.⁶⁷ It is expressed as:

$$GD = \frac{\text{Male}P - \text{Female}P}{\text{Male}P} \times 100$$

Where, GD is the gender differential and P is the indicator. The equation explains the disparity between the genders in percentage. It is the shortfall of females' achievement in particular indicator (P).

1.10.14: Composite Index: The Composite Index is obtained by dividing the summation of indices to the number of observations. It is constructed based on average value of the indicators taken into consideration. An average is used in order to examine the actual growth over time. If I_{ij} is the development index of j^{th} district with respect to the i^{th} sector, then:

$$I_{ij} = \frac{a_j + b_j + c_j + d_j + \dots + n_j}{N}$$

Where, a, b, c, d, \dots, n are the value of indicators in i^{th} sector with respect to j^{th} district, and N is the number of indicators.

The next step is to define an average of the indicators in j^{th} district. This is done by taking a simple average of the chosen indicators for different sectors. The Agricultural Development Index (ADI), as the case might be, for each district will be the average value of the indicators a, b, c, d, \dots, n of j^{th} district, i.e.

$$I_j = \frac{\sum I_{ij}}{N}$$

Hence, $ADI = I_j$

1.11: CHAPTERISATION

The organisation of the chapters is as follows:

Chapter I : Introduction

Chapter II : Review of Literature

Chapter III : Socio-Economic Profile of Nagaland

Chapter IV : Analysis of Growth Trends in Nagaland's Economy

Chapter V : Inter-District Disparities in Economic and Human Development in Nagaland

Chapter VI : Linkages between Economic Growth and Human Development in Nagaland

Chapter VII : Findings and Conclusion

⁶⁷ Shiva Kumar, A K (1996): "UNDP's Gender-Related Development Index: A Computation of Indian States", *Economic and Political Weekly*, Vol 31(14), April 6: 887.

CHAPTER II

REVIEW OF LITERATURE

Economic Growth has long been the central theme in economics, followed by human development. The issues related to economic growth and human development like spatial and inter-temporal growth, disparities and gender inequalities have attracted the attention of many and spawned a vast and diverse portfolio of research and economic thoughts. Literature relating to those issues have been fairly extensive. In fact, each and every theoretical development is built upon the earlier research findings, thereby serving as a base for new findings with the existing ones. The present section of the study, therefore, reflects upon other studies which give proper perspective of the problem under current study.

2.1: CONCEPT: Economic growth is the rate of annual production of goods and services in a country leading to a rise in national income. Earlier, the development of a country was measured only in terms of gross domestic product and subsequently per capita income became an important indicator. However, in the later part of the twentieth century, a new concept of development, viz human development has evolved in the history of economic literature. There has been a notable shift in the focus of development planning from mere economic growth to enhancement of human well-being. As the basic objective of development of a nation is to improve the welfare of the people, every nation strives hard not only to increase her wealth and productive resources but also to ensure better standard of living of her citizens by providing them with adequate food, clothing, house, medical facilities, education, etc. However, the uses of statistical aggregates to measure income and growth have at times obscured the fact that the primary objective of development is to benefit people. National income figures, though useful for many purposes, neither reveal its composition nor its real beneficiaries. “Development must, therefore, be more than just the expansion of income and wealth. Its focus must be people”.⁶⁸

Human development has been described as an ultimate goal of the development process, while Economic Growth (EG) as an imperfect proxy for more general welfare and as a means

⁶⁸ UNDP (1990): *Human Development Report*, Oxford University Press, New York.

towards enhancing Human Development (HD).⁶⁹ Morris and Alpin (1982)⁷⁰, Sen (1985)⁷¹ propagated development as the process of enhancing people's capabilities and improving quality of life. Mere economic growth in per capita income may not necessarily lead to an improvement in human well-being, which is broadly conceived to include not only consumption of goods and services, but also the accessibility of people to the basic necessities required for leading a productive and socially meaningful life.

The concept of HD is not a new invention, the idea of social arrangement for "human good" dates back to the time of Aristotle. He argued that "wealth is evidently not the good we are seeking; for it is merely useful and for the sake of something else". Immanuel Kant propagated that human beings are the real end of all human activities. Further, Adam Smith advocated free enterprise and private initiative and showed his concern that economic development should enable a person not to be "ashamed to appear in public". Since their time, human being occupied the centre focus of the development.⁷² The most basic capacities for HD are to lead long and healthy lives, to be knowledgeable, to have access to resources needed for decent standard of living and to be able to participate in the life of the community. Without these, many choices are simply not available and many opportunities in life remain inaccessible.⁷³

Human development does not deny the importance of EG and wealth accumulation for the welfare of society, but, it claims that EG is not a sufficient condition for human well-being (UNDP 1990).⁷⁴ Thirlwall (2003) asserted that development without growth is hardly conceivable, but growth is possible without development.⁷⁵ UNDP (1994) stated that development means broad HD that includes health and education variables in a weighted welfare measure and not just higher income alone. Hence, HD is "a process of enlarging people's choices".⁷⁶

Therefore, HD can be defined as development of growth, social investment, people's empowerment, provision of basic needs and social safety nets, political and cultural freedom and

⁶⁹ Ranis, G (2004): "Human Development and Economic Growth", Discussion Paper, 887. <http://www.econ.yale.edu/~egcentre/research.htm>. Accessed on July 20 2009

⁷⁰ Morris, D and B Mc Alpin Michelle (1982): *Measuring the Condition of India's Poor*, Promilla & Co., New Delhi.

⁷¹ Sen, A K (1985): *Commodities and Capabilities*, North-Holland, Amsterdam.

⁷² Haq, M (1995): "The Human Development Paradigm", Reproduction of "Reflections on Human Development" in Fukuda-Parr and Kumar (eds), *Readings in Human Development*, (2005) Oxford University Press, New Delhi: 19

⁷³ UNDP (2001): *Human Development Report*, Oxford University Press New York

⁷⁴ UNDP (1990): *Human Development Report*, Oxford University Press, New York.

⁷⁵ Thirlwall, A P (2003): *Growth and Development with Special Reference to Developing Economics*, Palgrave Macmillan, India: 39

⁷⁶ UNDP (1994), *Human Development Report*, Oxford University Press, New York.

all other aspects of people's lives. In other words, HD is people-centred, formation and uses of capabilities, linking between ends and means, embraces society and recognises of both means and ends in development to create and enabling people to enlarge choices.

2.2: GROWTH AND DISPARITIES

The modern economic history is characterised by a tremendous development in human capabilities that plays an important part in long-term economic growth.⁷⁷ Modern theories of economic development appeared principally after there has been a great destruction in the European countries caused by war. It was a mass infusion of capital into the European economies, mainly through American Marshal Plan, together with austerity reactivated the industrial base of these economies and brought them to a level of sustained economic growth.

The classical economic theories, particularly that of Ricardo's two-sector model has mainly concentrated on growth and distribution within agriculture and industry. The models addressed the shares of rent and profit, where the growth process eventually approaching the steady state of zero growth due to diminishing returns in agriculture (Boyer, 1996).⁷⁸ Karl Marx also believed that capitalist development would inherently result in an uneven distribution of wealth and that capitalist have an incentive for pushing wages to the subsistence level (Martin and Sunley, 1998).⁷⁹

Neo-Keynesian economists, such as Kalechi (1954)⁸⁰, Kaldor (1955-56)⁸¹ and Passinitti (1981)⁸² have explained the inter-relationship between income distribution and economic growth. By and large, Neo-Keynesian growth models have concluded that reduction in concentration raises the real wages and provides a redistribution of income which leads to higher capacity utilization and higher rate of economic growth.

In the literature on regional growth and productivity in Indian economy, neo-classical growth paradigm has been extensively used in the recent years due to its theoretical underpinning to understand the inter-regional and inter-country growth and level differences in standard of

⁷⁷ Mayer-Foulkes, David (2003): "Human Development Traps and Economic Growth" in Guillem Lopez-Casasnovas, Berta Rivera and Luis Currais (eds), *Health and Economic Growth: Findings and Policy Implications*, available at <http://www.cide.edu/investigador/.../david.../HumanDevelopmentTraps.pdf> accessed on 17/08/2008.

⁷⁸ Boyer, R (1996): "The Convergence Hypothesis is Revisited: Globalization But Still A Century of Nations?" in S Gerger and R Dore (eds), *National Diversity and Global Capitalism*, Cornell University Press, London.

⁷⁹ Martin, R and P Sunley (1998): "Slow Convergence? The New Endogenous Growth Theory and Regional Development", *Economic Geography*, 74: 201-207.

⁸⁰ Kalechi, Michal (1954): *Theory of Economic Dynamics*, London: Allen and Unwin.

⁸¹ Kaldor, Nicholas (1955-56): *Essays on Economic Stability and Growth*, London: Duckworth.

⁸² Passinitti, Luigi (1981): *Structural Change and Economic Growth*, Cambridge: Cambridge.

living (Dholakia, 1985⁸³, Mathur, 1983⁸⁴). One of the basic predictions of the neoclassical growth theory is that economies with lower capital-labour ratio tend to grow faster than the economies with higher capital-labour ratio. It predicts that if the economies are similar with respect to their technology, taste and preferences, then there is an inverse relationship between the initial levels of per capita income and its growth rate due to implications of diminishing returns to reproducible capital. Thus, the lower the initial level of PCI, the higher is the growth rate of PCI (Solow-Swan, 1956^{85 & 86}).

The world economy has grown at an unprecedented rate of increase since mid 20th century, which has increased by approximately fivefold during 1950-1993. Yet, the industrialised economies still dominate the world economy which has accounted for US\$22.5 trillion, out of US\$27.7 trillion global GDP in 1993. Yet, a remarkable trend since 1980s has been the burgeoning role played by developing countries, particularly the populous economies of East and South Asia (UNDP, 2005).⁸⁷

A major factor in the development progress in the post Second World War (WWII) has been steady and has integrated the global economies. World Bank (1996) has estimated that the world GDP since then have grown by approximately 25 times. Other measures of globalisation include the enormous expansion of international financial markets, the spread of new technologies that have revolutionised international communications and encouraged the development of transnational patterns of production and consumption. Also, foreign direct investment flowing to developing and transition economies was increased four-fold over the past decade (World Bank, 1996).⁸⁸ The Human Development Report (HDR) of UNDP 1997 showed that in developing countries as a whole, balanced economic growth has enabled giant strides in key indicators of human development since 1960: infant mortality rates have reduced by one half and adult illiteracy rates have increased by nearly one half. Since 1975, the rate of underweight children under 5 years of age declined by almost one half.⁸⁹

⁸³ Dholakia, Ravindra H (1985): *Regional Disparities in Economic Growth in India*, Himalaya Publishing House, Bombay.

⁸⁴ Mathur, Ashok (1983): "Regional Development and Income Disparities in India: A Sectoral Analysis", *Economic Development and Cultural Change*, Vol. 31, April.

⁸⁵ Solow, R M (1956): A Contribution to the Theory of Economic Growth", *Quarterly Journal of Economics*: 65-94.

⁸⁶ Swan, Trevor W (1956): Economic Growth and Capital Accumulation", *Economic Record*, 32:33-44.

⁸⁷ World Resources Institute in collaboration with the United Nations Environment Programme, the United Nations Development Programme and the World Bank (1996): *World Resources 1996-97*, Oxford University Press, New York: 223.

⁸⁸ World Bank, The (1997): *World Development Indicators 1997*, Washington, D.C: 289.

⁸⁹ UNDP (1997): *Human Development Report*, Oxford University Press, New York: 28-29.

In the midst of high growth rate of world economy, there existed wide variation among the countries. According to CIA World Factbook 2011, the world economy has increased by 3.7% in 2010-11. Among the countries, the highest growth rate was Qatar with 18.7%, while ten countries have exhibited negative growth, of which Greece has witnessed highest negative growth with -6%. Among the East Asian countries, Mongolia (world ranking - third) and China (world ranking - sixth) showed the highest growth rate with 11.5% and 9.5% respectively. In South Asia, the highest growth was Sri Lanka (world ranking - 8) with 8.3%, followed by Bhutan (world rank - 11) and India (world rank - 13) with 8.1% and 7.8% respectively.⁹⁰

Tang et al (2008) conducted a study on how foreign direct investment has helped the growth of China's economy since the economic reforms in the country with time series data for 30 years since 1978. They have brought a conclusion that there has been tremendous economic growth since the country's economic reforms. It has grown at a considerable rate as compared to the rest of world. The economic growth of China since 1978 has increased exponentially at an annual average rate of 9%.⁹¹

Bhattacharya and Shikthivel (2004) in the study of regional growth and disparity in India have shown that the growth rate of GDP has accelerated since 1980s in the country. The average annual GDP growth rate in the first three decades (1950s to 1980s) was only 3.6%. Since then, the GDP growth rate accelerated to 5.6% during 1980s and after economic reforms in the 1990s, it has further accelerated to 6.0%. The reforms have led to a lot of structural changes in Indian economy, such as deregulation of investment - both domestic and foreign, liberalisation of trade, exchange rate, interest rate, capital flows and prices. The post reform period too witnessed a sharp deceleration of public investment due to fiscal constraint, which declined from 45% to 33% in 1980s and 2000s respectively.⁹² In a similar study, Kurian (2000) showed that the growth of India economy, which was 3.6% in the first three decades of independence, was quite impressive as compared to other Asian economies. Since 1980, the growth of India's economy has been enormous during the sixth five year plan (1980-85) with 5.6%; in the seventh five year plan (1985-90), it was increased to 6%. But during two-year period 1990-92 in the wake of international payment crisis and the introduction of major economic reforms the growth was slashed down to 3.1% per annum. Since then, the growth has picked up at a faster rate that during

⁹⁰ CIA World Factbook (2012): <http://www.cia.gov/library/publications/the-world-factbook/fields/2003.html?countryName=World&countryCode=xx®ionCode=oc&#x> dated 08/01/12

⁹¹ Tang, Sumei, E A Selvanathan and S Selvanathan (2008): "Foreign Direct Investment, Domestic Investment and Economic Growth in China: A Time Series Analysis", *World Economy*, Vol. 31 (10): 1292-1309.

⁹² Bhattacharya, B B and S Sakthivel (2004): "Regional Growth and Disparity in India: A Comparison of Pre and Post-Reform Decades", *Economic and Political Weekly*, Vol. 29 (10), March: 1071-1077.

eight five year plan (1992-97), the growth was at 7.5%.⁹³ During ninth, tenth and eleventh five year plans, the growth rate was increased at 5.35%, 7.7% and 7.9% respectively.⁹⁴

In general, when economy progressed, the share of primary sector declined and that of the secondary sector increased. After industry gathered momentum, the secondary sector became the dominant sector in the economy. It is only at a later stage when the economy attained a fairly high level of development. Typically when it became a middle-income country, the tertiary sector overtook the secondary sector. This was the general pattern of development, especially in the East Asia countries. In China, for instance, the secondary sector now contributes almost 50% of GDP. However, the India experience showed a different pattern of sectoral growth that both at the national and regional levels. The tertiary sector became the largest sector even before the secondary sector predominated the economy. Gujarat is the only exception in this respect, where the secondary sector has become the largest sector with more than 40% share in SDP in 1999-2000, for which the momentum was raised by 7.8% and 10.6% in 1980s and 1990s respectively (Bhattacharya and Mitra, 1990).⁹⁵ According to Economic Survey of India 2011-12, the Indian economy is estimated to grow by 6.9% in 2011-12. The same report showed that the share of India in global merchandise exports has increased from about 0.5 per cent in 1990 to 1.5 per cent in 2010. Among the sectors, the services sector continued to be a star performer as its share in GDP has climbed from 58% in 2010-11 to 59% in 2011-12 with a growth rate of 9.4%. Similarly, agriculture and allied sectors are estimated to achieve a growth rate of 2.5% in 2011-12, while the industrial sector has performed poorly, retreating to a 27% share of the GDP.⁹⁶

Studies have shown empirical evidence in India that fiscal policy has positive impact on growth of the economy. For instance, Adabar (2005) examined the issue of convergence and economic growth in India by focusing the PCI of 14 major India states. He found that every 1% increase in per capita investment would increase the trend growth rate of per capita real income by 0.27%, while 1% increase in population growth rate would reduce the growth rate of PCI by -0.15%.⁹⁷ Ram and Kaur (2011) has examined the impact of public spending on economic growth taking the data of 14 Indian States over the period 1990-91 to 2007-08. Using the generalised

⁹³ Kurian, N J (2000): "Widening Regional Disparities in India: Some Indicators", *Economic and Political Weekly*, Vol.35 No. 7 Feb: 583-90.

⁹⁴ Five Year Plans Targeted and Achievements (2012): *Planning Commission, Government of India : Five Year Plans*, Retrieved on 2012-03-17.

⁹⁵ Bhattacharya, B B and Arup Mitra (1990): Excess Growth of Tertiary Sector in Indian Economy: Issues and Implications", *Economic and Political Weekly*, November 3.

⁹⁶ Economic Survey 2011-12, <http://pib.nic.in/archieve/esurvey/esurvey2011/eng2011.pdf> dated 16/08-12

⁹⁷ Adabar, K (2005): "Economic Growth and Divergence in India", <http://www.isid.ac.in/~planning/ka.pdf> accessed on 18th April 2011.

estimating equations (GEE), the result has confirmed that government spending stimulates growth. Although impacts of public spending in the aggregate as well as of its components vary, their growth impacts remain positive and in a large number of cases highly robust and significant. The elasticity of public expenditure on infrastructure, agriculture and education are found to be 0.1609, 0.1326 and 0.1007 respectively. Also, in China, Paolino found that the Impact of foreign direct investment in China has raised its GDP by 13.58% per annum during 1977 to 2007, which has been significant at 10% level.⁹⁸

Along side of fast economic growth, there has been accelerated improvement in various indicators of human development since early nineteen eighties whether it is in the case of demographic characteristics or social development indicators. For instance, in India, there have been major strides in the development of health and education sectors. The economy got diversified significantly and the share of the service sector in employment and incomes improved considerably. There is a broad consensus on the overall improvement of the economy and quality of life, but, there are significant differing perceptions about the distributional impacts of these gains.⁹⁹

The Global HDR (1994) has pointed out that there has been an unfair and inequitable distribution of wealth around the world.¹⁰⁰ Kochak (2005) made a comparative study between India and China taking the HDI components to examine the levels of disparity in two countries. She found that the situation of disparity was worse in China than in India. She pointed out that during 2002-03; the highest GDP per capita (at current prices) state of India Chandigarh was 8.8 times higher than that of the poorest state Bihar, whereas in China, the Shanghai's GDP per capita was 13 times higher than that of its poorest province, Guizhou. The large and growing inter-personal inequalities, interregional inequalities and intergenerational inequalities are likely lead to social tensions which will stall the process of economic development; greater emphasis has to be placed on conservation on the environment and the redistribution of gains of growth to the general population and backward region through appropriate governmental policies.¹⁰¹

Aghion, Howitt and Mayer-Foulkes (2003) constructed the three club-model in which credit constraints caused a lower group of countries to stagnate and a middle group of countries to grow with constrained innovation and lower income, while advance group of countries

⁹⁸ Paolino, Micheal (2009): "The Effect of Domestic Investment, Economic Growth and Human Development on Foreign Direct Investment into China", *Bryant Economic Research Paper*, Vol. 2 (11).

⁹⁹ Kurian, N J (2000): "Widening Regional Disparities in India: Some Indicators", *Economic and Political Weekly*, Vol.35 No. 7 Feb: 583-90.

¹⁰⁰ UNDP (1994): *Human Development Report*, Oxford University Press New York.

¹⁰¹ Kochak, A K (2005): "Development Indices: A Comparative Study of India and China", *Institute of Chinese Studies Occasional Paper/Studies*, Series - June.

continued to lead in growth.¹⁰² Szorfi (2007) has tested Williamson curve hypothesis in European Union and asserted that for countries at more advanced stages of economic development, higher factor costs and diseconomies of agglomeration, matched with knowledge spillovers led to spatial convergence.¹⁰³

Myrdal (1956) advocated that the forces of convergence and divergence can be neutralised through spread and backwash effects.¹⁰⁴ Kaldor (1966)¹⁰⁵ and Thrillwall (1983)¹⁰⁶ examined this issue in the context of growth in mature capitalist economy and came to the conclusion that the growth of the industrial sector acted as the engine of growth in an economy.

However, literature on the issue for some countries showed contradictory results. For instance, Riskin (1988) observed that in China during 1950's the regional disparities in growth was much more serious with the growth of industrialisation. The disparity was lesser in less industrialised areas and that the regional convergence took place in the country during the first five year plan 1953-57.¹⁰⁷ Wei (1999) also studied the regional disparity in China and came to the conclusion that the policy for reduction of regional inequality must be one of the major components in industrialisation in China as the situation has become worse with the advancement of industrialisation in the country.¹⁰⁸ Wan and Zhou (2005) pointed out that rural per capita income in Shanghai was 6,224 Yuan, whereas it was only 1490 Yuan in Guizhon provinces.¹⁰⁹ Fan et.al (2008) confirmed from the study of "Regional Inequality in China" that the regional dimension of inequality between rural-urban and inland-coastal had been very prominent in China.¹¹⁰

Fedorov (2002) studied the regional inequality and regional polarisation in Russia of 1990s. The result has shown that the transition period due to economic reform has been characterised by rapid growth of economic inequality among regions.¹¹¹ Similarly, in Ghana,

¹⁰² Aghion, P, P Howitt and D Mayer-Foulkes (2003): "The Role of Credit Constraint in (non) Convergence: A Schumpeterian Approach", *mimeo*.

¹⁰³ Szorfi, B (2007): "Development and Regional Disparities-Testing the Williamson Curve Hypothesis in the European Union", *Focus on European Economic Integration*, Vol.2 (07): 100-121.

¹⁰⁴ Myrdal, G (1956): *Economic Theory and Underdeveloped Regions*, Vora, Bombay.

¹⁰⁵ Kaldor, N (1966): "Causes of the Slow Rate of Economic Growth of the United Kingdom: An Inaugural Lecture" in F Targetti and A P Thirlwall (1989) (eds), *The Essential of Kaldor*, Duckworth, London.

¹⁰⁶ Thirlwall, A P (1983): "A Plain Man's Guide to Kaldor' Growth Laws", *Journal of Post-Keynesian Economics*, Spring Issue,

¹⁰⁷ Riskin, C (1988): "*China Political Economy*", Oxford University Press.

¹⁰⁸ Wei, Y D (1999): "Regional Inequality in China", *Progress in Human Geography*, Vol. 23 (1): 48-58.

¹⁰⁹ Wan, G and Z Zhon (2005): "Income Inequality in China: Regression-Based Decomposition Using Household Data", *Review of Development Economics* Vol. 9(1) Feb: 107-120

¹¹⁰ Fan, S, R Kanbur and X Zhang (2008): "Regional Inequality in China: An Overview", <http://www.arts.cornell.edu/poverty/kanbur/ChinaRegionalInequalityIntro.pdf> on 21/10/2010.

¹¹¹ Fedorov, L (2002): "Regional Inequality and Regional Polarization in Russia 1990-99", *World Development*, 30(3): 443-456.

Vanderpnye-Orgle (2002) showed that during the period of stabilisation and structural adjustment programmes (1987-1999), the trend of regional disparities witnessed the corrugated shape. The regional disparities has decreased in the first stage of reform period (during late 1980s) and then declined in the early 1990s before rising up in the late 1990s.¹¹²

Antonyrajan (2003) also attempted to study whether the regional growth is convergent or divergent between prosperous and the depressed regions after economic liberalisation (1977) period in Sri Lanka. He took 39 indicators, disaggregated into five sectors such as education, health, industrial, agriculture and infrastructure. He observed that during pre-liberalisation period (1960-1980), 21 indicators have exhibited convergence, while in post-liberalisation period (1980-2000), only 10 indicators converged in regional disparities. Hence, in general, the regional disparities in Sri Lanka have widened during post-liberalisation era.¹¹³

In most of the countries, it is a common phenomenon that there is vast regional disparity within the country. For instance, Fukuda-Parr et. al. (2005) observed that there was significant disparity in Brazil. During 1970, they found that the South East's HDI (0.619) was more than double to that of North East (0.245). Again in 1990, it was 0.799 for the South, while the same for the Northeast was only 0.474.¹¹⁴ Also, in Uganda (2007), the HDI value for the states like Wakiso (0.660) and Kampala (0.644) have more than 3 (three) times higher than the state Moroto (0.216) and more than 2 (two) times the states of Kabong, Abim and Kotido (0.292 each).¹¹⁵ Basu and Basu (2005) in their work of "Regional Disparities in Australia: Analysis of Gender Development Index" found that even one of the most successful countries in egalitarian growth and development around the globe Australia has variation in its HDI achievement. It is shown that the highest HDI district ACT had its value of 0.9756, while that of the lowest was 0.9176.¹¹⁶

The UNDP have done an extensive study on disparities in its HDR 2005. It revealed that out of 73 countries, income inequality had increased in 53 countries (more than 80% of world population), while it reduced only in nine countries (4% of world population). In United States of America (USA) a baby boy from a family in the top rich 5% income distribution enjoyed a life span of 25% longer than a baby boy born in the bottom poor 5%. Death rate in Bolivia was nearly

¹¹² Vanderpnye-Orgle, J (2002): "Spatial Inequalities and Polarization in Ghana 1987-99", *Centre for the Study of African Economics*, University of Oxford, 21-22, September.

¹¹³ Antonyrajan, A (2003): "Regional Disparity and National Development of Sri-Lanka: A Comparative Study between Pre and Post-liberalization" in Mohapatra et al (eds), *Economic Liberalization and Regional Disparities in India*, Star Publishing House, Shillong.

¹¹⁴ Fukuda-Parr, S, K Raworth and A K Shiva Kumar (2005): "Using the HDI for the Policy Analysis" in Fukuda-Parr and Shiva Kumar (eds), *Readings in Human Development*, Oxford University Press, New Delhi: 178

¹¹⁵ UNDP (2007): *Uganda Human Development Report*: 57

¹¹⁶ Basu, S and P Basu (2005): "Regional Disparities in Australia: Analysis of Gender Development Index", *International Review of Business Research Paper*, Vol. 1 (2): 55-56

1.9 times higher among rural children than among urban children. In Pakistan, the rural-urban gap in school attendance was 27%, but the gap between rural girls and urban boys was 47%. In Vietnam, a single hospital visit charged 40% of the monthly income of people in the poorest 20% of the population. Further, the poorest 20% of the population in the United Kingdom had an income comparable to that of the poorest 20% in the Czech Republic, a far less wealthy country.¹¹⁷

Bogumit (2009) observed in Poland that regional divergence was further aggravated due to inefficient functioning of traditional mechanisms of regional equalisation like labour mobility, wages and investment. The GDP per capita has reached 82% of the EU-27 (European Union-27) average in Mazowieckie region (including Warsaw), but in 5 (five) other regions namely Lubelskie, Podkarpackie, Swietokrzyskie and Warminsko-Mazurskie, the same was only about 40% of EU-27 average. Hence, Bogumit characterised the regional disparities in Poland into three dimensions: the gap between the western and eastern parts, the privileged position of the capital region and rising differences between rural and urban regions.¹¹⁸

Young, Higgins and Levy (2004) studied the US income disparity for the period 1970 to 1998 covering over 3,000 cross-sectional county-levels and concluded that the conditional convergence as well as the absolute convergence did not hold true in the US.¹¹⁹ On the contrary, Lau Chi-Keung, (2009) used the data of per capita personal income for the USA covering the period 1929-2005 confirmed that there was absolute convergence of per capita across the State.¹²⁰ In a similar attempt, Dincer et. al. (2008) studied regional disparities in Turkey based on Socio-Economic Development Index (SEDI). They divided the geographical region into seven regions taking 51 variables into consideration in order to rank the development achievement. They concluded that there existed a wide geographical disparity in the country. The Marmara region (Istanbul region) scored the highest SEDI value of 1.702 while the score of the East Anotolia region was negative with -1.162.¹²¹ Krimi (2010) studied “Regional Development Disparities in Malaysia” in the areas like quality of life, economic growth and household income increased over

¹¹⁷ UNDP (2005): *Human Development Report*, Oxford University Press New York: 55

¹¹⁸ Bogumit, Piotr (2009): “Regional Disparities in Poland”, *ECFIN Country Focus* Vol. VI (4), May 18.

¹¹⁹ Young, A T, M J Higgins and D Levy (2004): “*Sigma-Convergence Versus Beta-Convergence. Evidence from US Country Level Data*”, Emory University of Atlanta, GA 30322, April 27.

¹²⁰ Lau Chi-Keung, M (2009): “New Evidence About Convergence Across State”, *International Research Journal of Finance and Economic*. ICCN, Issues 27: 1450-2887

¹²¹ Dincer, B, M Özaslan and H Ozgur (2008): *Regional Disparities and Territorial Indicators in Turkey: Socio-Economic Development Index (SEDI)*, State Planning Organization, Pamukkale University, Turkey.

the period 2000-05. The evidence showed that the regional disparity have widened in all these indicators. Also, the disparities in household and per capita income remained prominent.¹²²

In India, one of the notable features of the development is increasing regional disparity as the disparity has widened over the years in the country.¹²³ The growth pattern in India showed contradictory to Kuznet-Williamson inverted U-shape as the disparity in the initial period of development planning was narrowed down, but it has started to increase since mid sixties and continued to rise during plan era. For instance, Ganguli and Gupta (1976) constructed levels of living indices for 15 Indian States by taking into account three time periods; 1955, 1960 and 1965 using Principal Component Analysis method. The components used were nutritional intake, housing, medical care, education, clothing, leisure, security and environment. They found that the critical minimum distance declined during the period 1955-1965 with 6.04 to 5.61 in 1955 and 1960 respectively and further to 4.88 in 1965.¹²⁴ Also, Rao (1977) in an attempt to identify the regional backwardness undertook 24 variables in sectors such as agriculture, industry, education and banking. He brought similar conclusion that coefficient of variation (CV) values for the composite index declined from 19.70% to 13.72% in 1956 and 1965 respectively.¹²⁵

However, in the study of regional development in India undertaken by Nath (1970) by taking PCI of 14 Indian States showed that the regional disparity in India declined in the early sixties but risen up since late sixties in the country in the wake of Green Revolution.¹²⁶ In the works of Krishnaji (1993)¹²⁷ and Hashlim (1995)¹²⁸, the regional disparity in terms of PCI showed declining in 1960s, but since then, it rose up and has widened in the reform period in India. Noorbaksh (2003) has evidence that the disparity in per capita NSDP among the states has increased from 42.84% to 46.08% (CV) during 1980's to 1990's in the country. He pointed out

¹²² Krimi (2010): *Regional Development Disparities in Malaysia*, Available at http://www.jofamericanscience.org/journals/am-sci/am0603/10_2063_Regional_am0603_70_78.pdf. Accessed on 23/03/2011

¹²³ Banerjee, Anuratha and Ahluwalia Dupa (2003): "Regional Disparities in Demographic Economic and Social Development in India" in A C Mohapatra and C R Pathak (eds), *Economic Liberalization and Regional Disparities in India*, Star Publishing House, Shillong.

¹²⁴ Ganguli, B N and D B Gupta (1976): *Levels of Living in India: An Inter-State Profile*, S. Chand and Co. Ltd, New Delhi.

¹²⁵ Rao, H (1977): "Identification of Backward Regions and the Trends in Regional Disparities in India", *Artha Vijnana*, 19: 93-112.

¹²⁶ Nath, V (1970): "Regional Development Planning in India", *Economic and Political Weekly*, Annual Number: 242-260.

¹²⁷ Krishnaji, N (1993): "Widening Distances: States Domestic Product Variations, 1961-81" in Pranab Bardhan, Mrival Datta Chandhuri and T. N. Krishan (eds), *Development and Change Essays in Honour of K.N. Raj*, Oxford University Press Bombay 1993.

¹²⁸ Hashlim, S R (1995): "*Regional Disparities in India*", Planning Commission 1995,

that lack of infrastructure in backward states, which are caught in a vicious circle of deprivation, is the main cause behind regional disparities.¹²⁹

Mathur (2003) examined a few key facets of national and regional economic growth in India like growth of NSDP and PCI with special focus on the 1980s and 1990s. From the study, it emerged that the growth trend had been fluctuating indicating that declining growth momentum of the seventies was broken and that the pace of overall growth in the eighties was marginally improved, which continued till nineties. Among the states, Andhra Pradesh, Maharashtra and Gujarat emerged as the three fastest growing state. There were considerable sectoral growth rate disparities in case of developed state from the eighties to nineties. From the same study, it was found that the inter-temporal behaviour of coefficient of variation of states' level PCI showed tendency towards decline till the mid sixties but, thereafter, there had been almost a continuous increase along a U-shaped curve of regional disparities among states in India.¹³⁰

The empirical evidence has shown by Kurian (2000) that the stabilisation and deregulation policies in new economic reforms 1991 have widened the regional disparities in per capita income. He further observed that the current disparity is diverging rather than converging.¹³¹ In the same line, Jha (2001) has analysed Real Per Capita NSDP among 15 Indian States and showed that the standard deviation has widened from 513.7 to 834.5 in 1980-81 to 1992-93 respectively.¹³² The Tenth Five Year Plan (2002-2007) Volume III has also pointed out that the statistical figure of standard deviation in HDI for 1981 was 0.083, which was further increased to 0.100 in 1991 among the States in the country.¹³³ Thorat (2011) has studied the growth, inequality and poverty for the period 1983-2005 in India. He estimated the inequality in income distribution using Gini coefficient and resulted that its inequality has increased from 0.34 during 1983 to 0.35 in 2004-05. The increase has been gradual and similar during the two time period, increasing to 0.35 in 1993-94 and keeping constant in 2004-05.¹³⁴

The NCAER (1994) in a survey of the disparities in 'Human Development Profile of Rural India' concluded that the inter-state disparities in the levels of income persists, but the

¹²⁹ Noorbaksh, Farhad (2003): "Human Development and Regional Disparities in India", University of Glasgow. http://www.gla.ac.uk/media/media_22245_en.pdf, accessed on 06-04-11.

¹³⁰ Mathur, Ashok (2003): "National and Regional Growth Performance and the Indian Economy: Sectoral Analysis" in Mohapatra and Pathak (eds), *Economic Liberalization and Regional Disparities in India*, Star Publishing House, Shillong.

¹³¹ Kurian, N J (2000): "Widening Regional Disparities in India: Some indicators", *Economic and Political Weekly*, Vol.35 No. 7 Feb: 583-90.

¹³² Jha, S C (2001): "Regional Disparities in India: A Reappraisal" in Atul Goswami (ed), *Regional Disparities in India*, Akansha Publishing House, New Delhi.

¹³³ *Tenth Five Year Plan (2002-2007)*: Vol. III, Planning Commission, Government of India, New Delhi.

¹³⁴ Thorat, Sukhadeo (2011): "Growth, Inequality and Poverty During 1983-2005: Implications for Inclusive Policy", *The Indian Economic Journal*, Volume 59 (1) April-June: 17-18

inter-population disparities appear to narrow in certain human development parameters.¹³⁵ The India's HDR (1996) presented a study of disaggregated HDI for 16 Indian states showed that the inter-state disparity was significant, with Kerala at the top (0.597) and Uttar Pradesh at the bottom (0.310). Dubey and Srivastav (2003)¹³⁶ examined regional disparities using NSSO data of normalised income for 32 States' (including Union Territories). The study has concluded that there was no evidence of regional convergence among the Indian States. Many studies on convergence across the states in India like Nagaraj, Varoudakis and Venganzous (1998)¹³⁷, Rao, Shand and Kalirajan (1999)¹³⁸, Shand and Bhide (2000)¹³⁹ and Ahluwalia (2000¹⁴⁰, 2002¹⁴¹) made observation that regional disparities in India had widened especially during 1990s. The inter-state disparity in per capita SDP had significantly increased from 27.27% to 33.33% in 1981 to 1991 respectively.

Anuradha and Rao (1995) examined inter-states disparity in the levels of industrial development on the basis of ASI and CSO data for the period 1970-71 to 1985-86 in India. They have found that although there was inequality in absolute terms, the process of industrialisation was characterised by an inequality in its spatial distribution; relatively speaking there was tendency to decline. During 1971-85 industrial production has increased by more than 6 (six) times in terms of value added; employment has increased by only 42% and number of factories by 56%. Industrially developed states like Maharashtra, Gujarat and Tamil Nadu continued to grow. There was a decline in the growth of industrialisation in West Bengal, where its rank fell down from second in the 1970-71 to 5th rank in 1985-86. This has reduced the regional disparity to a great extent in India.¹⁴² However, Joshi (1997) observed from his work "Regional Disparities in Industrial Development in India" that despite adoption of a number of policy resolutions since 1956 for industrial development and its decentralisation, regional disparities continued to persist. During 1969-92-93, the pace of industrial development in the backward states was slow

¹³⁵ NCAER (1994): *Human Development Profile of Rural India*, Oxford University Press, New Delhi.

¹³⁶ Dubey, A and N Srivastav (2003): "Regional Disparities in Poverty Evidence and Levels of Living in India" in A C Mohapatra and C R Pathak (eds), *Economic Liberalization and Regional Disparities in India*, Star Publishing House, Shillong.

¹³⁷ Nagaraj, R, A Varoudakis and M Venganzones (1998): "Long-Run Growth Trends and Convergence Across Indian States", *OECD Technical Papers No. 131*, January: 1-58

¹³⁸ Rao, M G, R T Shand and K P Kalirajan (1999): "Convergence on Incomes Across Indian States: A Divergent View", *Economic and Political Weekly*, March 27.

¹³⁹ Shand, R and S Bhide (2000): "Source of Economic Growth-Regional Dimensions of Reforms", *Economic and Political Weekly*, October 14: 3747-3757.

¹⁴⁰ Ahluwalia, M S (2000): "Economic Performance of State in Post-Reforms Period", *Economic and Political Weekly*, May 6: 1637-1648.

¹⁴¹ Ahluwalia, M S (2002): "State Level Performance Under Economic Reforms in India" in Anne O. Krueger (ed), *Economic Policy Reforms and the Indian Economy*, Oxford University Press, New Delhi: 91-125.

¹⁴² Anuradha, A and A V V S K Rao (1995): "An Analysis of Inter-State Industrial Disparities in India 1970-71 - 1985-86", *Indian Journal of Regional Science*, Vol. XXIX (1), RIASI, Kolkata

compared to that of the developed states. The Government policy of industrial dispersal has not affected the industrially developed states like Maharashtra, Gujarat, Tamil Nadu, Andhra Pradesh, Punjab and Uttar Pradesh. On the other hand, industrially backward states like Himachal Pradesh, Jammu & Kashmir, Assam, Orissa, Rajasthan, Haryana Kerala and Madhya Pradesh and other North Eastern states even though eligible for subsidy in investment, incentive and concessional schemes could not come up industrially.¹⁴³

Similar conclusions were arrived in the work of Dutta and Mukhopadhyay (1999) that the industrial diversification is closely associated with the higher level of industrial development. In the backward states industrial structure is dominated by a few capital intensive heavy industries. Hence, there was no tendency to converge in industrial development in India.¹⁴⁴ Also, Pathak (2003)¹⁴⁵ observed that during 1970-71 about 58% of registered factories were concentrated in Gujarat, Maharashtra, Tamil Nadu, West Bengal and Andhra Pradesh. These states continued to have the highest position, which increased to about 60% during 1992-93. Hence, it has concluded that the persistence of regional disparity in India has accounted for lack of industrial development in the backward States. The locations of few capital and technology intensive industries in the backward states failed to make a breakthrough in the structural backwardness of those areas.

The industrial disparities appear to be more serious when the North Eastern States are compared with the rest of the country. Baruah (2001) studied the industrial disparity in the indicators such as manufacturing outputs and its per capita, registered factory, contribution of industry and mining to NSDP, infrastructure (power, irrigation, transport and communication, education, health and banking) and registered small scale industry units for 24 states taking the period 1970-71 to 1990-91. He revealed that except Assam (ranked 16 in 1970, 18 in 1980s & 17 in 1991), all other states of North East Region (NER) were ranked behind 20. Hence, he concluded that while economic reforms were welcoming, widening disparity was a matter of concern in India.¹⁴⁶

Study showed that the financial investment by both foreign investors and all India financial institutions had bias in favour of more advanced western region (Goa, Gujarat and Maharashtra), making them “Vicious Circle of Prosperity”. In contrast, despite rich resource

¹⁴³ Joshi, Samir (1997): “Regional Disparities in Industrial Development in India”, *India Journal of Regional Science*, Vol. XXIX, (1), RSAI, Kolkata.

¹⁴⁴ Dutta, S K and F Mukhopadhyay (1999): “Industrial Disparities in India: A Test of Convergence India” *Journal of Regional Science*, Vol.XXXI (1), RSAI, Kolkata.

¹⁴⁵ Pathak. C R (2003): “Regional Disparities in Industrial Development in India” in A C Mohapatra and C R Pathak (eds), *Economic Liberalization and Regional Disparities in India*, Star Publishing House, Shillong.

¹⁴⁶ Baruah, S (2001): “Regional Disparity in the Industrial Development of India: An Inter-Temporal Study” in Atul Goswami (ed), *Regional Disparities in India*, Akansha Publishing House, New Delhi: 58-75

based in NER, there was negligence by both foreign and domestic investors owing to lack of infrastructure, local entrepreneurs and congenial law and order. Thus, they failed to come out of the “Vicious Circle of Poverty”. Consequently, the disparity between the regions had widened especially in post reform period.¹⁴⁷

Dey (2003) made a comparative study in India between the NSDP between coastal states like Kerala, Maharashtra and Tamil Nadu and non-costal states like Arunachal Pradesh, Assam, Bihar, Manipur, Meghaleya, Nagaland, Orissa, Sikkim and West Bengal. He found that the costal states NSDP was 2.41 times higher than that of non-costal states.¹⁴⁸ Further, the World Bank (2006) observed that there was sharp differentiation across states since the early 1990s, which meant that there was acceleration of growth in some states but deceleration in others. The report also adds that more worryingly, growth failed to pick up in states such as Bihar, Orrissa and Uttar Pradesh that were initially poor to start with, as a result, the gap in performance between India’s rich and poor states widened dramatically during 1990s.¹⁴⁹

Bhattacharya and Sakthivel (2004) made a comparative study between pre and post reform decades in development disparities in 17 Indian states. They observed that the disparity in per capita SDP has widened from 22% during pre reform period (1980s) to 43% during post reform period (1990s). The backward states with higher population growth did not attract investment from both public and private investors due to various reasons like poor income, poor infrastructure and probably poor governance. Hence, with deregulation of private investment, there has been an increase in regional disparity in India.¹⁵⁰ Adabar (2005) in the study of “Economic Growth and Divergence” showed that economic growth in India for the period 1976-77 to 2000-01 has been absolutely divergent with 12% every five year.¹⁵¹

Dholakia (2003)¹⁵² and Gupta (2009)¹⁵³ observed that the per capita income does not show any significant trend in reducing regional disparity, but the overall indices of human

¹⁴⁷ Madhab, J (2001): “New Economic Policy and Regional Disparities” in Atul Goswami (ed), “*Regional Disparities in India*”, Akansha Publishing House, New Delhi:76-86

¹⁴⁸ Dey, J (2003): “Geography and Economic Growth; South Coastal States and Eastern States of India” in Mohapatra and Pathak (eds), *Economic Liberalization and Regional Disparities in India*, Star Publishing House, Shillong.

¹⁴⁹ World Bank (2006): “India-Inclusive Growth and Service Delivery: Building of India’s Success”, Commission on Growth and Development, Washington: The World Bank, May.

¹⁵⁰ Bhattacharya, B B and S Sakthivel (2004): “Regional Growth and Disparity in India: A Comparison of Pre and Post-Reform Decades”, *Economic and Political Weekly*, Vol. 29 (10), March:1071-1077.

¹⁵¹ Adabar, K (2005): *Economic Growth and Divergence in India*, <http://www.isid.ac.in/~planning/ka.pdf>. Accessed on 18th April 2011.

¹⁵² Dholakia, R H (2003): “Regional Disparities in Economic Growth and Human Development in India”, *Economic and Political Weekly*, Vol. 38 (39), Sept, 27: 4166-4172.

¹⁵³ Gupta, D (2009): “Disparities in Development, Status of Women and Social Opportunities: Indian Experience”, *Journal of Alternative Perspective in the Social Sciences*, Vol.1 (3): 687-719

development (HDI) showed the declining trend during 1981-2001 in India. The western states were better off in per capita income while the southern states were better in HD indicators. Singh and Nauriyal (2006) showed established regional disparities in India for 15 Indian states over the period 1983-2000 on cross sectional setting. The study revealed that the disparity in health sector has increased from 7.74% in 1991-95 to 25.94% in 1999-00. Also in per capita consumption expenditure, it has increased from 15.75% to 21.75% in 1983 to 1999-2000.¹⁵⁴ Gaur (2010) has empirical evidence that inequality was much more prominent during the reform period (1991-2002) particularly in per capita income. He measured Gini coefficient for income distribution in India which showed that its value increased from 0.3152 to 0.3676 during 1993-94 to 2004-05 respectively, where the states such as Bihar, Orissa and U.P failed to pick up with the richer states, while states like Gujarat, Haryana and Maharastra remained at the top.¹⁵⁵

Goswami (2001) stated in his book “Regional Disparities in India” that the regional disparities especially in input factors such as physical infrastructure led to the overall regional disparities in India.¹⁵⁶ Nayak (2005) has observed that there existed wide spread disparity of socio-economic achievement across the states as well as within a state and from urban to rural areas particularly in economic growth in North East Region (NER) of India.¹⁵⁷ Agarwala and Hazarika (2003) found that in Assam there existed vast inter-district disparities in the level of development, particularly in infrastructure, where the coefficient of variation was 28.87% with N.C. Hills and Kokrajhar as the most and least developed districts respectively in the year 2000.¹⁵⁸ The Assam HDR (2003) also showed that the highest per capita income district Jorhat had more than 3 times higher than that of the lowest district Darrang.¹⁵⁹ Thaker and Shiyani (2009) studied inter-district disparity in Gujarat taking 57 indicators for the period 1991-2007. They observed that there was convergence in EG indicator such as agriculture and industry. However, in human development indicators and infrastructural development, it widened during the reform period (1991-2001).¹⁶⁰ In a case study of inequality in human development in

¹⁵⁴ Singh, S P and D K Nauriyal (2006): “Human Development Disparities in India; Inter-State Scenario” in S.K. Pant (ed), *Human Development: Concept and Issues in the Context of Globalization*, Rawat Publication, New Delhi: 316

¹⁵⁵ Gaur, A K (2010): *Regional Disparities in Economic Growth: A Case Study Indian State*. <http://www.iariw.org>. Accessed on 30th August 2010.

¹⁵⁶ Goswami, A (2001): *Regional Disparities in India*, Akansha Publishing House, New Delhi: viii.

¹⁵⁷ Nayak, P (2005): “A Human Development Approach to the Status of Development in North East India”, Available at http://www.freewebs.com/nehu_economics-a/human_dev.pdf. Accessed on 30th June, 2010.

¹⁵⁸ Agarwala, A K and P Hazarika (2004): *Development Disparities: A Quantitative Insight*, Akansha Publishing House, New Delhi.

¹⁵⁹ Assam Human Development Report (India) (2003).

¹⁶⁰ Thaker, H and R L Shiyani (2009): “Socio-Economic Development in Gujarat, Rosy Picture with Concerns”, *Journal of Rural Development*, Vol. 28 (4) Oct-Dec: 515-528.

Maharashtra conducted by Kamdar and Basak in 2005 found that the most backward district in terms of HDI Gadchiroli has its value of 0.21 only, while the most developed district Mumbai has attained its value of 1.00.¹⁶¹

Tyagi (1994) in the study of agricultural development of Aligarh district using standard scores concluded that regional disparities at block levels needed special attention of the government on priority basis particularly in technological transformation.¹⁶² In Punjab, several studies showed that since Green Revolution (1966) in the country, there has been a high degree of inter-district variation in yielding (Kaur and Sethi 1995¹⁶³; Vema and Das, 1995¹⁶⁴). Similarly, Mohanty (1999) studied inter-districts disparity in agricultural development of Andhra Pradesh in 32 indicators using method of indexing at three points of time. He concluded that a strong regional cohesion-spread effect and government intervention benefited the advantaged districts in their development.¹⁶⁵

In Nagaland, according to NSHDR 2004, there was a vast inter-district disparity especially in PCI where the highest district Dimapur (Rs. 16,837) had about four times higher than that of the lowest district Mon (Rs. 4,500) in 2001.¹⁶⁶ Similarly, the Arunachal Pradesh HDR 2005 stated that an inequality in the distribution of resources was limited before the reform period. However, in the post-reform period, it had widened. The same report showed that the IMR for Kurung Kumey (133) was more than double to that of Lower Dibang Valley (53). Also, the HDI for East Siang (0.660) district was almost double to that of East Kameng district (0.362).¹⁶⁷ The Tripura HDR (2007)¹⁶⁸ also revealed that there was considerable performance of growth rate in the State. But the variation in the growth rate varies from 6.1% in Dhalai district against 7.9% in North district. There has been a vast disparity of development particularly in per capita income and HDI among North Eastern States of India.¹⁶⁹

¹⁶¹ Kamdar, S and A Basak (2005): "Beyond the Human Development Index, Preliminary Notes on Deprivation and Inequality", *Economic and Political weekly*, Vol. No. 34, August 20: 3759-3765

¹⁶² Tyagi, S (1994): "Levels of Agricultural Development in Aligarh District", *Indian Journal of Regional Science*, 26(1).

¹⁶³ Kaur, P and Sethi (1995): "Inter-District Variation in Agricultural Producing in Punjab", *Indian Journal of Regional Science*, 27(1&2).

¹⁶⁴ Verma, B N and H C L Das (1995): "Regional Pattern of Agricultural Development in India (1891-1976): An Institutional Approach", *India Journal of Regional Science*, 27 (1&2).

¹⁶⁵ Mahanty, G (1999): "Regional Development in Andhra Pradesh 'A District Level Analysis'", *Indian Journal of Regional Science*, 31 (2)

¹⁶⁶ Nagaland State Human Development Report (India) (2004)

¹⁶⁷ Arunachal Pradesh Human Development Report (India) (2005)

¹⁶⁸ Tripura Human Development Report (India) (2007)

¹⁶⁹ Nayak, P (2009): "Human Development Reports on North East India: A Birds Eye View", Available at www.mpra.ib.uni.muenchen.de/17015/1/MPRA_paper_17015.pdf. Accessed on 18/04/2011

Thus, it is observed that one of the most important concerns of India's development progress is its remarkable regional disparity.¹⁷⁰ The inter-state disparity in income, according to findings of another study, widened due to multitude of complex factors. Among them were quality and standard of governance, resource endowments, proximity to raw materials, absence of genuine land reforms, quality of human capital and infrastructure.¹⁷¹

2:3: GENDER DISPARITIES

Women and men share many aspects of living together, collaborate with each other in complex and ubiquitous ways, yet, ended up often with very different reward and deprivations.¹⁷² The gender disparity and discrimination, although existed along with the development process, it has been lately realised in the literature of human history due to its theoretical limitations. UNDP in its HDR 1995 has turned up sharply against the gender discrimination. The same report introduced new measurement of development in regard to gender difference as Gender-related Development Index (GDI) and addresses the gender issues at large. In pursuance of rapid growth and development, there is need for fresh economic and social analyses as well as careful and probing empirical research. Lack of education, joint family system and stringent patriarchal ideologies particularly in the rural areas can be collectively held responsible for gender differences (NCEAR, 2001).¹⁷³

Paul (2006) sorted out two categories of work: work for payment and work for no payment. Due to the fact that many women's works fall under the second category, it fails to recognise the work value of women for long time.¹⁷⁴ A major reason for the under valuation of women's work is that it does not enter into National Accounts System, which only considers market oriented productive activities.¹⁷⁵

Gender disparities are among the deepest and most pervasive of all the developmental inequalities. Shiva Kumar (1996), in his computation of gender disparities in India showed that the mortality rate among children ages 1-5 years was 50% higher in girls than that of boys. He showed that if India closed the gender gap in mortality in ages 1-5 years, it would save 130,000

¹⁷⁰ Das, A (1999): "Socio-Economic Development in India: A Regional Analysis", *Development and Society*, Vol.28 No.2, Dec.

¹⁷¹ Kaushil, N (2001): "Economic Reforms and Regional Disparities" in Atul Goswami (ed), *Regional Disparities in India*, Akansha Publishing House, New Delhi: 47-49

¹⁷² Anand, S and A K Sen (2005): "Gender Inequality in Human Development: Theories and Measurement" in Fukuda-Parr and Kumar (eds), *Readings in Human Development*, Oxford University Press. New Delhi.

¹⁷³ NCEAR (2001), *South India HDR*: 264,281.

¹⁷⁴ Paul, T (2006): "Gender Dimensions of Development" in S.K. Pant (ed), *Human Development Human Development: Concept and Issues in the Context of Globalization*, Rawat Publication, New Delhi.

¹⁷⁵ Sterner, G (2001): "Women and Regional Development" in Atul Goswami (ed), *Regional Disparities in India*, Akansha Publishing House, New Delhi: 132-142.

lives reducing its overall child mortality rate by 5%. In the same work, he further pointed out that in Indonesia maternal mortality ratios were four times higher among women in the poorest 20% of the population than among women in the richest 20%.¹⁷⁶ In India, the reason which kept girls out of school was because of the commonly held belief that the more educated a girl, the greater the difficulty in finding a good match and higher the dowry. Besides, parents were reluctant to send their daughters to schools after puberty, especially if school was not in the proximity. These reasons increase gender discrimination in India (Somvanshi, 2006).¹⁷⁷

Dreze and Sen (1995) maintained that the low gender-ratio which created conditions for discrimination at various levels captured the extent of intra-household gender inequalities.¹⁷⁸ According to NFHS-2, among the female respondents, 84.1% decide what items to cook, but when it comes to obtaining health care, only 32.1% participate in making decision with their husbands. The MHHDC (2002) estimated that the daily workload of a working class village woman in South Asia stretched from 12 to 16 hours. However, women were generally paid lower wages than men and denied of owning land. In Bangladesh, women were paid only 71% of what men earn, while that of Pakistan in rural areas was only 59%. In India, the gender-gap in work participation ranged between 41-48% across the states.¹⁷⁹

UNDP (1999) conducted an intensive study on gender disparity and pointed out that Austrian men spent an average of 70% of their time in paid labour and 30% in unpaid labour, whereas 70% women were engaged in unpaid labour and 98% women in part-time job. In Denmark, about 65% of men in the labour force worked 30-39 hours a week, 30% worked more than the given hours and 5% worked less than that. In case of women, 69% of women work 30-39 hours, whereas 11% worked more and 20% worked less than the aforementioned hours. In Italy, married women with children spent 7.5 hours a day in care work, while that of men was only 1.5 hours. In Netherlands, women spent twice as much time in unpaid work at home than men. Also, women in Spain spent 7 times as many hours doing domestic work than men.¹⁸⁰

¹⁷⁶ Shiva Kumar, A K (1996): "UNDP's Gender-Related Development Index. A Computation for Indian States", *Economic and Political Weekly*, Vol. XXXI (14) April 6: 887-896.

¹⁷⁷ Somvanshi, V (2006): "Empowering Child Labourers Through Education: Hope and Despair" in S.K. Pant (ed), *Human Development Human Development: Concept and Issues in the Context of Globalization*, Rawat Publication:185

¹⁷⁸ Dreze, J and A K Sen (1995): *India: Economic Development and Social Opportunity*, Oxford University Press, New York.

¹⁷⁹ MHHDC (2002): *Human Development in South Asia*, Oxford University Press, Karachi

¹⁸⁰ Drafted principally by Sakiko Fukuda – Parr based on background paper prepared by Nancy Folbre, Chapter-3.HDR, 1999. "The Invisible Heart-Care and the Global Economy" in Shiva Kumar et. al. (2005) (eds), *Readings in Human Development*, Oxford University Press, New Delhi: 367

The UNDP (2010) in its HDR identified that women's lack of power and voice as the main reasons behind gender inequality in South Asia. It has estimated that the global loss in economic growth due to gender inequality was 56%, mostly concentrated in South Asia, Sub-Saharan, Africa and the Arab States. The lost in South Asia was estimated to be 74% as compared to 32% in developed OECD countries. Among the South Asian nations, the poorly performing countries on Gender Inequality Index¹⁸¹ (GII) were Afghanistan, Bangladesh, India and Nepal with 54% each and Sri Lanka 60%. It was estimated that the developed OECD and non-OECD countries came 0.317 and 0.376 respectively against the world level of 0.560.¹⁸²

In the midst of high gender inequality, it is relevant to present the statement of erstwhile Prime Minister, Jawaharlal Nehru that "to awaken the people it is the women who must be awakened, once she is on the move, the family moves, the village moves and the nation moves".¹⁸³

2.4: LINKAGES BETWEEN ECONOMIC GROWTH AND HUMAN DEVELOPMENT

Many studies showed that economic growth provides resource to achieve improvement in human development, while an improvement in human development plays a significant role in achieving higher economic growth. Hence, there is a strong two-ways positive linkage between Economic Growth (EG) and Human Development (HD) depending upon various factors like the structure of an economy, the distribution of assets and policy choices.

There are empirical evidences that increase in income improves literacy rate and reduces infant mortality rate. Also, the expenditure of household as well as government on human development oriented items improves human development. On the other hand, the institutional heritage of the society affects the linkage between EG and HD, when people act together to promote their well-being, when public morality is high, when community monitors malfeasance and when it participates extensively in public life, *ceteris paribus*, the links would be stronger, i.e. HD achievement is likely to be positively associated with the strength of social capital.¹⁸⁴

Recent development experiences have underlined the need for paying a close attention the link between EG and HD because many fast growing developing countries having high GNP growth rates have failed to reduce the socio-economic deprivation of substantial sections of their population. Countries like Georgia, Indonesia and Jamaica having very low per capita GDP but

¹⁸¹ GII is a method for measuring Gender Disparity introduced in 2010.

¹⁸² UNDP (2010a): *Asia Pacific Human Development Report*, Oxford University Press, Colombo.

¹⁸³ Quoted in NCEAR (2001): *South India; Human Development Report*, Oxford University Press, Chennai: 264.

¹⁸⁴ UNDP (1996): *Human Development Report*, Oxford University Press, New York.

achieve high levels of HD, whereas South Africa in spite of a very high per capita GDP could achieve a relatively low level of HD.¹⁸⁵

2.4.1: Inducement of Economic Growth to Human Development

There are empirical evidences showing the linkage between EG and HD that operates through trickle down effects of EG on improvement in HD. Ranis et. al. (2005) have empirically examined that there is a strong inducement from economic growth and human development. In the study of EG and HD in 35 to 76 countries for the period 1960 to 1992, they have found that 1% increase in average growth rate of GDP is estimated to reduce life expectancy of shortfall by 3.25%. Also, one percentage increase in social expenditure reduces life expectancy by 1.75% significantly.¹⁸⁶

Patel (1993) in the study of “Productivity of Human Factor” pointed out that Ragnar Nurkse’s explanation of ‘Vicious Circle of Poverty’ can be broken, once the investment decision is made effectively on human development oriented items. He also pointed out that in India; HD is directly related to the economic soundness of tribals and other backward castes.¹⁸⁷ Other empirical evidence from the work of Chakraborty (2003) in “Public Expenditure and Human Development: An Empirical Investigation” also proved beyond doubt that the effect of per capita spending in social sector raises HD significantly.¹⁸⁸

Ghosh (2006) examined the two way relationship between EG and HD of 15 major Indian states, taking the indicators of literacy rate, life expectancy at birth, PCI and HDI. He concluded that EG measured by per capita income has significant positive effects on all the HD indicators. The impact of PCI on HDI, literacy rate and life expectancy are significant at 1% levels. He has further empirically shown that the social sector expenditure is an important factor in achieving regional convergence in human development through its positive effects on literacy rate, life expectancy at birth and HDI.¹⁸⁹

It is well envisaged that income as the facilitator has improved human development through trickle down effect. The China’s HDR 2005 claimed that the high income growth has attributed considerably to the advance in the ranking of HDI from medium level (0.755) during

¹⁸⁵ UNDP (2003): Human Development Report, Oxford University Press, New York.

¹⁸⁶ Ranis, G F Stewart and Alejandro Ramirez (2005): “Economic Growth and Human Development” in *Readings in Human Development* (eds) Sakiko Fukuda-Parr and A K Shiva Kumar, Oxford University Press, New Delhi: 68

¹⁸⁷ Patel, M L (1993): “Productivity of Human Factor” in Nagpal et al. (eds), *Human Resource Development*, Amol Publications Pvt. Ltd

¹⁸⁸ Chakraborty, L S (2003): “Public Expenditure and Human Development: An Empirical Investigation”, available at <http://www.wider.unu.edu/conference/conference-2003-2/conference%202003-2papers/papers-pdf/chakraborty%20120403.pdf> accessed on 23/06/2008

¹⁸⁹ Ghosh, M (1996): “Agricultural Development and Rural Poverty in India”, *Indian Journal of Agricultural Economics*, Vol.51 (3): 374-80.

1980s by 20% since 1990.¹⁹⁰ Similarly, in India, the Tamil Nadu HDR (2001), in its first report stated that the HDI (0.667) of the state which was above national average (0.472) was credited mainly to the higher level of income. In this line, Kerala (India) HDR (2005) asserted that her life expectancy and literacy rates were comparable to those of many developed countries. But they do not enjoy many of the benefits of citizens of such countries due to comparatively low level of per capita income.¹⁹¹ Office of the United Nations in the Republic of Belarus has claimed that economic constraint was preventing many people from realising the benefits of political and economic changes, which led to low level of HD in the country.¹⁹² Thus, higher income has indirectly facilitated the achievements of other crucial HD.

Hussain (1999) in the study of Human Geography showed that out of 174 selected countries, 98 ranked higher on HDI than on GDP per capita (ppp\$). Thus, he concluded that these countries have converted economic prosperity into human capabilities effectively.¹⁹³ Misra (2001) has drawn a similar conclusion from the work of 'Human Development - Inter-State Dimensions' that in order to promote human resource and to sustain economic growth in the long run, it is essential to pursue simultaneously the policies of economic expansion and greater provision by the state of merit goods and services to enhance basic human capabilities.¹⁹⁴

NCEAR (2001) confirmed that investment made in natural environment and awareness about cleanliness has contributed to the good health of the people of Madapura in Karnataka (India).¹⁹⁵ Empirical evidence showed that the expenditure on human development-related items is strongly affected by the rate of increase in income. For example, income elasticity of demand for food in case of poor people in India is fairly high, revealing that if poor households receive extra income, they increase their food expenditure and calorie consumption significantly. Of the thirty-eight studies in different countries, one-third indicates that at least one-half of additional income is spent in this way (Strauss and Thomas, 1995)¹⁹⁶.

Ishikawa (1997) in the study 'Growth, Human Development and Economic Policies in Japan during 1955-1993' revealed that the expenditure in educational sector did not hamper even during the war. It continued to be the biggest single item of government expenditure until the mid

¹⁹⁰ China *Human Development Report*, 2005.

¹⁹¹ Kerala HDR (2005): Centre for Development Studies, Thiruvananthipuram.

¹⁹² UNDP (1995): *Belarus Human Development Report*, Minsk

¹⁹³ Hussain, M (1999): *Human Geography*, (Second edition), Rawat Publications, New Delhi: 286.

¹⁹⁴ Misra, D (2001): "Human Development-Inter-State Dimensions" in Bramanandha et. al. (eds), *Development Experience in the Indian Economy*, Bookwell Publication, New Delhi: 301,305.

¹⁹⁵ NCAER (2001): *South India: Human Development Report*, Oxford University Press, Chennai.

¹⁹⁶ Strauss, J and D Thomas (1995): "Human Resources: Empirical Modeling of Household and Family Decisions" in J. R. Behrman and T. N. Srinivasan (eds), *Handbook of Development Economics*, Vol. 3, Amsterdam: North Holland.

1960s. Also, during 1970s the expenditure on education again increased to the peak of 6.7% of GDP in Japan. This had an impact on increase in human resource in the country.¹⁹⁷ Similarly, Nauriyal, Sahoo and Dixit (2009) provided empirical evidence that the impact of EG on enrolment in graduation and above in India had been significant.¹⁹⁸

There is an evidence that the developing countries which have sustained EG in the past three decades were generally the countries in which, the rate of agricultural growth exceeded population growth. MHHDC (2002) revealed that a 3% growth in the agricultural sector from 1980 to 2000 led to a 5% growth in the overall economy in South Asia, whereas the same 3% agricultural growth led to 7% GDP growth in East Asia and Pacific region. These growths have further enhanced HD.¹⁹⁹

Agricultural growth has also an indirect impact on growth in labor-intensive-non-farming activities like food and beverages industries. Sarris (2001) proved that improvement in farm production helps spur non-farm activities in rural areas and as such non-farm activities came to be seen as a very crucial element to insulate better human well-being.²⁰⁰ In Poland, Bogumit (2009) confirmed that the labour productivity is strongly and negatively correlated with the share of employment in agriculture (correlation coefficient is -0.86) while the labour productivity was strongly positively correlated with human resources in science and technology (correlation coefficient is 0.59) during 2001-2005.²⁰¹

In semi-logarithmic framework of regressing, proportionate shortfalls of life expectancy against per capita GDP showed that nearly half of the variations in the life expectancy could be attributed to differences in GNP per head (Anand and Ravallion, 1993).²⁰² Filmer and Pritchett (1999) estimated that more than nine million children under the age of five died avoidable deaths in the world. They found that 95% of the variation in mortality across countries is explained by per capita income, inequality, female education and ethnic fractionalisation.²⁰³ Similarly, Cutter and Miller (2005) estimated that in poor countries, 30% of deaths were among children, as

¹⁹⁷ Ishikawa, T (1997): *Growth, Human Development and Economic Policies in Japan 1955-1993*, available at http://www.hdr.undp.org/en/reports/global/hdr1997/papers/tsuneo_ishikawa.pdf. Accessed on 08/04/2011.

¹⁹⁸ Nauriyal, D K, B K Sahoo and A Dixit (2009): "Economic Growth, Globalization and Human Capital", *The Indian Economic Journal*, Vol. 56, No.1, Jan-Mar 2009, Academic Foundation, New Delhi. p.48

¹⁹⁹ MHHDC (2002): *Human Development in South Asia*, Oxford University Press, Karachi : 2&44.

²⁰⁰ Sarris, A H (2001): "The Role of Agriculture in Economic Development and Poverty Reduction: An Empirical and Conceptual Foundations", *Paper Prepared for the Rural Development of the World Bank Rural Action Plan 2001-06*, Washington, D. C. World Bank.

²⁰¹ Bogumit, P (2009): "Regional Disparities in Poland", *ECFIN Country Focus* Vol. VI (4), May 18.

²⁰² Anand, S and M Ravallion (1993): "Human Development in Poor Countries: On the Role of Private Incomes and Public Services", *The Journal of Economic Perspectives*, Vol. 7 (1): 133-150.

²⁰³ Filmer, D and L Pritchett (1999): "The Impact of Public Spending on Health: Does Money Matter?" *Social Science and Medicine*, 49 (10): 1309-1323.

compared to less than 1% in rich countries.²⁰⁴ In Japan, an increase of 1% in real public hygiene expenditure reduced 0.1% decrease in less than five mortality rate and 0.16% in infant mortality rate.²⁰⁵ Further, Balhotra (2007) confirmed that in India, health expenditure became a significant impact in reducing mortality rate. A 10% increase in health expenditure in period (t-3) resulted in a drop of infant mortality in period 't' by 1.9%. But, the long run elasticity with respect to income was about 30% higher than that of nation's health expenditure.²⁰⁶

Hence, it is obvious that income growth is positively associated with improvement in well-being of the people. It is one of the main contributors that has directly enhance the capabilities of individuals and consequently the HD of a nation, as it encapsulates the economy's command over resources (Anand and Sen, 2000).²⁰⁷ The occupied Palestinian territory HDR (oPt HDR 2009/2010) stated that until Palestinians take over the control of economic resources and environment, especially over macro-economic policy, HD would remain elusive, as the main key factor behind nation well-being is that of economic resource.²⁰⁸

Thus, Haq (1995) pointed out four ways to create the desirable linkage between EG and HD. First, emphasise of investment in education, health and skills of the people would enable them to participate in the growth process as well as to share its benefits, principally through remunerative employment. Second, more equitable distribution of income and assets are found to be critical for creating a close link between EG and HD. Third, well-structured social expenditures by the government managed to improve HD significantly although low growth, and fourth, empowerment of people, particularly women was recognised as a sure way to link growth and HD.²⁰⁹

2.4.2: Inducement of Human Development to Economic Growth

There are several evidences that human development in terms of education and health have positive impacts on economic growth. Vivekananda (1996) in his work "Analysis of Human Resource in Hyderabad-Karnataka" showed an evidence that HD was an important factor that a state can make use to stride out its economic development if deployed in gainful economic

²⁰⁴ Cutter, D and G Miller (2005): "The Role of Public Health Improvements in Health Advances: The Twentieth Century US, *Demography*, 42 (1). Feb: 1-22.

²⁰⁵ Ishikawa, T (1997): *Growth, Human Development and Economic Policies in Japan 1955-1993*. Available on http://www.hdr.undp.org/en/reports/global/hdr1997/papers/tsuneo_ishikawa.pdf. accessed on 08/04/2011.

²⁰⁶ Bhalotra (2007): *Spending to Save? State Health Expenditure and Infant Mortality in India*. <http://www.ftp.iza.org/dp2914.pdf>. accessed n 21/03/2011

²⁰⁷ Anand, S and A K Sen (2000): "The Income Component of the Human Development Index", *Journal of Human Development*, Vol. 1 (1)

²⁰⁸ UNDP (2009-10): *Occupied Palestinian Territory (oPt) Human Development Report*.

²⁰⁹ Haq, Mahbub ul (2005): "The Human Development Paradigm", Reproduced from "Reflections in Human Development" by Sakiko Fukuda-Parr and A. K. Shiva Kumar (2005) (eds) in *Readings in Human Development*, Oxford University Press: 20.

activity.²¹⁰ In the similar connection, Streeten (2005) pointed out two important impacts of higher education in economic development; first, a more-educated and trained workforce raised the productivity of the cooperating factors as they were more likely to innovate and be more efficient in general and second, better education benefited others who could consequently earn more in addition to the educated person.²¹¹

The Orissa HDR (2004) stated that people accessing more opportunities in social, political and economic participation enhances economic development.²¹² Fukuda and Shiva Kumar (2005) too asserted that economic development could take a major stride as and only when people were able to wrestle for their welfare and rights. This could be possible only when a person have acquired proper knowledge and confidence.²¹³ Tambunan (2005) observed from the Indonesia experience that a rapid and steady economic growth is a necessary condition, especially in the short and medium term. However, in the long run, the nature of the growth, improvement in education and health, development of infrastructures and many other factors have direct effect in the well being of the people.²¹⁴

Ghosh (2006) found that there was two-way causality between EG and HD among the Indian states. He estimated that the impacts of LR, LEB and HDI on PCI are statistically significant at 1% levels, which gave rise to the possibilities of various cycles of development. Thus, he suggested that a state need not wait until it attained high level of EG before undertaking large investment for expansion of education and health services. The HD improvement programmes should be given priority by allocating more resources to social sectors in any economic reforms for achieving sustainable economic development.²¹⁵ Singh and Nauriyal (2006) observed from the experiences of Kerala (India), Brazil, Bolivia and Peru in Latin America that policy reforms on education and health held the key for a tangible improvement in

²¹⁰ Vivekananda, M (1996): "Analysis of Human Resource in Hyderabad-Karnataka" in Abdul Aziz etal (eds), *Regional Development*, Concept Publishing Co. New Delhi: 47, 48

²¹¹ Streeten, P (2005): "Shifting Fashions in Development Dialogue" in Fukuda-Parr and Shiva Kumar (eds), *Readings in Human Development*, Oxford University Press, New Delhi.

²¹² Orissa Human Development Report (India), 2004.

²¹³ Fukuda-Parr, S and A K Shiva Kumar (2005): "Human Rights and Human Development" in *Readings in Human Development*, Oxford University Press, New Delhi: 52-53.

²¹⁴ Tambunan, T (2005): "Economic Growth, Appropriate Policies and Poverty Reduction in a Developing Country: Some Experience from Indonesia", *South Asia Economic Journal*, Vol. 6 (1) Jan-June.

²¹⁵ Ghosh, M (2006): "Economic Growth and Human Development in Indian States", *Economic and Political Weekly*, Vol. 30 (41) July, 29: 3321-3329.

social and economic development. They concluded that the states which had taken programmes relating to HD in advance and had right monitoring mechanism had progress faster.²¹⁶

Studies in rural Pakistan and in urban Kenya and Tanzania showed that education has positive impact on earning of an individual. It is empirically shown that additional earnings due to cognitive achievements were higher than those with simply to schooling (Bossier, Knight and Sabot, 1985²¹⁷; Alderman, Berhman, Khan, Ross and Sabot, 1996b²¹⁸). Also, Barro and Lee (1993) have shown that there exist positive effects of education on EG.²¹⁹ Bourguignon and Morrison (1990) estimated from the work of “Income Distribution, Development and Foreign Trade: A Cross-Sectional Analysis” that 1% increase in the labour force with at least secondary education would increase income of the bottom 40 and 60 per cents by between 6% and 15% respectively.²²⁰ Psacharopolous et al (1992) proved that in Latin America, the returns of primary schooling tend to be greater than that of secondary and tertiary education.²²¹ Psacharopolous (1994) further enriched their literature that education and health have strong indirect impact on EG through effective distribution of income.²²²

Wood (1994) argued that the role of education had substantial contribution in modern factory. He opined that even unskilled workers in a modern factory normally need literacy, numeracy and discipline acquired in primary and lower secondary school.²²³ Ishikawa (1997) gave evidence that in Japan the spread of secondary and even higher education provided trainable young workers who could adapt relatively easier to new technology, which in turn enhanced economic growth.²²⁴ Nauriyal, Sahoo and Dixit (2009) have examined the relationship between knowledge and EG in India since 1975. They concluded that the impact of primary education was significant at 1% level, while that of secondary and tertiary education were at 10% and 1% level

²¹⁶ Singh, S P and B Nauriyal (2006): “Human Development Disparities in India: Interstate Scenario” in S.K. Pant (ed), *Human Development Human Development: Concept and Issues in the Context of Globalization*, Rawat Publication, New Delhi: 302.

²¹⁷ Boissiere, M, J B Knight and R H Sabot (1985): “Earnings, Schooling, Ability and Cognitive Skills,” *American Economic Review*, 75.

²¹⁸ Alderman, H, J Behrman, S Khan, D Ross and R Sabot (1996b): “The Returns to Endogenous Human Capital in Pakistan’s Rural Wage Market”, *Oxford Bulletin of Economics and Statistics*.

²¹⁹ Barro, J R and J W Lee (1993): “International of Comparison Educational Attainment”, *Journal of Monetary Economics*, Vol. 32.

²²⁰ Bourguignon, F and C Morrison (1990): “Income Distribution, Development and Foreign Trade: A Cross-Sectional Analysis”, *European Economic Review*, 34.

²²¹ Psacharopolous, G, S Morley, A Fiszbein, H Lee and B Wood (1992): “Poverty and Income Distribution in Latin America: The Story of the 1980’s,” Washington, DC: World Bank.

²²² Psacharopolous, G (1994): “Returns to Investment in Education: A Global Update”, *World Development*, 22 (9): 1325-1343.

²²³ Wood, A (1994): “North-South Trade, Employment and Inequality: Changing Fortunes in A Skill-Driven World”, *IDS Development Studies Series*, Oxford University Press, Oxford.

²²⁴ Ishikawa, T (1997): *Growth, Human Development and Economic Policies in Japan 1955-1993*, Available on http://www.hdr.undp.org/en/reports/global/hdr1997/papers/tsuneo_ishikawa.pdf. accessed on 08/04/2011.

respectively. Thus, it implied that the positive contribution of tertiary level of education is higher than secondary level of education in post liberalisation era.²²⁵ Jamison and Mock (1984) showed that in Nepal, the completion of at least seven years of schooling increased productivity in wheat by over a quarter, and in rice by 13%.²²⁶ A similar level of education was estimated to increase farm productivity by 10% or more in India and Pakistan (Azher, 1991²²⁷; Butt 1984²²⁸).

Deraniyagala (1995) showed that in Sri Lanka, the quality of private entrepreneurs, public policy makings and investment decisions were generally bound to be influenced by the education of both officials and managers. Moreover, the volume of both domestic and foreign investment and the rates of total factor productivity will undoubtedly be higher when a system's human capital level is higher.²²⁹ Trivedi (2002) conducted a study on the nexus between education and income for 14 India states taking the period 1963-92. In his analysis, he confirmed that the stock of educational capital particularly in secondary enrolment had a significant positive impact on the steady level of per capita income in India.²³⁰

Kochak (2005), in her comparative study of China and India in HD indicators, showed that the HDI rank for China was five above its GDP rank, while the HDI rank for India was ten below its GDP rank. This is an indicative of the different development strategies followed by the two countries. She claimed that because of its socialist background, the Communist Party of China gave greater priority to provision of basic social services like health and education to its people compared to India. This goes to prove that China produced more healthy and educated labour force and hence increased productivity and growth faster than India.²³¹

Further, the importance of public spending on human development oriented items for enhancing economic growth have been empirically proved. Zhu et al (2008) estimated the economic participation rate of education in China in the study of "A Better Estimate to the Contribution Rate of Education on Economic Growth in China from 1999 to 2003". He divided 31 Chinese provinces into 3 groups. The first group included two advanced provinces of China,

²²⁵ Nauriyal, D K, B K Sahoo and A Dixit (2009): "Economic Growth, Globalization and Human Capital", *The Indian Economic Journal*, Vol. 56, (1), Jan-Mar.

²²⁶ Jamison, D and P Mock (1984): "Farmer Education and Farmer Efficiency in Nepal: The Role of Schooling, Extension Services and Cognitive Skills", *World Development*, Vol.12.

²²⁷ Azher, R A (1991): "Education and Technical Efficiency During the Green Revolution in Pakistan", *Economic Development and Cultural Change*, 39.

²²⁸ Butt, M S (1984): "Education and Farm Productivity in Pakistan", *Pakistan Journal of Applied Economics*, 3.

²²⁹ Deraniyagala, S (1995): *Technical Change and Efficiency in Sri Lanka's Manufacturing Industry*, D.Phil., Oxford.

²³⁰ Trivedi, K (2002): "Educational, Human Capital and Levels of Income: Evidence from States in India, 1963-92", *Discussion Paper No. 97*, Department of Economics, Nuffield College, University of Oxford, Oxford

²³¹ Kochak, A K (2005): *Development Indices: A Comparative Study of India and China*, Institute of Chinese Studies, Occasional Paper, Series-June.

in this group the elasticity of economic participation rate (public spending) of education was 11.6%. The second group included 11 developing provinces of China, the economic participation rate of education was 8.82% and in the third group, which included 18 undeveloped provinces, the rate was 1.49%. Hence, this research showed that there was positive relationship between human capital and economic growth.²³²

Oluwatobi and Ogunrinola (2011) examined the impact of government recurrent and capital expenditures on education and health and their effect on economic growth in Nigeria. The study covered the period 1970 to 2008 using Solow's growth model. It showed that 1% change in recurrent expenditure on education and health resulted in 0.15% change in the level of real output.²³³ In a similar study, Babalola (2011) carried out the study of Nigeria experience to examine the long-run relationship between investment in education and economic growth in Nigeria using annual data for the period 1977 to 2008. His analysis showed that there was positive correlation between increase in educational investment and the output level of GDP. He further estimated that in Nigeria during the aforementioned period, 1% increase in educational investment raises the level of GDP by 107.1% which is statistically significant at 1% level.²³⁴

Ramirez et al. (1998) worked out the linkages between economic growth and human development taking the indicators like literacy rate, life expectancy and GDP for 35 to 76 countries. They estimated that 1% increase in adult literacy rate raised average real per capita GDP growth by 0.03%, while 1% increase in life expectancy had a positive impact on growth by 0.03% to 0.09%.²³⁵ A longitudinal study of children to prevent malnutrition would generate 6 to 8 times the cost of the intervention in terms of additional productivity (Selowsley and Taylor, 1973).²³⁶ A similar study in Cali (Colombia) found that a person acquired health and nutrition programme increases the lifetime earning from 2.5 to 8.9 times higher than those of an illiterate worker (Selowsley, 1981).²³⁷

²³² Zhu, Kejun, Haixiang Guo, Fengqin Diao, Sixin Xu (2008): "A Better Estimate To The Contribution Rate of Education on Economic Growth in China from 1999 to 2003", *Expert Systems with Applications*, 34: 1371–1383.

²³³ Oluwatobi, O Stephen, I Oluranti Ogunrinola (2011): "Government Expenditure on Human Capital Development: Implications for Economic Growth in Nigeria", *Journal of Sustainable Development*, Vol. 4 (3), June: 72-80

²³⁴ Babalola, Sikiru Jimoh (2011): "Long-Run Relationship between Education and Economic Growth: Evidence from Nigeria", *International Journal of Humanities and Social Science*, Vol. 1 (14) October:123-128

²³⁵ Ramirez, A G, G Ranis and F Steward (1998): "Economic Growth and Human Development", *Working Paper No.18*, Queen Elizabeth House, Oxford. Available at <http://economics.ouls.ox.ac.uk/12332/1/qehwps18.pdf>, accessed on 20/10/2008.

²³⁶ Selowsky, M and L Taylor (1973): "The Economics of Malnourished Children: An example of Disinvestment in Human Capital", *Economic Development and Cultural Change*, 22.

²³⁷ Selowsky, M (1981): "Nutrition, Health and Education: The Economic Significance of Complementarities at An Early Age", *Journal of Development Economics*, 9.

Strauss and Thomas (1998) reviewed large literature on nutrition and development showed that improvement in health and nutrition improved productivity, which was observed to be associated with increase in calorie intake particularly in poor countries.²³⁸ Arora (2001) in the study of 62 health-related items in time series for nine advanced economies over the last 100-125 years concluded that in the co-integrated relation between health and income, innovations in health led to economic growth by 26 to 40 per cents.²³⁹ Weil (2001) arrived at a similar magnitude from the study of ‘Accounting for the effect of Health on Economic Growth’ that the contribution of health to economic growth has been enormous.²⁴⁰ Empirically, Kambiz et al (2011) examined the impact of health on economic growth of Organisation of Islamic Conference (OIC) member states, taking the time series data for the period 2001-2009 in the framework of a Semi log regression model. They found that life expectancy had a positive and significant impact on economic growth of OIC member states. Also, it was observed that life expectancy coefficient on economic growth was very large (193) as compared to that of real GDP and fertility rate of 76 and -19 respectively.²⁴¹

History and macroeconomics studies show that there are substantial effects of nutrition and health on income level in poorer countries, which lead to the divergence in the dynamic growth of intergeneration. Hence, weak HD traps EG slower. Mayer-Foulkes (2003) found that in Mexico, 90% of the population were unable to invest optimally in education, which resulted in slow growth of the economy.²⁴² An experience of occupied Palestinian territory (oPt) showed that stagnation in human development like lack of educated graduates in macro policy formulation was a major hindrance to economic development (UNESCO, 2007)²⁴³ and oPt HDR (2009/10) stated that EG in Palestine was not adequately taking place because of excessive denial of HD factors such as proper food, health care, sanitation, education, etc. Thus, quality education was deprived, particularly in preparing graduates for the adequate future job market.²⁴⁴ Ranis, Stewart and Ramirez (2000) concluded that if good EG would not be accompanied by good HD, it would

²³⁸ Strauss, J and D Thomas (1998): “Nutrition and Economic Development”, *Journal of Economic Literature*, Vol. 36 (2): 766-817.

²³⁹ Arora, S (2001): “Health Human Productivity and Long-Term Economic Growth”, *Journal of Economic History*, Vol 61 (3) September

²⁴⁰ Weil, D N (2001): “Accounting for the Effect of Health on Economic Growth”, *mimeo*.

²⁴¹ Kambiz Peykarjou, Roghieh Bakhshande Gollu, Hadi Parhizi Gashti Rafat Beigpoor Shahrivar (2011): “Studying the Relationship Between Health and Economic Growth in OIC Member States”, *Interdisciplinary Journal of Contemporary Research Business*, Vol 3(8), December: 1041-1054

²⁴² Mayer-Foulkes, D (2003): “Human Development Traps and Economic Growth” in Guillem Lopez-Casasnovas, Berta Rivera and Luis Currais (eds), *Health and Economic Growth: Findings and Policy Implications*, available at www.cide.edu/investigador/.../david.../HumanDevelopmentTraps.pdf. Accessed on 17/08/2008.

²⁴³ UNESCO, 2007.

²⁴⁴ UNDP (2009/10): *occupied Palestinian territory (oPt) Human Development Report*, Jerusalem.

be ultimately unsustainable. Human development could moreover exhibit household effects, in the sense that nations must attain a certain HD level before future EG would become sustainable.²⁴⁵

2.5: FEMALE EDUCATION AND HUMAN DEVELOPMENT

Education, especially female education has led to many social benefits such as improvement in standards of hygiene, reduction in infant and child mortality rates and decline in population growth. M.K. Gandhi once stated that “You educate a man and you educate an individual; you educate a woman and you educate a family”.²⁴⁶ A study in urban India showed that child mortality rate was as low as 34/1000 with educated mothers, as compared to 82/1000 for uneducated mothers (MHHDC, 2002).²⁴⁷ Kingdom and Unni (2001) in the study ‘Education and Women’s Labour in Market Outcomes in India’ showed that higher the investment in elementary schooling and women’s education; higher the return of EG.²⁴⁸

There is significant impact of female education on health due to behavioural pattern of female income, knowledge and control within the household. Moreover, when these variables are added, social expenditure becomes less significant on improvement in health as female education has greater impact on it. The study showed that female primary gross enrolment rate is estimated that 1% has reduced the life expectancy shortfall by 0.1%.²⁴⁹ Also, Kingdom and Theopold (2008) observed that the higher economic returns had a positive substitution effect for girls, while the negative income effect was stronger for boys in poorer households in India. The fact is that girl’s education was substituted by household work, while boys participated in economic activity and earned supplementary incomes for the household.²⁵⁰ Further, Unni (2009) empirically proved that the return to female education was found to be higher than male education in India.²⁵¹

The education of the female has undoubtedly play significant role in improvement of HD. A case study in Brazil showed that an increased in the non-labour income of women increased

²⁴⁵ Ranis, G and F Stewart (2000): “Strategies for Success in Human Development”, *Journal of Human Development*, Vol. 1 (1)

²⁴⁶ Extract from Nuh, V.K. (2001): *Struggle for Identity in North-East India: A Theological Response*, Spectrum Publication, Guwahati, p.104

²⁴⁷ Mahbub ul Haq Human Development Centre (2002): *Human Development In South Asia*, Oxford University Press, Karach:15

²⁴⁸ Kingdom, G G and J Unni (2001): “Education and Women’s Labour Market Outcomes in India”, *Education Economics*, Vol. 9 (2): 173 – 95

²⁴⁹ Ranis, G F Stewart and Alejandro Ramirez (2005): “Economic Growth and Human Development” in *Readings in Human Development* (eds) Sakiko Fukuda-Parr and A K Shiva Kumar, Oxford University Press, New Delhi: 68

²⁵⁰ Kingdom, G G and N Theopold (2008): “Do Returns to Education Matter to Schooling Participation? Evidence from India”, *Education Economics*, Vol. 9 (3).

²⁵¹ Unni, J (2009): “Gender Differential in Education: Exploring the Capabilities Approach”, *Economics and Political Weekly*, Vol. XLIV, No. 9: 111 – 117

the probability of child survival by 20 times higher than that of men (Thomas, 1990).²⁵² In the same line, it was observed that female education tend to improve infant survival and nutrition (Schultz, 1993).²⁵³

Greene and Merrick (2008) established evidence in Mexico that early child-bearing was associated with poor living conditions, lower monthly earnings and decrease in child nutrition.²⁵⁴ Also, Gupta (2009) confirmed that in India, the HDI was positively correlated with female education and negatively correlated with anemia women, spousal violence on women and Maternal Mortality Rate (MMR) at 1% levels of significant.²⁵⁵ Permanyer (2009) showed that an investment in women and girls education could be a vehicle to promote long-term prospects for EG and HD.²⁵⁶ Desai (2010) also showed that HD especially women's education was instrumental for advancing EG and children's health by fostering the capacity to absorb new information on health, nutrition and hygiene which were factors in stimulating and facilitating children's learning.²⁵⁷

Thus, in conclusion, there is a vast body of literature on growth and disparities at international and national levels. In much of the literature for Indian states, many studies took the data of Assam to represent for North Eastern Region including Nagaland, which is not relevant. As such, although, the development disparities within the state have been prominent in Nagaland, no systematic study has been done so far. Further, the research scholar is fully convinced that there is a strong linkage between EG and HD, for which there is vast literatures across the globe. However, no systematic study to this effect has been explored in Nagaland. Hence, the present study will fill the lacunae and enrich the existing literature.

²⁵² Thomas, D (1990): "Intra-Household Resource Allocation: An Inferential Approach", *Journal of Human Resources*, 25: 4.

²⁵³ Schultz, T P (1993): "Investment in the Schooling and Health of Women and Men: Quantities and Returns", *Journal of Human Resources*, Vol. 28.

²⁵⁴ Greene, M and T Merrick (2008): "Poor Health, Poor Women. How Reproductive Health Affects Poverty", *ECSP Focus*, No. 16, Washington DC.

²⁵⁵ Gupta, D (2009): "Disparities in Development, Status of Women and Social Opportunities: Indian Experience", *Journal of Alternative Perspective in Social Sciences*, Volume 1 (3): 687-719

²⁵⁶ Permanyer, I (2009): "The Measurement of Multi Dimensional Gender Inequality: Continuing The Debate", *Journal of Social Indicators Research*, ISSN 1573-02921, Springer, Netherlands

²⁵⁷ Desai, M (2010): "Hope in Hard Time: Women's Empowerment and Human Development", *Human Development Research Paper*, 14. UNDP HDR Office, New York.

CHAPTER III

SOCIO-ECONOMIC PROFILE OF NAGALAND

Nagaland is basically a land of villages and Naga traditional life revolves around a village. A village is traditionally the highest political unit and is primarily based on institution of 'Clans' and 'Khels' in Nagaland. The unique features of a Naga village consist of family, clan and community. More than two-thirds of the population lives in rural villages.²⁵⁸ Therefore, the economy of the State is based on rural economy, which largely depends on primitive type of cultivation. This chapter examines the socio-economic development of Nagaland in general and of Mokokchung, Phek and Tuensang districts in particular as these districts are selected for sample survey in the present study.

3.1: HISTORICAL BACKGROUND AND PHYSICAL FEATURE OF NAGALAND

Nagaland was part of Assam and North East Frontier Agency (NEFA) in 1947. It was in 1963 that Nagaland became the 16th State of the India Union as a result of political agreement between the Centre and Naga leaders. Hence, the State has been put under a unique and special category in Indian constitution, provided in Article 371(A). This is in order to safeguard culture, tradition and ways of life of the Nagas. The State has a distinct character both in terms of its social composition as well as in its development history.²⁵⁹

Nagaland is bounded by Assam in the west and in the north, Myanmar and Arunachal Pradesh in the east and Manipur in the south. The State lies between 25⁰60' and 27⁰40' latitude north of equator and between the longitudinal lines 93⁰20' E and 93⁰5' E with an area of 16,579 Sq. Km. The topography is very severe with full of hill ranges. The altitude varies between 194 metres and 3,048 metres above the mean sea level. The highest peak is Mt. Saramati, measuring 3048 metres high above the mean sea level.²⁶⁰ The plain area is limited to Dimapur, Jalukie and areas adjoining with Assam. Nagas in earlier days generally established their villages on hilltops and at higher elevations for security reason.

²⁵⁸ Census of India 2011 (P)

²⁵⁹ Nagaland State Human Development Report (India), 2004: 14.

²⁶⁰ Statistical Handbook of Nagaland 2008.

3.2: ADMINISTRATIVE SET UP OF THE STATE

Since India's independence, the Naga territory of the present Nagaland State came under the administration of Assam Governor. In 1959, the Naga Hills District was divided into two, namely Kohima and Mokokchung with the office of Commissioner at Kohima. It was also assigned to look after the Tuensang Area²⁶¹ that formed the Naga Hills Tuensang Area (NHTA). Later, Nagaland became a full-fledged State on 1st December, 1963.

At the time of inauguration of the Statehood there were three districts, namely Kohima, Mokokchung and Tuensang. For effective administration reason, four more districts were created in 1973, namely Phek, carved out of Kohima, Wokha and Zunheboto out of Mokokchung and Mon out of Tuensang. In 2000, Dimapur district was created out of Kohima district and became the eighth district in the State. Subsequently, in 2004, three more districts were created, Peren from Kohima district, Kiphire and Longleng from Tuensang district.

According to 2011 census, there are eleven districts in Nagaland, each headed by a Deputy Commissioner assisted by 18 Additional Deputy Commissioners and 19 Sub-Divisional Officers (Civil). Altogether, there are 1428 villages headed by Gaonburas or the traditional headmen who look after the administrative functioning of the villages. Each village has a Village Development Board (VDB) headed by the VDB Secretary, which serves as a decision making as well as implementing agency for all developmental works in the village level. There are 9 (nine) census towns and 19 statutory towns. The State is almost entirely inhabited by tribals with their own distinct lingual and cultural features. As such, 16 tribes are recognised in the State, viz; Angami, Ao, Chakhesang, Chang, Kachari, Khiamniungan, Konyak, Kuki, Lotha, Phom, Pochury, Rengma, Sangtam, Sema, Yimchunger and Zeliang.

3.3: DEMOGRAPHIC CHARACTERISTICS OF THE STATE

3.3.1: Population and its Density: According to 2011 census, the population of Nagaland is 19,80,602. The district with highest population is Dimapur with 3,79,769, while with the lowest is Longleng with 50,593. As of 2011 census, the density of population in Nagaland is 119 per sq. km against the country's average of 362 per sq. km. Among the districts, the highest and lowest are Dimapur and Peren with 410 and 55 persons per square kilometre respectively.

Table 3.1: Demographic Structure of Nagaland as of 2011 Census

	Population			Density of Population	Decadal growth rate 2001-11	Decadal growth rate of Urbanization 2001-11	Sex-ratio		
	Rural (%)	Urban (%)	Total				Rural	Urban	Total
Dimapur	48.05	51.95	379769	410	23.13	72.14	931	903	916

²⁶¹ Prior to formation of NHTA, Tuensang was under NEFA.

Kohima	54.40	45.60	270063	213	22.80	50.87	924	932	927
Mokokchung	71.19	28.81	193171	120	-16.77	78.30	950	874	927
Wokha	78.95	21.05	166239	102	3.11	-7.04	980	930	969
Phek	84.93	15.07	163294	81	10.19	91.27	969	860	951
Zunheboto	80.42	19.58	141014	112	-08.79	19.60	998	916	981
Tuensang	81.28	18.72	196801	90	05.81	23.74	939	890	930
Mon	86.15	13.85	250671	140	-03.83	109.27	901	905	898
Peren	84.41	15.59	94954	55	10.19	-	916	921	917
Longleng	84.96	15.04	50593	89	-58.39	-	902	905	903
Kiphire	77.72	22.28	74033	66	-30.54	-	970	928	961
Nagaland	71.03	28.97	1980602	119	-00.47	67.38	942	905	931
India	68.84	31.16	1210193422	362	17.64	31.80	947	926	940

Source: Census 2011 (P).

3.3.2: Population Growth in Nagaland since 1901: The population growth in Nagaland in the last 110 years, i.e. since 1901, showed an inconsistent trend wherein its growth rate has fluctuated up to 1951. Since then, it began to accentuate at an increasing rate which was something phenomenal. The highest decadal percentage increase ever in the State was during 1951-61 with 73.35%. The growth rates for 1961-71, 1971-81, 1981-91 and 1991-2001 were 39.88%, 50.05%, 56.08% and 64.41% respectively. However, during the last decade, the State has witnessed a negative growth rate of -0.47%. Hence, it is felt that the present inconsistency in the decadal growth rate may be due to furnishing inaccurate figures in the past decades.

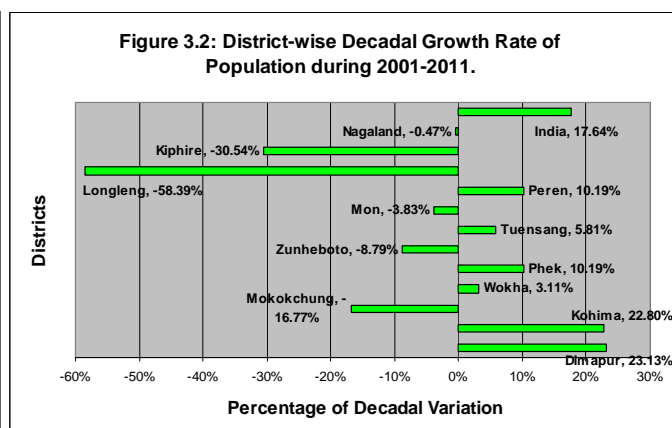
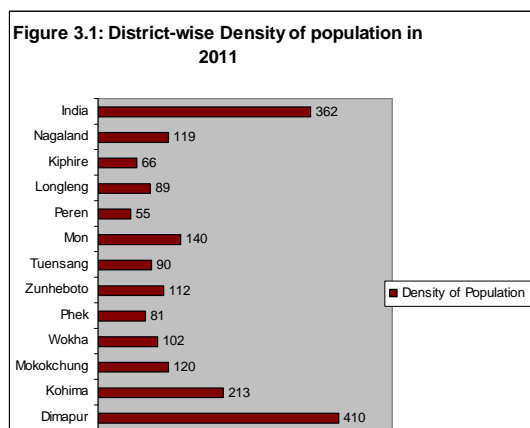
Table 3.2: Population Growth in Nagaland since 1901

Year	Population	Decadal Variation	Decadal Variation (%)
1901	1,01,550	-	-
1911	1,49,038	+ 47,488	+ 46.76
1921	1,58,801	+ 9,763	+ 06.55
1931	1,78,844	+ 20,043	+ 12.62
1941	1,89,641	+ 10,797	+ 06.04
1951	2,12,975	+ 2,334	+ 12.30
1961	3,69,200	+ 1,56,225	+ 73.35
1971	5,16,449	+ 1,47,249	+ 39.88
1981	7,74,930	+ 2,58,481	+ 50.05
1991	12,09,546	+ 4,34,616	+ 56.08
2001	19,88,636	+ 7,79,090	+ 64.41
2011	19,80,602	- 8,034	- 0.47

Source: Statistical Handbook of Nagaland 2004. Census of India 2011 (P).

3.3.3: Decadal Growth Rate: The decadal growth rate during 2001-2011 in Nagaland was -0.47%, while that India was 17.64% as indicated in table 3.1. There was no uniformity among the districts in population growth during the last decade, whereby some districts have exhibited positive growth, while others have witnessed negative growth. Among the districts, Dimapur had the highest decadal growth rate with 23.13%, followed by Kohima, Phek, Peren, Tuensang and Wokha with 22.80%, 10.19%, 10.19%, 5.81% and 3.11% respectively. On the

other end, districts such as Longleng, Kiphire, Mokokchung, Zunheboto and Mon have witnessed negative growth rates with -58.39%, -30.54%, -16.77%, -8.79% and -3.83% respectively.



Source: Based on table 3.1.

3.3.4: Rural and Urban Distribution: According to 2011 census, the proportion of rural population in Nagaland is 71.03%, which is higher than that of 68.84% in India. Correspondingly, the proportion of urban population constitutes 28.97% in Nagaland against 31.16% of India. However, statistics showed that the decadal growth rate of urban population in Nagaland was higher than India with 67.38% and 31.80% respectively during 2001-2011.

In Nagaland, the highest proportion of rural population among the districts is Mon with 86.15%, while the lowest was Dimapur with 48.05% in 2011. Correspondingly, Dimapur has the highest and Mon has the lowest urban population with 41.95% and 13.85% respectively. However, in growth of urbanisation, Mon has the highest with 109.27%, while Wokha has exhibited negative growth rate of -7.04% during 2001-2011.

3.3.5: Sex Ratio: In 2011, the sex ratio in Nagaland is 931 as compared to 940 of India. Similarly, the sex ratio in rural (942) and urban areas (905) in Nagaland is lower than that of India of 947 and 926 respectively.

Among the districts, Zunheboto has the highest sex ratio, while Mon has the lowest with 981 and 898 respectively. In rural, the highest is Wokha with 980, while the lowest is Mon with 901. Similarly, in urban, the highest is Kohima, while the lowest is Mokokchung with 932 and 874 respectively.

3.4: EDUCATIONAL DEVELOPMENT IN NAGALAND

Education is the single largest means to improve personal endowments, build capability levels, overcome constraints, enlarging their available set of opportunities and choices for a sustained improvement. It does not only enhance human capital and productivity, but also enables

the process of acquisition and assimilation of knowledge, all of which augment a person's quality of life.²⁶²

3.4.1: Growth in Literacy Rate: In Nagaland as far as literacy rate is concern, it is better than the country's average. The literacy rate for Nagaland, which was 61.65% in 1991 has increased to 67.11% and 80.11% in 2001 and 2011 respectively, as compared to country's average of 52.21%, 63.29% and 74.04% during the same periods.

It is a continuous phenomenon that male are more privileged in receiving education in both Nagaland and India as far the literacy rate is concern. The male literacy rates in Nagaland for the period 1991, 2001 and 2011 were 67.62%, 71.77% and 83.29% respectively, while that of female were 54.76% 61.92% and 76.69% respectively. During the corresponding periods, male literacy rates for India were 64.13%, 75.85% and 82.14%, while that of female were 39.29%, 54.16% and 65.16%.

Table 3.3: Growth Rate of Literacy Rate for Nagaland and India during 1991-2011

	1991		2001		2011		Annual Average growth rate (1991-2011)	
	Nagaland	India	Nagaland	India	Nagaland	India	Nagaland	India
Male	67.62	64.13	71.77	75.85	83.29	82.14	1.16	1.40
Female	54.76	39.29	61.92	54.16	76.69	65.16	2.00	3.29
Total	61.65	52.21	67.11	63.29	80.11	74.04	1.50	2.09

Source: Census of India 1991, 2001 & 2011

It is, thus, observed that the literacy rate in Nagaland was higher than that of India for both male and female as well as in general. However, statistics in table 3.3 showed that the annual average growth of literacy rate during 1991-2011 for Nagaland was lower than that of India with 1.5% and 2.09% per annum respectively. Also, the same for both male and female were 1.16% and 2.00% per annum in Nagaland, as compared to 1.40% and 3.29% per annum for India during the same period. Hence, the growth of education (in general) in terms of literacy rate was faster for all India than Nagaland.

3.4.2: District-wise Literacy Rate: According to 2011 Census, the literacy rate for Nagaland is 80.11%. Among the districts, the highest literacy rate is Mokokchung with 92.68%, while the lowest is Mon with 56.60%. Also for both male and female, they have exhibited the highest and lowest literacy rate respectively. The male literacy rate for Mokokchung and Mon are 93.55% and 60.38%, while for female are 91.74% and 52.39% respectively.

3.4.3: Children Enrolment Ratio: The children enrolment ratio for Nagaland in 1991 was 73.02%, but it has increased to 80.99% and 92.07% in 2001 and 2006 respectively. Among

²⁶² National (India) Human Development Report, 2004.

the districts in 2006, Tuensang has the highest, while Phek has the lowest with 95.69 and 85.67 respectively.

Table 3.4: District-wise Literacy Rate and Children Enrolment Ratio in Nagaland.

	<i>Literacy rate 2011</i>			<i>Children Enrolment Ratio (2006)</i>
	P	M	F	
Dimapur	85.44	88.07	82.54	91.72
Mokokchung	92.68	93.55	91.74	92.48
Kohima	85.58	89.28	81.56	91.61
Wokha	87.60	90.53	84.58	93.31
Phek	79.13	84.53	73.50	85.67
Zunheboto	86.26	88.86	83.61	88.49
Tuensang	73.70	76.76	70.40	95.69
Mon	56.60	60.38	52.39	88.92
Peren	79.00	83.96	73.57	Na
Longleng	73.10	75.60	70.35	Na
Kiphire	71.10	76.54	65.44	Na
Nagaland	80.11	83.29	76.69	92.05

Source: Census of India 2011 (P), Directorate of School Education 2007

3.5: DEVELOPMENT OF HEALTH CARE

For most individuals, the choices to live a healthy life, free from illness and ailments, and live a reasonable life span are crucial attributes in the notion of personal well-being.²⁶³ Health is an important indicator that captures the demographic concern of a society. It is also an important constituent element in the framework for evaluating the development process under the Human Development approach.

3.5.1: Life Expectancy: Life expectancy is the expected survival of a child at birth. Statistics showed that the longevity for the State as well as for all the districts in Nagaland was longer than all India's average. The life expectancy for the State in 2001 was 73.4 years, as compared to 63 years of Country's average during the same year. Among the districts, Mon has the highest, while Wokha has the lowest with 75.0 and 68.6 years respectively.

3.5.2: Infant Mortality Rate: With an improvement in health and medical facilities, the Infant Mortality Rate (IMR) for the State has reduced from 67/1,000 to 40/1,000 in 1991 and 2001 respectively. Among the districts in 2001, Mon has witnessed the lowest with 27, while Wokha had the highest with 47.42.

3.5.3: Death Rate: In Nagaland, the death rate (per 1,000 population) as given in table 3.5 was 4.49 in 2006. Among the districts, Phek has the highest death rate with 8.43, while Longleng has the lowest with 0.52.

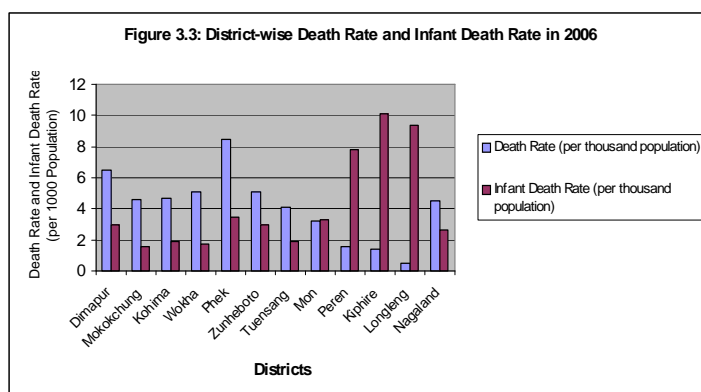
3.5.4: Infant Death Rate: The figure given in table 3.5 shows that the infant death rate (per 1000 population) in 2006 was 2.59 in Nagaland. Among the districts, the highest was Kiphire and the lowest was Mokokchung with 10.08 and 1.53 respectively.

²⁶³ National (India) Human Development Report (2001).

Table 3.5: District-wise Health Profile of Nagaland in 2001 and 2006

Districts	2001		2006	
	Life Expectancy	IMR	Death Rate (per 1000 population)	Infant Death Rate (per 1000 population)
Dimapur	73.4	37.50	6.47	2.95
Mokokchung	72.3	35.05	4.63	1.53
Kohima	73.2	37.90	4.65	1.86
Wokha	68.6	47.42	5.10	1.76
Phek	74.2	29.22	8.43	3.45
Zunheboto	73.6	31.53	5.07	2.93
Tuensang	70.8	41.30	4.13	1.93
Mon	75.0	27.10	3.21	3.26
Peren	-	-	1.59	7.80
Kiphire	-	-	1.42	10.08
Longleng	-	-	0.52	9.40
Nagaland	73.4	40.00	4.49	2.59

Source: Nagaland HDR 2004. Statistical Handbook 2008



Source: Based on table 3.5

3.6: ECONOMIC DEVELOPMENT

3.6.1: Sectoral Contribution to NSDP during 1981 to 2006

Nagaland began its first phase of economic planning since its Statehood. During the initial period of planning, the economy was based on traditional agriculture and social set up. Agriculture was the main occupation, whereby 89.55% of its working population were engaged using primitive technique of production. Since then, the structural transformation has become evident in the State's economy.²⁶⁴ In recent decades, though the growth of Tertiary sector is modest, it is the major contributing sector in NSDP. However, Secondary sector has remained stagnant and it continued to be the lowest contributing sector in the economy.

The figures in table 3.6 showed that the NSDP of Nagaland has increased from Rs. 10,547 Lakhs to Rs. 4,56,608 Lakhs in 1980-81 to 2005-06. This shows that the NSDP in the

²⁶⁴ Jamir, B K (2005): "Structural Change in Nagaland Economy: Resource-Industry Linkages and Strategies for Development", in Gurudas Das (ed), *Structural Change and Strategy of Development: Resource-Industry Linkages in North East India*, Akansha Publishing House, New Delhi.

State has increased by 43.29 times during the last 25 years. On the other hand, the per capita NSDP has increased from Rs. 1,361 to Rs. 18,318, implying that it has increased by 13.46 times during the same period.

Table 3.6: NSDP at Factor Cost at Constant Prices during 1981-2006 (Rs in Lakhs)

	At 1980-81 Prices		At 1993-94 Prices	At 1999-00 Prices
	1980-81	1990-91	2000-01	2005-06
1. Primary Sector	3,428 <i>(32.5)</i>	6,954 <i>(29.22)</i>	75,147 <i>(33.69)</i>	159162 <i>(34.60)</i>
1.1 Agriculture	3,022 <i>(28.6)</i>	4,411 <i>(18.53)</i>	67,606 <i>(30.31)</i>	142840 <i>(31.28)</i>
1.2 Forestry and Logging	401 <i>(3.80)</i>	2,389 <i>(10.03)</i>	6307 <i>(12.82)</i>	13930 <i>(3.05)</i>
1.3 Fishery	5 <i>(0.04)</i>	154 <i>(0.64)</i>	1,145 <i>(0.51)</i>	2068 <i>(0.45)</i>
1.4 Mining and Quarrying	0 <i>(0.00)</i>	0 <i>(0.00)</i>	89 <i>(0.03)</i>	324 <i>(0.07)</i>
2. Secondary Sector	1,490 <i>(14.12)</i>	6,117 <i>(25.70)</i>	31,551 <i>(14.14)</i>	63665 <i>(13.94)</i>
2.1 Manufacturing	226 <i>(2.14)</i>	908 <i>(3.81)</i>	1,456 <i>(0.65)</i>	6752 <i>(1.48)</i>
2.2 Construction	1,593 <i>(15.10)</i>	5,284 <i>(22.20)</i>	32,303 <i>(14.48)</i>	53538 <i>(11.73)</i>
2.3 Electricity, Water Supply, Gas	-329 <i>(-3.11)</i>	-75 <i>(-0.31)</i>	-2,208 <i>(-0.98)</i>	3375 <i>(0.74)</i>
3. Tertiary Sector	5,629 <i>(53.37)</i>	10,727 <i>(45.07)</i>	116,344 <i>(52.16)</i>	233781 <i>(51.20)</i>
3.1 Transport, Storage and Communication	177 <i>(4.67)</i>	1,383 <i>(3.81)</i>	38,362 <i>(17.19)</i>	60846 <i>(13.33)</i>
3.2 Trade, Hotel and Restaurant	724 <i>(6.86)</i>	1,230 <i>(5.17)</i>	11,308 <i>(5.06)</i>	23413 <i>(5.13)</i>
3.3 Banking and Insurance	141 <i>(1.33)</i>	806 <i>(3.38)</i>	2,761 <i>(1.23)</i>	7096 <i>(1.55)</i>
3.4 Real Estate, Ownership of Dwelling & Business service.	1,535 <i>(14.55)</i>	1,738 <i>(7.30)</i>	21,609 <i>(9.68)</i>	51882 <i>(11.36)</i>
3.5 Public Administration	1,952 <i>(18.50)</i>	2,500 <i>(10.50)</i>	27,017 <i>(12.11)</i>	54880 <i>(12.02)</i>
3.6 Other Services	1,100 <i>(10.42)</i>	3,070 <i>(12.90)</i>	24,051 <i>(6.85)</i>	35664 <i>(7.81)</i>
N.S.D.P	10,547	23,798	223,042	456,608
Per Capita Income (Rs)	1,361	2,051	11,473	18,318

Source: Directorate of Economic and Statistics, Nagaland.

Note: The figures in brackets represent the percentage shares in Net Domestic Product.

Sector-wise data has revealed that Tertiary sector has been the major contributing sector during 1980-81, 1990-91, 2000-01 and 2005-06 with 53.37%, 45.07%, 52.19% and 51.20% respectively. This is followed by Primary sector with 32.5%, 29.22%, 33.69% and 34.60% during the corresponding periods. The Secondary sector has been the lowest contributing sector to NSDP during the same periods with 14.12%, 25.70%, 14.14% and 13.94% respectively.

Among the sub-sectors, Agriculture alone has contributed 28.65% to NSDP in 1980-81, followed by Public Administration with 18.50%. There has been a change in the share of sub-sectors in NSDP in 1990-91, whereby Construction sector has become more prominent and has contributed 22.20%, while the share of Agriculture has declined to 18.53%, followed by Other Services sector with 12.90%.

During 2005-06, Agriculture remained the single largest contributing sub-sector to State's NSDP with 31.28%. The second highest contributing sub-sector during the same period was Transport and Communication with 13.33%; followed by Construction with 11.73%. Whereas, public service sector of Electricity, Water Supply and Gas have contributed negatively till 2001 with deficits of Rs. 329 lakhs, Rs. 75 lakhs and Rs. 2,208 lakhs during 1980-01, 1990-01 and 2000-01 respectively, while positive contribution has been observed in 2005-06 with 0.74%. The lowest contributing sectors were Mining and Quarrying, Fishery, Banking and Insurance and Manufacturing activities during the same period. Hence, the following inferences may be drawn from the above discussions:

- a. Among the sub-sectors, Agriculture is still the major contributing sector in NSDP.
- b. During the last decade, Transport and Communication has emerged as an important sector in the State's economy.
- c. Other major sub-sectors are (i) Construction, (ii) Public Administration, (iii) Real Estate, Ownership of Dwelling and Business services, (iv) Other services and (v) Trade, Hotel and Restaurant.
- d. The contribution of Forestry and Logging to NSDP has been considerably significant during 1980's. But in 2005-06, it has declined to 3.05%. This was mainly due to implementation of government policy which banned commercial logging.
- e. Although, the percentage share of tertiary sector has declined marginally, it has been the leading sector in the State's economy throughout the last three decades in terms of its contribution to NSDP. This is followed by Primary sector, while Secondary sector has been the lowest contributing sector. Thus, no significant change has occurred in the structure of the State's economy during the period under observation. Hence, the economy of the State is mostly dependent on service sector, while secondary sector continued to remain the lowest contributing sector.

3.6.2: District-wise Per Capita Income: The Per Capita Income (PCI) during 2005-06 for Nagaland was Rs.18,316, which was lower than the country's average of Rs.25,926. This shows that the PCI of Nagaland was only 70.57% to that of India during the same period.

Among the districts in 2001-02, Dimapur and Mon has the highest and the lowest with Rs.16,837 and Rs. 4,500 respectively. Since then, the PCI data are not available for individual districts from secondary source. Therefore, the PCI for three sample districts is presented for the period 2009-10 in the table 3.7. The PCI for sample aggregate is estimated to be Rs. 15,188, which is even lower than that of the secondary source of Rs. 18,316 in 2005-06. Among the sample districts (in 2009-10), the highest was Mokokchung, followed by Phek and Tuensang with Rs.19,428, Rs.16,104 and Rs.10,032 respectively.

Table 3.7: District-wise Per Capita Income of Nagaland in 2000-01 and 2009-10 (in Rs.)

Districts	2001-2002	2009/10*
1. Dimapur	16,837	na
2. Mokokchung	12,305	19,428
3. Kohima	11,906	na
4. Wokha	13,647	na
5. Phek	9,880	16,104
6. Zunheboto	8,372	na
7. Tuensang	8,149	10,032
8. Mon	4,500	na
Nagaland	11,119	15,188

Source (2001): Nagaland SHDR 2004 and * Household survey 2009-10. *na* means not available

3.6.3: Sectoral Employment: In Nagaland, the actual number of workers were 8,49,983 in 2001, which constitutes 42.47% of its total population. It is obvious that the State is predominantly an agrarian economy whereby 68.03% of the total working force is engaged in agriculture and allied activities. The proportion of cultivators, agricultural labourers, household industries and other workers constitute 64.05%, 3.98%, 2.20% and 29.84% respectively.

Table 3.8: Sectoral Employment in Nagaland in 2001

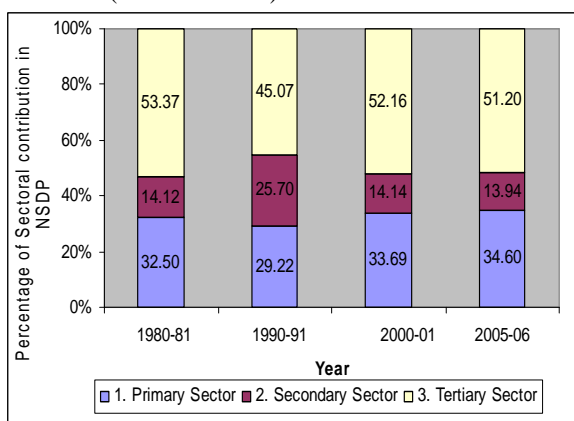
Districts	Percentage of Total Workers	Percentage of Cultivators	Percentage of Agricultural Workers	Percentage of Workers in Household Industry	Percentage of Other Workers
Kohima	42.84	54.32	4.67	3.34	37.67
Dimapur	33.16	28.35	4.58	2.71	64.36
Mokokchung	47.87	60.09	6.34	3.73	29.85
Wokha	35.04	64.88	1.18	2.54	31.39
Phek	48.31	72.74	1.90	2.01	23.35
Zunheboto	40.06	44.57	2.78	1.25	51.40
Tuensang	44.65	82.22	1.81	0.84	13.49
Mon	49.66	83.94	4.58	1.18	10.30
Nagaland	42.74	64.05	3.98	2.20	29.84

Source: Statistical Handbook of Nagaland 2004.

Among the districts in 2001, Mon had exhibited the highest proportion of working population with 49.66% while Dimapur, the commercial hub of the State has the lowest with 33.16%. Regarding sector-wise employment, the proportion of cultivators was highest in Mon with 83.94%, while that of the lowest was Dimapur with 28.35%. Reversely, in proportion of

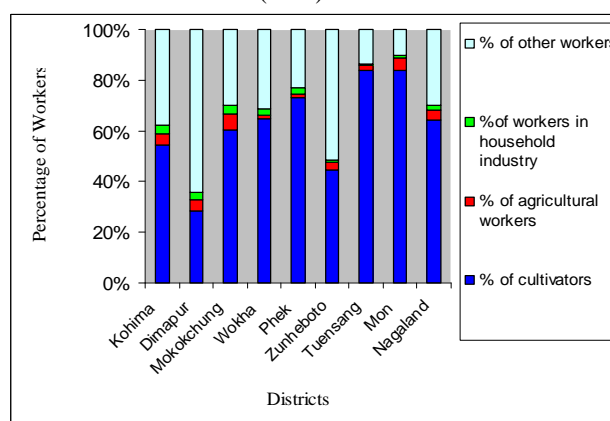
other workers, the highest and lowest were Dimapur and Mon with 64.36% and 10.49% respectively. For household industry workers, it was highest in Mokokchung and lowest in Tuensang with 3.73% and 0.87% respectively.

Figure 3.4: Percentage of Sectoral Contribution to NSDP (at Factor Cost)



Source: Based on table 3.6.

Figure 3.5: Distribution of Workers in Nagaland in 2001 (in %)



Source: Based on table 3.8.

3.7: INFRASTRUCTURE

Infrastructure plays a key role in the process of economic growth and development. Slow pace of economic development is often associated with inadequacy of infrastructural development. Thus, the critical role of infrastructure, both physical and social is well-recognised in development planning of an economy.

3.7.1: Physical Infrastructure: The production sectors of an economy such as agriculture, industry, trade, etc. need adequate infrastructure and services like transport, communication, power etc. in order to produce its optimum level.

(i) Transport and Communication: One of the most important features of development is good infrastructure of transport and communication facilities. It is one of the primary services that are required for propelling economic activity as it links between production, processing and market centers. Considering the absence of rail and air services, good road connectivity is of paramount importance for the development of economy. Inadequate development of transport and communication facilities has kept the State in isolation for a long time.

Road is one of the physical infrastructure that is required for transport and communication services. Development of road, at least all-weather road, linking the scattered villages is a pre-requisite for economic development of the State. During 2001-02, the total road length in Nagaland was 13,368.55 kms, which was increased to 14,648.68 kms in 2007-08. Out of which (in 2007-08), PWD oversee 68.89% (10,091 kms), National Highway - 5.66% (829.66 kms), Border Road Organisation - 5.98% (876.05 kms), and four departments such as DUDA, Forest,

Agri-link and Rural Development oversee 19.47% (2,851.52 kms). The State has only 9.3 kms of railway line with one station and one airport, both located in Dimapur.²⁶⁵

In 2008, Nagaland has a total road length of 12,847 kms (excluding National Highways) with road length per 100 sq. km of 2.16 kms. Among the districts, the highest road length per 100 sq. km was Dimapur with 3.41, while the least was Kohima with 1.19 per 100 Sq. Km. Out of total road length in Nagaland, only 4,361 kms (26%) were surfaced in 2008, whereby the highest and lowest were Dimapur and Tuensang with 71.74% and 6.06% respectively.

Communication facility is one the most essential elements in the development of a society. In Nagaland, there were 327 post offices during 2006-07 including one Head Office, 40 sub-post offices, 1 (One) extra departmental sub-office and 285 branch post offices. It can be deduced that there were 16.53 post offices per one lakh population in Nagaland with the highest and lowest in Mokokchung and Mon with 26.17 and 11.76 respectively as indicated in table 3.9. Also, in 2004, there were 32,549 telephone (landline) subscribers with 46.76 per 1,000 population in Nagaland. Among the districts, the highest and lowest were Kohima and Tuensang with 107.88 and 8.20 respectively.

(ii) Industrial Infrastructure: The industrial development in Nagaland is insignificant as there are no major industries established in the State. Industrial infrastructure such as industrial training institute, small scale industries, veterinary farms, hospital, etc, play a significant role in economic development of the State. Some of the industrial potential and strategy of the State include processing and value addition to agro-produce, horticulture, livestock and dairy product. Besides, various industrial training institutes are run by the government as well as non-governmental organisations to impart education and to build confidence for self-sustainable development of oneself.²⁶⁶

In order to overcome many a handicap of Small Scale Industries (SSI) in the State, an Industrial Estate has been established at Dimapur in 1966. It has an area of 100 acres with a total of 21 sheds. The main objective is to provide favourable conditions towards working efficiency, maintenance of uniform standard in production and economic utilisation of materials and equipments, etc. The State has one cement plant located at Wazeho in Phek district with a capacity of producing 50 TDP. The plant adopts a semi-dry process based on vertical shaft kiln

²⁶⁵ Statistical Handbook of Nagaland 2006: 26

²⁶⁶ Nagaland State Human Development Report (India) 2004.

technology as it has substantially high quality of lime stone deposits in the area.²⁶⁷ Besides, there are Sugar Mill at Dimapur and Paper Mill at Tuli but both have become non-functional.

The SSI plays a very important role in sustaining livelihood and uplifting economic development of the State. During 2006-07, there were 717 SSI units in Nagaland with 36.13 SSI units per one lakh population. Among the districts, it was highest in Dimapur with 119.45 and lowest in Mon with only 1.57. Besides, veterinary products constitute a major food item of the people; hence, its infrastructure such as demonstration farms, hospitals and dispensaries becomes a significant contribution to its production. In 2006-07, there were 257 veterinary farms, hospitals and dispensaries in Nagaland. Among the districts, Veterinary Farms, Hospitals and Dispensaries per 100 sq. km was highest in Kohima and lowest in Dimapur with 0.26 and 0.10 respectively, as compared to State's average of 0.19 during the same period.

(iii) Electricity and Power: One of the most important factors of economic growth is availability of energy. Power is an important element of modern infrastructure for overall economic development as well as human well-being. Among the various source of energy, Nagaland has great potential in hydro-electric power. The State has 24 MW Likimro Project and 75 MW Doyang Power Station. However, the State gets only 12% (9 MW) share from Doyang Power Station, while 6% (4.5 MW) is purchased from NEEPCO in the same station. Also a 94 MW thermal power station has been installed at Dimapur but it is under suspension due to non economic viability of the project. The adoption of pico, micro, mini and small power generation systems based on hydropower and biomass generates additional power supply of about 1.5 MW in the State. Besides, the State purchases it from other states through National Grid system about 50MW per annum. Yet, there is shortage of power supply in the State as the present requirement is about 110MW.²⁶⁸ The per capita electricity consumption in the State during 2005-06 is 1.35 KWh.

(iv) Banking: The growth of various sectors in an economy is strengthened by the banking activities. Banks play vital role in stimulating economic growth by way of funding and sponsoring various programmes, such as agriculture, industry and other self-employment activities. In 2008, there were 102 banks operating across the State. Some major operating banks in Nagaland are State Bank of India (45 offices), State Co-operative Bank (20 offices) and Regional Rural Bank (8 offices). In 2006, it is observed that *Banks per lakh population* in the

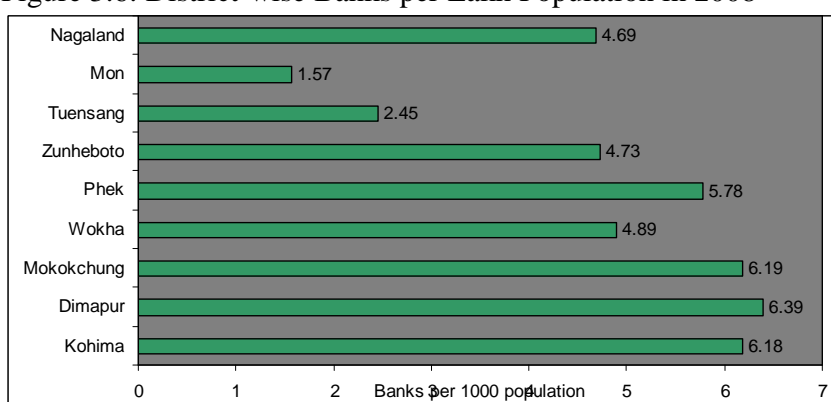
²⁶⁷ Phek District Human Development Report (Nagaland, India) (2009): 44

²⁶⁸ Chief Engineer, Department of Power, Nagaland (India).

State was 4.69. It was highest in Dimapur while the lowest was Mon with 6.39 and 1.57 respectively.

In 2006, there were 72 *Scheduled Commercial Banks* with a total credits and deposits of Rs. 1,376 and Rs. 5,604 crores respectively. This meant that the credit-deposit ratio in the State was 1:4.07. Among the districts, it was highest in Kohima and lowest in Phek with 1:7.86 and 1:1.29 respectively. There were 8 (eight) *Regional Rural Banks* which were scarcely operating in the State with total deposits and credits of 50 crores and Rs. 26 crores respectively in 2005. Thus, the credit-deposit ratio for the State was 1:0.91, whereby, Dimapur had the highest with 1:1.5, followed by Wokha and Kohima with 1:1 and 1:0.83 respectively.

Figure 3.6: District-wise Banks per Lakh Population in 2008



Source: Based on table 3.9.

(v) **Agricultural Infrastructure:** The importance of agriculture in economic development has not only been theoretically established but also empirically found in the history of economic development. In Nagaland, about two-thirds of the population were engaged in this activity in 2001. Agriculture plays a pivotal role in initiating and sustaining the process of economic growth in an economy of the State. To facilitate agricultural development, the State has 1 (one) Indian Council of Agricultural Research centre at Jharnapani, Dimapur, 1 (one) State Agricultural Research Station at Yisemyong, Mokokchung and 8 (eight) Krishi Vigyan Kendra in Nagaland.

During the period 2006-07, 30.08% of its total surface area was under agriculture during 2001. Among the districts, the highest and lowest percentages of cultivated area to total area were Dimapur and Tuensang with 94.99% and 12.47% respectively. Irrigation facility is vital for agriculture produce as the latter is by and large dependent on monsoon which is irregular in its nature. During 2006-07, the gross irrigated area in the State was 27.16% of total cultivated area. Among the districts, the highest was Kohima with 43.69%, while the lowest was Mon with 9.36%. It is observed that the percentages of gross irrigated area to total cultivated area are higher in Kohima (43.69%), Dimapur (32.21%) and Phek (31.04%). It may be noted that terrace

cultivation is common in these districts, whereby the scope of irrigation facility is wider. On the other hand, the other districts commonly practice shifting cultivation, wherein the scope and need of irrigation facility is limited.

Table 3.9: Physical Infrastructure of Nagaland

Districts	Kohima	Dimapur	Mokokchung	Wokha	Phek	Zunheboto	Tuensang	Mon	Nagaland	
Transport and Communication										
Total Road Length (in Km) (2008)*	2820.7	1189	1432.1	1233	996.8	2021	787.3	1132	12847	
Total Road Length per 100 Sq. Km	1.71	3.72	2.34	2.16	1.56	3.58	0.66	1.88	2.16	
Surfaced Road (in Km) (2008)*	1103	665	758.5	357.5	626.1	318	237	296	4361	
Percentage of Surfaced Road	35.42	71.74	46.97	21.96	30.90	25.34	5.605	16.57	26.30	
Number of Post Office	68	53	54	22	34	19	47	30	327	
Post Office per Lakh Population (2006)	20.02	15.40	26.17	13.44	21.83	12.84	12.77	11.76	16.53	
Number of Telephone	9270	15434	1756	1133	1267	1641	1170	878	32549	
Telephone per 1000 Population	107.88	84.31	61.38	14.96	19.71	19.23	8.20	11.17	46.76	
Industrial										
Number of ITC	5	4	1	1	3	2	7	3	26	
ITC per Lakh Population	1.47	1.16	0.48	0.61	1.93	1.35	1.9	1.18	1.31	
Number of SSI units	69	411	60	32	16	70	55	4	717	
SSI units per Lakh Population	20.31	119.45	28.54	19.55	10.27	47.31	14.94	1.57	36.13	
Number of Veterinary Farms, Hospital, Dispensaries (2006-07)	61	27	28	30	28	27	34	22	257	
Veterinary Farms, Hospital, Dispensaries (2006-07) Per 100 Sq. Km	0.26	0.10	0.12	0.12	0.20	0.24	0.21	0.11	0.19	
Agricultural										
Total Production in MT (in 2006-07)	99750	260090	60240	106920	71830	79610	79190	49820	807450	
Per Capita Production (in Kgs)	294	756	287	653	461	538	215	195	407	
Cultivated Area (in Hectare) (2006-07)	45210	88060	37760	40420	45500	36250	52720	34180	380100	
Percentage of Cultivated Area to Total Area	14.51	94.99	23.38	24.83	22.46	28.88	12.47	19.13	30.08	
Gross Irrigated Area (in Hectare) (2006-07)	19751	28362	10941	4024	14125	10187	12628	3198	103216	
Percentage of Gross Irrigated to Total Cultivated Area	43.69	32.21	28.98	9.96	31.04	28.10	23.95	9.36	27.16	
Others										
Number of Banks (2008)	20	30	13	8	9	7	5	4	102	
Banks per 100 Sq. Km	0.67	2.37	0.81	0.49	0.44	0.56	0.21	0.22	0.56	
Banks per Lakh Population	6.18	6.39	6.19	4.89	5.78	4.73	2.45	1.57	4.69	
Bank Deposits (in Rs. Crs) (2005)	Commercial Banks	2158	2669	188	110	80	72	110	130	5604
	Rural Banks	38	9	0	4	0	0	0	0	51
Bank Credits (in Rs. Crs) (2005)	Commercial Banks	281	603	106	80	62	50	75	64	1376
	Rural Banks	46	6	0	4	0	0	0	0	56
Credit-Deposit ratio	Commercial Banks	7.68	4.43	1.77	1.38	1.29	1.44	1.47	2.03	4.07
	Rural Banks	0.83	1.5	0	1	0	0	0	0	0.91
Per Capita Electricity Consumption (in Kwh) (2005-06)	1.76	1.82	0.65	0.97	0.89	1.17	0.76	1.01	1.35	

Note: *excluded National Highways.

Source: Statistical Handbooks of Nagaland 2004 & 2008.

Table 3.10: Length of Roads in Nagaland 2007-08

Departments	Road length (in Kms)
Nagaland State PWD (R&B)	10091.45
National Highways	829.66
BRO	876.05
DUDA, Forest, Agri-link & Rural Development	2851.52
Total Length of Road in Nagaland	14648.68

Source: Statistical Handbook of Nagaland 2008.

3.7.2: Social Infrastructure: The facilities such as education, shelter, health care, water and sanitation are important social infrastructures that enhance human well-being.

(i) **Education:** Education is the basis for all round development of a person and society. It is also a strong factor for raising equality across regions, genders and many other areas. Besides, it is an important determinant in computation of HDI. Hence, educational institutions form an important component of the social infrastructure as it helps in contributing in accessing to knowledge, dissemination of information and opportunities to higher earn income and productivity.

Table 3.11: Educational Institutions in Nagaland during 2007-08

	2007-08			
	Central	State	Private	Total
University	1	0	0	1
College of General Education	0	12	31	43
Higher Secondary Schools	3	16	50	69
High Schools	10	109	218	337
Middle Schools	0	287	178	465
Primary Schools	0	1442	220	1662
<i>College of Professional Education</i>				
Nagaland College of Education	0	1	2	3
Agriculture College	0	1		1
Theology (Government Recognised)	0	0	19	19
Polytechnics	0	2	0	2
Nursing Schools	0	3	0	3
Teachers Training Institutes	0	5	1	6
Industrial Training Institutes	0	4	0	4
Hindi Training Institutions	0	1	5	6
School of Music	0	0	1	1
Law College	0	0	3	3
Total	14	1878	732	2624

Source: Statistical Handbook of Nagaland 2008. Note: 0 means nil

Statistics showed that during 2007-08, there were 2,624 educational institutions that facilitate education during 2007-08 in Nagaland. These include 14 central institutions, 1,878 State government and 732 private owned institutions as indicated 3.11. Among these, there is one Central University, 43 Colleges of General Education, 69 Higher Secondary Schools, 337 High Schools, 465 Middle School and 1662 Primary Schools. At the aforementioned point of time, there were various colleges of professional education in the State, such as School of Agriculture and Rural Development (1 each) for college and university levels, Theological colleges (19 Government recognised colleges), Polytechnic (2), Nursing schools (3), Teachers Training Institutes (6), Industrial Training Institutes (4), Hindi Training Institutes (5), Schools of Music (1) and Law colleges (3).

The progress in education has been strongly facilitated by programmes such as Sarva Shiksha Abhiyan (SSA) and Rastriya Madhyamik Shiksha Abhiyan (RMSA). In 2006, there were 2,325 schools in Nagaland as shown table 3.12. In the same period, the important educational development infrastructures in Nagaland like schools per 1,000 population and schools per 100 Sq. Km were 1.17 and 14.02 respectively. Among the districts, the schools per 1,000 population was highest in Phek, while the lowest was Mon with 1.45 and 0.85 respectively. For schools per 100 sq. km, it was highest in Dimapur and lowest in Tuensang with 36.78 and 10.27 respectively. Another area of educational development facility is *teacher-pupil ratio*. The teacher-pupil ratio in Nagaland during 2006-07 was 1:19. It was highest in Phek and lowest in Mokokchung with 1:25 and 1:12 respectively.

Table 3.12: Social Infrastructure of Nagaland

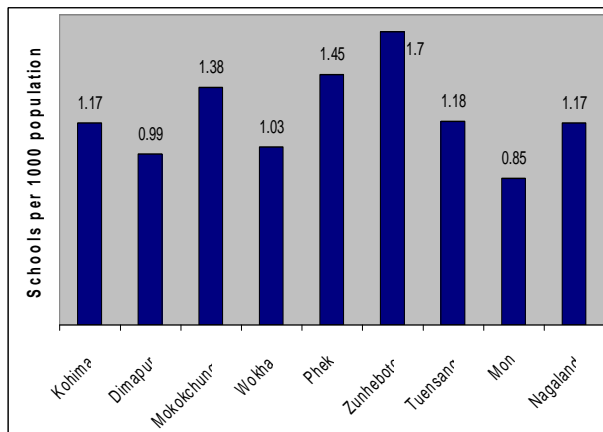
Districts	Kohi ma	Dima pur	Mokok chung	Wokh a	Phek	Zunh eboto	Tuens ang	Mon	Nagal and	
Education										
Number of Schools (2006)	339	341	290	169	226	251	434	217	2325	
Schools per 1,000 Population	1.17	0.99	1.38	1.03	1.45	1.7	1.18	0.85	1.17	
Schools per 100 Sq. Km	12.75	36.78	17.96	10.38	11.15	20.00	10.27	12.15	14.02	
<i>Teacher-Pupil Ratio (2006-07)*</i>	18	22	12	19	25	18	17	24	19.38	
Health (2006)										
<i>Number of Medical Institutions</i>	91	61	76	53	71	64	95	70	581	
Medical Institutions per 10,000 Population	2.62	1.95	3.62	3.60	4.94	4.12	2.58	3.14	3.04	
Doctors per Lakh Population	38.56	13.08	24.26	16.5	17.33	18.92	13.31	12.15	19.60	
Nurses per Lakh Population	86.55	43.30	105.61	69.04	90.52	83.13	64.38	44.68	70.19	
Pharmacists Lakh Population	26.2	12.5	29.02	28.72	25.04	26.36	19.56	26.26	23.03	
Total Medical Personnel	511	249	358	210	224	201	406	176	2335	
<i>Medical Personnel per Medical Institutions</i>	6.45	4.08	4.71	3.96	3.16	3.14	4.71	2.51	4.02	
Medical Personnel per 10,000 Population	12.33	7.24	17.03	12.83	14.38	13.58	7.42	6.90	10.63	
Number of Beds	640	252	378	174	289	196	410	192	2541	
Number of Beds per Medical Institutions	8.03	4.13	4.97	3.28	4.07	3.06	4.14	2.74	4.37	
<i>Beds per 10,000 Population</i>	17.93	7.32	18.27	9.53	18.55	13.65	11.41	8.00	12.68	
Other Social Infrastructure										
Percentage of Household (2003)	Pucca	6.02	21.67	18.63	18.90	11.64	10.36	5.74	0.50	11.68
	Semi-Pucca	42.12	39.16	58.33	59.06	32.19	45.95	44.26	19.00	42.51
	Kutchra	50.14	37.26	23.04	22.05	54.79	42.79	45.08	78.00	44.14
Water Supply (2003)	Villages Not Covered	6	27	3	9	6	8	13	1	72
	Partially Covered (PC)	159	165	83	104	67	144	213	108	1043
	Fully Covered (FC)	35	28	30	9	46	70	34	9	261
	% of PC & FC villages	97	87.73	94.96	92.62	96.40	97.41	95.37	99.15	94.77
Percentage of Sanitation Household (2003)	<i>Own Toilet</i>	52.15	66.54	96.57	59.84	38.01	86.67	45.08	17.96	57.85
	Common Toilet	35.53	22.81	3.43	3.54	22.26	2.97	28.53	6.40	15.68
	Open Defecation	12.32	10.65	0.00	36.61	39.73	10.36	26.32	71	25.87

Sources: Statistical Handbooks of Nagaland 2004 & 2008, Telephone Exchange 2004, Directorate of School Education 2007 and Nagaland State HDR 2004.

(ii) **Health:** Health care is one of the most critical inputs for human well-being. A person's health is one of the main forces behind all human activities. Besides its conventional

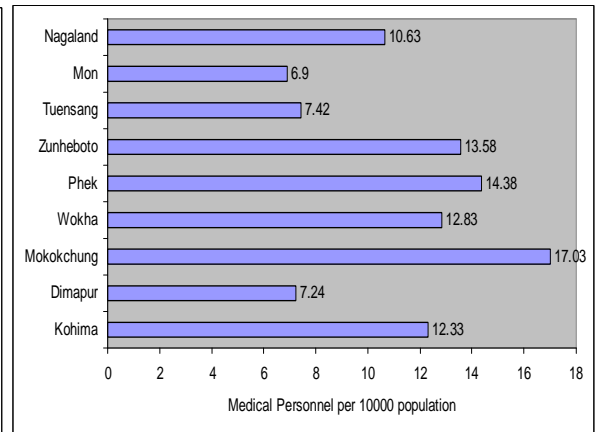
meaning, it is one of the most vital ingredients for measuring the happiness index.²⁶⁹ Health condition of a society is supported by its infrastructural facilities such as hospitals, dispensaries, medical staff, etc. Hence, institutions such as Hospitals, Community Health Centres (CHC), Primary Health Centres (PHC), Subsidiary Health Centre (SHC), Dispensaries, Sub-Centre and medical personnel such as Doctors, Nurses and Pharmacists play an important role in extending health care to the people.

Figure 3.7: District-wise Schools per 1000 Population in 2006.



Source: Based on table 3.12.

Figure 3.8: District-wise Medical Personnel per 10,000 Population



Source: Based on table 3.12

In 2006, there were 581 medical institutions, 2,335 medical personnel and 2,541 beds in the State medical services. During that time, Nagaland had 3.04 medical institutions per 10,000 people. Among the districts, it was highest in Phek and lowest in Dimapur with 4.94 and 1.95 respectively. The medical personnel per medical institution were highest and lowest in Kohima and Mon with 6.45 and 2.51 respectively against the State's average of 4.02. There were 4.37 beds per hospital in the State in the same year. Among the districts, Kohima had the highest and Mon has the lowest with 8.03 and 2.74 respectively. The medical doctors per Lakh population were 19.60 for the State. The highest and lowest among the districts were Kohima and Mon with 38.56 and 12.15 respectively during the same year. The State had 70.19 nurses per Lakh population in 2006, highest being in Mokokchung and lowest in Mon with 105.61 and 44.68 respectively. Also, in the State, pharmacists per Lakh population in the same year were 23.03; while the district with highest ratio was Mokokchung and lowest was Dimapur with 29.02 and 12.5 respectively.

(iii) Housing: The standard and quality of living is also determined by the condition of housing that a person takes shelter. According to NSHDR 2004, only 11.68% of the total

²⁶⁹ Mon District Human Development Report (2009): Department of Planning and Coordination, Government of Nagaland: 59

households resided in pucca house, 42.51% households in semi-pucca house, while for the major proportion of the household in the State lived in kutchha with 44.14%. Among the districts, Dimapur had the highest proportion of pucca house with 21.67%, while Mon had the lowest with 0.50% respectively.

(iv) Water Supply and Sanitation: Access to safe drinking *Water Supply* has implications not only for health status and human development parameters, but it is also important for livelihood opportunities.²⁷⁰ According to NSHDR 2004, only 18.97% of the total villages were fully covered while 5.23% of the total villages have not been covered and 75.80% were partially covered in 2003. In Mon district, only 1 (one) village was yet to be covered, while the same for Dimapur was 27 villages in the same year. This has directly reflected in the health condition of the population; for instance, the infant mortality rate in 2001 for Mon was the least with 27.10, while that of Dimapur was highest with 37.50.

Sanitation is associated not only with personal hygiene but also with human dignity and well-being, public health and even education. The burden of infectious diseases is closely linked to sanitation and water facilities. According to NSHDR 2004, only 24.8% of the households in Nagaland had flush toilets and 49.5 % had pit toilets. In the same year, 25.87% of the households in Nagaland did not have proper sanitation facility, as compared to 30% of all India's average. Among the districts, Mokokchung had 100% toilet facility while Mon had only 29%.

3.8: VILLAGE COUNCIL AND VILLAGE DEVELOPMENT BOARD

There has been remarkable extension of the administrative reach to the far-flung corners in Nagaland. Village Council (VC) is established under the Nagaland Village and Area Council Act 1978. It functions as an overall authority of administering justice within the village headed by Chairman known as Village Council Chairman (VCC). Hence, Village Council forms an important component of the modern governance system in Nagaland. The District Planning and Development Boards (DPDB) provide the needed flexibility to ensure a responsive and holistic approach towards development linking to the grassroots through the Village Development Boards. This linkage has become vital in decentralising governance and decision-making in the post-independence and Statehood eras.²⁷¹

The Village Development Board (VDB) is a statutory body, functioning under the primary authority of Village Council. The VDB in Nagaland was first set up in 1976 at Ketsapomi Village in Phek district. A mass campaign was launched to expand this institution to

²⁷⁰ Phek District Human Development Report, (Nagaland, India) (2009): 77.

²⁷¹ Karmakar, K G and G D Banerjee (2007): Village Development Boards in Nagaland, available at http://www.nabard.org/databank/pdf/VDB%251_doc. dated 20/09/12.

cover all the villages in the State since 1980. The VDBs are involved in all phases of developmental activities as a part of their responsibilities like allocation of funds, selection of beneficiaries or schemes, monitoring of work progress and completion of schemes. The allocation of funds made by the State government is based on the taxation paid by the households of the village, whereby it is being collectively pooled for implementation of the schemes for the benefits of the entire community. Many major schemes have been successfully implemented through VDBs by way of free community contribution of labour. The latest innovative venture has been made to declare the VDBs as “Financial Intermediaries” or “Non-Banking Financial Intermediaries” to integrate the ever important credit mechanism in the rural areas for fostering economic development. However, bottlenecks such as lack of adequate infrastructural facilities, poor resources base and dearth of technical know-how have handicapped the VDBs in the developmental progress.

3.9: SOCIO-ECONOMIC PROFILE OF SAMPLE AREAS

In this section, profile of sample towns and villages, from the survey conducted during 2009-10 are highlighted. Also, comparisons among the sample areas are analysed in socio-economic indicators in demographic characteristics and infrastructural facilities at village and household levels.²⁷²

3.9.1: Mokokchung District

Mokokchung Town: Mokokchung town is the headquarters of Mokokchung district. It is located 152 kms away from the State capital Kohima, linked by National Highway (NH) No. 61 via Wokha. Post Office (PO) and telephone facilities are available. During the time of survey, Mokokchung town has 5 (five) Commercial banks and 1 (one) State Cooperative bank. Besides, it has 1 (one) District Hospital and 4 (four) Dispensaries/Sub centre. Also, there were 1 (one) District Institute of Education and Training (DIET) College, 1 (one) Government College, 2 (two) Private Colleges, 1 (one) Nursing College, 1 (one) Government and 6 (six) Private Higher Secondary Schools and 19 (nineteen) Secondary Schools and below. In aggregate, household with electricity connectivity constitute about 99%, while safe drinking water supply was 65% and sanitation (toilet and bathroom facilities) was 100%.

Mokokchung Village: Mokokchung village is situated 2 kms away from Mokokchung town. According to Village Council Chairman’s (VCC) record during the time of sample survey (2009-10), there were 750 households with a population of 5,894. There were 26 private taxis and had telephone facilities, while they had access to post office at Mokokchung town. The nearest

²⁷² The sample data are based on the survey conducted during 2009-10.

available banks were located at Mokokchung town. The village had 100% household electricity connectivity. In respect of educational infrastructure, Mokokchung village had 1 (one) Government (Govt.) Middle School and 2 (two) Govt. Primary Schools with a total number of 211 students and 34 teachers. In health care, there was 1 (one) Sub-centre taken care by 1 (one) Nurse and 2 (two) other supporting staff. The main source of drinking water was private wells, whereby 95% households had proper safe drinking water facility and household with proper toilet facility was 100%.

Luyong Village: Luyong village, which was formerly known as Molungyimsen 'B', was recognised as a full-fledged village in 2007. The village is located 76 Kms away from the Mokokchung district headquarters and falls within the administrative division of Additional Deputy Commissioner (ADC) Mangkolemba. It has 256 households with a total population of 1,989. There was neither regular public nor private owned transportation facility for public transportation. Telephone facility and Block Post Office are available. The nearest banking facility was State Bank of India (SBI) at Tuli which is 3 (three) kms away from the village. The electricity connectivity of the village was 100%. There was 1 (one) Govt. Primary School and 1 (one) private High School with a total number of 16 teachers and 120 students. The nearest available health care centre was Primary Health Centre (PHC) at Tuli. The villagers were solely dependent on ring wells for drinking water supply. The village council made it mandatory to maintain respective toilets through which, 100% sanitation was achieved.

3.9.2: Phek District

Phek Town: Phek town is the district headquarters. It is situated 145 kms away from the State capital. The town is linked in greater part by NH 150 (115 kms) and partially by State Public Work Department (PWD) road (30kms). Post office and telephone facilities are available. Besides, there are 2 (two) Commercial and 1 (one) State Cooperative Banks. It has 1 (one) Govt. College, 1 (one) Govt. Higher Secondary School, 1 (one) Industrial training Centre (ITC), 10 Govt. and 8 (eight) Private Schools. The town has 1 (one) District Hospital and 2 (two) Dispensaries to cater to the health of the people. The number households with electricity connectivity constitute 97%, safe drinking water supply was 78% and sanitation was 90%.

Kikrüma Village: Kikrüma is the biggest village in Phek district, situated on three hillocks, linked by NH No.150. It is located at a distance of 93 Kms from the district headquarters and falls under the administration of ADC Pfütsero. According to the Village Development Board (VDB) record, there were 1,550 households with a population of 7,685. There were 5 (five) taxis and 1 (one) NST bus for public transportation. The villagers had access

to telephone facility in the village while necessary mailings are done at Pfütsero which is 13 kms away from the village. The nearest banking facility is SBI and State Co-operative Banks located at Pfütsero. Eighty-five percent (85%) of the households were electrified. There were 2 (two) private Secondary Schools with a total of 450 students and 20 teachers, 2 (two) Government Primary Schools and 1 (one) Government Secondary School with a total of 450 students and 23 teachers. There were 1 (one) PHC with 1 (one) Doctor and 1 (one) supporting staff. Safe drinking water supply has been made available to 75% households, while there was 1 (one) community latrine and about 62% households have proper toilets.

Enhulumi Village: Enhulumi village is situated 56 Kms away from the district headquarters Phek and falls under Chizami Sub-Division, linked by NH No.150. According to the VDB record, the village has 210 households and 1,370 population. In the village, there was neither public nor private owned transportation facility. Therefore, the villagers depended on the vehicle crossing the village for commuting. It has telephone facilities such as Wireless and mobile phones are available, while the nearest post office (BPO) was at Chizami which is 3 (three) Kms away from the village. Also, the nearest bank available was SBI at Chizami. Enhulumi has 98% of the households with electricity connectivity. There was 1 (one) Government Primary School with a total strength of 7 (seven) teachers and 127 students. In health zone, the necessary medical treatments are given by PHC at Chizami. The percentage of households with safe drinking water supply was 97% while 97% of the village had access to proper toilet facilities.

3.9.3: Tuensang District

Tuensang Town: Tuensang town is one of the oldest towns in Nagaland. It is situated 267 Kms away from the State capital, linked partially by NH No. 61 (Kohima-Mokokchung: 152 Kms) and NH No. 155 (115 Kms) (Mokokchung to Tuensang). Post office and telephone facilities are available. Also, there was 1 (one) SBI and 1 (one) State Cooperative bank. There was one Nursing College attached to District Hospital, 3 (three) Dispensaries, 1 (one) ITC, 1 (one) Government College, 1 (one) Private College, 1 (one) DIET College, 1 (one) Nursing College, 1 (one) Government Higher Secondary School, 8 (eight) Government and 6 (six) Private Schools. The proportion of households with electricity connectivity is 94%, safe drinking water supply is 82% and sanitation is 85%.

Tuensang Village: Tuensang village is known for being one of the oldest and biggest villages in the eastern part of Nagaland. The village is situated 5 (five) kms below its district headquarters. According to the VCC record, the village consists of 1,256 households with a

population of 10,500. For transport and communication, there was 1 (one) community mini bus, 25 (twenty five) private taxis and telephone facilities while having access to post office at Tuensang town. The villagers have access to banking facilities at Tuensang town. About 75% of the households were connected with electricity. The village has 4 (four) Government Primary Schools, 1 (one) Government Middle School and 2 (two) Private Schools. Altogether, there were 700 students and 26 (twenty six) teachers in the government schools while private schools have 680 students and 16 (sixteen) teachers. The Sri Nagesh Dispensary equipped with 1 (one) Doctor, 1 (one) Nurse and 2 (two) other staff caters to health care of the villagers. The proportion of households with safe drinking Water Supply was 75% and Sanitation was 75%.

Table 3.13: Profile of the Sample Towns

Towns		Mokokchung	Phek	Tuensang	Total
Distance from the State Capital		152 Kms	145 Kms	267 Kms	
No. of Post Office		1	1	1	3
Telephone	Landline (yes-1, Nil-0)	1	1	1	-
	WLL (yes-1, Nil-0)	1	1	1	-
	Mobile (yes-1, Nil-0)	1	1	1	-
No. of Colleges (General)	Govt.	1	1	1	3
	Private	2	0	1	3
	<i>Total</i>	<i>3</i>	<i>1</i>	<i>2</i>	<i>6</i>
No. of Higher Secondary Schools	Govt.	1	1	1	3
	Private	6	0	0	6
	<i>Total</i>	<i>7</i>	<i>1</i>	<i>1</i>	<i>9</i>
No. of Schools (below High School)	Govt.	12	10	12	34
	Private	7	8	6	20
	<i>Total</i>	<i>19</i>	<i>18</i>	<i>18</i>	<i>55</i>
No. of Professional College(s)	2	1	3	6	
<i>Total No. of Educational Institutions</i>		<i>29</i>	<i>24</i>	<i>24</i>	<i>76</i>
Hospitals/Dispensaries/Sub-Centre(s)		5	5	4	14
% of Households with Safe Drinking Water Supply		65	78	82	75
% of Households with Toilet Facility		100	90	85	92
% of Electrified Households		99	97	94	97

Source: SDIOs (School Education), Town Municipal/Committees 2009-10.

Konya Village: Konya village is 38 kms away from the district headquarters Tuensang. The only road linked to the village is a kutchra type stretching through hill forest. According to VCC's record, there were 186 households with a population of 1,860. There was neither public nor regular private run taxis for public transportation. Hence, they used to go far on foot to get vehicle for transportation. They have access to communication facilities such as wireless and mobile phones. However, there was no post office in the village. The nearest bank available for the people of Konya was at Tuensang town. Electricity connectivity was 90% of the total households. The village had 1 (one) Govt. Primary School and 1 (one) Govt. Middle School with a total of 227 students and 15 teachers. In health area, the village has 1 (one) sub-centre, which

was manned by only 1 (one) Nurse. The village had safe drinking water supply for 100% households while 60% of the households had access to proper toilet facilities.

Table 3.14: Profile of Sample Villages

		Villages							
		Total	Mokokch ung	Luyong	Kikrüm a	Enhulu mi	Tuensan g	Konya	
Location and Demography									
Distance from District HQ (in Kms.)			2	76	93	56	5	38	
Sub-Division			Mokokch ung	Mangkol emba	Pfütser o	Chizami	Tuensan g	Tuensan g	
Population		29295	5894	1986	7685	1370	10500	1860	
Infrastructure									
<i>Transportation</i>									
Road (Pucca-2, Kutcha-1)			2	1	2	2	1	1	
Community owned Transportation	Taxi	0	0	0	0	0	0	0	
	Bus	2	0	0	1	0	1	0	
Private owned Transportation	Taxi	56	26	0	5	0	25	0	
	Bus	0	0	0	0	0	0	0	
<i>Communication</i>									
Telephone	Landline (yes-1, Nil-0)		1	1	1	0	1	0	
	WLL (yes-1, Nil-0)		1	1	1	1	1	1	
	Mobile (yes-1, Nil-0)		1	1	1	1	1	1	
Post Office (P.O.) (yes-1, Nil-0)			0	1	0	0	0	0	
Distance of the nearest P.O. (in Kms.)			2	0	12	3	5	38	
<i>Others</i>									
% of Electrified Household		91	100	100	85	97	75	90	
Bank (yes-1, Nil-0)		0	0	0	0	0	0	0	
Distance of the nearest Bank (in Kms.)		11	2	3	12	3	5	38	
Education									
Number of Educational Institutions	Primary	Govt.	10	2	1	2	1	3	1
		Private	1	0	0	0	0	1	0
		<i>Total</i>	<i>11</i>	<i>2</i>	<i>1</i>	<i>2</i>	<i>1</i>	<i>4</i>	<i>1</i>
	Middle	Govt.	3	1	0	0	0	1	1
		Private	2	0	0	2	0	0	0
		<i>Total</i>	<i>5</i>	<i>1</i>	<i>0</i>	<i>2</i>	<i>0</i>	<i>1</i>	<i>1</i>
	Secondary	Govt.	1	0	0	1	0	0	0
		Private	2	0	1	0	0	1	0
		<i>Total</i>	<i>3</i>	<i>0</i>	<i>1</i>	<i>1</i>	<i>0</i>	<i>1</i>	<i>0</i>
	Total	Govt.	14	3	1	3	1	4	2
		Private	5	0	1	2	0	2	0
		<i>Total</i>	<i>19</i>	<i>3</i>	<i>2</i>	<i>5</i>	<i>1</i>	<i>6</i>	<i>2</i>
Number of Teachers	Govt.	109	34	4	23	7	26	15	
	Private	48	0	12	20	0	16	0	
	<i>Total</i>	<i>157</i>	<i>34</i>	<i>16</i>	<i>43</i>	<i>7</i>	<i>42</i>	<i>15</i>	
Number of Students	Govt.	1750	211	35	450	127	700	227	
	Private	1215	0	85	450	0	680	0	
	<i>Total</i>	<i>2965</i>	<i>211</i>	<i>120</i>	<i>900</i>	<i>127</i>	<i>1380</i>	<i>227</i>	
Teacher-pupil ratio	Govt.	16	6	9	19	27	27	15	
	Private	25	0	7	23	0	43	0	
	<i>Average</i>	<i>18</i>	<i>6</i>	<i>8</i>	<i>21</i>	<i>27</i>	<i>42</i>	<i>15</i>	
School-Pupil ratio	Govt.	125	70.33	35	150	127	175	114	
	Private	243	0	85	225	0	340	0	
	<i>Average</i>	<i>184</i>	<i>70</i>	<i>60</i>	<i>188</i>	<i>127</i>	<i>258</i>	<i>114</i>	
Health									
SC/PHC		4	1 (SC)	0	1 (PHC)	0	1 (SC)	1 (SC)	
Number of Doctor(s)		2	0	0	1	0	1	0	
Number of Nurse(s)		3	1	0	0	0	1	1	
Total Medical Staff		5	1	0	1	0	2	1	
<i>Medical Staff per 10,000 population</i>		<i>1.69</i>	<i>1.70</i>	<i>-</i>	<i>1.30</i>	<i>-</i>	<i>1.91</i>	<i>5.38</i>	

Other Supporting Staff	6	3	0	1	0	2	0
Distance of the nearest Health Centre (in Kms.)		0	3	0	3	0	0
Water Supply and Sanitation							
Source of Safe Drinking Water Supply		Private Well	Private Well	Water Supply	Water Supply	Water Supply	Water Supply
Percentage (%) of household with Safe Drinking Water Supply	89.5	95	95	75	97	75	100
% of Household with Toilet facility	82.33	100	100	62	97	75	60

Note: SC- Sub-Centre, PHC- Primary Health Centre. 0 (zero) means nil.

Source: VCC/VDB Unpublished Official Files 2009-10.

3.10: SAMPLE HOUSEHOLDS

3.10.1: Demographic Characteristics

(i) *Sample Population*: The total population in sample aggregate households was 2999 comprised of 26.04% in Mokokchung, 41.18% in Phek and 32.78% in Tuensang districts.

Urban: The total sample population in urban area was 573, comprised of 19.11% of sample aggregate, out of which Mokokchung, Phek and Tuensang towns constituted 17.45%, 55.15% and 27.40% respectively.

Table 3.15: Sample Population and Sex Ratio in Urban and Nagaland during 2009/10

Sex	Urban				Nagaland
	Mokokchung Town	Phek Town	Tuensang Town	Total Urban	
Male	52	162	88	302	1557
Female	48	154	69	291	1442
Total	100 (17.45)	316 (55.15)	157 (27.40)	573 (19.11)*	2999 (100)
Sex ratio	923	951	784	897	926

Source: Household Survey 2009-10.

Note: The figures in the brackets represent percentage in total urban population, * the figure in the bracket represents percentage in total sample population.

Table 3.16: Sample Population and Sex Ratio in Rural Areas

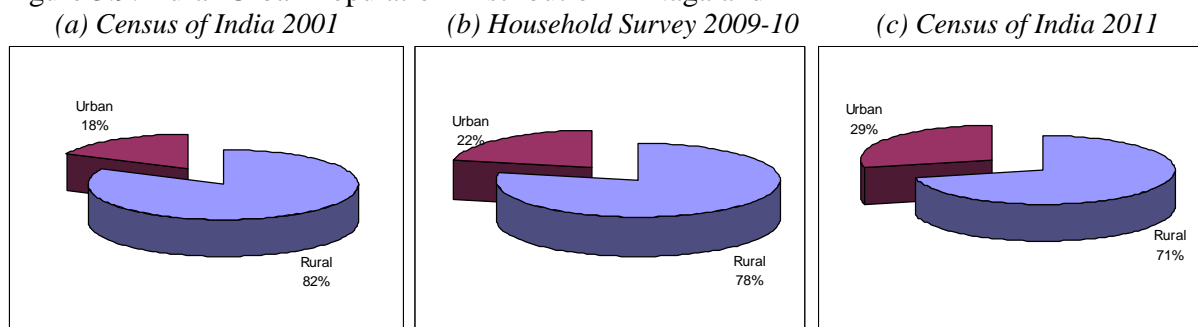
Sex	Rural (Villages)									
	Mokokchung district			Phek District			Tuensang District			Total Rural
	Mokokchung	Luyong	Total	Kikrūma	Enhulumi	Total	Tuensa ng	Konya	Total	
Male	252	97	347	352	120	472	333	101	434	1255
Female	242	90	331	342	105	447	296	96	392	1171
Total	494 (20.36)	187 (7.71)	681 (28.61)	694 (28.61)	225 (9.28)	919 (37.88)	629 (25.93)	197 (8.12)	826 (34.05)	2426 (80.89)*
Sex ratio	964	928	954	972	875	947	884	950	903	933

Source: Household Survey 2009-10

Note: The figures in the brackets represent percentages in total rural population. * The figure in the bracket represents percentage in total sample population

Rural: In rural area, the total sample population was 2,426, which constituted 80.89% of sample aggregate. Out of the rural sample population Mokokchung, Phek and Tuensang districts constituted 28.61%, 37.88% and 24.05% respectively. Among the sample villages, Kikrūma constituted 28.61%, which was highest. That was followed by Tuensang, Mokokchung, Enhulumi, Konya and Luyong with 25.93%, 20.36%, 9.28%, 8.12% and 7.71% respectively.

Figure 3.9: Rural-Urban Population Distribution in Nagaland



(ii) **Age-wise Composition:** The sample population has been divided into eight different age groups, such as 14 years & below, 15-19, 20-24, 25-29, 30-34, 35-44, 45-60 and above 60 years of age.

In aggregate sample, the highest proportion of population among different age groups was children 14 years & below, forming 22%. On the other hand, the least proportion was in the age group above 60 years which constitute only 6%.

Urban: In sample urban population, the highest proportion was in the age group 0-14 years with 21%. Among the districts, the highest was Phek with 27%, followed by Mokokchung and Tuensang with 16% and 13% respectively. On the other hand, the least was in the age group above 60 years with 3%. Among the towns, Mokokchung and Tuensang constituted 2% each, while Phek town constituted 4%.

Rural: In sample rural population, the highest proportion was children 14 years and below, which made up 22%. Among the sample districts, Tuensang had the highest proportion with 34%, followed by Phek and Mokokchung with 21% and 12% respectively. On the other hand, the least was in the age group above 60 years consisting of only 6%. Among the districts, Phek had the highest proportion with 8%, while Mokokchung and Tuensang have 7% and 2% respectively of the district.

Table 3.17: Age-wise Composition of Population in Sample Urban Area and Nagaland.

Towns/ Nagaland	0-14				15-19				20-24			
	M	F	T	SR	M	F	T	SR	M	F	T	SR
Mokokchung	9	7	16 (16)	778	4	7	11 (11)	1750	10	6	16 (16)	600
Phek town	41	43	84 (27)	1048	23	25	48 (15)	1087	33	21	54 (17)	636
Tuensang	18	12	20 (13)	667	12	11	23 (15)	917	15	8	23 (15)	533
Total Urban	68	62	120 (21)	912	39	43	82 (14)	1102	58	35	93 (16)	603
Nagaland	347	323	670 (22)	931	201	188	389 (13)	935	231	179	410 (14)	775

Contd...

Town/ Nagaland	25-29				30-34				35-44			
	M	F	T	SR	M	F	T	SR	M	F	T	SR
Mokokchung	6	10	16 (16)	1667	6	1	7 (7)	167	5	8	13 (13)	1600
Phek town	14	14	28 (9)	1000	8	8	16 (5)	1000	18	20	38 (12)	1111
Tuensang	11	9	20 (13)	818	9	4	13 (8)	444	8	7	15 (10)	875
Total Urban	31	33	64 (11)	1064	23	13	36 (6)	565	31	35	66 (12)	1129
Nagaland	162	136	298 (10)	839	98	114	212 (7)	1163	162	211	373 (12)	1302

Contd...

Town/ Nagaland	45-60				Above 60				Total			
	M	F	T	SR	M	F	T	SR	M	F	T	SR
Mokokchung	13	6	19 (19)	462	1	1	2 (2)	1000	52	48	100 (17.45)	923
Phek town	20	16	36 (11)	800	8	5	13 (4)	625	162	154	316 (55.15)	951
Tuensang	13	17	40 (40)	130 8	3	0	3 (2)	0	88	69	157 (27.40)	784
Total Urban	46	39	95 (17)	848	12	6	18 (3)	500	302	271	573 (19.11)	897
Nagaland	247	212	459 (15)	858	101	66	167 (6)	653	1557	144 2	2999 (100)	926

Source: Household Survey 2009-10.

Note: The figures in the brackets represent percentage: M-Male, F-Female, T-Total, SR Sex-ratio.

Table 3.18: Age-wise Composition of Population in Sample Rural Areas

Districts	Villages	0-14				15-19				20-24			
		M	F	T	SR	M	F	T	SR	M	F	T	SR
Mokokchung	Mokokchung	30	30	60	1000	23	20	43	869	47	35	82	745
	Luyong	12	13	25	1083	10	9	19	900	20	16	36	800
	Total	42	43	85 (12)	1024	33	29	62 (9)	879	67	51	118 (17)	761
Phek	Kikrūma	66	60	126	909	41	49	90	1195	49	36	85	735
	Enhulumi	36	27	63	750	17	6	23	353	10	14	24	1400
	Total	102	87	189 (21)	853	58	55	113 (12)	948	59	50	109 (12)	847
Tuensang	Tuensang	124	120	244	968	60	50	110	833	36	32	68	889
	Konya	25	15	40	600	7	10	11	1428	14	10	24	714
	Total	149	135	284 (34)	906	67	60	121 (15)	895	50	42	92 (11)	840
Total Rural		279	261	540 (22)	935	162	145	309 (13)	895	173	144	317 (13)	832

Contd...

Districts	Villages	25-29				30-34				35-44			
		M	F	T	SR	M	F	T	SR	M	F	T	SR
Mokokchung	Mokokchung	33	34	67	1030	23	27	50	1174	31	38	69	1226
	Luyong	17	6	23	353	2	6	8	3000	3	13	16	4333
	Total	50	40	90 (13)	800	25	33	58 (9)	1320	34	51	85 (12)	1500
Phek	Kikrūma	39	38	75	974	27	31	58	1148	46	46	92	1000
	Enhulumi	16	9	25	562	9	11	20	1222	12	20	32	1667
	Total	55	47	100 (11)	854	36	42	78 (9)	1167	58	66	124 (13)	1138
Tuensang	Tuensang	15	5	20	333	3	15	18	5000	28	48	76	1714
	Konya	14	17	31	1214	12	10	22	833	11	11	22	1000
	Total	29	22	51	759	15	25	40	1667	39	59	98	1513

				(7)				(5)				(12)	
Total Rural	131	103	234 (10)	786	75	101	175 (7)	1347	131	176	307 (13)	1344	

Contd...

Districts	Villages	45-60				Above 60				Total			
		M	F	T	SR	M	F	T	SR	M	F	T	SR
Mokokchung	Mokokchung	38	45	83	1184	26	14	40	538	252	242	494	960
	Luyong	30	22	52	733	6	2	8	333	97	90	187	928
	Total	68	67	135 (20)	985	32	16	48 (7)	500	349	332	681 (100)	951
Phek	Kikrūma	49	51	100	1040	37	29	66	784	352	342	694	972
	Enhulumi	14	14	28	1000	7	3	8	429	120	105	225	875
	Total	63	65	128 (14)	1032	44	32	74 (8)	727	472	447	919 (100)	947
Tuensang	Tuensang	59	30	89	508	2	1	3	500	333	296	629	889
	Konya	11	18	29	1636	8	4	12	500	101	96	197	950
	Total	70	48	118 (14)	686	10	5	15 (2)	500	434	392	826 (100)	903
Total Rural		201	173	374 (15)	861	89	60	149 (6)	674	1255	1171	2426 (100)	933

Source: Household Survey 2009-10.

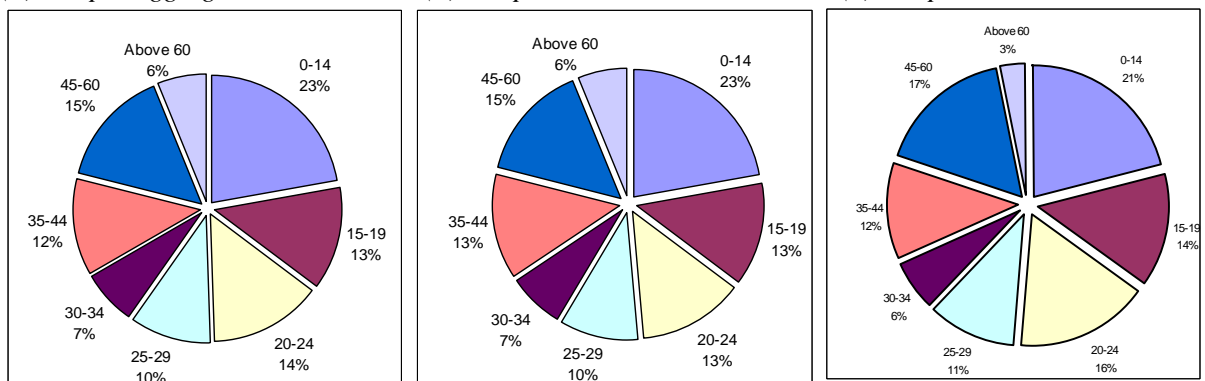
Note: The figures in the brackets represent percentage: M-Male, F-Female, T-Total, SR-Sex-ratio.

Figure 3.10: Age-wise Composition of Sample Population

(a) Sample Aggregate

(b) Sample Rural

(c) Sample Urban



(iii) **Sex Ratio:** The sex ratio for sample aggregate as given in table 3.17 was 926, which was lower than that of 2011 Census with 931 for the State. Among the different age-groups in sample aggregate, the sex-ratio was highest in the age group 35-44 years with 1302, while the lowest was in the age group above 60 years with only 653.

Urban: The sex-ratio in sample urban area was 897, which was lower than that of the 2011 census with 905. Among the sample towns, the highest was Phek with 951, followed by Mokokchung and Tuensang with 923 and 784 respectively. Among the different age-groups, the highest and lowest were in the age-group 35-44 and above 60 years with 1129 and 500 respectively.

Rural: The sex composition as shown in table 3.18 showed that the sex-ratio in sample rural area was only 933 as compared to 942 of the 2011 census. It was highest in Mokokchung

with 951, followed by Phek and Tuensang with 947 and 903 respectively. Among the sample villages, the highest was in Mokokchung, while the lowest was in Enhulummi with 964 and 875 respectively.

Among the different age-groups, the highest sex-ratio was in 30-34 years with 1,347. In this age group, Tuensang had the highest with 1,667, while Mokokchung and Phek have 1320 and 1167 respectively. On the other hand, the lowest was in the age group above 60 years with 674. Among the sample districts, the highest was Phek with 727, while Mokokchung and Tuensang have 500 each.

(iv) Household Size: Household means a group of persons normally living together and taking food from a common kitchen. It excludes temporary visitors and include temporary stay-away. The household data revealed that the average household size in aggregate was 5.71 members as presented in table 3.19.

Urban: In sample urban areas, the average family size is found to be 5.07 persons, which was lower than that of sample aggregate of 5.71 persons. Among the sample towns, Mokokchung had the smallest household size with 4.17 persons, followed by Tuensang and Phek with 5.06 and 5.45 respectively.

Table 3.19: Household Size in Sample Urban and Nagaland

	Urban				Nagaland
	Mokokchung Town	Phek Town	Tuensang Town	Total	
No. of Household	24	58	31	113	525
Population	100	316	157	573	2999
Average Household size	4.17	5.45	5.06	5.07	5.71

Source: Household Survey 2009-10.

Rural: According to VCC/VDB records, the total households and population of six villages as indicated in table 3.20 were 4208 and 28636 respectively. This meant that the average household size in sample rural area was 6.82 members, with the highest in Konya and the lowest in Kikrūma with 10 and 4.52 members respectively.

Table 3.20: Household Size in Sample Villages

	Villages						
	Total	Mokokchung	Luyong	Kikrūma	Enhulummi	Tuensang	Konya
Total Household	4208	750	256	1550	210	1256	186
Total Population	28636	5894	1986	7000	1370	10500	1886
Average Family Size	6.82	7.86	7.76	4.52	6.52	8.36	10

Source: Unpublished official VDB/VCC Records 2009-10.

On the other hand, the sample household data has revealed that the average household size in rural area was 5.89 members, which was smaller than that of VDB/VCC records. Among the sample districts, Mokokchung had the smallest with 4.90 members, followed by Tuensang

and Phek districts with 6.21 and 6.56 members respectively. Among the villages, Kikrüma had the biggest household size with 7.08 members, followed by Tuensang, Enhulumi, Konya, Mokokchung and Luyong, with 6.62, 5.36, 5.18, 4.99 and 4.62 members respectively.

Table 3.21: Household Size in Rural Areas

	Rural (Villages)									
	Mokokchung district			Phek District			Tuensang District			Total Rural
	Mokokchung	Luyong	Total	Kikrüma	Enhulumi	Total	Tuensang	Konya	Total	
No. of Household	99	40	139	98	42	140	95	38	133	412
Population	494	187	681	694	225	919	629	197	826	2426
Average Family size	4.99	4.62	4.90	7.08	5.36	6.56	6.62	5.18	6.21	5.89

Source: Household Survey 2009-10.

(v) **Educational Profile:** The educational profile of sample population is divided into three categories, such as (i) currently attending, (ii) attended but not currently attending and (iii) never attended.

(a) *Currently Attending:* ‘Currently attending’ refers to those who were studying at various levels of education at the time of survey being made. In sample aggregate, 36% of the population were ‘currently attending’ formal education, as depicted in table 3.22 made up 54% male and 46% female. Out of this, 27% were in primary level, 28% in middle school, 15% in secondary stage and 30% in post matric levels.

Urban: Survey shows that 42% of the urban sample were ‘currently attending’ formal education, consisting of 54% male and 46% female. Also, it is observed that 18% each were studying in primary and secondary levels, 16% in middle school, while 48% were pursuing post matric studies. Among the districts, the highest proportion of ‘currently attending’ was Phek with 49%, followed by Tuensang and Mokokchung with 36% and 27% respectively.

Rural: In sample rural, 34% were ‘currently attending’ various levels of formal education as given in table 3.23, the male-female ratio being 54%:46%. Among the districts, Phek had the highest ‘currently attending’ with 37%, followed by Tuensang and Mokokchung with 36% and 27% respectively. The proportion of enrolment in under-matric was 76%, while in higher secondary and graduate & above levels, it was 11% and 13% respectively. Among the sample villages, the highest percentage of ‘currently attending’ formal education were Tuensang and Kikrüma with 39% each, followed by Enhulumi, Luyong, Mokokchung and Konya with 33%, 30%, 26% and 24% respectively.

Table 3.22: Educational Profile of the Sample Urban and Nagaland during 2009-10

Village	Sex	Currently Attending						Attended but Not Currently Attending						Never attended	Nagaland
		1	2	3	4	5	Total	1	2	3	4	5	Total		
Mokokchung Town	M	2	1	1	5	6	15	2	2	10	5	15	34	3	52
	F	2	1	1	3	5	12	1	1	12	7	10	31	5	48

	T	4 (15)	2 (7)	2 (7)	8 (30)	11 (41)	27 (27)	3 (5)	3 (5)	22 (34)	12 (19)	25 (39)	65 (65)	8 (8)	100 (100)
Phek Town	M	15	17	12	12	25	81	3	26	15	16	17	77	4	162
	F	7	15	17	20	16	75	11	0	0	33	26	70	9	154
	T	22 (14)	32 (21)	29 (19)	32 (21)	41 (26)	156 (49)	14 (10)	26 (18)	15 (10)	49 (33)	43 (29)	147 (47)	13 (4)	316 (100)
Tuensang Town	M	9	5	4	6	10	34	1	7	7	11	25	51	3	88
	F	7	1	7	7	2	24	5	10	9	7	11	42	3	69
	T	16 (28)	6 (11)	11 (19)	13 (23)	11 (19)	57 (36)	6 (6)	18 (19)	16 (17)	18 (19)	36 (38)	94 (60)	6 (4)	157 (100)
Urban	M	26 (62)	23 (58)	17 (41)	23 (43)	41 (65)	130 (54)	6 (26)	35 (75)	32 (60)	32 (41)	57 (55)	162 (53)	10 (37)	302 (53)
	F	16 (38)	17 (42)	25 (59)	30 (57)	23 (35)	111 (46)	17 (74)	11 (25)	21 (40)	47 (59)	47 (45)	143 (47)	17 (63)	271 (47)
	T	42 (18)	40 (16)	42 (18)	53 (22)	63 (26)	240 (42)	23 (8)	47 (15)	53 (17)	79 (26)	104 (34)	306 (53)	27 (5)	573 (100)
Nagaland	M	164 (57)	157 (53)	79 (49)	69 (48)	102 (60)	571 (54)	69 (40)	229 (50)	266 (54)	170 (56)	163 (59)	897 (53)	89 (39)	1557 (52)
	F	126 (43)	141 (47)	82 (51)	75 (52)	70 (40)	493 (46)	102 (60)	229 (50)	229 (46)	136 (44)	112 (41)	807 (47)	142 (61)	1442 (48)
	T	290 (27)	298 (28)	161 (15)	144 (14)	171 (16)	1063 (36)	171 (10)	458 (27)	495 (29)	306 (18)	275 (16)	1705 (57)	231 (7)	2999 (100)

Source: Household Survey 2009-10. Note: 1- Primary, 2-Middle, 3-Secondary, 4-Higher Secondary, 5- Graduate and above. Figures in parentheses represent percentage.

(b) *Attended but Currently Not Attending*: There may be two possible cases in this category. Firstly, ‘attended but currently not attending’ could be attributed to lack of interest or cases of drop-outs and secondly, on getting employed. The former has occurred mostly in the lower stage (below matriculation), while the latter mostly happens in the higher level (post matric) or after graduation.

In sample aggregate, 57% had ‘attended but currently not attending’, which comprises of 53% male and 47% female. Out of sample aggregate, only 34% had attended post-matric studies, while 66% were under matric. It is observed that in rural areas, drop-out cases had occurred mostly at middle and secondary stages of schooling with 27% and 29% respectively.

Urban: In urban areas, 53% ‘attended but currently not attending’ formal schooling, which comprises of 53% male and 47% female. It is observed that 60% had attended post matric levels and 40% were under matric. Among the sample towns, Mokokchung had the highest with 65%, followed by Tuensang and Phek with 60% and 47% respectively. Further, 62% in Phek town had attended post matric studies, while that of Mokokchung and Tuensang were 58% and 57% respectively.

Table 3.23: Educational Profile of Sample Population in Rural Area

Village	Sex	Currently attending						Attended but not currently attending						Never attended	Total Rural	
		1	2	3	4	5	Total	1	2	3	4	5	Total			
Mokokchung	Mokokchung village	M	11	12	15	12	20	70	4	35	60	34	40	173	9	252
		F	8	10	12	13	15	57	7	34	71	19	32	163	22	242
		T	19 (15)	22 (17)	27 (21)	25 (20)	35 (28)	127 (26)	11 (3)	69 (21)	131 (39)	53 (16)	72 (21)	336 (68)	31 (6)	494 (100)
	Luyong	M	7	2	3	6	8	26	1	12	23	19	12	67	4	97

	Total	F	5	8	2	5	10	30	2	10	24	15	6	57	3	90
		T	12	10	5	11	18	56	3	22	47	34	18	124	7	187
			(21)	(18)	(9)	(20)	(38)	(30)	(2)	(18)	(38)	(27)	(15)	(66)	(4)	(100)
		M	18	14	18	18	28	96	5	47	83	53	52	240	13	349
		F	13	18	14	18	25	87	9	44	95	34	38	220	25	332
		T	31	32	32	36	53	183	14	91	178	87	90	460	38	681
Phek	Kikrim a	M	29	50	24	19	20	142	34	44	49	32	26	185	25	352
		F	26	43	25	17	16	127	45	48	45	26	8	172	43	342
		T	55	93	49	36	36	269	79	92	94	58	34	357	68	694
	Enhulu mi	M	21	15	5	2	4	47	4	19	17	13	10	63	10	120
		F	11	11	4	1	1	28	5	22	13	10	5	54	23	105
	Total	T	32	26	9	3	5	75	9	40	30	23	15	117	33	225
			(43)	(35)	(12)	(4)	(7)	(33)	(8)	(34)	(26)	(20)	(13)	(52)	(15)	(100)
		M	50	65	29	21	24	189	38	63	66	45	36	248	35	472
	Total	F	37	54	29	18	17	155	50	70	58	36	13	226	66	447
		T	87	119	58	39	41	344	88	132	124	81	49	474	101	919
			(25)	(35)	(17)	(11)	(12)	(37)	(19)	(28)	(26)	(17)	(10)	(52)	(11)	(100)
	Tuensang	Tuensan g village	M	62	49	11	4	3	129	8	65	77	29	5	184	19	332
F			48	51	11	5	4	119	10	89	43	12	5	159	19	297
T			110	100	22	9	7	248	18	154	120	41	10	343	38	629
Konya		M	8	6	4	3	5	26	12	20	7	11	13	63	12	101
		F	12	1	3	4	2	22	16	14	13	7	9	59	15	96
		T	20	7	7	7	7	48	28	34	20	18	22	122	27	197
Total			(42)	(15)	(15)	(15)	(15)	(24)	(23)	(28)	(16)	(15)	(18)	(62)	(14)	(100)
		M	70	55	15	7	8	155	20	85	84	40	18	247	31	433
		F	60	52	14	9	6	141	26	103	56	19	14	218	34	393
Rural	T	130	107	29	16	14	296	46	188	140	59	32	465	65	826	
		(44)	(36)	(10)	(5)	(5)	(36)	(10)	(40)	(30)	(11)	(9)	(56)	(8)	(100)	
	M	138	134	62	46	61	441	63	195	233	138	106	735	79	1255	
Rural	F	110	124	57	45	47	382	85	217	209	89	65	664	125	1171	
		(44)	(48)	(48)	(49)	(43)	(46)	(57)	(52)	(47)	(39)	(38)	(47)	(61)	(48)	
	T	248	258	119	91	108	823	148	411	442	227	171	1399	204	2426	
	(30)	(31)	(15)	(11)	(13)	(34)	(11)	(29)	(32)	(16)	(12)	(58)	(8)	(100)		

Source: Household Survey 2009-10. Note: 1- Primary, 2-Middle, 3-Secondary, 4-Higher Secondary, 5- Graduate and above. Figures in parentheses represent percentage.

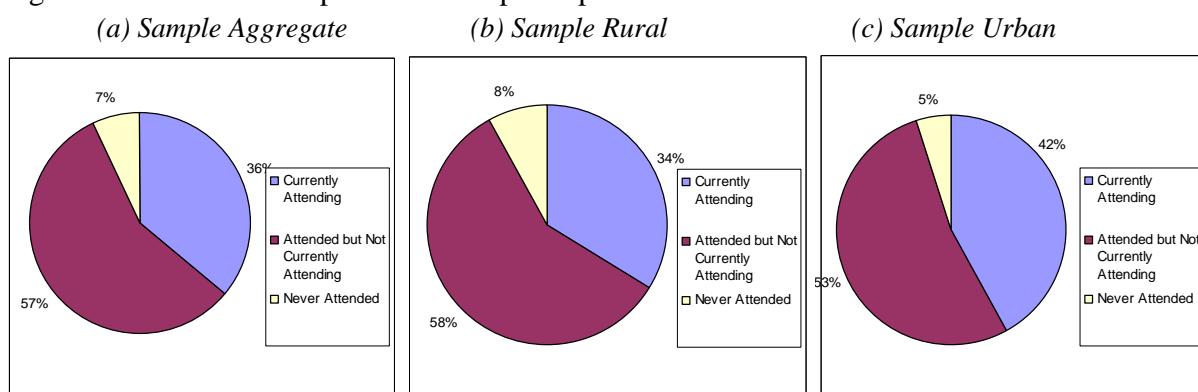
Rural: In sample rural area, 58% ‘attended but not currently attending’ with 53% male and 47% female. In rural areas, only 28% had attended post matric studies, while 72% were under matric. Among the sample districts, the highest was Mokokchung with 67%, followed by Tuensang and Phek with 56% and 52% respectively. Among the sample villages, the highest was Mokokchung with 68%, followed by Luyong, Konya, Tuensang, Kikrima and Enhulumi with 66%, 62%, 55%, 52% and 51% respectively. Similarly, in graduate and above, Mokokchung had the highest with 21%, while the lowest was Tuensang with 3%.

(c) *Never Attended:* ‘Never attended’ refers to those who have never been to formal schooling. Study showed that 7% of the total sample population of 5 (five) years and above had ‘never attended’ any formal education, with male-female ratio of 39%:61%. This shows that females were more deprived of receiving education. This has also reflected in literacy rate that female literacy rate was lower than that of male.

Urban: In sample urban, the data has indicated that 5% of the sample population had never been to school, consisting of 63% female and 37% male. Among the sample towns, Mokokchung had the highest with 8%, while Phek and Tuensang had 4% each.

Rural: In sample rural, 8% had never been to school, out of which 61% were female and 39% were male. It was highest in Phek district with 11%, followed by Tuensang and Mokokchung with 8% and 6% respectively. Among the sample villages, Enhulumi had the highest with 15%, followed by Konya, Kikrüma, Tuensang, Mokokchung, and Luyong with 14%, 10%, 6%, 6% and 4% respectively.

Figure 3.11: Educational profile of Sample Population



(vi) Occupation of Household Heads: The profession of the household head plays a vital role in the development of a child. The household head has the role in motivating and influencing a child's career. He is, generally, a source of inspiration and encouragement for the children in a family. In the present study, the occupations of the household heads are categorised into Cultivator, Salaried, Self employed, Social activist and Pensioner. In sample aggregate, the highest proportion of household heads' occupation was Cultivator with 42%, followed by Salaried, Self-employed, Pensioner and Social activist with 36%, 13%, 5% and 3% respectively.

(a) Cultivator: Agriculture in its primitive form is the main source of livelihood of the people in the state. As one can see that with the advancement of modern technology and development, structural change has occurred in the economy. The transition has taken place from primitive type of cultivation to service sector. It has been observed that 42% of the household heads in sample aggregate were mainly engaged in agriculture and allied activities.

Urban: It is shown in table 3.24 that the occupation of the household heads as Cultivator in urban area was nil.

Rural: In rural areas, 54% of the household heads were mainly dependent on agriculture and allied activities as shown in table 3.25. Among the sample districts, Phek had the highest proportion with 69%, followed by Tuensang and Mokokchung with 62% and 30% respectively.

Among the sample villages, Kikrüma had the highest with 73% households, followed by Tuensang, Konya, Enhulumi, Luyong and Mokokchung with 65%, 63%, 60%, 43% and 25% respectively.

(b) *Salaried*: The term 'salaried' refer to employees of organised sector whether governmental or non-governmental. The proportion of household heads in Salaried was 36% for sample aggregate.

Urban: In sample urban areas, it is observed that maximum of the households were 'salaried' with 64%. Among the sample towns, the highest proportion was Mokokchung with 75%, followed by Phek and Tuensang with 70% and 42% respectively.

Rural: In rural areas, 27% of the household heads were Salaried, as compared to 65% of urban. Among the districts, the highest proportion of salaried household was Mokokchung with 44%, followed by Tuensang and Phek with 19% and 15% respectively. Among the sample villages, the highest was Mokokchung with 54%, followed by Luyong, Tuensang, Enhulumi, Konya, and Kikrüma with 23%, 21%, 21%, 13% and 12% respectively.

(c) *Self-employed*: Self-employed refers to individuals, who employ themselves for their own economic activity. It is observed that in sample aggregate, 13% of the household heads were Self-employed.

Urban: Urban samples showed that next to 'salaried' household heads, the highest proportion of occupation was 'self-employed' with 26%. Among the towns, Tuensang had the highest with 35%, followed by Phek and Mokokchung with 24% and 17% respectively.

Rural: In rural areas, 10% of the household heads were 'self-employed' as compared to 13 % and 26% in sample aggregate and urban area respectively. Among the districts, Mokokchung had the highest with 19% households, followed by Tuensang and Phek with 9% and 6% households respectively. Village-wise data showed that Luyong had the highest with 17%, followed Mokokchung, Tuensang, Konya, Enhulumi and Kikrüma with 11%, 10%, 8%, 7% and 6% households respectively.

(d) *Social Activist*: This type of household is such that the head of the household was mainly engaged in activities concerning social welfare. In sample aggregate, 3% household heads were mainly engaged in social activities in Nagaland.

Urban: In sample urban, it is observed that 3% of the household heads were social activist. Among the towns, Mokokchung had the highest with 4%, followed by Tuensang and Phek with 3% and 2% respectively.

Rural: In rural areas, 3% household heads were social activists. Among the districts, the highest was Phek with 6% households, followed by Mokokchung and Tuensang districts with 3% and 1% households respectively. Village-wise data shows that Enhulumi and Luyong had the highest proportion of households with 7% each; followed by Kikrüma with 6%, Mokokchung and Tuensang villages with 1% each while Konya was nil.

Table 3.24: Occupation of the Household Heads in Sample Urban and Nagaland

Occupation	Urban				Nagaland
	Mokokchung Town	Phek Town	Tuensang Town	Total Urban	
Cultivator	0 (0)	0 (0)	0 (0)	0 (0)	184 (36)
Salaried	18 (75)	42 (72)	13 (42)	72 (64)	224 (42)
Self-Employed	4 (17)	14 (24)	11 (35)	29 (26)	76 (13)
Social Activist	1 (4)	1 (2)	1 (3)	3 (3)	16 (3)
Pensioner	1 (4)	2 (4)	6 (19)	9 (8)	30 (6)

Source: Household Survey 2009-10. Note: The figures in parentheses represent percentage.

Table 3.25: Occupation of the Household Heads in Sample Rural Areas

Occupation	Rural (Villages)									
	Mokokchung district			Phek District			Tuensang District			Total Rural
	Mokokchung	Luyong	Total	Kikrüma	Enhulumi	Total	Tuensang	Konya	Total	
Cultivator	25 (25)	17 (43)	42 (30)	71 (73)	25 (60)	96 (69)	62 (65)	24 (63)	83 (64)	224 (54)
Salaried	53 (54)	9 (23)	61 (44)	12 (12)	9 (21)	21 (15)	20 (21)	5 (13)	25 (19)	111 (27)
Self-Employed	11 (11)	11 (17)	22 (19)	6 (6)	3 (7)	9 (6)	9 (10)	3 (8)	12 (9)	43 (10)
Social Activist	1 (1)	3 (7)	4 (3)	5 (5)	3 (7)	8 (6)	1 (1)	0 (0)	1 (1)	13 (3)
Pensioner	10 (10)	0 (0)	10 (7)	4 (4)	2 (5)	6 (4)	1 (1)	4 (11)	5 (4)	21 (5)

Source: Household Survey 2009-10. Note: The figures in parentheses represent percentage.

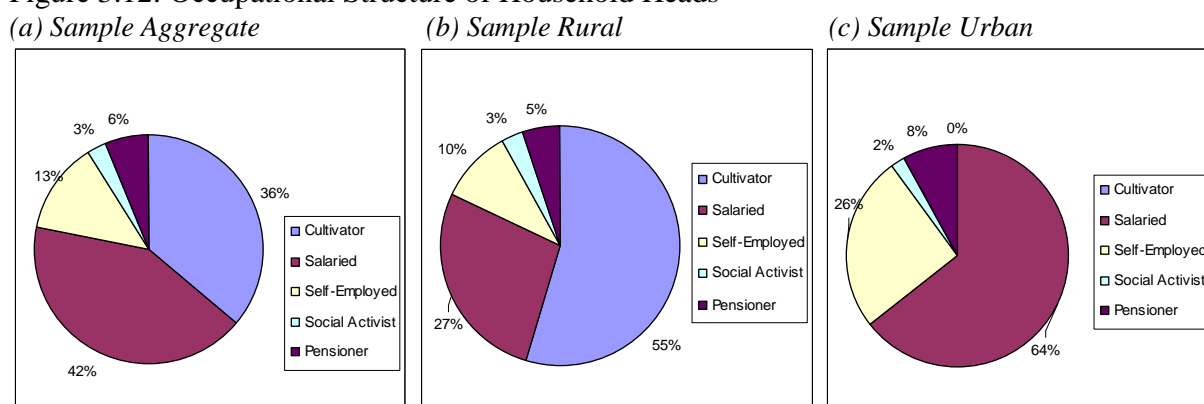
(e) *Pensioner:* This type of household is the headed by ex-servicemen or otherwise whose income is mainly dependent on pension benefits. In sample aggregate, the number of households whose income mainly from pension benefits were 30 that comprises of 6% of the total sample households.

Urban: The households headed by Pensioners in urban area comprises of 8% as compared to 6% in sample aggregate. Among the sample towns, the highest proportion was in Tuensang with 19% households while Phek and Mokokchung have 4% each respectively.

Rural: In sample rural area, 5% households were headed by Pensioner, which was lower than that of urban. Mokokchung district has the highest proportion with 7% households, while Phek and Tuensang have 4% each. Among the sample villages, the highest was Konya with 11%

households, followed by Mokokchung, Kikrüma, Enhulumi and Tuensang with 10%, 4%, 5% and 1% household while it was nil in Luyong village.

Figure 3.12: Occupational Structure of Household Heads



Source: Based on Table 3.24

Source: Based on Table 3.25

Source: Based on Table 3.24

(vii) Gender-wise of Household Heads: The Naga traditional society follows patriarchal type of family where the male folk inherit the household's property. Ultimately, male members become the head of the household. The figure in table 3.26 shows that as many as 90% of the household heads were headed by male members, while only 10% of the households were headed by female members.

Urban: In urban areas, the male-headed households comprise of 91.15% (i.e. only 8.85% households are headed by female members), which was higher than the sample aggregate. Among the sample towns, the highest was Mokokchung with 95% while Phek and Tuensang have 90% each.

Table 3.26: Gender-wise Household Heads in Sample Urban and Nagaland

	Urban				Nagaland
	Mokokchung Town	Phek Town	Tuensang Town	Total	
Male	23 (95.83)	52 (89.66)	28 (90.32)	103 (91.15)	470 (90)
Female	1 (4.17)	6 (10.35)	3 (9.68)	10 (8.85)	55 (10)

Source: Household Survey 2009-10. Note: The figures in parentheses represent percentage

Table 3.27: Gender-wise Household Heads in Sample Rural Areas

	Rural (Villages)									
	Mokokchung district			Phek District			Tuensang District			Total Rural
	Mokokchung	Luyong	Total	Kikrüma	Enhulumi	Total	Tuensang	Konya	Total	
Male	87 (88)	38 (95)	125 (90)	86 (88)	37 (88)	123 (88)	94 (99)	25 (67)	119 (90)	367 (89)
Female	12 (12)	2 (5)	14 (10)	12 (12)	5 (12)	17 (12)	1 (1)	13 (33)	14 (10)	45 (11)

Source: Household Survey 2009-10. Note: The figures in parentheses represent percentage

Rural: It has been observed in sample rural area that 89% of the households were headed by male. Among the districts, the proportion of households headed by male in Mokokchung and

Tuensang were 90% each while that of Phek was 88%. Among the sample villages, the highest was Tuensang with 99%, followed by Luyong with 95%, Mokokchung, Kikrüma and Enhulumi with 88% each while the lowest was Konya with 67%. Thus, it is observed that female headed household has remained insignificant in Naga society.

3.10.2: Infrastructure profile of Sample Areas

(i) Transport and Communication: It is observed that all the sample towns have proper road connectivity. The figure in the table 3.14 (page no.70) showed that among the sample villages, Mokokchung, Kikrüma and Enhulumi are connected with pucca road, while Luyong, Tuensang and Konya villages are linked by kutchra road. Bigger villages such as, Mokokchung, Kikrüma and Tuensang have taxis and bus for commuting. But smaller villages such as Luyong, Enhulumi and Konya do not have any public transport facility, based in their villages. Thus, they depend on others that cross their village or go far to get transportation.

Communication: All the sample towns are well connected with communication facility such as Telephone and Post office. But, in sample villages, except Luyong, none of the sample villages have post office within their village area, while all the villages have access to telephone facilities. This shows that only 16.67 % of the villages have post office. It has been found that all the sample villages have access to telephone facilities.

(ii) Power: The proportion of household with electricity connectivity in sample aggregate was 92.38% that constitute 97% in urban and 91% in rural areas. Among the sample towns, Mokokchung has 99%, while that of Phek and Tuensang was 97% and 94% respectively. In rural areas, Mokokchung and Luyong (Mokokchung district) have 100% household electricity connectivity, while Enhulumi, Konya, Kikrüma and Tuensang have 97%, 90%, 85% and 75% respectively. Hence, in sample aggregate 92.38% households have electricity connectivity, which was even lower than the State's average of 93.75% in 2003.

(iii) Banking: There were 11 banks in sample towns, wherein, Mokokchung has the highest with 6 banks, while Phek and Tuensang have 3 and 2 respectively. In sample villages, it is observed that none of the villages have a bank within their jurisdiction. Among the sample villages, Mokokchung, Luyong, Enhulumi and Tuensang have access to banking facility within the radius of 5 kms of the village. But, for Konya and Kikrüma the nearest bank is located at 38 kms and 12 kms respectively away from their villages. Hence, banks located only in urban areas.

(iv) Education: There are 75 educational institutions in sample towns, comprised of 10 colleges, 11 Higher Secondary and 54 Schools. Among the sample towns, Mokokchung had the highest with 29 while Tuensang and Phek have 24 and 22 respectively. In sample villages, there

are 19 educational institutions including 14 public and 5 private schools. Among the villages, Tuensang had the highest number of educational institutions with 6, followed by Kikrūma, Mokokchung, Luyong, Konya and Enhulumi with 5, 3, 2, 2 and 1 respectively.

The *school-pupil ratio* in aggregate for sample villages was 1:156, while the same for and for government and private schools were 1:125 and 1:243 respectively, as compared to compared to the State's average of 1:178 in 2006 (GoN 2007). Among the sample villages, the highest was Tuensang, in both public and private schools with 1:175 and 1:340 respectively. On the other hand, the lowest in both public and private schools was Luyong with 1:35 and 1:85 respectively.

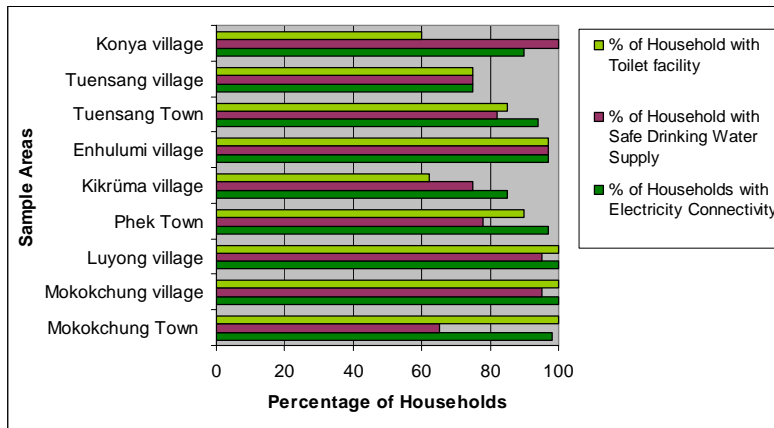
The *teacher-pupil ratio* in aggregate for sample villages was 1:18, which has been marginally lower than the State's average of 1:19 in 2006. The same for public and private was 1:16 and 1:25 respectively in sample villages. Among the sample villages, the highest in both government and private schools was Tuensang with 1:27 and 1:43 respectively. On the other hand, the lowest in government schools was Mokokchung with 1:6 while for private schools and the lowest was Luyong with 1:7.

(v) **Health:** In health care, in spite of all efforts given by the government, its services are yet to reach a satisfactory level. In sample towns, there were 3 District Hospitals, one in each town and 11 Dispensaries. Among the towns, Mokokchung and Phek have 5 medical institutions each while that of Tuensang was 4 (four). In six sample villages, 33% (2) do not have health care facility in their villages. On the whole, there were 5 (five) medical staff including 2 (two) Doctors and 3 (three) Nurses taking care of 28,636 people in the sample villages. Hence, it can be deduced that the medical staff per 10,000 population was only 1.69 in sample villages as compared to that of the State's average of 10.63 in 2006.

(vi) **Water Supply and Sanitation:** In sample towns, according to town municipal and town committees, 75% of the households were covered with safe drinking water supply. The highest among the towns was Tuensang with 82%, followed by Phek and Mokokchung with 78 and 65% respectively. In rural aggregate, 89.5% households were covered with safe drinking *water supply*, as compared to the State's average of 94.77% in 2003 (NSHDR 2004). Among the villages, Konya had safe drinking water for 100% households, while the same for Enhulumi was 97%; Kikrūma and Tuensang have 75% each. On the other hand, Mokokchung and Luyong (Mokokchung district) villages depend on rain water harvesting and private wells as the main sources of drinking water. Hence, in sample aggregate, 70.84% households are covered with potable safe drinking water supply, with 75% and 66.57% households in urban and rural sample areas.

The data has also revealed that 92% of the households in sample towns have access to toilet facility, whereby Mokokchung town has 100%, while Phek and Tuensang had 90 and 85% respectively. In rural areas, 82.33% of the sample villages have access to proper *sanitation* facilities against the State's average of 74.3% (NSHDR 2004). Among the sample villages, Mokokchung and Luyong (Mokokchung district) have 100% access to toilet facilities, while Enhulumi, Tuensang, Kikrūma and Konya have 97%, 75%, 62% and 60% respectively.

Figure 3.13: Basic Amenities of Households



Source: Based on table 3.14.

CHAPTER IV

ANALYSIS OF GROWTH TRENDS IN NAGALAND ECONOMY

The growth of world economy has been unprecedented since mid 20th century. The growth pattern varies from country to country; likewise different growth models have been emerged. The neoclassical economist particularly such as Solow and Swan in 1950s propagated that the factors such as the capital stock and labour are the importance physical inputs of economic growth. They postulated that the steady increase in standards of living through dynamic technical progress is an exogenous factor to the system of economic development.²⁷³

However, the experiences of developing countries showed that there are other factors outside the realm of neoclassical growth model. The advent of endogenous growth models enriched by Romer, Lucas and Rebelo in the late 1980s and 1990s expanded the concept of capital to include knowledge and human capital. Further, in the early 1990s the development concept has shifted towards human well-being and treated human being as the main agent as well as the ultimate goal of development. The first HDR (1990) of UNDP broadened the concept of development, taking cognizance the multidimensional and multifaceted aspects of HD.²⁷⁴

The present chapter portrays a macro level perspective into overall development of the selected indicators of economic, social and infrastructural development in Nagaland for the period 1991 to 2006. It is also examined whether the State expenditure has significant impact on growth of the State's economy. Further, the changing trends of sectoral contribution to NSDP and Employment during post and pre-reform periods have been analysed.

4.1: SECTOR-WISE GROWTH TRENDS IN ECONOMIC AND HUMAN DEVELOPMENT

To analyse the trend of sectoral development in the State, initially development index of the individual indicators has been computed. Subsequently, the development of various sectors are calculated, viz agricultural development index, industrial development index, infrastructural development index, educational development index and health development index, followed by composite index of overall development of the economy. Secondly, as the objective of this chapter is to examine the growth of the economy, the same has been calculated at four points of

²⁷³ Kuznets, Simon (1955): "Economic Growth and Income Inequality", *American Economic Review*, 45, 1-28.

²⁷⁴ UNDP (1990): *Human Development Report*, Oxford University Press, New York.

time with a gap of five years i.e. 1991, 1996, 2001 and 2006 by using exponential growth rates formula

$$Y = ae^{rt}$$

Where, Y is the growth of a particular sector and 't' is the time period and 'r' is the growth rate.

4.1.1: Agricultural Sector: The *Agricultural Development Index (ADI)* value shows that the growth in agricultural sector has declined in the initial period of observation, but has increased in the later period. The ADI value has declined from 71.31 in 1991 to 64.52 in 1996; thereafter it rose to 69.14 and 97.06 in 2001 and 2006 respectively. Thus, ADI value for the period 1991-2006 showed a U-shaped curve as observed in figure 4.1 (page 97).

The *growth trend 'b'* value of ADI showed that the growth of agricultural sector in Nagaland was increased by 1.99% per annum during the period 1991 to 2006. Taking five yearly data, the growth trend of ADI value for Nagaland can be expressed as:

$$\text{Growth rate of ADI value} = -35.420 e^{0.0199t}, \quad r^2=0.503$$

Among the districts, the highest growth was exhibited by Dimapur with 3.18% per annum, followed by Zunheboto, Kohima, Mokokchung, Tuensang and Mon with 2.81%, 2.58%, 1.69%, 1.04% and 0.02% respectively. On the other hand, Wokha and Phek had witnessed negative growth with -0.03% and -0.23% per annum respectively during the same period.

The five yearly periodical annual average growth rates showed that in the early 1990s the growth of agricultural sector was negative with -1.90% per annum during 1991-96. Since then, it was reversed to positive growth with 1.43% and 8.08% per annum during 1996-01 and 2001-06 respectively. Thus, for the State as a whole, agricultural sector was developing though at a modest growth rate.

All the districts have exhibited negative growth rate during 1991-96. Among which, the highest negative growth was exhibited by Tuensang with -4.02% per annum, while Mokokchung had the lowest with -0.45% per annum during the same period. Among the indicators, the most prominent decline in growth was *Per Capita Production* (in kgs). In absolute terms, the total production was increased from 3,57,850 to 4,21,919 metric tonnes in 1991 and 1996 respectively. However, when deduced in terms of *Per Capita Production*, it had declined from 295.85 to 263.87 kgs per head during the corresponding period. This might have been due to rapid growth of population during those years of observation.

In 1996-01, districts such as Kohima, Dimapur and Mon had exhibited positive annual growth rates with 3.90%, 1.47% and 0.47% respectively. In the remaining five districts, Wokha,

Tuensang, Zunheboto, Phek and Mokokchung had witnessed negative annual growth rates with -3.86%, -2.77%, -1.78%, -0.33% and -0.15% respectively. Since then, all the districts had witnessed positive growth during 2001-2006. Among the districts, Zunheboto and Phek had exhibited the highest and the lowest with 19.36% and 0.02% per annum respectively.

Table 4.1: Agricultural Development Index and its Annual Average Growth Rates

Districts	Agricultural Development Index (ADI)				Annual Average Growth Rate of ADI (%)			
	1991	1996	2001	2006	1991-96	1996-01	2001-06	1991-06
Kohima	50.88	48.52	57.98	73.47	-0.93	3.90	05.34	2.96
Dimapur	110.01	104.42	112.09	182.39	-1.02	1.47	12.55	4.38
Mokokchung	53.95	52.73	52.35	71.69	-0.45	-0.15	07.39	2.19
Wokha	133.79	107.23	86.52	143.02	-3.97	-3.86	13.07	0.46
Phek	112.73	110.79	108.97	109.08	-1.65	-0.33	00.02	-0.64
Zunheboto	75.49	69.31	63.19	124.34	-1.64	-1.78	19.36	4.31
Tuensang	42.81	34.23	29.49	53.47	-4.01	-2.77	16.27	1.66
Mon	47.89	41.55	42.52	47.72	-2.65	0.47	02.45	-0.02
Nagaland	71.31	64.52	69.14	97.06	-1.90	1.43	08.08	2.41

Source: Based on Secondary Data. ADI is computed based on Appendix 4.1

Table 4.2: Growth Rate of ADI value in Nagaland during 1991-2006

Districts	<i>a</i>	<i>b</i>	<i>r</i> ²	<i>N</i>
Kohima	-47.133	0.0256	0.791	4
Dimapur	-58.638	0.0318	0.621	4
Mokokchung	-29.755	0.0169	0.519	4
Wokha	05.327	-0.0003	0.000	4
Phek	09.313	-0.0023	0.871	4
Zunheboto	-51.760	0.0281	0.360	4
Tuensang	-17.041	0.0104	0.066	4
Mon	03.307	0.0002	0.000	4
Nagaland	-35.420	0.0199	0.503	4

Note: *a* is constant, *b* is growth trend coefficient, *r*² is coefficient of determination, *N* is number of observation.
Source: Based on table 4.1.

It is observed that among the agricultural indicators, there was an improvement in all the indicators during 1991-2006 except *Percentage of Gross Irrigated Area to Total Cultivated Area*. The decline in this indicator may be due to the fact that in a State like Nagaland, the potential for irrigation is limited due to hilly terrain coupled with limited sources of water. Moreover, the shifting cultivation is common in Nagaland where the scope of irrigation facility is limited. Thus, it is observed that additional cultivated area has been extended under non-irrigated farming during the recent past.

4.1.2: Industrial Sector: The figure in table 4.2 showed that the *Industrial Development Index* (IDI) value was increased from 3.54 in 1991 to 5.55 and further rose to 16.32 in 1996 and 2001; thereafter, it was declined to 13.03 in 2006. Hence, the *growth trend 'b'* of IDI value showed that the growth in industrial sector during 1991-2006 was increased by 9.98% per annum.

It is observed that all the districts had witnessed positive growth rates during the same period. Among the districts, the highest growth rate was exhibited by Dimapur with 18.13%, followed by Zunheboto, Mon, Mokokchung, Kohima, Wokha, Tuensang and Phek with 11.28%, 8.36%, 7.24%, 6.72%, 5.75%, 5.02% and 4.35% per annum respectively.

Table 4.3: Industrial Development Index and its Annual Average Growth Rates

Districts	Industrial Development Index (IDI)				Annual Average Growth Rate of IDI (%)			
	1991	1996	2001	2006	1991-96	1996-01	2001-06	1991-06
Kohima	3.66	5.78	15.27	08.11	11.58	32.84	-9.37	08.11
Dimapur	3.43	7.48	55.64	36.05	23.61	128.77	-7.04	63.41
Mokokchung	4.31	5.57	15.62	10.22	05.85	36.09	-6.92	09.14
Wokha	3.64	7.52	09.69	08.72	21.32	05.77	-2.01	09.30
Phek	3.03	5.54	07.15	06.75	16.57	05.81	-2.89	06.00
Zunheboto	3.32	3.83	13.20	14.41	03.07	48.93	1.83	22.27
Tuensang	3.58	4.63	04.26	05.75	05.86	-01.60	19.91	09.16
Mon	3.28	8.13	09.71	12.46	29.57	03.89	5.67	18.67
Nagaland	3.54	5.55	16.32	13.03	11.35	38.81	-4.03	17.87

Source: Based on Secondary Data. IDI is computed based on Appendix 4.2

Table 4.4: Growth Rate of IDI value in Nagaland during 1991-2006

Districts	a	b	r^2	N
Kohima	-132.27	.0672	.520	4
Dimapur	-359.56	.1813	.798	4
Mokokchung	-142.68	.0724	.643	4
Wokha	-112.95	.0575	.704	4
Phek	-85.382	.0435	.583	4
Zunheboto	-223.53	.1128	.863	4
Tuensang	-98.758	.0502	.743	4
Mon	-165.12	.0836	.862	4
Nagaland	-197.29	.0998	.805	4

Note: a is constant, b is growth trend coefficient, r^2 is coefficient of determination, N is number of observation.

Source: Based on table 4.3.

The five yearly periodical percentage data showed that the growth rate of IDI value during 1991-96 was 11.35% per annum was further increased to 38.81% during 1996-2001, but during 2001-2006. However, it was sharply declined and turned to negative growth with -4.03% per annum.

District-wise data has shown that in 1991-96, the highest annual growth rate was exhibited by Mon with 29.57%, while Tuensang came the lowest with 5.75% per annum. In 1996-2001, Dimapur has witnessed a sharp increase in IDI value with 128.77% per annum while for Tuensang it was negative with -1.60% per annum. The sharp rise in industrial sector in Nagaland during late nineteen nineties was mainly due to increase in the number of small scale industrial units (SSI). The *SSI per Lakh Population* in the State was increased from 2.33 to 6.44 in 1991 and 1996 respectively, which was further increased to 52.95 in 2001. Since then, it was declined to 36.13 in 2006. Among the districts, the SSI per Lakh Population was highest in Dimapur in

1991 as well as in 2006 with 3.93 and 119.45 while the lowest during the corresponding years were Wokha and Mon with 1.21 and 1.57.

The development in industrial sector had drastically slowed down during 2001-06, whereby only three districts namely Tuensang, Mon and Zunheboto had witnessed positive growth of IDI value with 19.91%, 5.67% and 1.83% per annum respectively. Other districts, viz Kohima, Dimapur, Mokokchung, Phek and Wokha had exhibited negative growth rates with -9.37%, -7.04%, -6.92%, -2.89% and -2.01% respectively during the same period.

4.1.3: Infrastructural Sector: Infrastructure, which is the crucial input to development, was almost stagnant as indicated by its growth rate in the State during the period under observation. The *Infrastructural Development Index (InDI)* value which was 4.68 in 1991 was declined to 4.31 and 4.03 in 1996 and 2001 respectively. Since then, it was marginally increased to 4.98 in 2006.

The pace of growth in infrastructural sector was slow and it has been fluctuated as well during 1991-2006 as its *growth trend 'b'* value is estimated to be 0.0086. It implies that the growth of infrastructural sector was 0.86% per annum during the same period. Among the districts, the highest growth was witnessed by Dimapur with 1.11% per annum, followed by Kohima and Mokokchung with 0.86% and 0.81% per annum respectively. On the other hand, Mon, Wokha, Tuensang, Phek and Zunheboto have exhibited negative growth rates with -0.24%, -2.81%, -1.75%, -1.49% and -0.68% per annum respectively.

Table 4.5: Infrastructural Development Index and its Annual Average Growth Rates

Districts	Infrastructural Development Index (InDI)				Annual Average Growth Rate of InDI (%)			
	1991	1996	2001	2006	1991-96	1996-01	2001-06	1991-06
Kohima	5.64	5.81	8.82	5.66	0.60	10.36	-7.16	0.03
Dimapur	6.51	7.53	10.85	6.94	3.13	11.47	-7.21	0.44
Mokokchung	6.31	6.69	7.59	6.92	1.20	2.69	-1.76	0.64
Wokha	5.44	3.41	3.59	3.35	-7.46	1.05	-1.35	-2.56
Phek	5.88	4.77	5.27	4.44	-3.77	2.10	-3.14	-1.63
Zunheboto	4.00	3.25	3.88	3.59	-3.75	3.88	-1.49	-0.68
Tuensang	2.97	2.26	2.51	2.56	-4.78	2.21	0.42	-0.91
Mon	3.85	2.47	2.77	2.77	-7.17	2.43	0.00	-1.87
Nagaland	4.68	4.31	4.03	4.98	-1.58	7.98	-4.44	0.88

Source: Based on Secondary Data. InDI is computed based on Appendix 4.3

The five yearly periodical analyses show that the growth rate of InDI during 1991-96 was negative growth with -1.58% per annum, which turned to positive growth during 1996-2001 with 7.89% per annum and then again showed negative growth during 2001-06 with -4.44% per annum. Among the districts, the highest growth rate during 1991-96 and 1996-01 was Dimapur with 3.13% and 11.47% per annum respectively, while the lowest during the corresponding

period was Wokha with -7.46% and 1.05% per annum respectively. In 2001-06, only Tuensang had witnessed positive growth with 0.42% per annum, while all the remaining districts had exhibited negative growth.

Table 4.6: Growth Rate of InDI value in Nagaland during 1991-2006

Districts	<i>a</i>	<i>b</i>	<i>r</i> ²	<i>N</i>
Kohima	-15.260	0.0086	.064	4
Dimapur	-20.216	0.0111	.099	4
Mokokchung	-14.184	0.0081	.453	4
Wokha	57.431	-0.0281	.621	4
Phek	31.320	-0.0149	.616	4
Zunheboto	7.1852	-0.0068	.042	4
Tuensang	14.561	-0.0175	.153	4
Mon	35.968	-0.0024	.346	4
Nagaland	-3.265	0.0086	.028	4

Note: *a* is the constant, *b* is growth trend coefficient, *r*² is coefficient of determination, *N* is number of observation.
Source: Based on table 4.5.

4.1.4: Educational Sector: Education, the foremost requirement of any nation to progress has shown considerable progress in Nagaland. The figure in table 4.4 shows that the *Educational Development Index (EDI)* value which was 33.40 in 1991 was increased to 35.55 and further rose to 36.17 and 39.29 during 1996, 2001 and 2006 respectively. Moreover, the indicators like *literacy rate, teacher-pupil ratio, enrolment ratio and number of schools* have improved in all the districts.

The growth in educational sector has been consistently increased during the period under the study (1991-2006) with the growth rate of 1.01% per annum as the estimated *growth trend 'b'* value is 0.0101. Among the districts, despite the least in rankings of EDI values Mon showed the highest growth rate with 1.96% per annum, followed by Tuensang, Wokha, Dimapur, Mokokchung, Phek, Kohima and Zunheboto with 1.77%, 0.95%, 0.93%, 0.80%, 0.80%, 0.75% and 0.66% per annum respectively.

Table 4.7: Educational Development Index and its Annual Average Growth Rates

Districts	Educational Development Index (EDI)				Annual Average Growth Rate of EDI (%)			
	1991	1996	2001	2006	1991-96	1996-01	2001-06	1991-06
Kohima	35.80	37.86	39.04	40.16	1.15	0.62	0.57	0.81
Dimapur	40.81	43.07	45.15	46.88	1.11	0.97	0.76	0.99
Mokokchung	37.75	39.97	42.58	43.81	1.18	1.31	0.58	0.80
Wokha	36.17	39.30	40.31	41.74	1.31	0.92	0.71	1.02
Phek	35.33	37.70	39.30	39.80	1.34	0.85	0.25	0.84
Zunheboto	35.78	38.63	38.15	40.12	1.59	0.35	1.03	0.81
Tuensang	26.85	28.78	30.48	35.38	1.44	1.18	3.21	2.12
Mon	25.06	27.27	28.48	34.25	1.76	0.89	4.05	2.44
Nagaland	33.40	35.55	36.17	39.29	1.29	0.35	1.73	1.18

Source: Based on Secondary Data. EDI is computed based on Appendix 4.4.

The inter-temporal analysis showed that the annual average growth of EDI value for the State during 1991-96, 1996-01 and 2001-06 were 1.29%, 0.35% and 1.73% per annum respectively. District-wise data has revealed that during 1991-96, the highest growth rate was Mon with 1.76% per annum and the lowest was Dimapur with 1.11% per annum. While in 1996-2001, Mokokchung and Zunheboto had exhibited the highest and the lowest growth rates with 1.31% and 0.35% per annum respectively. During 2001-06, Mon and Tuensang districts had witnessed the highest growth rates with 4.05% and 3.21% per annum respectively, while Phek district had witnessed the lowest with 0.25% per annum during the same period.

Table 4.8: Growth Rate of EDI value in Nagaland during 1991-2006

Districts	<i>a</i>	<i>b</i>	<i>r</i> ²	<i>N</i>
Kohima	-11.365	0.0075	.970	4
Dimapur	-14.730	0.0093	.994	4
Mokokchung	-12.357	0.0080	.857	4
Wokha	-15.302	0.0095	.982	4
Phek	-12.309	0.0080	.921	4
Zunheboto	-9.5870	0.0066	.805	4
Tuensang	-31.966	0.0177	.949	4
Mon	-35.844	0.0196	.920	4
Nagaland	-16.581	0.0101	.947	4

Note: *a* is constant, *b* is growth trend coefficient, *r*² is coefficient of determination, *N* is number of observation.
Source: Based on table 4.7.

4.1.5: Health Sector: In Nagaland, the development of health care facilities has witnessed a declining trend during 1991-2006. It may be observed from the figure in table 4.9 that initially, the *Health Development Index (HeDI)* value was declined from 29.33 to 23.84 and further declined to 19.48 during 1991, 1996 and 2001 respectively. The health supporting facilities such as number of beds, Doctors, Nurses and Pharmacists have increased during 1991 to 2006. But, when deduced in terms of per lakh population, the index values show downward trend from 1991 till 2001 (Appendix 4.5). This may be due to the fact that there was high rate of acceleration in population growth of the State (64.14%) during the mentioned periods. Since then, an improvement in HeDI value has been observed as it was increased to 22.92 in 2006. It may be recalled that the population growth since 2001 was negative in Nagaland.

It is observed that the development of health care facilities and its services in Nagaland has exhibited negative growth in recent decades. The *growth trend 'b'* value showed that the growth of HeDI value for Nagaland was negative with -1.34% per annum during 1991-2006. Similarly, all the districts had witnessed negative growth, whereby Tuensang had the highest negative growth rate with -3.99% per annum, followed by Wokha, Mon, Zunheboto, Phek, Dimapur, Kohima and Mokokchung with -3.63%, -2.54%, -2.20%, -1.60%, -1.51%, -0.34% and -0.10% per annum respectively.

The growth rate of health care facilities as indicated by HeDI value was negative during 1991 to 2001 and thereafter, it had turned to a positive growth. The growth of health sector had declined by -3.75% and -3.66% per annum during 1991-96 and 1996-01 respectively. Since then, it was improved by 3.52% per annum during 2001-06.

Table 4.9: Health Development Index and its Annual Average Growth Rates

Districts	Health Development Index (HeDI)				Annual Average Growth Rate of HeDI (%)			
	1991	1996	2001	2006	1991-96	1996-01	2001-06	1991-06
Kohima	30.14	25.70	23.99	29.12	-2.94	-1.33	04.28	-0.22
Dimapur	18.83	14.66	15.99	14.23	-4.43	1.81	-02.20	-1.63
Mokokchung	31.82	28.87	29.98	30.91	-1.85	0.77	00.62	-0.19
Wokha	36.02	25.66	18.74	21.83	-5.75	-5.39	03.30	-2.62
Phek	31.29	28.40	20.54	26.70	-1.85	-5.53	05.99	-0.98
Zunheboto	33.15	29.62	22.50	25.17	-2.13	-4.81	02.38	-1.60
Tuensang	32.54	20.58	14.25	18.91	-7.35	-6.15	06.55	-2.79
Mon	20.88	17.23	9.88	16.45	-3.50	-8.53	13.30	-1.41
Nagaland	29.33	23.84	19.48	22.92	-3.75	-3.66	03.52	-1.46

Source: Based on Secondary Data. HeDI is computed based on Appendix 4.5

Table 4.10: Growth Rate of HeDI value in Nagaland during 1991-2006

Districts	<i>a</i>	<i>b</i>	<i>r</i> ²	<i>N</i>
Kohima	10.18	-0.0034	.043	4
Dimapur	32.88	-0.0151	.598	4
Mokokchung	5.39	-0.0010	.023	4
Wokha	75.83	-0.0363	.701	4
Phek	35.23	-0.0160	.329	4
Zunheboto	47.32	-0.0220	.686	4
Tuensang	82.80	-0.0399	.566	4
Mon	53.57	-0.0254	.264	4
Nagaland	29.93	-0.0134	.697	4

Note: *a* is constant, *b* is growth trend coefficient, *r*² is coefficient of determination, *N* is number of observation.

Source: Based on table 4.9.

District-wise data showed that all the districts have exhibited negative growth during 1991-96. An improvement has been observed in HeDI value for Dimapur and Mokokchung with a growth of 1.81% and 0.77% per annum respectively, while the remaining districts continued to show negative growth during 1996-01. It is observed that Mon district, which had the least growth rate during 1996-01, had made a major stride since 2001 that its growth rate of HeDI value was highest among the districts with 13.30% per annum during 2001-06.

Death Rate: The important indicators of health development are death rate, infant mortality rate and life expectancy. However, due to non availability of district-wise time series data in infant mortality rate and life expectancy, the death rate (per thousand population) has been taken as a proxy for health development in the present study.

The death rate (per thousand population) in Nagaland has shown a fluctuating trend during 1991-2006. It was 2.56 in 1991 but had declined to 1.95 in 1996 and then rose to 3.65 in

2001 and again declined to 2.61 in 2006. District-wise data showed that Mon had exhibited the lowest death rate in 1991 and 2006 with 2.54 and 1.86 respectively. As of 1991, Phek had the highest with 3.52, while the same in 2006 was Dimapur with 4.23.

The *growth trend 'b'* value as given in table.4.12 has revealed that the death rate has been increased by 1.37% per annum in Nagaland during 1991-2006. Among the districts, only Mon had shown a negative trend value during 1991-2006 with -1.88%, while the highest positive growth was Dimapur with 14.50%, followed by Tuensang, Kohima, Wokha, Mokokchung, Phek and Zunheboto with 9.83%, 1.66%, 1.02%, 0.93%, 0.93% and 0.09% per annum respectively.

Table 4.11: Death Rate and its Annual Average Growth Rates

Districts	Death Rate (per 1000 Population) (DRI)				Annual Average Percentage Change of Death Rate			
	1991	1996	2001	2006	1991-96	1996-01	2001-06	1991-06
Kohima	2.82	2.18	2.34	3.63	-04.54	01.47	11.03	01.92
Dimapur	1.45**	2.23*	3.79	4.23	10.76	13.99	02.32	12.78
Mokokchung	2.13	2.02	1.87	2.55	-01.03	-01.49	07.27	01.31
Wokha	2.84	1.49	3.06	2.65	-09.51	21.07	-02.68	-00.45
Phek	3.52	2.83	5.47	3.30	-03.92	18.66	-07.93	-00.42
Zunheboto	2.96	2.73	3.56	2.75	-01.55	06.08	-04.55	-00.47
Tuensang	0.79	0.61	1.58	2.96	-04.56	31.80	17.47	18.31
Mon	2.54	2.68	2.66	1.86	01.10	-00.15	-06.02	-01.78
Nagaland	2.56	1.95	3.65	2.61	-04.77	17.44	-05.67	00.13

Sources: Statistical Handbook Books 1991, 1996, 2004, 2006, *-1998, ** Interpolation

Table 4.12 Growth of Death Rate in Nagaland during 1991-2006

Districts	<i>a</i>	<i>b</i>	<i>r</i> ²	<i>N</i>
Kohima	-32.119	0.0166	.220	4
Dimapur	-289.19	0.1450	.820	4
Mokokchung	-17.741	0.0093	.205	4
Wokha	-19.577	0.0102	.040	4
Phek	-17.304	0.0093	.045	4
Zunheboto	-.6937	0.0009	.002	4
Tuensang	-196.23	0.0983	.794	4
Mon	38.5411	-0.0188	.488	4
Nagaland	-26.411	0.0137	.119	4

Note: *a* is constant, *b* is growth trend coefficient, *r*² is coefficient of determination, *N* is number of observation.

Source: Based on table 4.11.

The five yearly periodical analyses showed that in Nagaland, the death rate has been fluctuated during the observed period. During 1991-96, it was declined by -4.77% per annum, but turned to a positive growth during 1996-01 with 17.44% per annum and again became negative during 2001-06 with -5.67% per annum.

Among the districts during 1991-96, the death rate (per thousand population) in Dimapur and Mon showed positive growth with 10.76% and 1.10% per annum respectively, while all the remaining districts had exhibited negative growth trends with the highest decline in Wokha with -9.51% per annum. During 1996-01, it has been found that Tuensang had the highest increase in

death rate, while Mokokchung had the highest decrease with 31.80% and -1.49% per annum respectively. In 2001-06, the highest decline in the death rate was Mon, while the highest increased was Tuensang by -6.02% and 31.80% per annum respectively.

4.1.6: Overall Growth in Economic and Human Development

The overall refers to the aggregate of the above five sectors excluding death rate. The overall growth has been computed by taking an average of all the 28 indicators. The analysis showed that in Nagaland, the overall growth has witnessed a downward trend in the early nineteen nineties. The *Overall Development Index (ODI)* value which was 24.07 in 1991 has reduced to 23.42 in 1996. Since then, it has started to increase in 2001 with 25.96 and further rose to 32.96 in 2006. Hence, the *growth trend 'b'* value has shown that the growth rate of ODI value of the State was 1.30% per annum during 1991 to 2006.

Among the districts, Dimapur has exhibited the highest growth rate with 3.08% per annum, followed by Zunheboto, Kohima, Mokokchung, Mon, Tuensang with 1.59%, 1.48%, 1.17%, 0.40%, 0.07% per annum, while Phek and Wokha had witnessed negative growth rates with -0.47% and -0.33% per annum during the same period.

Table 4.13: Overall Development Index and its Annual Average Growth Rates.

Districts	Overall Development Index (ODI)				Annual Average Growth Rate of ODI (%)			
	1991	1996	2001	2006	1991-96	996-01	2001-06	1991-06
Kohima	24.07	23.42	27.17	29.31	-0.54	3.20	1.58	1.45
Dimapur	33.32	32.70	42.84	50.84	-0.37	6.20	3.74	3.51
Mokokchung	25.61	25.45	27.77	30.21	-0.13	1.82	1.76	1.20
Wokha	40.14	33.58	29.07	39.88	-3.27	-2.69	7.44	-0.04
Phek	36.69	34.76	33.40	34.40	-1.05	-0.78	0.60	-0.42
Zunheboto	28.59	27.10	25.91	37.85	-1.04	-0.88	9.22	2.16
Tuensang	20.77	16.97	15.09	21.87	-3.66	-2.22	8.99	0.35
Mon	19.07	17.85	16.97	20.74	-1.28	-0.99	4.44	0.58
Nagaland	26.42	24.78	25.96	32.31	-1.24	0.95	4.89	1.49

Source: Based on Secondary Data. ODI is computed based on on appendix 4.1 to 4.5

Table 4.14: Growth Rate of ODI value in Nagaland during 1991-2006

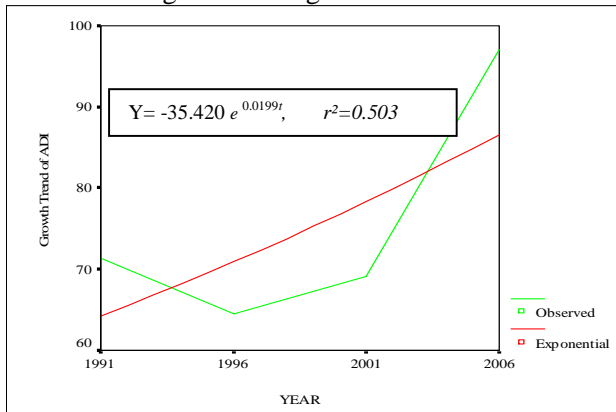
Districts	<i>a</i>	<i>b</i>	<i>r</i> ²	<i>N</i>
Kohima	-20.73	0.0148	.815	4
Dimapur	-51.48	0.0308	.878	4
Mokokchung	-18.52	0.0117	.871	4
Wokha	09.44	-0.0033	.019	4
Phek	10.70	-0.0047	.502	4
Zunheboto	-23.04	0.0159	.337	4
Tuensang	01.19	0.0007	.002	4
Mon	-04.91	0.0040	.121	4
Nagaland	-18.44	0.0130	.485	4

Note: *a* is constant, *b* is growth trend coefficient, *r*² is Coefficient of Determination, *N* is Number of observation.

Source: Based on table 4.13.

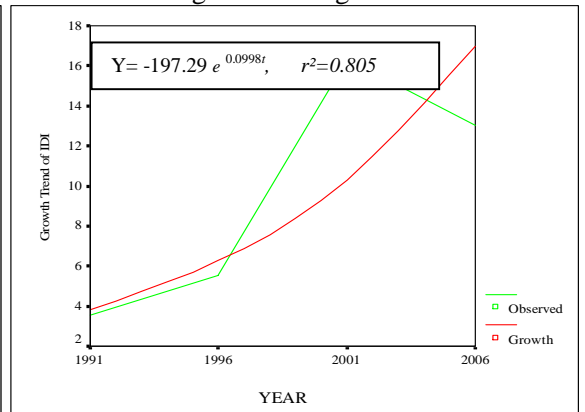
In five yearly periodical analyses, it is observed that there has been negative growth during 1991-96 for the State as well as for all the districts. During the same period, the State had witnessed negative growth rate of -1.24% per annum. After which, it was increased by 0.95% and 4.89% per annum during 1996-01 and 2001-06 respectively.

Figure 4.1: Growth Trend of ADI value in Nagaland during 1991-2006



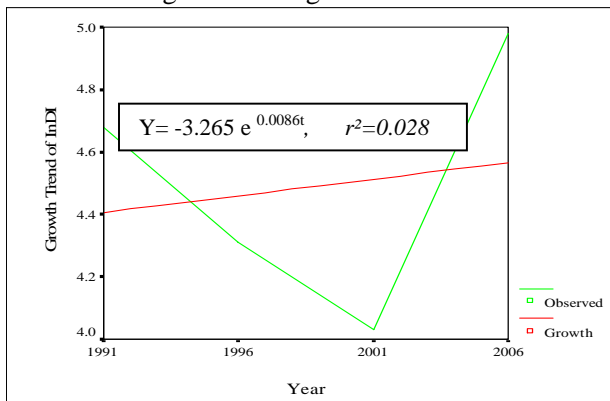
Source: Based on table 4.2.

Figure 4.2: Growth Trend of IDI value in Nagaland during 1991-2006



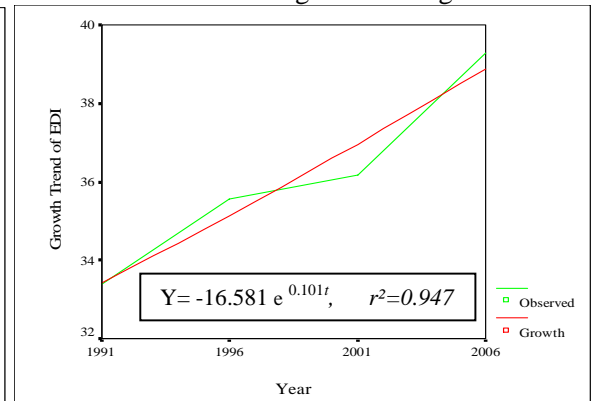
Source: Based on table 4.4.

Figure 4.3: Growth Trend of InDI value in Nagaland during 1991-2006



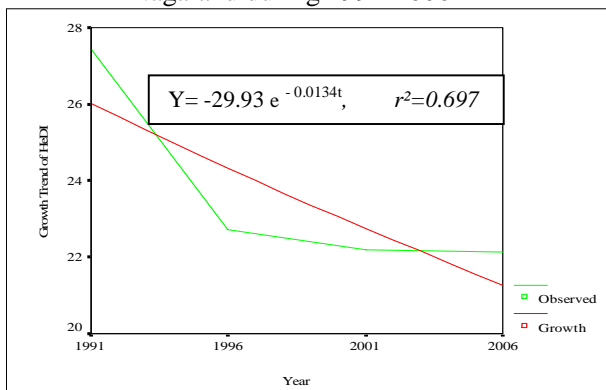
Source: Based on table 4.6.

Figure 4.4: Growth Trend of EDI in Nagaland during 1991-2006



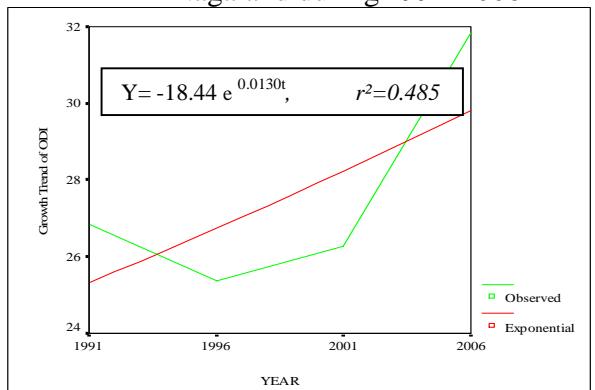
Source: Based on table 4.8.

Figure 4.5: Growth Trend of HeDI in Nagaland during 1991-2006



Source: Based on table 4.10.

Figure 4.6: Growth Trend of ODI in Nagaland during 1991-2006



Source: Based on table 4.14.

Thus, it is observed from sector-wise analysis of growth and development that in economic indicators such as agriculture, industrial and infrastructure, Dimapur had the highest growth rates with 3.18%, 18.15% and 1.1% per annum respectively during 1991-2006. On the other hand, Phek and Wokha had witnessed negative growth rates in agricultural sector with -0.23% and -0.03% per annum respectively. Similarly, Wokha, Tuensang, Phek, Zunheboto and Mon have witnessed negative growth rates in infrastructural sector with -2.81%, -1.75%, -1.49%, -0.68% and -0.24% per annum respectively.

In education, the relatively less developed districts as indicated by EDI values such as Mon and Tuensang have exhibited the highest growth rates with 1.96% and 1.77% per annum respectively during 1991-2006, while the lowest during the same period was Zunheboto with 0.66% per annum. Similarly, in death rate, only Mon showed declining rate which was 1.88% per annum, while Dimapur had witnessed the highest increase with 14.50% per annum during the same period.

The study has also shown that in overall growth, Dimapur has witnessed the highest growth rate among the districts with 3.08% per annum during 1991-2006. On the other hand, Phek and Wokha have witnessed negative growth rates with -0.47% and -0.33% per annum during the same period. Hence, there was no uniformity in the growth rates in various sectors among the districts in Nagaland. Moreover, the relatively less developed districts Mon and Tuensang remained at the lowest spectrum over the time.

4.2: SECTORAL GROWTH OF NET STATE DOMESTIC PRODUCT

4.2.1: Annual Exponential Growth Rates of NSDP in Nagaland during 1981-2006

To have a deeper insight into the growth of the State's economy, it is felt imperative to examine the annual exponential growth rates of sectoral contribution to NSDP in Nagaland.

The figure shown in table 4.15 has indicated that among the sectors, the fastest growing sector was Primary with 16.22% per annum. It is followed by Tertiary and Secondary sectors with 15.85% and 15.19% respectively during the corresponding period.

(i) *Primary Sector*: The growth of primary sector during 1981-1991 was 13.19% per annum. It was increased to 15.32% per annum during 1991-2001 with 23.10% per annum, but declined to 8.31% per annum during 2001-2006. The inter-temporal growth rates of primary sector as indicated in appendix 4.8, 4.9, 4.10 and 4.11 can be expressed as:

$$\begin{aligned}
 \text{Growth rate of Primary Sector (1981-1991)} &= -253.11 e^{0.1319t} & r^2 &= 0.886 \\
 \text{Growth rate of Primary Sector (1991-2001)} &= -295.19 e^{0.1532t} & r^2 &= 0.970 \\
 \text{Growth rate of Primary Sector (2001-2006)} &= -154.75 e^{0.0831t} & r^2 &= 0.989
 \end{aligned}$$

$$\text{Growth rate of Primary Sector (1981-2006)} = -310.55 e^{0.1609t} \quad r^2 = 0.988$$

Among the Primary Sub-sectors, Fishery showed the fastest growth with 19.25% per annum during 1981-2006, followed by Agriculture and Forestry with 16.78% and 11.89% per annum respectively, while Mining and Quarrying was nil till 2001. The inter-temporal growth rate showed that during 1981-1991, the highest growth rate was Fishery with 31.57% per annum. Fishery continued to exhibit the highest growth rate among the primary sub-sectors during 1991-2001 with 25.91% per annum. It has been observed that with various developmental activities being taking place in the State, Mining and Quarrying had become prominent sub-sector in the State's economy in the last decade. During 2001-2006, the growth rate of the same sub-sector was increased by 19.74% per annum, while Fishery, which had witnessed the highest growth during 1991-2001 (25.91% per annum) showed the least growth rate during 2001-2006 with 1.62% per annum.

Table 4.15: Annual Exponential Growth Rates of NSDP in Nagaland during 1981-2006.

NSDP under sector/Sub-sector	1980-81 to 2005-06	1980-81 to 1990-91	199-91 to 2000-01	2000-01 to 2005-06
1. Primary Sector	16.09 (.988)	13.19 (.886)	15.32 (.970)	08.31 (.989)
1.1 Agriculture	16.78 (.983)	11.12 (.807)	15.78 (.978)	08.77 (.975)
1.2 Forestry and Logging	11.89 (.919)	20.62 (.908)	11.45 (.735)	05.24 (.539)
1.3 Fishery	19.25 (.891)	31.57 (.725)	25.91 (.978)	01.62 (.054)
1.4 Mining and Quarrying	00	00	00	19.74 (.795)
2. Secondary Sector	14.62 (.954)	19.85 (.950)	18.97 (.815)	05.77 (.592)
2.1 Manufacturing	12.49 (.701)	13.08 (.705)	06.93 (.111)	18.43 (.920)
2.2 Construction	13.78 (.939)	19.63 (.916)	20.58 (.927)	01.83 (.100)
2.3 Electricity, Water Supply and Gas	-	-	-	07.02 (.848)
3. Tertiary Sector	15.85 (.971)	15.72 (.985)	12.31 (.960)	07.01 (.956)
3.1 Transport, Storage and Communication	28.17 (.943)	22.49 (.831)	28.36 (.811)	08.00 (.858)
3.2 Trade, Hotel and Restaurant	15.38 (.970)	13.69 (.957)	12.77 (.952)	04.33 (.938)
3.3 Banking and Insurance	14.01 (.549)	24.10 (.901)	-19.29 (.226)	08.31 (.934)
3.4 Real Estate, Ownership of dwelling & Business service	15.71 (.978)	11.11 (.974)	16.58 (.926)	10.56 (.928)
3.5 Public Administration	13.69 (.972)	14.99 (.977)	12.64 (.944)	03.62 (.687)
3.6 Other Services	13.22 (.953)	19.02 (.982)	07.23 (.921)	07.56 (.948)
NSDP	15.72 (.984)	15.78 (.983)	14.09 (.956)	07.25 (.992)
Per Capita Income	10.95 (.964)	12.32 (.972)	09.13 (.902)	03.09 (.934)
N	26	10	10	6

Source: Statistical Handbooks of Nagaland 1883, 1886, 1991, 1996, 2000, 2004 and 2009.

Note: N is No of years of observation, the figures in brackets represent r^2 (coefficient of determination)

(ii) *Secondary Sector*: It is observed that the growth of secondary sector during 1981-91 was 19.85% per annum, but it was declined to 18.97% per annum in 1991-2001, which was further declined to 5.77% per annum in 2001-2006.

$$\text{Growth rate of Secondary Sector (1981-1991)} = -385.77 e^{0.1985t} \quad r^2 = 0.950$$

$$\text{Growth rate of Secondary Sector (1991-2001)} = -368.60 e^{0.1897t} \quad r^2 = 0.815$$

$$\text{Growth rate of Secondary Sector (2001-2006)} = -104.78 e^{0.0577t} \quad r^2 = 0.592$$

$$\text{Growth rate of Secondary Sector (1981-2006)} = -281.88 e^{0.1462t} \quad r^2 = 0.954$$

In secondary sector, it may be mentioned that the sub-sectors like Electricity, Water Supply and Gas had witnessed deficit in their contribution to State's NSDP till 1993-94. During 1981-2006, the contributions of Construction and Manufacturing were 13.78% and 12.49% per annum respectively. The inter-temporal growth showed that from 1981 to 1991, Construction had the highest growth rate with 19.63% per annum and continued to be the highest contributing sub-sector in secondary sector with 20.58% per annum during 1991-2001. On the other hand, there was a sharp decline in the share contribution of Manufacturing to NSDP during 1991-2001, where its growth rate was slashed down to 6.33% per annum. It may be due to the fact that the medium industries like Sugar Mill at Dimapur and Paper Mill at Tuli became non-functional in the State during nineteen nineties. Besides, the earnest efforts of the government to extend a number of facilities to the intending industries and entrepreneurs have failed to maintain an increasing rate of growth (NSDHR 2004). Thereafter, statistics shows that during 2001-2006, manufacturing sector exhibited the highest growth rate among the sub-sectors with 18.43% per annum.

(iii) *Tertiary Sector*: The growth trend value shows that Tertiary Sector was increased by 15.85% per annum during the observed period. The inter-temporal growth trends shows that during 1981-1991, it had an increase by 15.72% per annum, but subsequently declined to 12.31% and 7.01% per annum during 1991-2001 and 2001-2006 respectively.

$$\text{Growth rate of Tertiary Sector (1981-1991)} = -302.72 e^{0.1572t} \quad r^2 = 0.985$$

$$\text{Growth rate of Tertiary Sector (1991-2001)} = -234.36 e^{0.1231t} \quad r^2 = 0.960$$

$$\text{Growth rate of Tertiary Sector (2001-2006)} = -128.30 e^{0.0701t} \quad r^2 = 0.956$$

$$\text{Growth rate of Tertiary Sector (1981-2006)} = -305.14 e^{0.1585t} \quad r^2 = 0.971$$

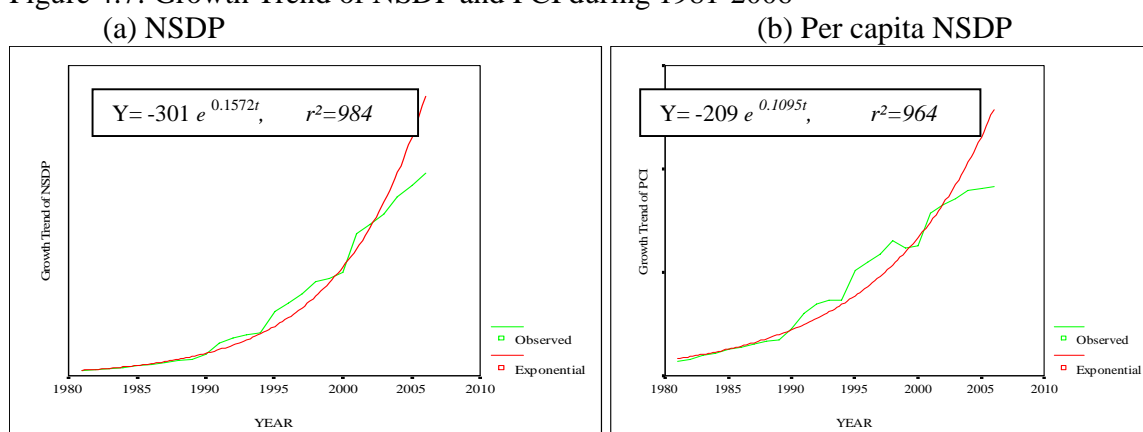
Among the sub-sectors, Transport and Communication exhibited the highest growth rate during 1981-2006 with 28.17% per annum. It is observed that during 1981-1991, the highest growth among the tertiary sub-sectors was Banking and Insurance with 24.10% per annum. But, the sub-sectors like Real Estate, Ownership of dwelling and Business Services had emerged as the dominant sub-sector that has exhibited the highest growth rates among the tertiary sub-sectors during 1991-2001 and 2001-06 with 16.58% and 10.56% respectively. It is also observed that during the last decade (2001-2006), although positive, there was a decline in the growth rate for all the sub-sectors except Banking and Insurance, which was negative during 1991-2001 (-19.29% per annum) has turned to positive during 2001-2006 with 8.31% per annum.

Hence, the structure of the State's economy can be summed up that:

- (i) Primary sector continued to witness the highest growth rate among the sectors throughout the period under observation,
- (ii) among the sub-sectors, transport and communication exhibited the highest growth rate during 1981-2006 with 28.17% per annum,
- (iii) the highest growth rate during 1981-1991 was Fishery with 31.57% per annum,
- (iv) during 1991-2001, transport and communication had witnessed the highest growth rate with 28.36% per annum, and
- (v) in the last decade (2001-2006), Mining and Quarrying had witnessed the highest growth rate with 19.74% per annum.

The exponential growth trend (b) value as indicated in table 4.15 showed that during 1981-2006 the growth of NSDP and PCI in Nagaland were 15.97% and 10.95% per annum respectively. The decadal decomposition data showed that the growths of NSDP and PCI during 1981-1991 were 15.78% and 12.32% respectively. Since then, there has been a decline in the growth of both NSDP and PCI, whereby the growth of NSDP during 1991-2001 and 2001-2006 was declined to 14.09% and 7.25% per annum. Similarly, the growth of PCI during the corresponding periods was declined to 9.13% and 3.09% per annum respectively. Thus, there was a decline in the growth of the State's economy in respect of NSDP and PCI in Nagaland during the last decade.

Figure 4.7: Growth Trend of NSDP and PCI during 1981-2006



4.2.2: PUBLIC SPENDING AND LEVEL OF NSDP DURING 1986 TO 2006

There is a general consensus that expansionary fiscal policy is effective in helping countries to come out of the development crisis.²⁷⁵ Government intervention can lead to both, a

²⁷⁵ Krunman, P G (2009): *The True Fiscal Cost of Stimulus*, September 29.

more efficient and a more equitable allocation of resources.²⁷⁶ Study shows that public spending has direct impact on substantial growth especially infrastructure, agriculture and education.²⁷⁷ Against this backdrop, the current section has examined whether public spending has significant impact on the level of NSDP in Nagaland.

It is felt that taking all the sub-sectors into analysis will not hold superior result for policy implications; therefore, only major contributing sectors in NSDP during 2005-06 are selected for discussion. From primary sector, agriculture is selected as its contribution alone to NSDP has been 31.28%, which composed of 90.41% of primary sector. In secondary sector, there is no particular prominent sub-sector, therefore, the aggregate of secondary sector which mainly consist of construction and manufacturing has been taken into consideration that has contributed 13.94% to NSDP. Transport and communication, which has contributed 13.33% to NSDP has been chosen as a proxy for infrastructural sector. For social service sector, education and health are selected as these two sectors' share contribution to NSDP was 7.81%. Hence, it may be justified that the summation of these sectors' share contribution to NSDP constituted more than two-third (69.68%) during the above mentioned period. Moreover, the State's expenditure in these sectors constituted 88.88% of the total State plan expenditure during 2001-06 (appendix 4.12).

Size and Composition of Public Spending: It is observed that the public spending in agricultural sub-sector had declined from 22.24% to 18.69% during 1986-91 and 2001-06 respectively (appendix 4.12). Similarly, for infrastructural sector (transport and communication), the public expenditure has declined from 20.64% to 16.58% during the corresponding periods. Conversely, the expenditure in secondary sector had increased from 18.41% to 19.33% during 1986-91 and 2001-06, while the same in social services sector was increased from 19.89% to 34.27% during corresponding periods.

Impact of Public Spending on Level of NSDP: To examine the impact, the State's expenditure is taken as predictor, while the level of NSDP is taken as the explanatory variable. The impact has been analysed by taking the aggregate of five years state expenditure preceding to the level of NSDP at time 't' at four different points of time i.e. 1991, 1996, 2001 and 2006 using simple regression method.

²⁷⁶ Fan, Shenggen (2008): *Public Expenditure, Growth and Poverty: Lessons from Developing Countries*, Oxford University Press.

²⁷⁷ Ram, K and Simrit Kaur (2011): "Inter-State Variation in Economic Growth: Does Size and Composition of State Spending Matter?" *The Indian Economic Journal*, Volume 59 No.1 April-June: 97-122.

It is shown in table 4.16 that there has been significant impact of State's expenditure on the overall level of NSDP in Nagaland with elasticity of 0.996, which is statistically significant at 5% level with 't' value of $|t|=16.18$. Also, it is estimated that there is significant impact of public spending on agriculture with the regression coefficient value of 0.878. The impact is statistically significant at 5% level as the calculated 't' value is $|t|=5.60$. The analysis showed similar result for secondary sector which constitutes power, manufacturing and construction with elasticity of 0.973, which is also statistically significant at 5% level with 't' value of $|t|=5.91$. Similarly, the regression analysis has estimated that there was significant impact of public expenditure on infrastructure (transport and communication) and social service sector (education and health) with their corresponding elasticity of 0.950 and 0.989, all these impacts are statistically significant at 1% level as their calculated 't' values are 54.29 and 29.24 respectively.

Table 4.16: Impact of State Expenditure on Level of NSDP

Sectors	<i>a</i>	<i>b</i>	<i>r</i> ²	Adj <i>r</i> ²	S.E
Agriculture	2.08	0.878 (5.60)**	.772	.658	.800
Secondary	1.82	0.973 (5.91)**	.946	.919	.307
Transport and Communication	3.01	0.950 (54.29)*	.902	.853	.701
Social Services	0.78	0.989 (59.24)*	.978	.912	.013
Overall	1.67	0.996 (16.18)**	.992	.989	.100

Note: Dependent Variable - Level of NSDP (natural logarithm), Independent Variable - State plan expenditure, *a*-constant, *b*-regression coefficient, the figures in brackets represent 't' values, * and ** represents 1% and 5% level of significance, *r*² is coefficient of determination, S.E-standard error.

Hence, it is obvious that the State's expenditure showed positive significant impact on growth of the economy in the State with the highest impact on social service sector (0.989), followed by secondary sector (0.973), infrastructure (0.950) and agriculture (0.878).

4.2.3: Changing Pattern of NSDP and Employment in Nagaland during Pre-reform (1981-1991) and Post-reform (1991-2006)

It is felt vital to compare the structural changing pattern in NSDP and occupational structure in pre and post reform periods in Nagaland as the country has adopted New Economic Policy (NEP) in 1991. The standard tri-sectoral classification of the economy is adopted to identify the relative importance of different sectors in NSDP.²⁷⁸ The NSDP has been taken the data for the period i.e. 1980-81, 1990-91, 2000-01 & 2005-06, while employment (main workers)

²⁷⁸ Kuri, Pravat Kumar (2005): "Changing Economic Structure and the Prospects of Resource Based Industrialization in Arunachal Pradesh" in Gurudas Das (ed), *Structural Change and Strategy of Development: Resource-Industry Linkages in North-East India*, Akansha Publishing House, New Delhi

has been taken at three different points of time i.e. 1981, 1991 and 2001. The sectoral employment beyond 2001 could not be portrayed due to paucity of Secondary data.

Primary Sector: The data has revealed that the share of primary sector to NSDP as indicated in table 4.17 has declined from 32.5% to 29.22% during 1980-81 and 1990-91 respectively. Thereafter, its proportionate share was increased to 33.69% in 2000-01 and further increased to 34.60% in 2005-06. This implies that the contribution of primary sector to NSDP in pre-reform period has declined by -1.01% per annum but increased in post-reform period by 1.23% per annum as indicated in table 4.18. During the corresponding periods (table 4.17 column 7), it is observed that the proportionate share of workforce in primary sector was marginally increased from 72.31% to 72.96% in 1981 and 1991 respectively, while the same was declined to 68.08% in 2001. Thus, its proportionate share of employment was marginally increased in pre-reform period by 0.09% per annum but declined in post-reform period (1991-2001) by -0.68% per annum.

Hence, in pre-reform period, the share of primary sector to NSDP had declined, although its share of workforce had increased, whereas, in post-reform period, its share contribution to NSDP was increased, but it was declined in employment. However, primary sector continued to employ a major proportion of labour force in the State's economy.

Secondary Sector: The percentage share of secondary sector to NSDP was increased from 14.12% to 25.70% in 1980-81 and 1990-91 respectively. Since then, its share was declined to 14.14% and 13.94% in 2000-01 and 2005-06 respectively. This shows that the share of secondary sector in NSDP had increased in pre-reform period by 8.2% per annum, but declined in post-reform period by -3.31% per annum. In employment, the percentage share of workers in secondary sector was increased from 1.47% to 1.51% in 1981 and 1991 respectively and further increased to 2.13% in 2001. This implies that the proportionate share of secondary sector in employment was increased by 0.41% and 4.11% per annum during pre and post-reform periods respectively.

Thus, it is observed that the percentage share contribution of secondary sector to NSDP was increased in pre-reform period but declined in post-reform period. However, the percentage share of employment continued to rise, although marginal.

Tertiary Sector: It has been observed that the proportionate share contribution of tertiary sector to NSDP decreased from 53.38% to 45.08% in 1980-81 to 1990-91 respectively. Since then, it was increased to 52.17% in 2000-01, but again reduced to 51.46% in 2005-06. Hence, its contribution in NSDP was declined in pre-reform period by -1.56% per annum and increased in

post-reform period by 0.94% per annum. On the other hand, its proportionate share of workforce was declined from 26.22% to 25.53% in 1981 and 1991 respectively. Since then, there has been a shift in the post-reform period, wherein the proportionate share of workforce was increased to 29.84% in 2001. Hence, the proportionate share of employment in tertiary sector decreased in pre-reform period by -0.26% per annum and increased in post-reform period by 1.69% per annum.

Thus, there has been a minor shift in the economic structure of Nagaland since NEP 1991. It is observed that the changing patterns of NSDP and Employment (workforce) have not been positively coordinated with each other, whereby:

- (i) the share of primary sector to NSDP has increased, although its proportionate share of workforce has declined,
- (ii) the share of secondary sector in NSDP has declined, but its share of workforce has increased, and
- (iii) in tertiary sector, the proportionate share in both NSDP and workforce have increased.

Table 4.17: Sectoral Contribution of NSDP and Employment in Nagaland 1981 to 06.

Year	NSDP (in Lakh)	Per Capita Income (in Rs)	NSDP (in Lakh)			Employment (Number of Main Workers)			
			PS	SS	TS	PS	SS	TS	TW
1	2	3	4	5	6	7	8	9	10
1980-81 (at 1980-81 prices)	10547	1361	3428 (32.5)	1490 (14.12)	5629 (53.38)	269220 (72.31)	5461 (1.47)	97640 (26.22)	372321 (100)
1990-91 (at 1980-81 prices)	23798	2051	6954 (29.22)	6117 (25.70)	10727 (45.08)	368555 (72.96)	7649 (1.51)	128975 (25.53)	505179 (100)
2000-01 (at 1993-94 prices)	223042	11473	75147 (33.69)	31551 (14.14)	116344 (52.17)	578285 (68.03)	18072 (2.13)	253625 (29.84)	849982 (100)
2005-06 (at 1999-00 prices)	456608	18,318	159162 (34.60)	63665 (13.94)	233781 (51.46)				

Source: Statistical Hand Books of Nagaland; 1983, 1991, 2004 and 2007

Note: PS-Primary Sector, SS-Secondary Sector, TS-Tertiary Sector, TW-Total Workers

The figures in the parentheses indicate percentage.

Table 4.18: Annual Average Growth Rates (in %) of Sectoral Contribution to NSDP and Employment during Pre-reform and Post-reform Periods.

Periods	NSDP			Employment (Main Workers)		
	PS	SS	TS	PS	SS	TS
Pre-reform Period (1981-1991)	-1.01	8.2	-1.56	0.09	0.41	-0.26
Post-reform Period (1991-2006)	1.23	-3.31	0.94	-0.68	4.11	1.69

Note: PS- Primary Sector, SS- Secondary Sector, TS- Tertiary Sector

Source: Based on table 4.17.

Further, it may be noted that the percentage change in the share of both NSDP and workforce for all the sectors taken together is a *zero-sum-game*²⁷⁹ as depicted in the table 4.19. This implies that one sector expands at the cost of others and there is a clear indication that the structural change in the economy of Nagaland has led to a significant increase in the contribution of Primary Sector to NSDP and a matching decrease in the contribution of Secondary and Tertiary Sectors in Post-reform period. Conversely, in employment, an increase in the proportionate shares of employment in Secondary and Tertiary Sectors have a matching decline in the percentage share of Primary Sector.

Table 4.19: Percentage Change in NSDP, Employment and PCI in Nagaland

Period	% Change in NSDP			% Change in Employment (Main Workers)			% Change in per capita NSDP
	1	2	3	4	5	6		7
Sectors	PS	SS	TS	PS	SS	TS	
1980-81 to 1990-91	-3.28	11.58	-8.3	0.65	0.04	-0.69	+50.70
1990-91 to 2000-01	4.47	-11.56	+7.09	-4.93	0.62	4.31	+459.39
1980-81 to 2000-01	1.19	0.02	-1.21	-4.28	0.66	3.62	+742.98
2000-01 to 2005-06	0.91	-0.20	-0.71				+59.66
1980-81 to 2005-06	2.1	-0.18	-1.92				+1245.92

Note: PS-Primary Sector. SS-Secondary Sector, TS-Tertiary Sector.

4.3: COMPARISON OF NAGALAND'S HDI WITH NER AND INDIA DURING 1981-2001

The present section compares the status of HDI in Nagaland with that of North East Region (NER) and India. It is observed that the HDI for Nagaland which was 0.328 in 1981 has increased to 0.425 and 0.620 in 1991 and 2001 respectively as compared to India's average of 0.302, 0.381 and 0.410; and North East Region's (NER) average of 0.333, 0.425 and 0.570 during the corresponding periods. Among the North Eastern States of India, the state with highest HDI value in 1981 was Manipur with 0.461, while the highest in 1991 and 2001 was Mizoram with 0.548 and 0.671 respectively. On the other end, Arunachal Pradesh was the lowest in 1981 and 1991 with 0.242 and 0.328 respectively and in 2001 was Assam with 0.412.

The figure in table 4.20 showed that the HDI value for Nagaland was increased by 89% during 1981-2001, while that of all India and NER average were 36% and 71% respectively during the same period. Among the North Eastern States, the highest increase was witnessed by Arunachal Pradesh, while that of the lowest was Manipur with 111% and 29% respectively. Hence, Nagaland has better performance in HDI than that of the all India's average throughout the period under consideration. Moreover, it grew at a much faster rate than all India's average and North Eastern States' average.

²⁷⁹ This means that the sum of changes in percentage of any two sectors is having equal magnitude but opposite signs when compared to the third sector.

Table 4.20: HDI of North Eastern States and India 1981, 1991 & 2001.

States	HDI			Percentage change of HDI (1981-2001)
	1981	1991	2001	
Arunachal Pradesh	0.242	0.328	0.511	111
Assam	0.272	0.348	0.412	51
Manipur	0.461	0.536	0.593	29
Mizoram	0.411	0.548	0.671	63
Nagaland	0.328	0.425	0.620	89
Sikkim	0.342	0.425	0.601	76
Meghalaya	0.317	0.365	0.575	81
Tripura	0.287	0.389	0.592	106
<i>NE Average</i>	<i>0.333</i>	<i>0.425</i>	<i>0.570</i>	<i>71</i>
All India	0.302	0.381	0.410	36

Sources: Nagaland HDR 2004, National HDR 2001, Arunachal Pradesh HDR 2005, Assam HDR 2003, Tripura HDR 2007, NA- Not Available #1999.

Thus, from the above discussion, it is obvious that there was no uniformity in the growth rates of various sectors among the districts in Nagaland. The relatively lesser developed districts such as Mon and Tuensang are unable to advance their growth throughout the period under consideration, particularly in economic indicators like agriculture, industry and infrastructure. The study also showed that during the observed period there was no major change in the structure of the State's economy; although Tertiary is the dominant sector in NSDP, the Primary sector remain the fastest growing sector and employ the largest proportion of workforce. This is one of the indications that the economy is underdeveloped. It is also empirically evident that the public spending in the State has strongly stimulates the growth of the economy as the impact of public spending on level of NSDP for all observed sectors are highly significant. Further, it is observed that in the last decade (2001-2006), there has been a decline in the growth of the economy in respect of NSDP and PCI in Nagaland.

Appendices

Appendix 4.1: Agricultural Sector Indices for the years 1991, 1996, 2001 and 2006.

Districts	1991					1996				
	x1	x2	x3	x4	x5	x1	x2	x3	x4	x5
Kohima	2.10	210.88	10.04	06.76	24.62	2.13	198.94	09.34	07.86	24.32
Dimapur	3.08	465.44	15.12	29.01	37.39	3.42	435.53	12.71	33.35	37.10
Mokokchung	1.74	217.72	12.52	12.28	25.47	1.73	204.73	11.86	14.16	31.18
Wokha	2.08	585.69	28.16	14.29	38.73	2.08	458.49	22.02	16.48	37.08
Phek	1.59	509.71	32.11	16.19	44.07	1.53	462.10	30.13	18.62	41.56
Zunheboto	1.39	322.61	23.22	17.80	12.41	1.42	291.48	20.52	20.53	12.61
Tuensang	1.60	154.98	09.69	05.34	42.42	1.59	127.77	08.04	06.16	27.61
Mon	1.24	192.00	15.45	12.95	17.83	1.23	159.83	13.03	14.94	18.71
Nagaland	1.86	295.85	15.86	11.57	31.39	1.91	263.87	13.84	13.35	29.65

Note: x1=Land Productivity (MT/Hectare), x2=Per Capita Production (in KG), x3= Total Cultivated Area (in Hec.) per 1000 Population, x4=Percentage of Cultivated Area to Total Area, x5=Percentage of Gross Irrigated to Total Cultivated Area.

Source: Estimation is based on Statistical Handbooks of Nagaland for the years 1995, 2000, 2004 & 2008

Cotnd... Appendix 4.1

Districts	2001					2006				
	x1	x2	x3	x4	x5	x1	x2	x3	x4	x5
Kohima	2.04	213.00	10.45	10.55	53.88	2.21	293.65	13.31	14.51	43.69
Dimapur	2.27	418.34	18.50	61.20	60.12	3.29	755.91	25.59	64.99	32.21
Mokokchung	1.45	199.93	11.13	19.36	29.87	1.60	286.52	17.96	23.38	28.98
Wokha	1.26	354.26	19.16	22.13	35.81	2.65	653.27	24.70	24.83	09.96
Phek	1.71	452.90	26.46	19.33	44.43	1.58	461.13	29.21	22.46	31.04
Zunheboto	1.44	259.64	18.08	22.31	14.46	2.20	538.04	24.50	28.88	28.10
Tuensang	1.58	106.77	06.76	06.63	25.69	1.50	215.12	14.32	12.47	23.95
Mon	1.43	164.52	11.53	16.76	18.37	1.46	195.27	13.40	19.13	09.36
Nagaland	1.49	235.92	14.35	16.85	30.26	2.06	406.85	19.15	30.08	27.16

Note: x1=Land Productivity (MT/Hectare), x2=Per Capita Production (in KG), x3= Total Cultivated Area (in Hec.) per 1000 Population, x4=Percentage of Cultivated Area to Total Area, x5=Percentage of Gross Irrigated Area to Total Cultivated Area.

Source: Estimation is based on Statistical Handbooks of Nagaland for the years 1995, 2000, 2004 & 2008

Appendix 4.2: Industrial Sector Indices for the years 1991, 1996, 2001 and 2006.

Districts	1991				1996			
	x6	x7	x8	x9	x6	x7	x8	x9
Kohima	0.95	1.43	12.00	0.26	1.53	10.31	11.00	0.26
Dimapur	0.56	3.93	9.14	0.10	2.47	16.45	10.90	0.10
Mokokchung	1.89	3.16	12.00	0.18	4.67	06.22	11.25	0.12
Wokha	1.21	1.21	12.00	0.12	1.64	04.10	24.20	0.12
Phek	2.94	1.96	07.00	0.20	2.38	03.99	15.60	0.20
Zunheboto	1.04	2.08	10.00	0.16	2.39	03.18	09.50	0.24
Tuensang	1.29	1.72	11.11	0.21	2.16	02.16	14.00	0.21
Mon	2.00	2.00	09.00	0.11	1.95	01.46	29.00	0.11
Nagaland	1.41	2.23	10.33	0.19	3.00	06.44	12.56	0.19

Note: x6= ITC per Lakh Population, x7= SSI Units per Lakh Population, x8= SSI Unit per Employee, x9= Veterinary Hospitals, Dispensary per 100 Sq. Km.

Source: Estimation is based on Statistical Handbooks of Nagaland for the years 1995, 2000, 2004 & 2008

Contd... Appendix 4.2

Districts	2001				2006			
	x6	x7	x8	x9	x6	x7	x8	x9
Kohima	0.95	51.21	8.67	0.26	1.47	20.31	10.41	0.26
Dimapur	1.95	209.16	11.36	0.10	1.16	119.45	23.51	0.10
Mokokchung	0.88	50.17	11.29	0.12	0.48	28.54	11.73	0.12
Wokha	0.62	27.93	10.09	0.12	0.61	19.55	14.59	0.12
Phek	1.35	21.59	05.47	0.20	1.93	10.27	10.63	0.20
Zunheboto	1.94	36.15	14.46	0.24	1.35	47.31	08.74	0.24
Tuensang	0.72	05.06	11.04	0.21	1.90	14.94	16.95	0.21
Mon	0.77	22.34	15.63	0.11	1.18	01.57	47.00	0.11
Nagaland	1.15	52.95	11.00	0.19	1.31	36.13	17.95	0.19

Note: x6= ITC per Lakh Population, x7= SSI Units per Lakh Population, x8= SSI Unit per Employee, x9= Veterinary Hospitals, Dispensary per 100 Sq. Km.

Source: Estimation is based on Statistical Handbooks of Nagaland for the years 1995, 2000, 2004 & 2008

Appendix 4.3: Infrastructural Sector Indices for the years 1991, 1996, 2001 and 2006.

Districts	1991								1996							
	x10	x11	x12	x13	x14	x15	x16	x17	x10	x11	x12	x13	x14	x15	x16	x17
Kohima	26.24	1.77	6.68	0.45	6.58	1.62	0.89	0.85	23.28	1.96	5.73	0.48	11.88	0.49	0.88	1.78
Dimapur	25.29	4.85	8.43	1.62	7.29	0.46	2.83	1.33	24.67	6.47	6.99	1.83	13.68	1.70	2.87	2.01
Mokokchung	32.83	3.95	5.68	0.56	3.50	1.10	2.11	0.77	34.22	4.09	4.67	0.56	06.62	1.11	2.08	0.20
Wokha	24.21	1.28	9.68	0.49	2.21	0.83	1.59	3.25	15.59	1.17	5.75	0.43	01.71	0.83	1.59	0.20
Phek	32.30	1.63	5.87	0.30	1.19	1.07	1.59	3.06	27.15	1.68	4.79	0.30	01.29	1.08	1.59	0.24
Zunheboto	17.57	1.35	6.24	0.48	1.11	1.03	2.28	1.92	13.54	1.35	4.78	0.48	02.40	0.03	2.28	0.17
Tuensang	15.03	0.83	3.01	0.17	1.18	0.52	0.96	2.05	12.04	0.92	2.16	0.17	01.25	0.53	0.97	0.05
Mon	14.70	1.23	2.67	0.22	0.85	0.97	1.88	8.30	11.73	1.34	1.95	0.22	01.09	0.97	1.89	0.54
Nagaland	23.07	1.68	5.70	0.42	3.34	0.86	1.62	0.76	18.70	1.80	4.44	0.43	05.64	0.87	1.62	0.97

Note: x10= Post Offices per Lakh Population, x11= Post Offices per 100 Sq. Km, x12= Banks per Lakh Population, x13= Bank per 100 Sq. Km., x14= Telephone per 1000 Population x15= Surfaced Road km per 100 Sq. Km, x16= Road Length km per 100 Sq. Km, x17= Per Capita Electricity Consumption (in KWH).

Source: Estimation is based on Statistical Handbooks of Nagaland for the years 1995, 2000, 2004 & 2008

Contd... Appendix. 4.3.

Districts	2001								2006							
	x10	x11	x12	x13	x14	x15	x16	x17	x10	x11	x12	x13	x14	x15	x16	x17
Kohima	19.40	1.96	6.36	0.64	39.20	0.97	1.19	0.80	20.02	2.18	6.18	0.67	10.79	3.06	1.19	1.22
Dimapur	21.73	7.23	7.13	2.37	48.99	3.13	3.39	0.84	15.40	5.72	6.39	2.37	8.43	4.75	3.41	1.07
Mokokchung	22.44	3.16	4.84	0.68	23.73	2.11	2.92	0.82	26.17	3.41	6.19	0.81	6.14	4.10	2.17	0.78
Wokha	13.04	1.29	3.72	0.37	05.98	1.31	2.18	0.80	13.44	1.31	4.89	0.49	1.50	2.27	2.18	0.70
Phek	23.61	1.73	4.72	0.35	07.72	1.18	2.00	0.81	21.83	1.68	5.78	0.44	1.97	1.07	2.00	0.77
Zunheboto	11.62	1.43	3.87	0.48	07.84	1.99	2.92	0.92	12.84	1.51	4.73	0.56	1.92	3.19	2.92	1.05
Tuensang	10.85	1.06	1.93	0.19	03.18	0.77	1.32	0.76	12.77	1.11	2.45	0.21	0.82	1.14	1.32	0.68
Mon	09.63	1.40	1.93	0.28	04.36	1.60	2.11	0.83	11.76	1.68	1.57	0.22	1.12	2.86	2.11	0.84
Nagaland	16.54	2.33	4.85	0.51	19.60	1.42	2.09	0.89	16.53	2.41	4.69	0.72	4.68	2.46	2.16	0.82

Note: x10= Post Office per Lakh Population, x11= Post Office per 100 Sq. Km, x12= Banks per Lakh Population, x13= Bank per 100 Sq. Km., x14= Telephone per 1000 Population x15= Surfaced Road km per 100 Sq. Km, x16= Road Length km per 100 Sq. Km, x17= Per Capita Electricity Consumption (in KWH).

Source: Estimation is based on Statistical Handbooks of Nagaland for the years 1995, 2000, 2004 & 2008

Appendix 4.4: Educational Sector Indices for the years 1991, 1996, 2001 and 2006.

Districts	1991					1996				
	x18	x19	x20	x21	x22	x18	x19	x20	x21	x22
Kohima	69.58	16	82.10	1.46	09.86	71.72	18	88.05	1.23	10.31
Dimapur	68.65	24	77.35	1.69	32.36	73.40	25	82.14	1.28	33.55
Mokokchung	77.85	10	86.23	1.36	13.31	81.06	11	92.02	1.22	14.55
Wokha	73.92	18	79.14	1.61	08.17	77.60	20	85.31	1.15	08.66
Phek	62.59	27	75.66	1.89	09.53	66.97	26	83.84	1.63	10.07
Zunheboto	64.36	19	79.79	1.82	13.94	67.05	18	83.93	1.47	16.71
Tuensang	48.39	21	58.69	0.71	05.46	49.85	18	68.81	0.83	06.39
Mon	36.02	29	49.56	1.14	09.57	39.14	29	56.11	0.97	11.14
Nagaland	61.65	21	73.02	1.43	10.41	64.38	21	79.87	1.21	11.65

Note: x18= Literacy Rate, x19= Teacher-Pupil Ratio, x20= Children Enrolment Ratio, x21= Schools per 1000 Population, x22= Schools per 100 Sq. Km.

Source: Estimation is based on Statistical Handbooks of Nagaland for the years 1995, 2000, 2004 & 2008

Contd... Appendix 4.4

Districts	2001					2006				
	x18	x19	x20	x21	x22	x18	x19	x20	x21	x22
Kohima	74.28	17	91.66	1.10	11.14	77.26	18	91.61	1.17	12.75
Dimapur	78.15	23	86.93	1.10	36.57	82.90	22	91.72	0.99	36.78
Mokokchung	84.27	10	93.53	1.25	23.84	87.48	12	92.48	1.38	23.96
Wokha	81.28	20	89.85	0.96	09.46	84.96	19	93.31	1.03	10.38
Phek	71.35	27	86.09	1.45	10.61	75.73	25	85.67	1.45	11.15
Zunheboto	69.73	17	85.24	1.41	17.37	72.40	18	88.49	1.70	20.00
Tuensang	51.30	17	74.87	0.85	08.37	52.74	17	95.69	1.18	10.27
Mon	42.25	26	61.75	0.80	11.59	45.35	24	88.92	0.85	12.15
Nagaland	67.11	19	80.99	1.33	12.78	69.84	19	92.05	1.17	14.02

Note: x18= Literacy Rate, x19= Teacher-Pupil Ratio, x20= Children Enrolment Ratio, x21= Schools per 1000 Population, x22= Schools per 100 Sq. Km.

Source: Estimation is based on Statistical Handbooks of Nagaland for the years 1995, 2000, 2004 & 2008

Appendix 4.5: Health Sector Indices for the years 1991, 1996, 2001 and 2006.

Districts	1991							1996						
	x23	x24	x25	x26	x27	x28	x29	x23	x24	x25	x26	x27	x28	x29
Kohima	3.15	2.12	14.31	44.84	85.39	31.01	2.82	2.52	02.12	15.99	40.08	68.70	24.81	2.18
Dimapur	1.52	2.91	08.54	17.98	62.94	19.11	0.45	1.19	03.13	07.16	14.81	47.70	13.98	2.23
Mokokchung	3.73	3.65	11.24	24.62	111.13	36.52	2.13	3.16	03.78	16.39	23.87	93.35	32.67	2.02
Wokha	5.08	2.58	11.14	29.05	108.94	59.31	2.84	3.28	02.46	13.62	20.52	73.86	40.21	1.49
Phek	4.31	2.17	11.94	16.64	106.70	46.00	3.52	3.43	02.12	12.30	20.77	91.05	40.73	2.83
Zunheboto	4.57	3.50	14.13	12.47	112.24	51.96	2.96	3.50	03.50	12.26	19.91	96.36	42.21	2.73
Tuensang	3.39	1.87	10.52	14.17	129.67	35.64	0.79	2.29	01.75	08.92	11.11	71.95	27.48	0.61
Mon	2.61	2.18	06.95	11.36	65.46	36.74	2.54	1.91	02.18	05.96	08.31	54.73	30.29	2.68
Nagaland	3.32	2.42	10.99	22.40	88.88	36.71	2.56	2.48	02.39	10.91	19.76	71.67	29.14	1.95

Note: x23= Medical Institutions per 10,000 Population, x24= Medical Institutions per 100 Sq. Km, x25= Beds per 10000 Population, x26= Medical Officers per Lakh Population, x27= Nurses per Lakh Population, x28= Compounders per Lakh Population, x29= Death Rate (per 1000 Population).

Source: Estimation is based on Statistical Handbooks of Nagaland for the years 1995, 2000, 2004 & 2008

Contd... Appendix 4.5.

Districts	2001							2006						
	x23	x24	x25	x26	x27	x28	x29	x23	x24	x25	x26	x27	x28	x29
Kohima	2.48	2.50	17.40	18.81	81.12	21.63	2.34	2.62	2.86	17.93	38.56	86.55	26.20	3.63
Dimapur	1.20	3.99	07.07	18.81	53.51	11.35	3.79	1.95	7.23	07.32	13.08	43.30	12.50	4.23
Mokokchung	3.21	4.52	15.93	21.56	106.94	27.73	1.87	3.62	4.71	18.27	24.26	105.6	29.02	2.55
Wokha	2.73	2.70	08.32	16.14	52.14	30.42	3.06	3.60	3.62	09.53	16.50	69.04	28.72	2.65
Phek	3.78	2.76	13.49	18.89	43.85	40.47	5.47	4.94	3.80	18.55	17.33	90.52	25.04	3.30
Zunheboto	3.62	4.46	08.78	16.78	66.49	34.86	3.56	4.12	4.86	13.65	18.92	83.13	26.36	2.75
Tuensang	2.10	2.96	07.38	09.16	40.02	23.87	1.58	2.58	2.25	11.41	13.31	64.38	19.56	2.96
Mon	2.50	3.64	05.39	07.70	13.48	26.58	2.66	3.14	4.48	08.00	12.15	44.68	26.26	1.86
Nagaland	2.70	3.44	10.27	19.44	73.16	24.12	3.65	3.04	4.23	12.68	19.60	70.19	23.03	2.61

Note: x23= Medical Institutions per 10,000 Population, x24= Medical Institutions per 100 Sq. Km, x25= Beds per 10000 Population, x26= Medical Officers per Lakh Population, x27= Nurses per Lakh Population, x28= Compounders per Lakh Population, x29= Death Rate (per 1000 population).

Source: Estimation is based on Statistical Handbooks of Nagaland for the years 1995, 2000, 2004 & 2008

Appendix 4.6: District-wise Human Development Indices in Nagaland in 2001

Districts	HDI	Rank	GDI	Rank	HPI	Rank
Dimapur	0.733	1	0.472	2	29.252	4
Kohima	0.673	3	0.580	1	33.084	5
Mokokchung	0.705	2	0.460	3	19.897	1
Wokha	0.669	4	0.448	5	27.052	3
Phek	0.651	5	0.450	4	40.880	6
Zunheboto	0.611	6	0.414	6	24.718	2
Tuensang	0.512	7	0.299	7	48.979	7
Mon	0.450	8	0.220	8	49.092	8
Nagaland	0.623		0.420		35.583	
India	0.410		0.520		31.343	

Source: Nagaland State HDR 2004

Appendix 4.7: HDI, GDI & HPI for North Eastern States, 1981, 1991 & 2001.

States	HDI			GDI			HPI		
	1981	1991	2001	1981	1991	2001	1981	1991	2001
Arunachal Pradesh	0.242	0.328	0.51	0.537	0.776	0.52	59.86	49.62	39.48
Assam	0.272	0.348	0.41	NA	NA	0.54	56.00	48.95	34.30
Manipur	0.461	0.536	0.59	0.802	0.815	0.58	50.82	41.63	NA
Mizoram	0.411	0.548	0.67	0.502	0.770	0.67	47.97	32.20	21.66
Nagaland	0.328	0.425	0.62	0.783	0.729	0.42	49.37	42.07	35.58
Sikkim	0.342	0.425	0.60	0.643	0.647	0.59	52.76	34.84	NA
Meghalaya	0.317	0.365	0.55	0.799	0.807	NA	54.02	49.19	NA
Tripura	0.287	0.389	0.59	0.422	0.531	0.56	51.86	44.89	^ ---
NE Average	0.333	0.425	0.570	0.641	0.725	0.554	52.38	42.06	35.58
All India	0.302	0.381	0.41	0.620	0.676	^ 0.54	47.33	39.36	32.47

Sources: Nagaland HDR 2004, National HDR 2001, Arunachal Pradesh HDR 2005, Assam HDR 2003, Tripura HDR 2007, NA- Not Available #1999.

Appendix 4.8: Annual Exponential Growth Rates of NSDP in Nagaland during 1981-2006.

Sector	<i>a</i>	<i>b</i>	<i>r</i> ²	N
1. Primary Sector	-310.55	.1609	.988	26
1.1 Agriculture	-324.57	.1678	.983	26
1.2 Forestry and Logging	-228.67	.1189	.919	26
1.3 Fishery	-377.80	.1925	.891	26
1.4 Mining and Quarrying*				
2. Secondary Sector	-281.88	.1462	.954	26
2.1 Manufacturing	-241.37	.1249	.701	26
2.2 Construction	-265.37	.1378	.939	26
2.3 Electricity, Water Supply and Gas*				
3. Tertiary Sector	-305.14	.1585	.971	26
3.1 Transport, Storage and Communication	-553.24	.2817	.943	26
3.2 Trade, Hotel and Restaurant	-298.10	.1538	.970	26
3.3 Banking and Insurance	-271.78	.1401	.549	26
3.4 Real Estate, Ownership of dwelling & Business service	-304.05	.1571	.978	26
3.5 Public Administration	-263.32	.1369	.972	26
3.6 Other Services	-254.37	.1322	.953	26
NSDP	-301.91	.1572	.984	26
Per Capita Income	-209.49	.1095	.964	26

Note: * Dependent variable has non-positive values; no equation can be estimated. *a* is constant, *b* is growth trend coefficient, *r*² is Coefficient of Determination, *N* is Number of observation.

Source: Based on Secondary Data. Statistical Handbooks of Nagaland 1983, 1991, 1995, 2000, 2004 & 2008

Appendix 4.9: Annual Exponential Growth Rates of NSDP in Nagaland during 1981-1991.

Sector	<i>a</i>	<i>b</i>	<i>r</i> ²	N
1. Primary Sector	-253.11	.1319	.886	10
1.1 Agriculture	-212.11	.1112	.807	10
1.2 Forestry and Logging	-402.16	.2062	.908	10
1.3 Fishery	-622.38	.3157	.725	10
1.4 Mining and Quarrying*				
2. Secondary Sector	-385.77	.1985	.950	10
2.1 Manufacturing	-253.28	.1308	.705	10
2.2 Construction	-381.40	.1963	.916	10
2.3 Electricity, Water Supply and Gas**				
3. Tertiary Sector	-302.72	.1572	.985	10
3.1 Transport, Storage and Communication	-440.56	.2249	.831	10
3.2 Trade, Hotel and Restaurant	-264.65	.1369	.957	10
3.3 Banking and Insurance	-472.53	.2410	.901	10
3.4 Real Estate, Ownership of dwelling & Business service	-212.86	.1111	.974	10
3.5 Public Administration	-289.29	.1499	.977	10
3.6 Other Services	-369.74	.1902	.982	10
NSDP	-303.19	.1578	.983	10
Per Capita Income	-236.69	.1232	.972	10

Note: * Dependent variable is a constant; no equation estimated, ** Dependent variable has non-positive values; no equation estimated. *a* is constant, *b* is growth trend coefficient, *r*² is Coefficient of Determination, *N* is Number of observation.

Source: Based on Secondary data. Statistical Handbooks of Nagaland 1983, 1991 & 1995

Appendix 4.10: Annual Exponential Growth Rates of NSDP in Nagaland during 1991-2001.

Sector	<i>a</i>	<i>b</i>	<i>r</i> ²	N
1. Primary Sector	-295.19	.1532	.970	10
1.1 Agriculture	-304.60	.1578	.978	10
1.2 Forestry and Logging	-219.80	.1145	.735	10
1.3 Fishery	-510.44	.2591	.978	10
1.4 Mining and Quarrying*				
2. Secondary Sector	-368.60	.1897	.815	10
2.1 Manufacturing	-129.85	.0693	.111	10
2.2 Construction	-401.15	.2058	.927	10
2.3 Electricity, Water Supply and Gas**				
3. Tertiary Sector	-234.36	.1231	.960	10
3.1 Transport, Storage and Communication	-556.45	.2836	.811	10
3.2 Trade, Hotel and Restaurant	-245.86	.1277	.952	10
3.3 Banking and Insurance	393.06	-.1929	.226	10
3.4 Real Estate, Ownership of dwelling & Business service	-321.20	.1658	.926	10
3.5 Public Administration	-242.19	.1264	.944	10
3.6 Other Services	-134.72	.0723	.921	10
NSDP	-269.23	.1409	.956	10
Per Capita Income	-173.11	.0913	.902	10

Note: * Dependent variable is a constant; no equation estimated, ** Dependent variable has non-positive values; no equation estimated, *a* is constant, *b* is growth trend coefficient, *r*² is Coefficient of Determination, *N* is Number of observation.

Source: Based on Secondary data. Statistical Handbooks of Nagaland 1995, 2000 & 2004

Appendix 4.11: Annual Exponential Growth Rates of NSDP in Nagaland during 2001-2006.

Sector	<i>a</i>	<i>b</i>	<i>r</i> ²	N
1. Primary Sector	-154.75	.0831	.989	6
1.1 Agriculture	-164.06	.0877	.975	6
1.2 Forestry and Logging	-95.63	.0524	.539	6
1.3 Fishery	40.13	-.0162	.054	6
1.4 Mining and Quarrying	-389.98	.1974	.795	6
2. Secondary Sector	-104.78	.0577	.592	6
2.1 Manufacturing	-360.83	.1843	.920	6
2.2 Construction	-25.88	.0183	.100	6
2.3 Electricity, Water Supply and Gas*				
3. Tertiary Sector	-128.30	.0701	.956	6
3.1 Transport, Storage and Communication	-149.33	.0800	.858	6
3.2 Trade, Hotel and Restaurant	-76.87	.0433	.938	6
3.3 Banking and Insurance	-157.83	.0831	.934	6
3.4 Real Estate, Ownership of dwelling & Business service	-200.94	.1056	.928	6
3.5 Public Administration	-61.81	.0362	.687	6
3.6 Other Services	-141.26	.0756	.948	6
NSDP	-132.31	.0725	.992	6
Per Capita Income	-52.20	.0309	.934	6

Note: * Dependent variable has non-positive values; no equation estimated, *a* is constant, *b* is growth trend coefficient, *r*² is Coefficient of Determination, *N* is Number of observation.

Source: Based on Secondary data. Statistical Handbooks of Nagaland 2004 & 2008

Appendix 4.12: Plan Expenditure during 1986 to 2006 in Nagaland (in Lakhs)

Sectors	1986-91	1991-96	1996-01	2001-06
A. Agriculture	8983 (22.24)	10546 (14.99)	12668 (13.12)	24071 (18.69)
B. Secondary Sector	7435 (18.41)	13876 (19.73)	17987 (18.63)	24896 (19.33)
C. Transport and Communication	8338 (20.64)	11890 (16.90)	16759 (17.36)	21353 (16.58)
D. Social Services	8036 (19.89)	14310 (20.34)	26286 (27.23)	44130 (34.27)
Total (A+B+C+D)	32792 (81.19)	50622 (71.96)	73700 (76.34)	114450 (88.88)
Overall Plan Outlay	40396	70342	96548	128769

Source: Based on the State Expenditure of 7th to 10th Plan, Department of Planning and Coordination.

Appendix 4.13: Level of Sector-wise Contribution to NSDP (in Rs. Lakhs)

Sectors	1980-81 Prices	1993-94 Prices		1999-00 Prices
	1991	1996	2001	2006
A. Agriculture	4411 (18.53)	31679 (19.32)	67606 (30.31)	142840 (34.60)
B. Secondary Sector	6117 (25.17)	39451 (24.06)	31551 (14.14)	63665 (13.94)
C. Transport and Communication	1383 (3.81)	23907 (14.58)	38362 (17.19)	60847 (13.33)
D. Social Sector	3070 (12.9)	15216 (9.28)	24051 (6.85)	35664 (7.81)
Total (A+B+C+D)	14981 (60.41)	110253 (67.24)	161570 (68.49)	303016 (69.68)
Overall NSDP	23798 (100)	163971 (100)	223042 (100)	456608 (100)

Source: Statistical Handbooks of Nagaland 1995, 2000, 2004 & 2009.

Note: The figures in parentheses represent percentage in total NSDP.

CHAPTER V

INTER-DISTRICT DISPARITIES IN ECONOMIC AND HUMAN DEVELOPMENT IN NAGALAND

There has been rapid growth and development of the global economy, yet the regional disparity has become a world-wide phenomenon and thus a major concern in development planning around the world especially the developing countries. The neoclassical growth theories are on the view that the mobility of factors such as; capital stock, technical change and labor are the reasons for eventual regional disparities. The dependency and structural change theories postulates that regional inequality is an inevitable outcome of capital accumulation and profit maximization.

The neoclassical models developed along the line of Solow's work postulated a long term trend towards income convergence among the spatial units. Neoclassical theories are of the opinion that income convergence occurred within the frame work of factor mobility among the spatial unit as well as without interspatial factor mobility. In contrast to the neoclassical formulation, dissident views emerged from the work of Myrdal (1956) that the primary divergence among regions occurred during the process of development.²⁸⁰ The third brand of formulations and the empirical verification has shown that there would be divergence among regions up to some stages of development. But, there would be an ultimate trend towards convergence in regional disparity; hence, it would result in an inverted U-Shaped curve.

According to the Kuznets-Williamson inverted hypothesis, regional disparities increases in the early stages of economic development due to an uneven spatial coverage of technological progress.²⁸¹ The privileged areas in terms of capital and labour mobility lead to an increase in regional disparities. It tends to increase in the initial stage of economic development then declining in the later stage.²⁸² However, for countries at more advanced stages of economic

²⁸⁰ Myrdal, G (1956): *Economic Theory and Underdeveloped Regions*, Vora, Bombay.

²⁸¹ Kuznets, Simon (1955): "Economic Growth and Income Inequality", *American Economic Review*, 45: 1-28. and Williamson, J G (1965): "Regional Inequality and Process of National Development: A Description of the Pattern", *Economic Development and Cultural Change*, Vol.13(4) ft:2

²⁸² Barrios, S and E Strobl (2005): *The Dynamics of Regional Inequalities*, European Economic Papers, No. 229, European Commission.

development, higher factor costs and diseconomies of agglomeration matched with knowledge spillovers lead to spatial convergence in regional disparities.²⁸³

One of the most important aspects of India's development progress is its remarkable regional disparity.²⁸⁴ In India, the regional disparity was declined during mid sixties, but with the advent of Green Revolution since mid sixties, it was become widened.²⁸⁵ Further, the disparity was aggravated with the economic liberalization since 1991 in the country.²⁸⁶ The Draft Eleventh Five Year Plan (2007-2012) Vol. III has also admitted that the regional disparity was continuously increased and the gap has been accentuated as the benefits of economic growth have largely confined to the better developed areas.

This chapter examines the inter-district disparities in economic and human development in Nagaland. To analyse the inter-district disparities in economic and human development at macro-level perspective, 29 indicators are taken into consideration. The indicators are alienated into five sectors such as agriculture, industry, infrastructure representing economic development, while education and health sectors representing HD. Further, the present study made a modest attempt to examine whether there is any significant impact of sector-wise plan outlay on reducing inter-district disparities (sector-wise) in Nagaland. Also, inequalities in income distribution and gender have been examined based on primary as well as secondary data.

5.1: SECTOR-WISE DISPARITIES IN ECONOMIC AND HUMAN DEVELOPMENT

In this section, the inter-district disparity has been analysed in the following five broad sectors such as agriculture, industry, infrastructure, education and health. In the first step, the inter-district disparity for each indicator has been calculated by using Coefficient of Variation (CV) method. Friedman²⁸⁷ and Quah²⁸⁸ claimed that sigma convergence is the only valid measure of absolute convergence. Sigma convergence can be determined by coefficient of variation.²⁸⁹ Secondly, to examine whether the disparity has narrowed down or widened overtime, the growth

²⁸³ Szorfi, B (2007): "Development and Regional Disparities: Testing the Williamson Curve Hypothesis in the European Union", *Focus on European Economic Integration*, No.2/07, Oesterreichische National Bank: 100-121.

²⁸⁴ Das, A (1999): "Socio-Economic Development in India: A Regional Analysis", *Development and Society*, Vol.28 No.2, December.

²⁸⁵ Kurian, N J (2000): "Widening Regional Disparities in India: Some Indicators", *Economic and Political Weekly*, Vol.35 No. 7 Feb: 583-90.

²⁸⁶ Gaur, Achal Kumar (2010): "Regional Disparities in Economic Growth: A Case Study of Indian States", available at <http://www.iariw.org/papers/2010/poster1Gaur.pdf>. Accessed on 18th April 2011.

²⁸⁷ Friedman, M (1992): "Do All Fallacies Even Die?" *Journal of Economic Literature*, 29:2129-2132.

²⁸⁸ Quah, D (1993): "Galton's Fallacy and Tests of the Convergence Hypothesis", *Scandinavian Journal of Economics*, 93: 427-443.

²⁸⁹ Ghosh, M (2006): "Economic Growth and Human Development in Indian States", *Economic and Political Weekly*, Vol. 30 No. 41 July, 29: 3321-3329.

trend of CV value has been computed. For five yearly percentage changed in sector-wise disparities, the annual average growth rate has been used in the analysis.

5.1.1: Disparity in Agricultural Development: In Nagaland, the inter-district disparity in agricultural development has been significant throughout the period under observation (1991-2006). The extent of inter-district disparity in agricultural sector as measured by percentage of CV was marginally declined from 43.58% in 1991 to 43.47% in 1996, after which it was increased to 45.99% and 49.18% in 2001 and 2006 respectively.

District-wise data in table 4.1 (page 89) showed that the highest ADI value in 1991 was Wokha with 133.79 and in 1996 was Phek with 110.79. In the later period of observation i.e. in 2001 and 2006, Dimapur had exhibited the highest ADI value with 112.09 and 182.39 respectively. On other hand, Tuensang and Mon districts were consistently behind the other districts in the development of agricultural sector throughout the period.

Among the indicators, the highest disparity in 1991 was *Percentage of Cultivated Area to Total Area (x4)* with CV values of 51.10%, which has consistently increased to 50.88%, 74.80% and 89% in 1996, 2001 and 2006 respectively as indicated in table 5.1. Among the districts, the highest *Percentage of Cultivated Area to Total Area* in 1991 as well as in 2006 was Dimapur with 37.39% and 94.99% respectively, while the lowest was Tuensang with 5.34% and 12.47% during the same period (appendix 4.1). It may due to the fact that the land in Dimapur is plain where cultivation is easier and convenient than other districts.

The *growth trend 'b'* value of CV as indicated in table 5.2 showed that the disparity in agricultural development has widened by 0.84% per annum during 1991-2006. The growth trend equation of CV for agricultural sector can be expressed as

$$\text{Growth rate of CV in Agricultural sector} = -21.80 e^{0.0084t} \quad r^2 = 0.708$$

Among the indicators, convergence has been observed in the indicators such as *Land Productivity (MT/ Hectare) (x1)*, *Per Capita Production (in KG) (x2)* and *Total Cultivated Area (in Hectare) per 1000 Population (x3)* with -1.01%, -0.14% and -2.65% per annum respectively. On the other hand, the disparities in *Percentage of Cultivated Area to Total Area* and *Percentage of Gross Irrigated Area to Total Cultivated Area (x5)* have widened by 4.10% and 1.36% per annum respectively during 1991-2006.

The five yearly *periodical analyses* of CV value showed that the inter-district disparity in agricultural sector has declined by 0.05% per annum during 1991-96. But, it has increased during 1996-01 and 2001-06 by 1.16% and 1.39% per annum respectively. The data showed that there has been a sharp rise in the disparity in *Land Productivity (x1)* during 2001-06 with 10.50% per

annum. It is observed that in 2006, the highest land productivity among the districts was Dimapur with 3.29 MT/Hectare and lowest was Wokha with 1.26 MT/Hectare. This may be due to the fact that the land in Dimapur district is plain, where irrigation and usage of modern machineries such as tractors and tillers are relatively higher in cultivation than other districts.

Table 5.1: Inter-district Disparities (CV) in Agricultural Sector in Nagaland during 1991-2006

Variables	Coefficient of Variation (CV in %)				Periodical Annual Percentage Change in CV			
	1991	1996	2001	2006	91-96	96-01	01-06	91-06
x1	31.30	36.50	20.89	31.86	3.32	-8.55	10.50	0.12
x2	49.89	48.02	45.93	49.45	-0.75	-0.87	1.53	-0.06
x3	46.49	47.42	41.85	31.16	0.40	-2.35	-5.11	-2.20
x4	51.10	50.88	74.80	89.00	-0.09	9.40	3.80	4.94
x5	39.14	34.54	46.48	44.45	-2.35	6.91	-0.87	0.91
Total	43.58	43.47	45.99	49.18	-0.05	1.16	1.39	0.86

Note: x1=Land Productivity (MT/Hectare), x2= Per Capita Production (in Kgs), x3=Total Cultivated Area (in Hectare) per 1000 Population, x4=Percentage of Cultivated Area to Total Area, x5=Percentage of Gross Irrigated Area to Total Cultivated Area.

Table 5.2: Growth Rate of CV (%) in Agricultural Sector for the period 1991-2006

Variables	<i>a</i>	<i>b</i>	<i>r</i> ²	N
X1	23.56	-.0101	.073	4
X2	-1.65	-.0014	.087	4
X3	19.05	-.0265	.026	4
X4	-77.77	.0410	.890	4
X5	-23.41	.0136	.428	4
Total	-21.80	.0084	.708	4

Source: Based on table 5.1.

Note: *a* is constant, *b* is growth trend coefficient, *r*² is coefficient of determination and N is number of observation.

5.1.2: Disparity in Industrial Development: The industrial development in the State has witnessed wide inter-district disparity during the observed period. The disparity in industrial development as estimated by percentage of CV was continuously increased from 35.92% in 1991 to 52.90%, 59.07% and 66.27% in 1996, 2001 and 2006 respectively.

Statistics showed that among the districts, Mokokchung had the highest IDI value in 1991 with 4.31, while Phek had the lowest with 3.03. Data showed that Dimapur had become the top in IDI value in 2001 as well as in 2006 with 55.64 and 36.05 respectively, whereas Tuensang remained at the lowest with 4.26 and 5.75 during the corresponding periods as indicated in table 4.3 (page 90).

It is observed that the inter-district disparity in all the industrial indicators remained significant throughout the period. Among the indicators, the widest disparity in 1991 as well as in 2006 was *Small Scale Industries (SSI) unit per Lakh Population (x7)* with its CV value of 41.74% and 114.69% respectively. It is also observed that the highest value in the mentioned indicator in both 1991 and 2006 was Dimapur with 3.93 and 119.45 respectively (appendix 4.2 – pages 108 &

109). On the other hand, the lowest in the same indicator during the corresponding periods were Wokha and Mon with 1.21 and 1.57 respectively.

The *growth trend 'b'* value of CV is estimated to be 0.0392 during 1991-2006, which implies that the inter-district disparity in industrial development had widened by 3.92% per annum. Among the indicators, the disparities has widened in all the indicators except *Industrial Training Centre (ITC) per Lakh Population (x6)* which has declined by -0.89% per annum during the same period. It is estimated that during the corresponding period the disparities in *SSI Units per Lakh Population (x7)*, *Employees per SSI units (x8)* and *Veterinary Hospitals/ Dispensary per 100 sq. km (x9)* had widened by 6.81%, 7.36% and 0.78% per annum respectively.

The five yearly *periodical analyses* of CV value as presented in table 5.2 showed that the disparity in industrial development during 1991-96 has widened by 9.05% per annum, while during 1996-01 and 2001-06, it has widened by 2.64% and 2.44% respectively. Among the indicators, the highest increase in disparity during 1991-96 was *Employees per SSI Unit*, which has increased by 31.17% per annum, while the same during 1996-2001 was *SSI unit per Lakh Population* with 9.05% per annum. During 2001-06, the disparity in *Employees per SSI Unit* was continued to increase by 28.90% per annum, while in *Veterinary Dispensary/ Hospitals per 100 sq. Km*, it remained constant during 1996-01 as well as 2001-06.

Table 5.3: Inter-district Disparities (CV) in Industrial Sector in Nagaland

Variables	Coefficient of Variation (CV in %)				Periodical Annual Percentage Change in CV			
	1991	1996	2001	2006	91-96	96-01	01-06	91-06
X6	50.9	40.95	46.89	41.98	-3.91	2.90	-2.09	-1.17
X7	41.74	84.46	122.67	114.69	20.47	9.05	-1.30	11.65
X8	17.76	45.44	28.84	70.52	31.17	-7.31	28.90	19.81
X9	33.28	37.87	37.87	37.87	2.76	0.00	0.00	00.92
Total	35.92	52.18	59.07	66.27	9.05	2.64	2.44	5.63

Note: x6=ITC per Lakhs Population, x7=SSI Unit per Lakh Population, x8=Employees per SSI Unit, x9=Veterinary Hospitals, Dispensaries per 100 Sq. Km.

Table 5.4: Growth of CV in Industrial Sector for the period 1991 to 2006

Variables	<i>a</i>	<i>b</i>	<i>r</i> ²	N
X6	18.47	-0.0089	.244	4
X7	-139.92	0.0681	.841	4
X8	-143.60	0.0736	.643	4
X9	-11.89	0.0078	.602	4
Total	-78.54	0.0392	.929	4

Source: Based on table 5.3.

Note: *a* is constant, *b* is growth trend coefficient, *r*² is coefficient of determination and N is number of observation.

5.1.3: Disparity in Infrastructural Development: The inter-district disparity in infrastructural development in Nagaland has increased in the early nineteen nineties and then declined since 1996 till 2006, but it remained significant. The disparity as shown by CV value was increased from 59.75% to 69.54% in 1991 and 1996 respectively; thereafter it was declined to 57.14% and 53.68% in corresponding periods of 2001 and 2006 as indicated in table 5.5.

It is observed from table 4.5 (page 91) that the relatively more developed district in infrastructural sector as depicted in InDI value was Dimapur in 1991 as well as in 2006 with 6.51 and 6.94 respectively, while the least in both the corresponding periods was Tuensang with 2.97 and 2.56. It may observed that among the districts, Dimapur, Kohima and Mokokchung are found to be relatively more developed; Phek, Zunheboto and Wokha are moderate, while Tuensang and Mon are consistently behind the others during the period under consideration as indicated in the aforementioned table.

In 1991, the widest disparity among the indicators was *Per capita Electricity Consumption* (x17) with its CV value of 90.85%. The statistics showed that the highest among the districts in the mentioned indicator was Mon, while the lowest was Mokokchung with 8.30 and 0.77 respectively in 1991. Similarly, the widest disparity in 2006 was *Bank per 100 Sq. Km* (x13) with its CV value of 96.62%, wherein Dimapur and Tuensang had the highest and lowest with 2.37 and 0.21 respectively.

Table 5.5: Inter-district disparities in Infrastructural Sector in Nagaland

Variables	Coefficient of Variation (CV in %)				Periodical Annual Percentage Change in CV			
	1991	1996	2001	2006	91-96	96-01	01-06	91-06
x10	30.49	40.76	35.14	31.38	6.74	-2.76	-2.14	0.20
x11	69.15	81.32	85.30	66.49	3.52	0.98	-4.41	-0.26
x12	39.68	37.96	43.36	38.22	-0.87	2.85	-2.37	-0.25
x13	85.68	95.13	105.57	96.62	2.21	2.20	-1.70	0.85
x14	86.59	103.30	100.60	94.03	3.86	-0.52	-1.31	0.57
x15	38.41	39.30	46.83	46.18	0.46	3.83	-0.28	1.35
x16	37.11	37.49	34.67	34.14	0.21	-1.50	-0.31	-0.53
x17	90.85	121.08	5.62	22.34	6.65	-19.07	59.50	-5.03
Total	59.75	69.54	57.14	53.68	3.28	-3.57	-1.21	-0.68

Note: x10=Post Office per Lakh Population, x11=Post Office per 100 Sq. Km, x12=Bank per Lakh Population, x13=Bank per 100Sq. Km., x14=Telephone per 1000 Population, x15=Surfaced Road (in Km) per 100 Sq. Km, x16=Road Length (in Km) per 100 Sq. Km, x17=Per Capita Electricity Consumption.

The figure in table 5.6 showed that the inter-district disparity in infrastructural development has shown a declining trend in the State during 1991-2006. The *growth trend 'b'* value of CV shows that the disparity has reduced by 0.31% per annum during the same period. Among the eight selected indicators, the disparity in four indicators have been reduced; while in the other four continued to increase over the time. Indicators that have declined in disparity were

Post Office per Lakh Population (x10), Post Office per 100 Sq. Km (x11), Road Length (Km) per 100 Sq. Km (x16) and Per Capita Electricity Consumption (in KWH) (x17) with -0.12%, -0.14%, -0.66% and -14.56% per annum respectively. On the other hand, the disparity has increased in Bank per 100 Sq. Km (x13), Telephone per 1000 Population (x14), Surfaced Road per 100 Sq. Km (x15) and Bank per lakh Population (x12) by 0.93%, 0.44%, 1.46% and 0.04% per annum respectively during 1991-2006.

It has been observed from five yearly *periodical* analyses that the disparity during 1991-96 has been narrowed down only in *Banks per Lakh Population (x12)* with -0.87% per annum. But during 1996-01, indicators such as *Post Office per Lakh Population (x10), Telephone per 1000 Population (x15), Road Length per 100 Sq. Km (x16) and Per Capita Electricity Consumption (x17)* have narrowed down by -2.76%, -.52%, -1.50% and -19.07% per annum respectively. Thereafter, all the other indicators have witnessed reduction in disparities except *Per Capita Electricity Consumption (x17)* which has increased by 59.50% per annum during 2001-06. In 2006, Kohima had the highest per capita electricity consumption with 1.22kwh, while Tuensang had the lowest with 0.68 kwh.

Table 5.6: Growth Rate of CV of Infrastructural Sector for the period 1991-2006

Variables	<i>a</i>	<i>b</i>	<i>r</i> ²	N
X10	-6.16	-.0012	.070	4
X11	7.12	-.0014	.006	4
X12	-19.27	.0004	.908	4
X13	-14.01	.0093	.491	4
X14	-20.21	.0044	.464	4
X15	-25.35	.0146	.811	4
X16	16.67	-.0066	.803	4
X17	207.46	-.1456	.774	4
Total	15.13	-.0031	.131	4

Source: Based on Table 5.5.

Note: *a* is constant, *b* is growth trend coefficient, *r*² is coefficient of determination and N is number of observations.

5.1.4: Disparity in Educational Development: The study has revealed that although there exist inter-district disparity in educational sector, convergence has been observed over the time. The disparity in educational sector has been consistently decline but it remained significant till 2001. The estimated value of coefficient of variation was declined from 34.85% to 31.24%, 30.77% and 25.61% in 1991, 1996, 2001 and 2006 respectively.

Among the districts, the relatively most developed district in educational sector is Dimapur, while Mon continued to be the least developed in this respect. Data showed that the EDI values for Dimapur in 1991, 1996, 2001 & 2006 were 40.81, 43.07, 45.15 and 46.88

respectively. The same for Mon were 25.06, 27.27, 28.48 and 34.25 during the corresponding periods as indicated in table 4.7 (page 92).

Among the indicators, the widest disparity throughout the period under observation was *School per 100 Sq. Km* (x22). The estimated disparity for the same indicator in 1991, 1996, 2001 and 2006 were as high as 65.44%, 61.52%, 60.22% and 54.49% respectively. Among the districts, the highest number of *School per 100 Sq Km* in 1991 as well as in 2006 was Dimapur with 32.36 and 36.78 respectively, while the lowest was Tuensang with 5.46 and 10.27 respectively (Appendix 4.4).

The *growth trend 'b'* value of CV showed that the disparity in educational development has been converged during 1991-2006 by -1.88% per annum. Similarly, convergence has been observed in all the indicators during the same period. Among which, the highest and lowest rate of convergence were *Children Enrollment Ratio* (x20) and *School per 1000 Population* (x21) with -9.93% and -0.87% per annum respectively.

Table 5.7: Inter-district Disparities in Educational Sector in Nagaland

Variables	Coefficient of Variation (CV in %)				Periodical Annual Percentage Change in CV			
	1991	1996	2001	2006	91-96	96-01	01-06	91-06
x18	22.22	21.73	21.41	21.21	-0.44	-0.29	-00.17	-0.30
x19	30.07	27.91	28.56	21.71	-1.44	0.47	-04.80	-1.85
x20	17.19	14.70	12.57	03.46	-2.90	-2.90	-14.50	-5.32
x21	26.71	20.83	21.74	22.77	-4.40	0.87	00.95	-0.98
x22	65.44	61.52	60.22	54.49	-1.20	-0.42	-01.90	-1.12
Total	34.85	31.24	30.77	25.61	-2.07	-0.30	-03.36	-1.77

Note: x18=Literacy Rate, x19=Teacher-Pupil Ratio, x20=Children Enrolment Ratio, x21=School per 1000 Population, x22=School per 100 Sq. Km.

Table 5.8: Growth Rate of CV in Educational Sector for the period 1991-2006

Variables	<i>a</i>	<i>b</i>	<i>r</i> ²	N
X18	7.52	-.0100	.984	4
X19	16.38	-.0191	.012	4
X20	200.81	-.0993	.762	4
X21	204.13	-.0087	.083	4
X22	27.02	-.0114	.947	4
Total	29.13	-.0188	.376	4

Source: Based on table 5.7.

Note: *a* is constant, *b* is growth trend coefficient, *r*² is coefficient of determination and N is number of observation.

The inter-temporal analysis showed that the pace of convergence in educational development was highest during 2001-06 with -3.36% per annum, while the same during 1991-96 and 1996-01 was -2.07% and -0.30% per annum respectively. During 1991-96, the disparity has narrowed down in all the indicators with the fastest convergence in *School per 1000 Population* with -4.40% per annum, while during 1996-01 as well as 2001-06, it was *Children Enrolment Ratio* with -2.90% and -14.50% per annum respectively. On the other hand, during 1996-01, there

was divergence in *Teacher-Pupil Ratio* (x19) and *School per 1000 Population* (x21) by 0.47% and 0.87% per annum respectively, while *School per 1000 Population* (x21) continued to diverge by 0.95% per annum during 2001-06.

5.1.5: Disparity in Health Development: The inter-district disparity in development of health and health care services has narrowed down over the time as indicated in table 5.6. The percentage of disparity which was 36.61% in 1991 has consistently reduced to 35.11%, 34.65% and 32.46% in 1996, 2001 and 2006 respectively, but it remained significant over the period. In health care development, it has been observed that the highest level of development as per the HeDI value in 1991 was Wokha with its value of 36.02, while the same in 2006 was Mokokchung with 30.91. On the other end, the lowest in both the periods was Dimapur with 18.83 and 14.23 respectively as given in table 4.9 (page 94).

It is observed from the analysis as indicated in table 5.10 that there was convergence in health development by -0.75% per annum during 1991-2006. Among the indicators, three had witnessed divergence namely *Medical Institution per 100 Sq. Km* (x24), *Bed per 10000 Population* (x25) and *Nurse per Lakh Population* (x27) by 1.17%, 3.26% and 2.68% per annum respectively. On the other hand, convergence has been observed in remaining indicators with the highest rate in *Death Rate* (x29) with -3.83% per annum, followed by *Compounder per Lakh Population* (x28), *Medical Officer per Lakh Population* (x26) and *Medical Institution per 10000 Population* (x23) with -0.70%, -1.80% and -1.85% per annum respectively.

Table 5.9: Inter-District Disparities in Health Sector and Overall Disparity in Nagaland

Variable	Coefficient of Variation (CV in %)				Periodical Annual Percentage Change in CV			
	1991	1996	2001	2006	91-96	96-01	01-06	91-06
x23	32.31	31.17	31.19	28.75	-0.71	0.01	-1.56	-0.74
x24	25.50	28.22	23.74	35.82	2.13	-3.18	10.18	2.70
x25	22.68	33.61	42.92	35.98	9.64	5.54	-3.23	3.91
x26	52.58	48.80	30.96	45.30	-1.44	-7.31	9.26	-0.92
x27	24.50	24.03	49.26	30.16	-0.38	20.10	-7.76	1.54
x28	31.84	30.46	32.37	22.93	-0.87	1.25	-5.83	-1.87
x29	48.15	35.55	40.98	24.26	-5.23	3.06	-8.16	-3.31
Total	36.61	35.11	34.65	32.46	-0.82	-0.26	-1.26	-0.75
Overall	42.14	46.31	45.52	45.44	1.98	-0.34	-0.04	0.52

Note: x23=Medical Institution per 10000 Population, x24=Medical Institution per 100 Sq. Km, x25=Bed per 10000 Population, x26=Medical Officer per Lakh Population, x27=Nurse per Lakh Population, x28=Compounder per Lakh Population, x29=Death Rate.

Among the health indicators, the widest disparity in 1991 as well as in 2006 was *Medical Officer per Lakh Population* (x26) with 52.58% and 45.30% respectively. The district with the highest *Medical Officer per Lakh Population* was Kohima in both 1991 and 2006 with 44.84 and

38.56 respectively, while Mon continued to be the lowest in the same indicator in both the periods with 11.36 and 12.15 respectively.

Table 5.10: Growth Rate of CV of Health Sector and Overall Disparity during 1991-2006

Variables	<i>a</i>	<i>b</i>	<i>R</i> ²	N
X23	8.13	-0.0070	.667	4
X24	-30.56	0.0169	.371	4
X25	-74.08	0.0326	.766	4
X26	24.44	-0.0180	.070	4
X27	-56.68	0.0268	.337	4
X28	38.09	-0.0185	.542	4
X29	124.07	-0.0383	.963	4
Total	18.50	-0.0075	.938	4
Overall	-4.55	0.0042	.412	4

Source: Based on Table 5.9.

Note: *a* is constant, *b* is growth trend coefficient, *r*² is coefficient of determination and N is number of observation.

The five yearly *periodical analyses* of disparity has revealed that during 1991-96, 1996-01 and 2001-06 the disparity has narrowed down by -0.82%, -0.26% and -1.26% per annum respectively. Among the indicators, *Death Rate* (x29) had the fastest convergence during 1991-96 as well as during 2001-06 with -5.23% and -8.16% per annum respectively, while during 1996-01, it was *Medical Officer per Lakh Population* (x26) with -7.31% per annum. On the other hand, the widest disparity during 1991-96 was *Bed per 10,000 Population* (x25) with 9.64% per annum, and the same during 1996-01 and 2001-06 were *Nurse per Lakh Population* (x27) and *Medical Institution per 100 Sq. Km* (x25) with 20.10% and 10.18% per annum respectively.

5.1.6: Overall Inter-district Disparities: The overall inter-district disparities refer to the average disparity of all the indicators in above five sectors. It is observed that the overall disparity was not only significant, but also it has widened over the period in Nagaland. The overall disparity in 1991 which was 42.14% has widened to 46.31% in 1996. Thereafter, it was marginally declined to 45.52% and 45.44% in 2001 and 2006 respectively. The study showed that the highest overall development in 1991 was Wokha as per ODI value with 40.14, while in 2006; Dimapur was relatively the most developed district with ODI value of 50.84. On the other end, the least in both the same periods was Mon with ODI value of 19.07 and 20.74 as shown in table 4.13 (page 96).

Among the districts in 1991, Wokha had the highest ODI value with 40.14, followed by Phek, Dimapur and Zunheboto with 36.69, 33.32 and 28.50 respectively. All these districts were above the state average of 26.42. On the other hand, the lowest was Mon with 19.07, followed by Tuensang, Kohima and Mokokchung with 20.77, 24.07 and 25.61 respectively in the same period. It is observed that there were changes in ranks of ODI values among the districts in 2006. Dimapur had become the top in ODI value with 50.84, followed by Wokha, Zunheboto and Phek

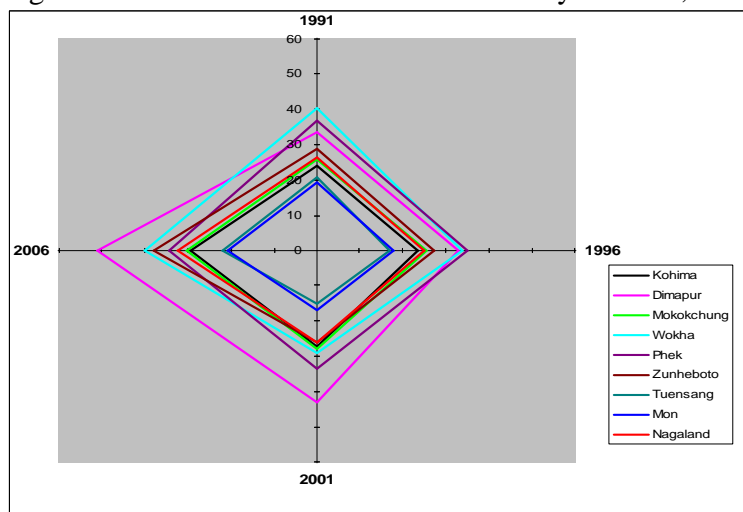
with 39.88, 37.85 and 34.40 respectively. All these values were above the State average of 32.31. On the other end, Mon continued to be the lowest with 20.74, followed by Tuensang, Kohima and Mokokchung with 21.87, 29.31 and 30.21 respectively.

Hence, the following inferences can be drawn that:

- i) ODI values have improved for all the districts, except for Wokha and Phek,
- ii) Dimapur, Wokha, Zunheboto and Phek have remained above the State's average.
- iii) Mon, Tuensang, Kohima and Mokokchung have remained below the State's average, though changed in rankings.
- iv) Dimapur improved in ranking, while Wokha and Phek have deteriorated in their ranks.
- v) Mon and Tuensang have remained at the lowest spectrum.

The study has estimated that the inter-district disparities has widened by 0.42% per annum during 1991-2006 in Nagaland. The inter-temporal analyses showed that the disparity has widened during 1991-96 by 1.98% per annum. Thereafter, it has declined by -0.34% and -0.04% per annum during 1996-01 and 2001-06 respectively.

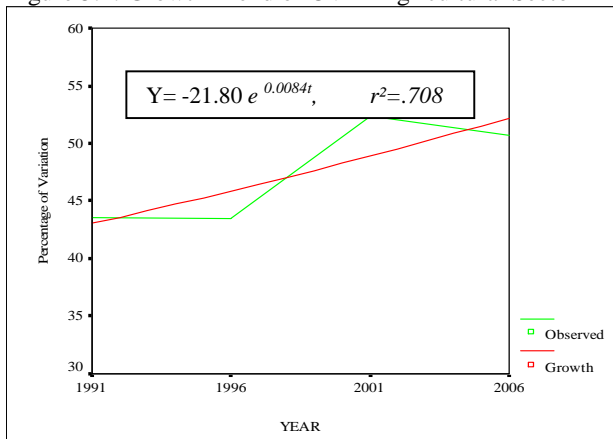
Figure 5.1: District-wise ODI values for the year 1991, 1996, 2001 & 2006.



Source: Based on table 4.13 (page 95).

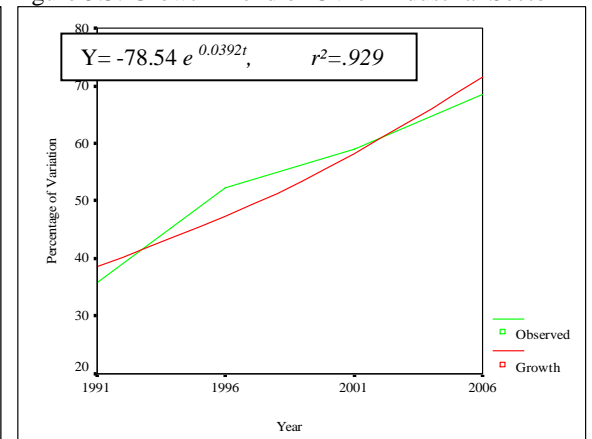
From the above discussion, it is evident that there has been convergence in sectors such as infrastructure, education and health by -0.31%, -1.88% and -0.75% per annum during 1991-2006 respectively. On the other hand, the disparities in economic indicators such as agricultural and industrial sectors have widened by 0.84%, 3.92% per annum respectively during the same period. Thus, it may be concluded that those relatively less developed districts such as Mon and Tuensang, which are unable to catch up with the rest of the districts in terms of EG could make significant improvement in HD indicators.

Figure 5.2: Growth Trend of CV in Agricultural Sector



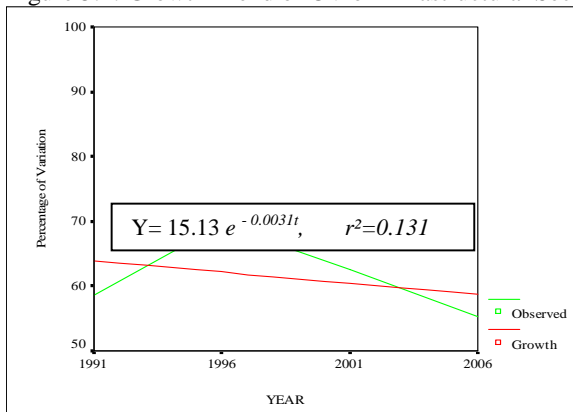
Source: Based on table 5.2.

Figure 5.3: Growth Trend of CV of Industrial Sector



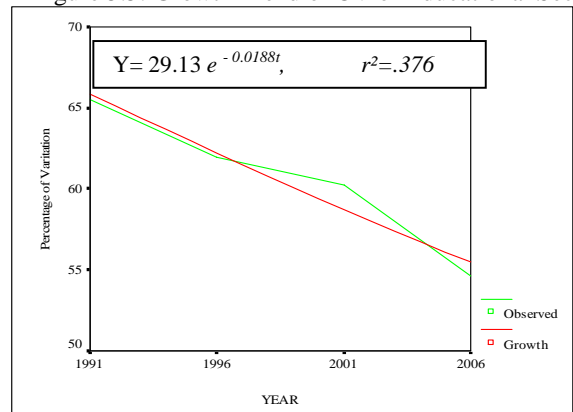
Source: Based on table 5.4.

Figure 5.4: Growth Trend of CV of Infrastructural Sector



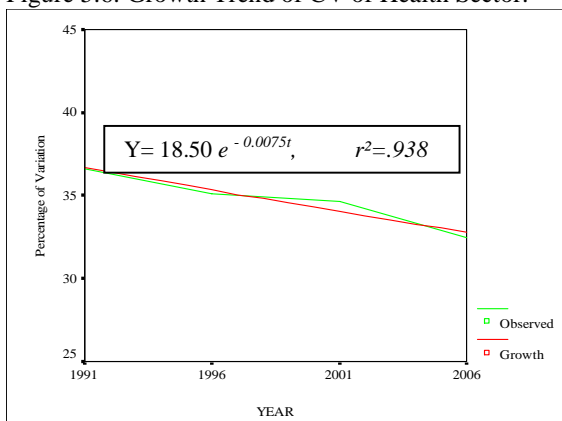
Source: Based on table 5.6.

Figure 5.5: Growth Trend of CV of Educational Sector



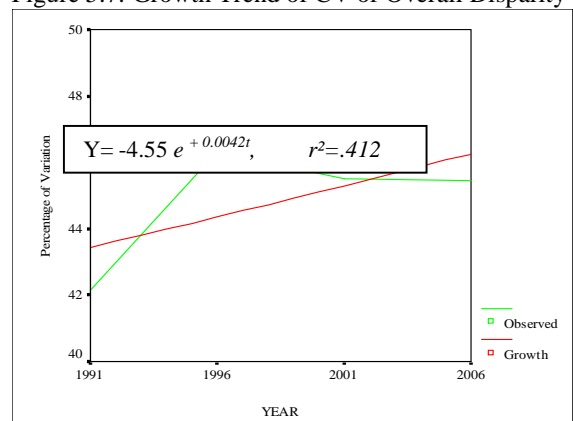
Source: Based on table 5.8.

Figure 5.6: Growth Trend of CV of Health Sector.



Source: Based on Table 5.10.

Figure 5.7: Growth Trend of CV of Overall Disparity



Source: Based on Table 5.10.

5.2: PLAN OUTLAY AND SECTOR-WISE INTER-DISTRICT DISPARITIES

The empirical evidence in the above section showed that there exists convergence in infrastructure, education and health sectors. Therefore, it is felt vital to examine whether the State's plan expenditure as conditional variable has any significant impact in reducing inter-district disparities or not. To estimate the impact of State's plan outlay (Sector-wise)

convergence, it is taken State's plan outlay as independent variable and disparity (CV) as dependent variable using OLS method. The plan outlay is taken five years time lag (t-5) to the CV at time 't' at four points of time i.e. 1991, 1996, 2001 and 2006.

The analysis of correlation coefficient showed that there exist negative correlation between plan outlay and disparity in infrastructure, education, and health sectors. The corresponding correlation 'r' values are estimated to be -0.591, -0.969 and -0.939. Further, the regression coefficient has estimated that 1% increase in State's plan outlay in infrastructure, education and health sectors have reduced inter-district disparity (CV) in infrastructure, education and health development by -15.5%, -17.8% and -0.54% respectively. The t-test analysis has resulted that the impacts in education and health are significant at 5% and 10% levels respectively, whereas in infrastructural sector, it is statistically not significant though negative as their corresponding calculated 't' values are (|t|=5.55), (|t|=3.85) and (|t|=1.04).

It is also observed that there is positive impact of plan outlay on inter-district disparity in agricultural and industrial sectors. The regression coefficient showed that 1% increase in plan outlay in agricultural and industrial sectors increases inter-district disparity by 11.1% and 33.1% respectively with the corresponding 't' values of |t|=3.92 and |t|=2.22. This implies that the impact is statistically significant in agriculture at 10% level, but not significant in industry though positive. Similarly, the impact of overall plan outlay on overall inter-district disparity has been positive with 9.6% but it is statistically not significant as calculated 't' value is |t|=1.81,.

Therefore, except in education and health, the plan outlays did not show statistically significant impact in reducing inter-district disparity in Nagaland during the observed period. Moreover, the positive impacts of plan outlay on disparities in agricultural and industrial sectors are matters of concern.

Table 5.11: Impact^a of Plan Expenditure and Coefficient of Variation

Independent Variable	Sectors	γ	b	t	r	r^2	e	df^2
Plan Expenditure	Agriculture	2.93	0.111	3.92***	0.941	0.885	0.028	2
	Industry	1.06	0.331	2.22	0.843	0.710	0.149	2
	Infrastructure	5.60	-0.151	-1.04	-0.591	0.349	0.146	2
	Education	4.98	-0.178	-5.55**	-0.969*	0.939	0.032	2
	Health	4.05	-0.054	-3.85***	-0.939	0.881	0.014	2
	Overall	2.65	0.096	1.81	0.788	0.621	0.053	2

Note: ^a. Dependent Variable: Coefficient of Variation (CV), γ -intercept, b -regression coefficient, ** and *** are 5% and 10% levels of significant, r -correlation coefficient, r^2 is coefficient of determination, e -standard errors and df^2 -degree of freedom at 2 tailed.

5.3: INEQUALITY IN INCOME DISTRIBUTION IN NAGALAND

The Per Capita Income (PCI) is one of the main determining factors of economic growth and development of a nation. It is an important means towards enhancing human well-being,

expanding capabilities and choices. But, an uneven distribution of income has become a global phenomenon. Hence, the present section attempts to examine the inter-district disparity in income distribution in Nagaland.

5.3.1: Income Distribution in Sample Rural and Urban Areas

It is estimated from the household survey conducted during 2009-10 that the household income for rural area was lower than that of urban area. The corresponding average household monthly income was Rs. 9,506 and Rs. 13,361 as compared to Rs. 11,329 of sample aggregate. It is also estimated that income inequality in rural area was higher than that of urban area. The estimated Gini Coefficient (GC) for sample rural and urban areas were 0.392 and 0.309 respectively (table 5.12). The figure 5.8 also clearly shows that the Lorenz curve for sample urban area is closer to the line of equality than that of the sample rural area and sample aggregate.

In *rural area*, it is estimated that the poorest 17.48% households received only 2.80% of total income, whereas the richest 16.50% households received as much as 38.25% of total income. This means that the income of the richest 16% households was higher than that of the poorest 16% households by about 19 times. On the other hand, among the households in *urban areas*, the poorest 24.77% households received 9.91% of total income, while the richest 23.01% households received 44.16% of total income. This can be deduced that the proportion of income received by the richest 23% households was higher than the poorest 23% households by about 5 times. Hence, it can be stated from the above finding that the area (rural) where the level of household income was low has witnessed higher level of inequality among the households.

Table 5.12: Income Distribution of Sample Urban and Rural Areas in Nagaland during 2009-10

Income distribution	Rural				Urban			
	No. of Household	Total Income	% of Household	% of Income	No. of Household	Total Income	% of Household	% of Income
Up to 2000	72	109750	17.48	02.80	0	0	0	0.00
2001 - 5000	70	267540	16.99	06.83	15	67000	13.27	04.44
5001 - 7500	64	418600	15.53	10.69	13	82600	11.50	05.47
7001- 10000	47	415500	11.41	10.61	31	281000	27.43	18.61
10001-12500	56	643600	13.59	16.43	13	150400	11.50	09.96
12501-15000	35	485950	08.50	12.41	10	141000	08.85	09.34
15001-17500	17	271800	04.13	06.94	05	121000	04.43	08.01
17501-20000	20	380400	04.85	09.71	09	173833	07.97	11.51
21001&above	31	923485	07.52	23.58	17	493000	15.04	32.65
Total	412	3916625	100.00	100.00	113	1509833	100.00	100.00
Gini Coefficient	0.392				0.309			

Source: Household Survey 2009-10.

5.3.2: Income Distribution in Sample Districts of Nagaland during 2009-10

The income distribution in sample districts showed that the average household monthly income for sample aggregate during 2009-10 was Rs. 11,329 as shown in table 5.13. Among the

sample districts, the highest household monthly income was Mokokchung with Rs. 14,775, followed by Tuensang and Phek with Rs. 10,348 and Rs. 10,237 respectively (table 5.13).

The study also found that an inequality in household income for sample aggregate as measured by GC was 0.401. Among the sample districts, the highest GC value is found to be Phek with 0.412, followed by Tuensang and Mokokchung with 0.391 and 0.363 respectively.

Table 5.13: District-wise Income Distribution of Sample Areas in Nagaland during 2009-10

Income distribution	Mokokchung district				Phek district			
	No. of Household	Total Income	% of Household	% of Income	No. of Household	Total Income	% of Household	% of Income
Up to 2000	07	11700	04.29	00.55	38	62800	19.19	03.85
2001 - 5000	23	94100	14.11	04.46	42	163240	21.21	10.00
5001 - 7500	25	164800	15.34	07.80	32	201900	16.16	12.37
7001- 10000	25	222600	15.34	10.54	33	296600	16.67	18.17
10001-12500	23	266200	14.11	12.61	18	204100	09.09	12.50
12501-15000	13	184450	07.98	08.74	10	139000	05.05	08.52
15001-17500	07	113000	04.29	05.35	07	149700	03.54	09.17
17501-20000	13	250000	07.98	11.84	08	153400	04.04	09.40
21001& above	27	804735	16.56	38.11	10	261750	05.05	16.03
Total	163	2111585	100.00	100.00	198	1632490	100.00	100.00
Average Household Monthly Income		14775				10237		
Gini Coefficient	0.363				0.412			

Source: Household Survey 2009-10

contd... Table.5.13

Income distribution	Tuensang district				Nagaland			
	No. of Household	Total Income	% of Household	% of Income	No. of Household	Total Income	% of Household	% of Income
Up to 2000	27	35250	16.46	02.10	72	109750	13.71	02.02
2001 - 5000	20	77200	12.20	04.59	85	334540	16.19	06.17
5001 - 7500	20	134500	12.20	08.00	77	501200	14.67	09.24
7001- 10000	20	177300	12.20	10.54	78	696500	14.86	12.84
10001-12500	28	323700	17.07	19.24	69	794000	13.14	14.63
12501-15000	22	303500	13.41	18.04	45	626950	08.57	11.55
15001-17500	08	130100	04.87	07.73	22	392800	04.19	07.24
17501-20000	08	150833	04.87	08.97	29	554233	05.52	10.21
21001& above	11	350000	06.71	20.80	48	1416485	09.14	26.10
Total	164	1682383	100.00	100.00	525	5426458	100.00	100.00
Average Household Monthly Income		10348				11329		
Gini Coefficient	0.391				0.401			

Source: Household Survey 2009-10

In *sample aggregate*, the proportion of household income received by poorest 29.9% households was only 8.19% of total income. On the other hand, the highest 14.66% households received 36.31% of total income. This implies that the income of the richest 14% households was higher than the poorest 14% households by 9 times in Nagaland.

District-wise data showed that in *Mokokchung*, the poorest 18.40% households received 5.01% of total income, whereas the richest 16.56% households received 38.11% of total income.

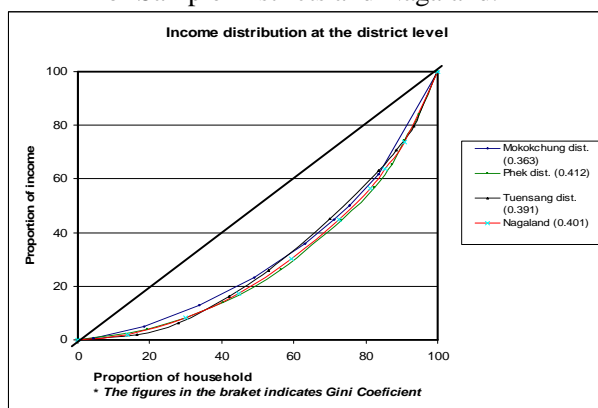
This may be deduced that the income of the richest 16% households was higher than the poorest 16% households by about 7 times.

For *Phek district*, the household income of the poorest 19.19% households shared only 3.85% of total income, while the richest 17.68% households shared as high as 43.12% of total income. This means that the proportion of income received by the richest 19% households was about 15 times higher than that of the poorest 19% households.

It is estimated that in *Tuensang district* the poorest 16.46% households received only 2.10% of total income, while on the other extreme; the richest 16.45% households received to the tune of 30.50% of total income. This shows that the richest 16% households received about 15 times income higher than that of the poorest 16% households.

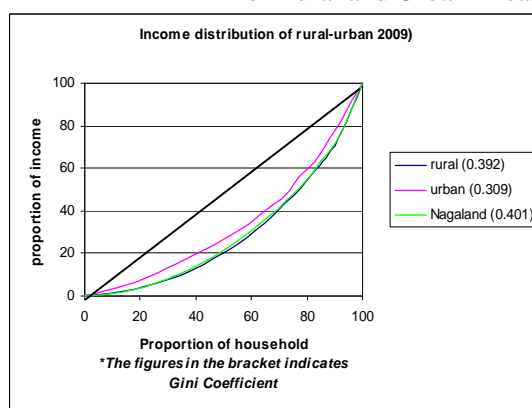
Hence, it is observed that among the sample districts, Mokokchung has the highest average monthly household income with the lowest inequality in income distribution. On the other hand, Phek has the lowest average household monthly income but it has the highest level of inequality in income distribution. The diagram plotted in figure 5.7 has depicted that the Lorenz curve for Phek district is farthest from the line of equality. This shows that inequality in income distribution among the sample districts is highest in Phek. The same for Mokokchung and Tuensang districts are observed to be closer to the line of equality than that of Phek and sample aggregate. Hence, similar to above finding, the district (Phek) having relatively the lowest household income has witnessed the highest level of inequality.

Figure 5.8: Lorenz Curve of Income Distribution for Sample Districts and Nagaland.



Source: Based on table 5.13.

Figure 5.9: Lorenz Curve of Income Distribution for Rural and Urban Areas.



Source: Based on table 5.12.

5.3.3: Inter-District Disparity in Per Capita DDP in Nagaland during 2001 and 2009-10

In Nagaland, there has been rapid growth of PCI, at the same time it has been accompanied by vast inter-district disparity over the time. According to Nagaland State HDR 2004, the average PCI for Nagaland in 2001 was Rs. 11,119. Among the districts, it was highest

in Kohima with Rs.16,837, followed by Wokha, Dimapur, Mokokchung, Phek and Zunheboto with Rs. 13,647, Rs. 12,305, Rs. 11,906, Rs. 9,880 and Rs. 8,372 respectively. On the other end, the Mon and Tuensang were at the lowest spectrum with Rs. 4500 and Rs. Rs.8149 respectively. Thus, the disparity in income distribution as measured by Coefficient of Variation (CV) method was 20.65% in 2001.

It is felt vital to examine, whether the disparity in PCI in the State has convergence or divergence over the period. But, secondary data at district-level is not available for other periods, therefore, primary data from the three sample districts is assumed to represent the State. It is estimated that during 2009-10, the PCI in sample aggregate was Rs. 15,188. The highest among the sample districts was Mokokchung with Rs. 19,428, followed by Phek and Tuensang with Rs. 16,104 and Rs. 10,032 respectively. Hence, the disparity as measured by CV for income distribution was 31.37% during the same period.

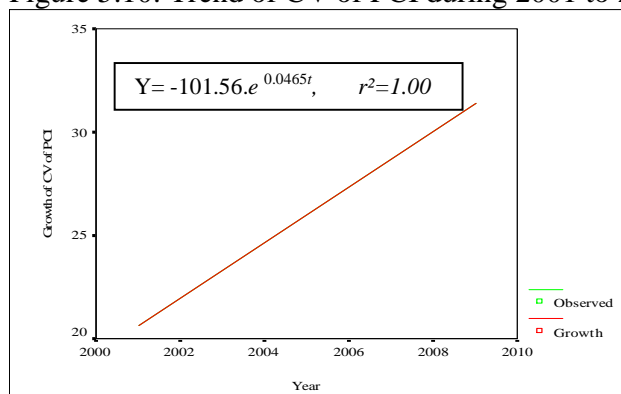
Table 5.14: Per capita DDP of Nagaland during 2001 and 2009-10

Districts	2001	2009-10	Growth Trend (b) (2001-2009/10)		
			a	b	r ²
Kohima	16,837	Na	-	-	-
Wokha	13,647	Na	-	-	-
Dimapur	12,305	Na	-	-	-
Mokokchung	12,305	19,428	-104.82	0.0507	1.00
Phek	9,880	16,104	-113.00	0.0543	1.00
Zunheboto	8372	Na	-	-	-
Tuensang	8149	10032	-42.99	0.0231	1.00
Mon	4500	Na	-	-	-
Nagaland	11,119	15,188	-68.69	0.0452	1.00
CV (%)	20.65	31.37	-101.56	0.0465	1.00

Source: Nagaland HDR-2004, Sample Survey, 2009-10.

Note: Na-Not available, *a* is constant, *b* is growth trend coefficient and *r*² is coefficient of determination.

Figure 5.10: Trend of CV of PCI during 2001 to 2009/10 in Nagaland.



Source: Based on table 5.14.

The growth trend '*b*' value has estimated that the PCI for Nagaland has increased by 4.52% per annum during 2001 to 2009-10. Among the sample districts, Phek showed the highest growth rate with 5.43% per annum, followed by Mokokchung and Tuensang with 5.07% and

2.31% per annum respectively. It may be mentioned that Phek district whose inequality in income distribution (as discussed above) has exhibited the fastest growth of PCI (among the sample districts) in Nagaland.

Hence, it is observed that increased in PCI has accompanied by its divergence in Nagaland during the observed period. This indicates that the growth of economy (PCI) has been accompanied by increasing inter-district disparity in the State. Hence, proper policy measure is needed in planning strategy so as to reduce the inequality in income distribution in Nagaland.

5.4: GENDER DISPARITIES IN ECONOMIC AND HUMAN DEVELOPMENT

Women and men share many aspects of living together, collaborate with each other in complex and ubiquitous ways, yet, end up-often-with very different rewards and deprivations. The gender-gap combined with social attitude towards women's employment which has resulted in the marginalization of women.²⁹⁰

Women play a very important role in building up a society. However, they are still striving for being treated less than equal.²⁹¹ Asymmetry and inequity are unfortunately a fact of life for women, despite their unquantifiable contribution towards refining a society. Women played physically demanding role, yet they are deprived of access to basic services, moreover they are regarded as the "second sex" as they have undergone many challenges and hardships within families as well as in societies.²⁹² In Naga society, there is no open discrimination against women, but it is an undeniable fact that the gap between the genders persists particularly in activities like farming and household chores. Hence, the following section highlights the evident of gender gap in Nagaland in areas like education, health, workforce participation and gender differential in HD indices based on secondary data, while gender time allocation and decision making in household expenditures are based on primary data.

5.4.1: Education: The important educational development indicators like literacy rate and enrolment ratio are taken into consideration to examine the gender disparity in educational attainment.

i. Literacy rate: It is a continuous phenomenon that the literacy rate for male has been higher than that of female throughout the period under consideration. In 1981, the literacy rate for male was 50.06%, which was increased to 67.62%, 71.77% and 83.29% in 1991, 2001 and 2011 respectively, while the same for female in corresponding periods are 33.89%, 54.75%, 61.92%

²⁹⁰ Streeten, Paul (2005): "Shifting Fashions in Development Dialogue" in Fukuda-Parr and Shiva Kumar (eds), *Readings in Human Development*, Oxford University Press, New Delhi:103-104.

²⁹¹ Arunachal Pradesh Human Development Report, (2006)

²⁹² Assam Human Development Report, (2003): 116.

and 76.69%. However, it may be observed from table 5.15 that the gender gap in literacy rate has been declined over the time as its CV value has declined from 27.24% in 1981 to 14.87%, 10.42% and 5.84% in 1991, 2001 and 2011 respectively.

It is also observed that the female literacy rate has been increasing at a faster rate than male in Nagaland as indicated in table 5.16. The growth of literacy rate for female and male are estimated to be 3.01% and 1.80% per annum respectively during 1981-2011. Thus, the disparity as measured by CV has reduced by -4.80% per annum during the same period. This can be clearly seen from figure 5.10 that the gap between growth of female and male literacy rates has getting narrowing over the period.

Table 5.15: Gender Disparities in Literacy Rate and Enrolment Ratio in Nagaland

Year	Literacy Rate (LR)				Enrolment Ratio		
	1981	1991	2001	2011	1981	1991	2001
Male	50.06	67.62	71.77	83.29	62.60	60.30	82.60
Female	33.89	54.75	61.92	76.69	55.15	56.80	78.16
CV	27.24	14.87	10.42	05.84	08.95	04.23	03.91

Source: National HDR 2001, Nagaland HDR 2004. Census of India, 1981, 1991, 2001 & 2011
Note: CV- Coefficient of Variation.

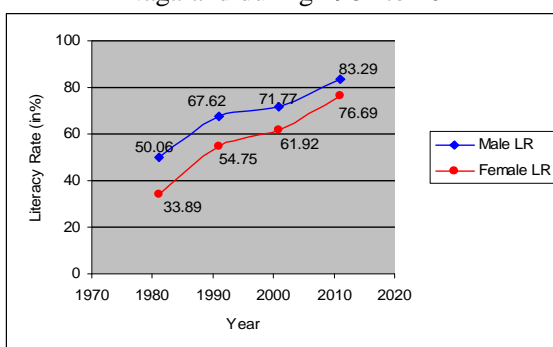
Table 5.16: Growth Trend of Literacy Rate and Enrolment Ratio and their CV

Year	Literacy Rate (LR)			Enrolment Ratio		
	<i>a</i>	<i>b</i>	<i>r</i> ²	<i>a</i>	<i>b</i>	<i>r</i> ²
Male	52.13	0.0180	.870	59.55	0.0139	.650
Female	35.97	0.0301	.896	52.55	0.0174	.813
CV	26.13	-0.0480	.978	08.00	-0.0414	.821

Source: Based on table 5.15.

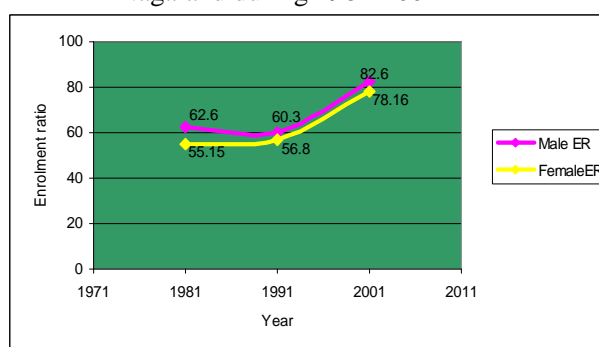
Note: *a* is constant, *b* is growth trend coefficient and *r*² is coefficient of determination

Figure 5.11: Growth in Literacy Rate in Nagaland during 1981 to 2011



Source: Based on table 5.15.

Figure 5.12: Growth in Children Enrolment ratio in Nagaland during 1981-2001



Source: Based on table 5.15

ii. *Enrolment ratio*: In enrolment ratio, for both male and female have increased significantly overtime in Nagaland as shown in table 5.15. The enrolment ratio for male which was 62.60 in 1981 has reduced to 60.30 in 1991 and then increased to 82.60 in 2001. The same for female has continuously increased from 55.15 to 56.80 and 78.16 in the corresponding years. Hence, the figure presented in table 5.16 showed that female enrolment ratio has increased faster

than that of male in Nagaland during the period under consideration. It is estimated by growth trend ('b') value that the growth of enrolment ratio for female and male were 1.74% and 1.39% per annum respectively during 1981-2001. Also, it is observed that the gender disparity in enrolment ratio (0-14 years) has reduced by -4.41% per annum during the same period.

Hence, it can be concluded that there has been convergence in gender disparity in respect of education as far as literacy rate and enrolment ratio is concern in Nagaland. It is a matter of fact that the female discrimination is not prominent in the society in this respect.

5.4.2: Health: The gender disparity in health care as reflected by Infant Mortality Rate (IMR) has been converged in Nagaland over the time. The health condition as measured by IMR for female was better than that of male during eighties but it was reversed since 1990's. The figure given in table 5.17 showed that the IMR for male which was 76 in 1981 had reduced to 51 and 37 in 1991 and 2001 respectively, while the same for female has declined from 58 to 52 and 42 in the corresponding periods.

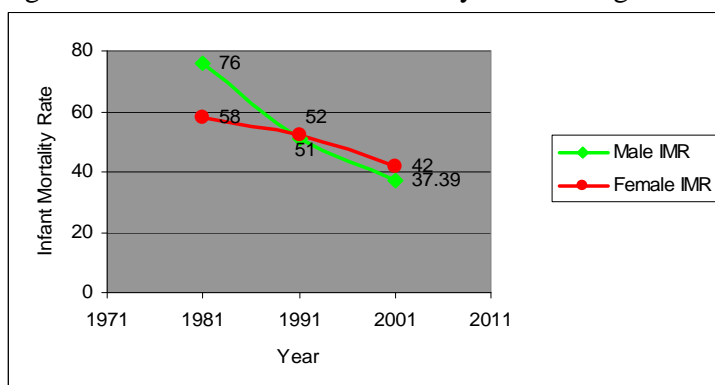
Table 5.17: Gender Disparities in IMR in Nagaland during 1981 to 2001

Year	1981	1991	2001	Growth Trend of IMR and its CV (%) (1981-2001)		
				<i>a</i>	<i>b</i>	<i>r</i> ²
Male	76	51	37	74.89	-0.0355	0.995
Female	58	52	42	59.02	-0.0161	0.966
CV	19	1.37	8.21	09.10	-0.0420	-0.098

Source: National HDR 2001, Nagaland HDR 2004.

Note: *a* is constant, *b* is growth trend coefficient and *r*² is coefficient of determination.

Figure 5.13: Trend of Infant Mortality Rate during 1981 to 2001 in Nagaland



Source: Based on table 5.17

The *growth trend 'b'* value has estimated that there has been a reduction in IMR for both male and female during 1981-2001, but the decline for male has been more rapid than that of female with 3.55% and -1.61% per annum respectively. Correspondingly, the gender disparity in IMR has reduced by -4.20% per annum during the same period. On the other hand, it is observed from table 5.17 that the disparity, which has reduced from 19% to 1.37% in 1981 to 1991 respectively, has increased to 8.21% in 2001. Hence, although there has been a decline in IMR

for male and female, the disparity between the two tend towards widening since nineties in this regard.

5.4.3: Workforce Participation: In Nagaland, it is observed that the proportion of male work force was higher than that of female throughout the period 1981-2001. Further, the percentage of work force for both male and female has reduced from 1981 to 1991 and then there was a slight increased in 2001. In 1981, the male workforce constituted 52.64%, but it has reduced to 46.69% and 46.83% in 1991 and 2001 respectively. The same for female during the corresponding years were 43.94%, 37.32% and 38.25%. The *growth trend 'b'* value has estimated that the proportion of male workforce has declined by -0.58% per annum during 1981-2001, while the same for female has declined by -0.61% per annum during the same period (table 5.18).

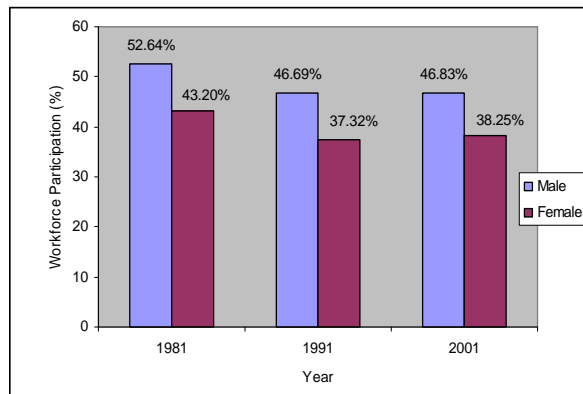
Table 5.18: Gender-wise Workforce Participation in Nagaland during 1981-2001

Year	1981	1991	2001	Growth trend 'b'		
				<i>a</i>	<i>b</i>	<i>r</i> ²
Male	52.64	46.69	46.83	15.53	-0.0058	.731
Female	43.20	37.32	38.25	15.79	-0.0061	.603
CV	13.94	15.78	14.27	0.36	0.0012	.032

Source: Statistical Handbook, 1983, 1996 and 2004.

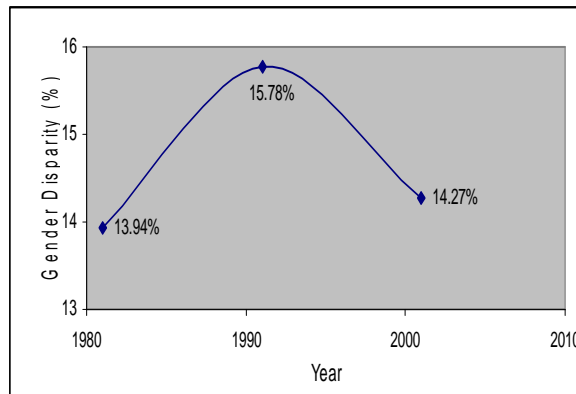
Note: *a* is constant, *b* is growth trend coefficient and *r*² is coefficient of determination.

Figure 5.14: Percentage of Gender-wise Workforce Participation in Nagaland during 1981-2001.



Source: Based on table 5.18

Figure 5.15: Gender Disparity in Workforce Participation in Nagaland during 1981-2001



Source: Based on table 5.18

Hence, the gender disparity in workforce participation in Nagaland which was 13.94% in 1981 has marginally increased to 15.78% in 1991 and then reduced to 14.27% in 2001. This shows that the disparity between the sexes shows an inverted U-shaped curve as plotted in figure 5.14. However, it is estimated by the growth trend '*b*' value that the gender disparity in this respect has widened by 0.12% per annum during 1981-2001.

5.4.4: Gender Related Development Index (GDI): As far as the GDI value in Nagaland is concerned, the gender gap in the State was narrower than that of India in 1981 and 1991, but it became reversed in 2001. The GDI values for Nagaland in 1981, 1991 and 2001 were 0.783,

0.729 and 0.410 respectively as compared India of 0.620, 0.676 and 0.540 during the same periods. It can also be observed that the gender disparity in Nagaland in terms of human development indices was widening over the period as its GDI value has been continuously declined over the observed period. Among the districts in 2001, Kohima had the highest GDI value with 0.580, while Mon had the lowest with 0.220 as depicted in table 5.19 below.

5.4.5: Gender Differential in Human Development Indices: There is an improvement in HDI in the State, but the GDI value has reduced over the observed period. The HDI value for Nagaland in 1981 was 0.328, but increased to 0.486 and further to 0.623 in 1991 and 2001 respectively. But at the same time, Gender Development related Index (GDI) has been reduced significantly during the corresponding periods with 0.783, 0.729 and 0.420.

Table 5.19: District-wise Gender-related Development Index (GDI) in Nagaland in 2001

Districts	GDI		
	2001	1991	1981
Dimapur	0.472 (2)	na	na
Kohima	0.580 (1)	na	na
Mokokchung	0.460 (3)	na	na
Wokha	0.448 (5)	na	na
Phek	0.450 (4)	na	na
Zunheboto	0.414 (6)	na	na
Tuensang	0.299 (7)	na	na
Mon	0.220 (8)	na	na
Nagaland	0.420	0.729	0.783
India	0.520	0.676	0.620

Source: Nagaland State HDR 2004.

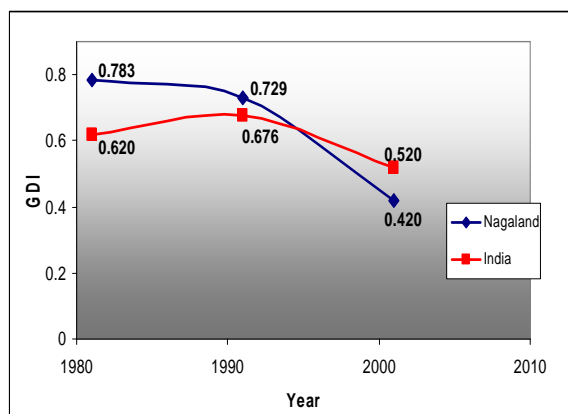
Note: The figures in the brackets represent ranking, *na* means not available.

Table 5.20: Gender Differential in Nagaland.

Year	HDI	GDI	GD
1981	0.328	0.783	-138.72
1991	0.486	0.729	-50.00
2001	0.623	0.420	32.58

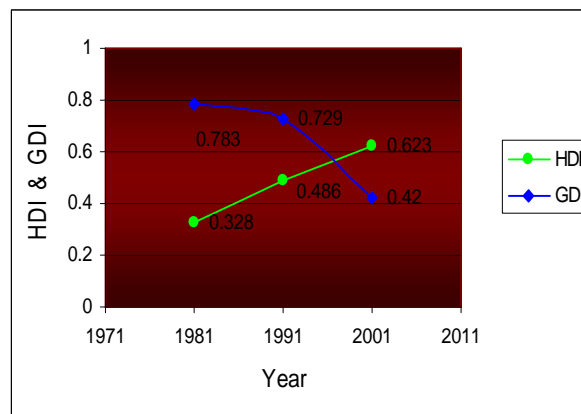
Source: National HDR 2001, Nagaland HDR 2004.

Figure 5.16: GDI for Nagaland and India during 1981 to 2001



Source: Based on table 5.19

Figure 5.17: Trend of HDI & GDI during 1981-2001 in Nagaland



Source: Based on table 5.20

Therefore, the gender disparity as resulted by Gender Differential²⁹³ (GD) method has increased for the period under consideration. The GD had assumed negative values in 1981 and 1991 with -138.72 and -50.00 respectively but turned positive in 2001 with 32.58. It implies that there is no tendency to decline in gender disparity as far as HDI and GDI is concerned, rather it has widening over the observed period in Nagaland.

5.4.6: Gender Time Allocation: Gender time allocation refers to time spends by male and female in a day in various activities such as farming, domestic chores, children education, social activities and leissure. It is generally observed that although open discrimination against the sexes is not common in Naga society, certain works are almost done by female, specifically in household chores; while male engage much of his time in social activities and leisure.

The study has found that most of the works that are basic for livelihood such as farming, cooking, etc. are done by female. On the other hand, for activities such as social and leisure, it was male whose time spent was much higher.

Table 5.21: Gender Time Allocation in Nagaland during 2009-10.

Work Participation	Time Allocation Per Day		
	Male (%)	Female (%)	CV (%)
1. Agriculture	5.27 h (54.77)	5.41 h (55.27)	02.96
2. Domestic Chores	42 m (07.04)	3.26 h (33.39)	93.52
3. Children Education	26 m (04.36)	21 m (03.40)	15.05
4. Social Activities	36 m (06.03)	8 m (01.30)	90.00
5. Leisure	2.46 h (27.81)	41 m (06.65)	85.40
6. Total	10.05h (100.00)	10.28h (100.00)	02.33

Source: Household Survey 2009-10.

Note: h -hours, m- minutes. The figures in parentheses indicate percentage

The disparity in time allocation on various activities between genders as measured by CV indicates that almost equal time has spent on agriculture, for which, female (55.27%) time spent was higher than male (54.77%). The estimated CV value in this respect was 2.96% which is ignorable. However, for other domestic chores, the task is exclusively of female (33.39%), wherein its CV stood as high as 93.52%. For children education, it was male (4.36%) who spent more time than female (3.40%), wherein the gender disparity was 15.05%. It is also observed that the time spent by male in social activities (6.03%) and leisure (27.81%) are found to be much higher than female, as its CV value is estimated to be 90% and 85% respectively.

Thus, the gender disparities in allocation of time in agriculture and children's education are not prominent, but it is highly significant in social activities and leisure. In economic indicators like agriculture and household activities like preparation of meals and other domestic

²⁹³ The Gender Differential (GD) method calculates the differences between HDI and GDI. This reflects the gap between the genders in human development indices.

works, female spent much more time than male, while male who occupies the headship of the household render relatively lesser time in this regard and spent much of his time for other areas like social activities and leisure. This is, in fact, a matter of concern in Naga society.

5.4.7: Decision Making in Household Expenditure: It is generally perceived that participation in decision making within the family as well as in society constitute an important element in advancing human development. Also, it is viewed that the household expenditure decision making is male domain in Naga society. The study to this effect has confirmed that in 34.15% of the households, the decision on family expenditure was made solely by male, while that of female was 20.57% during 2009-10 (household survey) in Nagaland as indicated in table 5.22. This is mainly due to patriarchal pattern of social system in Naga society, where father is considered as the head of the family. Nevertheless, it is observed that the joint decision in household expenditure is found to be 44.19%, which was higher than that of male and female alone.

Among the sample districts, Phek is found to have the highest number of households where male take sole control over household expenditure decision with 53.54%, followed by Tuensang and Mokokchung with 34.15% and 14.11% respectively. The proportion of household where such decisions are solely made by female alone was highest in Mokokchung district with 22.70%, which was higher than that of male alone (14.11%). The same for Phek and Tuensang were 13.13% and 27.44% respectively. On the other hand, the jointly decision making in household expenditure in Mokokchung and Tuensang were higher than that of the above two extreme situations²⁹⁴ with 63.19% and 38.41% respectively. While, the same for Phek district was only one-third of total sample households, i.e.33.33%. Hence, although female participation in household decision making is accommodating, their participation is still much lesser than male in Nagaland.

Table 5.22: Gender-wise Household Expenditure Decision Making in Nagaland.

Districts	Number of households		
	Male	Female	Jointly
Mokokchung	14.11	22.70	63.19
Phek	106 (53.54)	26 (13.13)	66 (33.33)
Tuensang	56 (34.15)	45 (27.44)	63 (38.41)
Total	185 (35.24)	108 (20.57)	232 (44.19)

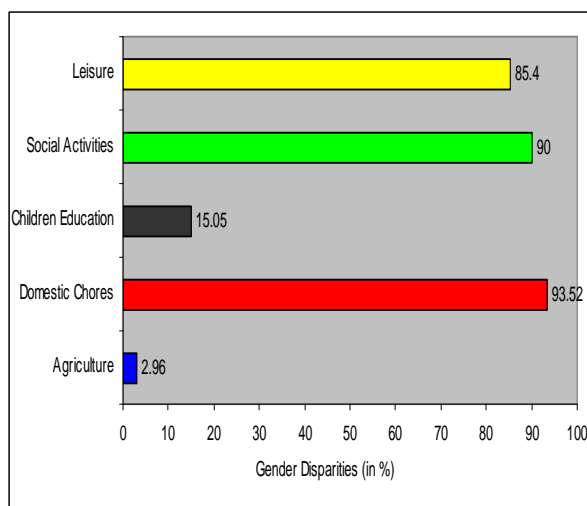
Source: Household Survey 2009-10. Figures in parentheses indicate percentage.

Thus, the gender disparities in Nagaland in terms of education have been observed to be converging. However, in areas like health (IMR), workforce participation, gender time allocation

²⁹⁴ Extreme situations refer to household decision taken by either male or female alone.

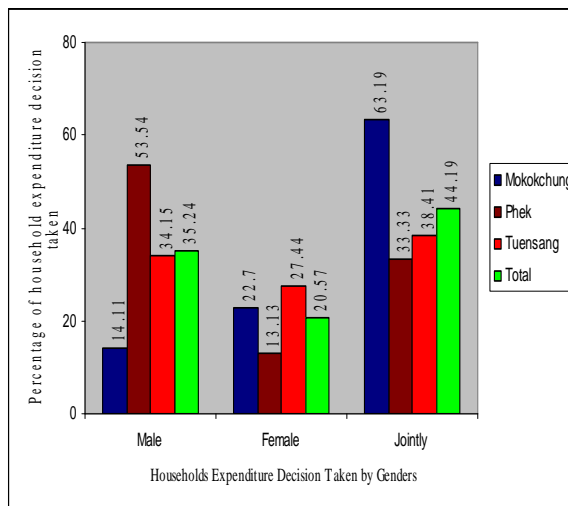
and decision making are matters of concern in Nagaland. The wide disparities in these factors have contributed either directly or indirectly in the increase of gender disparities as resulted in GD. Hence, constructive plan need to be adopted in order to bridge the gap in the State.

Figure 5.18: Gender Disparities in Time Allocation in Nagaland during 2009-10 (%).



Source: based on Table 5.20.

Figure 5.19: Gender-wise Decision Making in Household Expenditure in Nagaland (%)



Source: Based on Table 5.21.

Hence, it may be concluded that as far as the inter-district disparities are concerned, there has been divergence in overall development by -0.42% per annum (p.a.) during 1991-2006. In sectors like infrastructure, education and health, convergence has been observed, but in agriculture and industry, there is divergence. Moreover, it is empirically evident that the State's plan outlays did not made significant impact in reducing inter-district disparity except in education and health. Further, an increase in PCI (4.52% p.a.) has accompanied by increasing disparity (4.65% p.a.) over the observed period. Also, inequality in income distribution remained a matter of concern, wherein an inequality is higher in rural than in urban areas. Another, area of concern is that although there is no open discrimination against women, the disparity between the genders is obvious in Nagaland. Therefore, strong and effective policy needs to be adopted to reduce the inter-district disparities in economic and human development, inequality in income distribution and gender gap in Nagaland.

Appendices

Appendix 5.1: Household Income Distribution of Sample Areas

Income limits	Mokokchung Village				Luyong Village				Kikrūma village			
	No. of H/H	Total Income	% of H/h	% of Income	No. of H/H	Total Income	% of H/h	% of Income	No. of H/H	Total Income	% of H/h	% of Income
Up to 2500	5	8500	05.05	00.68	2	3200	05.00	00.64	18	38500	18.37	05.05
2501-5000	14	57500	14.14	04.57	5	18100	12.50	03.61	27	103300	27.55	13.56
5001-7500	19	125500	19.19	09.98	4	26800	10.00	05.35	19	119000	19.39	15.62
7501-10000	15	134600	15.15	10.70	7	60000	17.50	11.98	09	79500	09.18	10.44
10001-12500	15	173200	15.15	13.77	7	81000	17.50	16.17	07	80300	07.14	10.54
12501-15000	04	55200	04.04	04.39	5	73250	12.50	14.63	05	69000	05.10	09.06
15001-17500	04	64500	04.04	05.13	1	15500	02.50	03.09	03	45900	03.06	06.03
17501-20000	09	172000	09.09	13.68	2	38000	05.00	07.59	05	95500	05.10	12.54
20001&above	14	466735	14.14	37.11	7	185000	17.50	36.94	05	130750	05.10	17.16
Total	99	1257735	100	100	40	500850	100	100	98	76175	100	100
Gini Coefficient	0.383				0.337				0.353			

Source: Household Survey 2009-10

Contd... Appendix 5.1

Income limits	Enhulumi Village				Tuensang village				Konya village			
	No. of H/H	Total Income	% of H/h	% of Income	No. of H/H	Total Income	% of H/h	% of Income	No. of H/H	Total Income	% of H/h	% of Income
Up to 2500	20	23300	47.62	09.84	07	13750	07.37	01.50	20	21500	52.63	09.02
2501-5000	08	30440	19.05	12.86	12	42200	12.63	04.59	04	16000	10.53	06.71
5001-7500	02	12800	04.76	05.41	17	114500	17.90	12.45	03	20000	07.89	08.39
7501-10000	02	18100	04.76	07.65	12	104300	12.63	11.34	02	19000	05.26	07.97
10001-12500	04	43400	09.52	18.33	22	254700	23.16	27.68	01	11000	02.63	04.61
12501-15000	01	14000	02.38	05.91	18	248500	18.94	27.00	02	26000	05.26	10.90
15001-17500	03	48800	07.14	20.61	02	31100	02.11	03.38	04	66000	10.53	27.67
17501-20000	01	19900	02.38	08.41	02	36000	02.11	03.91	01	19000	02.63	07.96
20001&above	01	26000	02.38	10.98	03	75000	03.15	08.15	01	40000	02.63	16.77
Total	42	236740	100	100	95	920050	100	100	38	238500	100	100
Gini Coefficient	0.538				0.278				0.584			

Source: Household Survey 2009-10

Contd... Appendix -5.1

Income limits	Mokokchung Town				Phek Town				Tuensang Town			
	No. of H/H	Total Income	% of H/h	% of Income	No. of H/H	Total Income	% of H/h	% of Income	No. of H/H	Total Income	% of H/h	% of Income
Up to 2500	0	00.00	00.00	00	00.00	00.00	00.00	00.00	0	0	00.00	00.00
2510 - 5000	4	18500	16.67	05.24	07	29500	12.07	04.97	3	15000	09.68	02.86
5001 - 7500	2	12500	08.33	03.54	11	70100	18.97	11.82	3	30000	09.68	05.73
7501 - 10000	3	28000	12.50	07.93	22	199000	37.93	33.55	4	38000	12.90	07.25
10001-12500	1	12000	04.17	03.40	07	80400	12.07	13.55	5	58000	16.13	11.07
12501-15000	4	56000	16.67	15.86	04	56000	06.90	09.44	2	29000	06.45	05.54
15001-17500	2	33000	08.33	09.35	01	15500	01.72	02.61	2	33000	06.45	06.30
17501-20000	2	40000	08.33	11.33	02	38000	03.45	06.40	5	95833	16.13	18.29
20001&above	6	153000	25.00	43.34	04	105000	06.90	17.70	7	235000	22.58	43.00
Total	24	353000	100	100	58	593000	100	100	31	523833	100	100
Gini Coefficient	0.295				0.260				0.321			

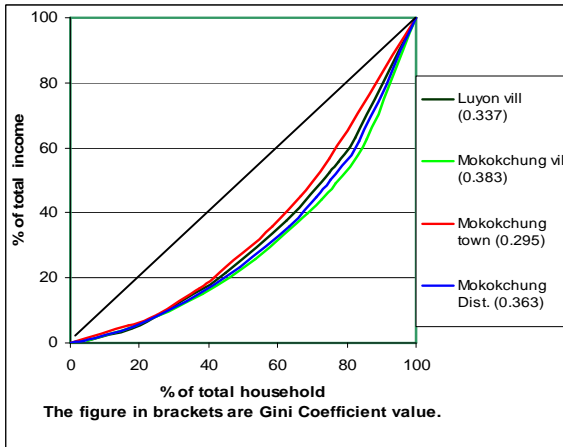
Source: Household Survey 2009-10

Appendix 5.2: Sector-Wise Plan Expenditure in Nagaland during 1986-2006 (in Rs.Lakhs)

Sectors	1986-91	1991-96	1996-01	2001-06
Agriculture	8982.76	9191.55	12667.72	24070.84
Industry	3472.44	3821.47	8164.72	14586.16
Infrastructure	2931.93	5107.33	7936.78	15122.51
Education	5103.79	9202.19	18349.33	29007.64
Health	12566.53	17843.57	20584.06	29312.89
Overall	40395.74	70342	96548	128769

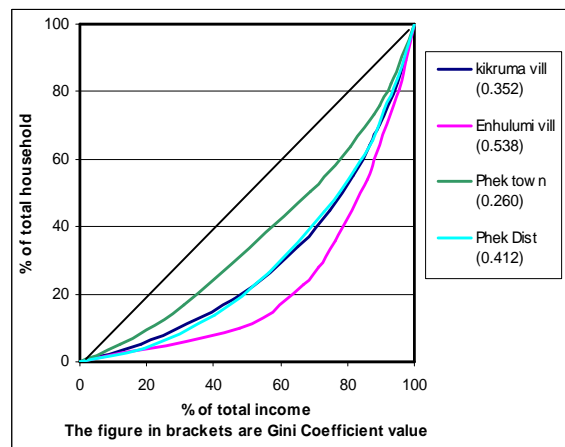
Source: Based on Plan Outlay from 7th Plan to 10th Plan, Department of Planning and Coordination, Nagaland.

Chart 5.1: Lorenz Curve for Income Distribution in Mokokchung District (2009-10)



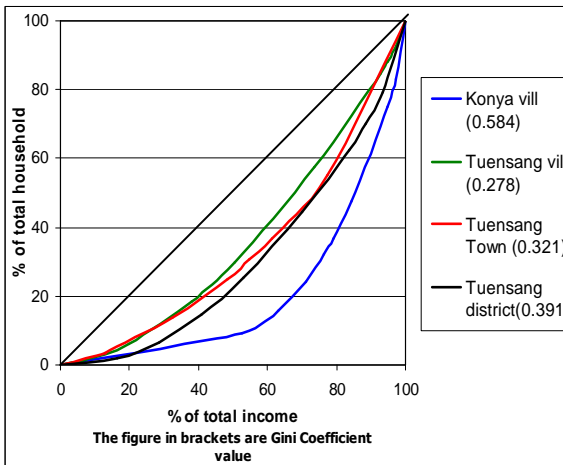
Source: Household Survey 2009-10.

Chart 5.2: Lorenz Curve for Income Distribution in Phek District (2009-10)



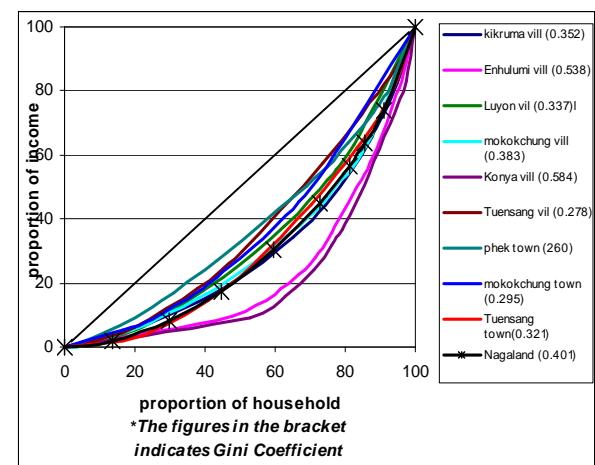
Source: Household Survey 2009-10.

Chart 5.3: Lorenz Curve for Income Distribution in Tuensang District (2009-10)



Source: Household Survey 2009-10.

Chart 5.4: Lorenz Curve for Income Distribution in Sample Villages (2009-10)



Source: Household Survey 2009-10.

CHAPTER VI

LINKAGES BETWEEN ECONOMIC GROWTH AND HUMAN DEVELOPMENT IN NAGALAND

Economic Growth (EG) and Human Development (HD) are two equally important objectives in the process of development. It is argued that HD is the central objective of human activity, while EG is potentially an important instrument for advancing HD. At the same time, achievements in HD can make significant contributions towards advancing EG.²⁹⁵ Thus, it is viewed that there is a strong nexus between EG and HD; on the one side, EG induced HD, while on the other, HD induced EG.

There is a close correlation between educational investment in human capital and the nation's well being.²⁹⁶ An investment in HD raises the performance of EG, while improvement in EG leads to a higher level of HD.²⁹⁷ Also, there exist a very high degree of correlation between per capita income and components of physical quality of life.²⁹⁸ Empirical evidences have shown that income, employment and economic development are crucial elements for raising human well-being.²⁹⁹ Further, high correlation between per capita income and educational attainment has been evidently proved.³⁰⁰ Thus, certainly there is a casual connection between the economic resource base and HD achievements, but these connections are 'not automatic'.³⁰¹

The higher level of HD due to improved education and health of the people affects EG by enhancing their capabilities, efficiency and productivity. The new growth theories asserts that the

²⁹⁵ Ranis, G, F Stewart, and A Ramirez (2005): "Economic Growth and Human Development" in Fukuda-Parr and Shiva Kumar (eds), *Readings in Human Development*, Oxford University Press, New Delhi.

²⁹⁶ Hayami, Yujiro (2003): *Development Economics, From the Poverty to the Wealth of Nation* (Second edition), Oxford University Press, New Delhi: 45-51.

²⁹⁷ World Bank (1990): *Indonesia; Strategy for A Sustained Reduction in Poverty*, Washington D.C.

²⁹⁸ Morris, D and B Mc Michelle (1982): *Measuring the Condition of India's Poor*, Promilla and Co., New Delhi.

²⁹⁹ Panikar, P G K (1980): "Inter-Regional Variation in Calorie Intake", *Economic and Political Weekly*, Vol. 15, No. 41 – 43, Oct: 1803 – 1814.

³⁰⁰ Zaidi, N and Md A Salam (1998): "Human Development in India: An Inter-State Comparison", *India Journal of Economics*, Vol. LXXVIII (311): 447 – 60.

³⁰¹ UNDP (1996): *Human Development Report*, Oxford University Press, New York.

higher level of education of the workforce at macro level leads to higher overall productivity of capital because of its positive effects on innovation.³⁰²

Hence, this chapter attempts to have deeper understanding of the two-ways distinct causal relationships between EG and HD in the context of Nagaland. Firstly, it is assumed that an improvement in EG will improve HD via expenditure on HD related items both at the macro and micro levels (household level). Secondly, improvement in HD (education and health) will enable in enhancing economic growth. Hence, EG induced HD is examined in Chain A, while HD induced EG is discussed in Chain B. At macro-level, the analysis is based on secondary data, while at micro-level; it is based on primary data. The linkages between the EG and HD have been examined using regression method.

6.1: CHAIN A

Needless to say that economic growth is an important factor for attaining higher level of human development.³⁰³ The enhancement in income and expenditure on HD inputs are clearly not the objectives in themselves alone, but it rather constitutes important instruments for advancing various dimensions of human well-being.³⁰⁴ Economic growth measured in terms of Per Capita Income (PCI) contributes to HD mainly through household and government spendings on various activities relating to human development. When household income increases, the household's ability to spend on food and non-food items increases, this leads to an improvement in HD. Also, public expenditure on HD inputs constitutes important instruments for enhancing human well-being.³⁰⁵ The present section has been analysed at two stages, firstly *macro-level*, based on secondary data covering the periods 1981-2011 and secondly *micro-level*, based on primary data for taking a single time period i.e. 2009-10.

MACRO-LEVEL

At *macro level*, empirical evidence showed that there is strong inducement of economic growth on human development. The effects are most likely to flow through increase in PCI and

³⁰² Lucas, Robert E Jr (1988): "On the Mechanics of Economic Development", *Journal of Monetary Economics*, 22, July, 3-42. Also, Romer, P M (1990) "Endogenous Technological Change", *Journal of Political Economy*, Vol. 98, No. 5 (Part 2): 71-102

³⁰³ Rani, Geeta P (1995): "Human Development Index in India: A District Profile", *Artha Vijnana*, Vol XLI (1): 9-30.

³⁰⁴ Ranis, G, F Stewart and A Ramirez (2000): "Economic Growth and Human Development", *World Development*, Vol. 28 (2): 64

³⁰⁵ Ramirez, A, G Ranis and F Stewart (1998): "Economic Growth and Human Development", *Working Paper No.18*, Queen Elizabeth House, Oxford. Available at http://economics.ouls.ox.ac.uk/12332/1/qehwps_18.pdf. accessed on 20/10/2008.

government budgetary expenditures.³⁰⁶ Studies have also shown that the effectiveness of public's expenditure as conditional variable have played an important role in achieving high HD.³⁰⁷

Thus, the linkage between Per Capita Income (PCI) and public expenditure on social sectors viz; education and health have been analysed. Literacy Rate (LR) and Infant Mortality Rate (IMR) are available for discrete period of 10 years. Hence, the impact of PCI and public expenditure in social sectors are taken 5 years time lag to LR, Enrolment in Higher Education (EnHE) and IMR in time 't' with a gap of 10 years.

6.1.1: Inducement of PCI and Public Expenditure in Educational Sector (PEES) on

Education: It is viewed that acquiring knowledge is a critical indicator in achieving human well-being. Hence, literacy rate and enrolment ratio become important indicators measuring an improvement in educational attainment. Generally, with the government policy of 'free and compulsory education for all', almost all children get enrolled in schools at lower levels. However, in case of higher education, it requires larger monetary involvements, thereby; income becomes an important factor that increases enrolment in higher education. Thus, literacy rate and enrolment in higher education are taken as educational attainment indicators in the analysis. It is hypothesised that (i) the higher the PEES, the higher is the adult LR, and (ii) the higher the level of PCI, the higher will be the Enrolment in Higher Education (EnHE).

a. Inducement of PEES on Literacy Rate: The impact of increase in PEES on LR has been observed to be positive and significant. It is observed that the relationship between the two is positively highly correlated as correlation coefficient (r) value is estimated to be 0.986. Further, the figure in table 6.1 showed that the regression coefficient 'b' value is estimated to be 0.0250, implying that 1% increase in PEES will lead to an increase in adult LR by 2.5%. T-test is undertaken to examine whether the resultant impact is statistically significant at 5% level. The result showed that the calculated value of t ($|t|=8.51$) is higher than the table value 't' ($|t|=4.30$) at 5% level. This implies that the impact of PEES on LR is statistically significant at 5% level. Hence, it can be concluded that the higher the level of PEES, the higher is the adult LR.

b. Inducement of PCI on LR and Enrolment in Higher Education (EnHE): The analysis result given in table.6.1 showed that the correlation coefficient (r) value for PCI and LR is positively highly correlated with 0.994, while the same for PCI and EnHE is 0.956. Further, the regression analysis has estimated that 1% increase in PCI will lead to an increase in LR and

³⁰⁶ Anand, S and M Ravallion (1993): "Human Development in Poor Countries: On the Role of Private Incomes and Public Services", *The Journal of Economic Perspectives*, Vol. 7, No. 1: 133-150.

³⁰⁷ Rajkumar, A S and V Swaroop (2002): "Public Spending and Outcomes: Does Governance Matter?" *Working Paper No:2840*, World Bank.

EnHE by 1.76% and 9.76% respectively. The corresponding calculated ‘t’ values are $|t|=11.59$ and $|t|=4.59$, which shows that the impacts are statistically significant at 1% and 5% levels respectively. Hence, it is found that the higher the level of PCI, the higher is the LR and EnHE in Nagaland.

An interesting finding is that the impact of PEES on adult LR is greater than the impact of PCI on LR by 0.74%. This implies that government spending in education like better infrastructure, mid-day meals and other related facilities are more attractive than the level of income for children to enroll them in school, which is the base for increasing literacy rate. Further, the impact of PCI on EnHE is higher than that of PCI on LR by 8%. It implies that the level of income is more effective on higher studies than on general enrolment in lower level of schooling, which generally raises (mere) literacy rate.

Table 6.1: Impact of EG Indicators on HD Indicators

Independent Variable	Dependent Variables	Constant (γ)	Coefficient (b)	r	r^2	Adj. r^2	S.E	N
PCI (t-5) (1975-2011)	Literacy Rate (t)	43.81	0.0176 (11.59)**	0.994	0.988	0.895	0.250	4
PCI (t-5) (1975-2011)	Enrolment in Higher Education (t)	626.71	0.0976 (4.59)*	0.956	0.913	0.870	0.021	4
PCI (t-5) (1975-2001)	Infant Mortality Rate (t)	63.60	-0.0170 (-1.67)	-0.858	0.735	0.471	0.001	3
PEES (t-5) (1975-2011)	Literacy Rate (t)	43.53	.0250 (8.51)*	0.986	0.973	0.960	0.000	4
PEHS (t-5) (1975-2001)	Infant Mortality Rate (t)	64.10	-.0130 (-1.93)	-0.887	0.787	0.575	0.001	3

Note: γ is intercept, b is regression coefficient, t-statistics are given in brackets, ** and * represents 1 and 5 percent levels of significant respectively, r is correlation coefficient, r^2 is coefficient of determination, SE is standard error and ‘N’ is number of observation. PCI (t-5) is Per Capita Income 5 years prior to time (t), PEES (t-5) is Public Expenditure on Educational Sector for 5 years prior to time (t), PEHS (t-5) is Public Expenditure in Health Sector for 5 years prior to time (t).

6.1.2: Inducement of PCI and Public Expenditure on Health Services (PEHS) on Health:

Empirical evidences prove that increase in social sector expenditure has positive impact on health condition of the population.³⁰⁸ The provision of basic health services including availability of drugs increases child’s health and survival significantly.³⁰⁹ Hence, PCI and PEHS are critical inputs for enhancing health status of the people. Against this backdrop, the linkages between PCI and Infant Mortality Rate (IMR) and also PEHS and IMR have been analysed. The shortfall of IMR is chosen as a proxy to represent health care performance in the analysis as life expectancy,

³⁰⁸ Ghosh, M (2006): “Economic Growth and Human Development in Indian States”, *Economic and Political Weekly*, Vol. 30 No. 41 July, 29: 3321-3329.

³⁰⁹ Lavy, V, J Strauss, D Thomas, and P de Vreder (1995): *The Impact of Quality of Health Care on Children’s Nutrition and Survival in Ghana*, LSMS Working Papers, 106, Washington DC, World Bank.

which is an important indicator of health condition is not available for time series data. It is, thus, assumed that the higher the level of PCI and PEHS, the lower is the IMR.

It is estimated that the correlation coefficient between PCI and IMR as well as PEHS and IMR are found to be negative as their 'r' values are -0.858 and -0.887 respectively (as indicated in table 6.1). Further, the regression coefficient has resulted that 1% increase in PCI and PEHS will reduce IMR by 1.70% and 1.30% respectively. The corresponding calculated 't' values are $|t|=1.67$ and $|t|=1.93$, which are far lesser than the table value of $|t|=12.7$ at 5% level. Hence, although there is negative relationship, the impact is statistically not significant for both PCI and PEHS with IMR in Nagaland. Thus, the hypothesis which states that the higher the level of PCI and PEHS, the lower is the IMR in Nagaland may not be accepted.

Hence, at macro level, there exists positive impact of EG on HD in Nagaland. It is observed that in education the impacts of PCI and PEES on education are statistically significant. But in health, although there is negative impact of PCI and PEHS on IMR, it is statistically not significant. Hence, the objective to improved EG (PCI) to enhance HD may be viewed as necessary, but not a sufficient condition as an improvement in health (reduction in IMR) is beyond the input factors like income and public expenditure. Therefore, the reduction of IMR from 68 per 1000 population in 1981 to 42 in 2001 may be attributed to female literacy rate or otherwise. Hence, this is further examined in section 6.3.2 (page 175).

MICRO-LEVEL

At *micro level*, studies showed that the impact of EG on HD depends on the role of the distribution of income at household levels.³¹⁰ The individual and household consumption and expenditures are important elements that contribute to enhancement in HD. Studies have revealed that the expenditure of individuals and households on human development related items improves HD more than that of the Government programmes.³¹¹ Also, poorer households spend larger proportion of their income on goods which directly promote better health and education. Further, EG whose benefits are directed more towards the poor will have greater impact on HD via increased in expenditure on food and education.³¹²

³¹⁰ Lucas, Robert E Jr (1988): "On the Mechanic of Economic Development", *Journal of Monetary Economics*, 22, July: 3-42.

³¹¹ Haq, M (2005): "The Human Development Paradigm" in Fukuda-Parr and Shiva Kumar (eds), *Readings in Human Development* from the 'Reflections on Human Development 1995', Oxford University Press, New Delhi.

³¹² Strauss, J and D Thomas (1995): "Human Resources: Empirical Modeling of Household and Family Decisions" in J R Behrman and T N Srinivasan (eds), *Handbook of Development Economics*, Vol. 3, Amsterdam: North Holland.

It is also argued that greater the resources of the household, higher is the demand for children's schooling and less is the need for child to work to supplement incomes.³¹³ Household's propensity to spend their after tax income on Human Development related Items (HDrIs) like food, potable water, education and health lead to an improvement in HD. But, it varies depending on factors like the level and distribution of income across households as well as on who controls the allocation of expenditure within the household.³¹⁴ Thus, this section attempts to have in-depth understanding adjacent to this argument in the context of Nagaland.

6.1.3: Household Expenditure Pattern by Levels of Income

It is generally observed that poorer households spend higher proportion of their incomes on HDrIs than those of higher income households. When level of per capita income is low, the household expenditure on HD is bound to be low.³¹⁵ But when poor households receive an extra income, they tend to increase their expenditure and calorie consumption significantly.³¹⁶

Therefore, it is felt imperative to examine the nexus between the level of household income and its expenditure pattern in HDrIs such as food, education, medicine and sanitation. It is thus assumed that poorer households tend to have greater impact of additional income on expenditure on HDrIs than those of richer households. Hence, the sample households are divided into three categories according to levels of household income namely *i*) Low Income Household (LIH) with household's monthly income of Rs. 10,000 and below, *ii*) Middle Income Household (MIH) between Rs. 10,001 to Rs. 20,000 and *iii*) High Income Household (HIH) consist of household's monthly income above Rs. 20,000 per month.

Among the household categories, the LIH consist of 56.19% households, while that of MIH and HIH comprise of 31.43% and 12.38% respectively. The corresponding average monthly incomes are Rs. 5,437, Rs. 13,958 and Rs. 31,395 as indicated in table 6.2.

District-wise data shows that the highest proportion of household falling under LIH category was Phek with 70.20%, followed by Tuensang and Mokokchung with 51.83% and 24% respectively with the corresponding average monthly income of Rs. 5,234, Rs. 5,094 and Rs. 6,244. In MIH category, the proportion of household was highest in Tuensang with 42.07%,

³¹³ Doraisamy, M (2007): "Child Schooling and Child Work" in Ab-Saleh Sheriff and Maithreyi Krishnaraj (eds), *State Markets and Inequalities: Human Development in Rural India*, Orient Longman, New Delhi.

³¹⁴ Ranis, G, F Stewart and A Ramirez (2005): "Economic Growth and Human Development" in Fukuda-Parr and Shiva Kumar (eds), *Readings in Human Development*, Oxford University Press, New Delhi: 61

³¹⁵ Deininger, K and L Squire (1996): "A New Data Set Measuring Income Inequality, *World Bank Economic Review*, 10.

³¹⁶ Strauss, J and D Thomas (1995): "Human Resources: Empirical Modeling of Household and Family Decisions" in J R Behrman and T N Srinivasan (eds), *Handbook of Development Economics*, Vol. 3, Amsterdam: North Holland.

followed by Mokokchung and Phek with 35.58% and 19.70% respectively. The corresponding average monthly incomes were Rs. 13,552, Rs. 14,387 and Rs. 14,050. In HIH category, the proportion of household was highest in Mokokchung with 20.86%, followed by Phek and Tuensang with 10.10% and 6.10% respectively. The corresponding average household monthly incomes are Rs. 33,251, Rs. 27,674 and Rs. 32,900 respectively.

Table 6.2: Household Monthly Income by Level of Income Categories

Districts	Total		Low Income Household (LIH)		Middle Income Households (MIH)		High Income Households (HIH)	
	No. of Household	Average Income	No. of Household	Average Income	No. of Household	Average Income	No. of Household	Average Income
Mokokchung	163 (30.5)	14775	71 (43.56)	6244	58 (35.58)	14387	34 (20.86)	33251
Phek	198 (37.90)	10237	138 (70.20)	5234	39 (19.70)	14050	21 (10.10)	27674
Tuensang	164 (31.24)	10348	85 (51.83)	5094	69 (42.07)	13552	10 (6.10)	32900
Nagaland	525 (100)	11329	295 (56.19)	5437	165 (31.43)	13958	65 (12.38)	31395

Note: The figures in parentheses represent percentage.

Source: Household Survey 2009-10.

Table 6.3: Household Monthly Expenditure Pattern by Levels of Income

Districts	Categories	Food	Education	Medicine	Sanitation	Other Items	Total
Mokokchung	LIH	2476 (40)	1441 (23)	333 (5)	405 (6)	1583 (25)	6244
	MIH	4700 (33)	3024 (21)	632 (4)	735 (5)	5295 (37)	14387
	HIH	8800 (27)	5913 (18)	1288 (4)	1598 (5)	15652 (47)	33251
Phek	LIH	1681 (32)	1497 (29)	202 (4)	316 (6)	1538 (29)	5234
	MIH	3908 (28)	3704 (26)	316 (2)	531 (4)	5592 (40)	14050
	HIH	8881 (32)	4721 (17)	524 (2)	1248 (5)	12300 (44)	27674
Tuensang	LIH	1893 (37)	1562 (31)	221 (4)	338 (7)	1079 (21)	5094
	MIH	4645 (34)	4716 (35)	464 (3)	674 (5)	3054 (23)	13552
	HIH	8350 (25)	6970 (21)	403 (1)	1400 (4)	15777 (48)	32900
Nagaland	LIH	1934 (36)	1503 (28)	239 (4)	344 (6)	1419 (26)	5437
	MIH	4490 (32)	3892 (28)	487 (3)	661 (5)	4428 (32)	13958
	HIH	8757 (27)	5690 (18)	905 (3)	1454 (5)	14588 (47)	31395

Source: Household Survey 2009-10.

Note: The figures in parentheses represent percentage. LIH-Low Income Household, MIH-Middle Income Household and HIH-High Income Household.

The monthly household expenditure pattern on human development related items and other items have been observed as follows:

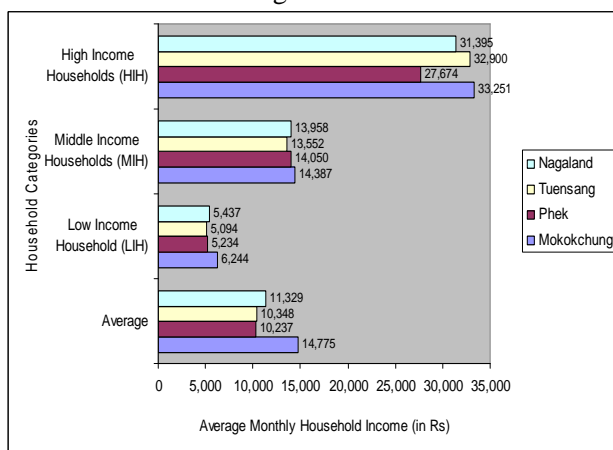
i) The proportion of household expenditure on *food* was highest in LIH, followed by MIH and HIH with 36%, 32% and 28% respectively.

ii) In *education*, the highest proportion of household expenditure was made by LIH and MIH with 28% each, while that of HIH is 18%,

iii) In *medicine* and *sanitation*, it was highest in LIH with 4% and 6% respectively, while in MIH and HIH, it is 3% each in medicine and 5% each in sanitation.

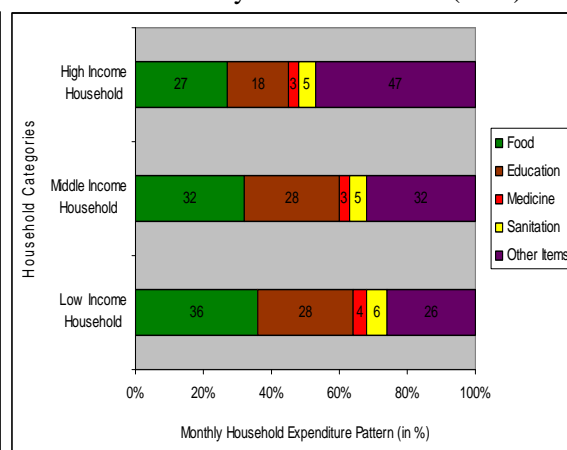
iv) For *other items*, the highest proportion of household expenditure was in HIH with 47%, followed by MIH and LIH with 32% and 26% respectively.

Figure 6.1: Monthly Household Income by Levels of Income in Nagaland



Source: Based on table 6. 2.

Figure 6.2: Monthly Household Expenditure Pattern by Level of Income (in %)



Source: Based on table 6. 2.

Among the districts, the proportion of expenditure on *food* item was highest in LIH of Mokokchung with 40%, while that of the lowest was in HIH of Tuensang with 25%. In *education*, the highest proportion was made by MIH of Tuensang with 35% and the lowest was in HIH of Mokokchung with 18%. For *health care*, 11% each are made in LIH of Mokokchung and LIH of Tuensang, while HIH of Mokokchung has spent only 1% in *medicine* and 4% in *sanitation*. It is observed that the highest and lowest proportions of expenditure in *other items* are HIH of Mokokchung and LIH of Tuensang with 48% and 21% respectively.

Thus, the poorer households spent relatively higher proportion of their income on HDIs than that of the richer households, whereas the richer households spent relatively higher proportion on other items.

The Linkage: In the analysis, the average household monthly income has been taken as independent variable and expenditure in various items are taken as explanation variables. Hence,

the impacts of additional income on expenditure in food, education, medicine, sanitation and other items are discussed below. The analysis result as indicated in tables 6.4, 6.5 and 6.6 have shown that the correlation coefficient (r) values are positively correlated for all items in sample aggregate as well in all the sample districts.

a. Food: The analysis has shown that the impact of additional household income on expenditure in food items among the household categories is highest in high income household, followed by low income and middle income household as their corresponding regression coefficient 'b' values are 0.370, 0.328 and 0.315. It implies that 1% increase in household income will increase their expenditure in food items by 37%, 32.8% and 31.5% respectively. The corresponding calculated 't' values are $|t|=8.43$, $|t|=18.60$ and $|t|=7.17$, which shows that the impacts are statistically significant at 1% level in all the household categories. It is observed that although the proportion of household expenditure on food items was highest in low income households, the impact of additional income on the same is highest in high income household category.

Among the sample districts, the highest impact in low and high income household categories is Mokokchung with 33.7% and 42% respectively, while for middle income household, it is highest in Tuensang with 38.5%. All these values are statistically significant at 1% level as their calculated 't' values are $|t|=6.85$, $|t|=7.03$ and $|t|=6.23$ respectively. On the other end, the lowest impact in low and middle income household categories is Phek with 29.7% and 31% respectively, while the highest in high income household is Tuensang with 21.2%. The corresponding calculated 't' values are $|t|=12.15$, $|t|=2.83$ and $|t|=6.03$, respectively, which implies that the impact is statistically significant at 1% level in all the categories.

b. Education: In education, the impact is highest in low income household, followed by middle and high income households. It is estimated that 1% increase in household income in low, middle and high income households leads to increase in expenditure on education by 24.4%, 20.5% and 8.3% respectively. The corresponding calculated 't' values are $|t|=10.45$, $|t|=1.48$ and $|t|=1.83$, which implies that the impact in low income household is statistically significant at 1% level, but in middle and high income households, it is statistically not significant. Hence, the impact of additional income on expenditure in education is higher in poorer households.

Among the sample districts in low and high income households, the highest impact is in Tuensang with 29.1% and 23.3% respectively, while for middle income household, it is highest in Mokokchung with 28%. The impacts in low and high income households in Tuensang are statistically significant at 1% and 5% respectively, while the same for middle income household

in Mokokchung is significant at 5% level as their calculated 't' values are $|t|=9.51$, $|t|=2.43$ and $|t|=2.46$ respectively. On the other hand, the lowest impact in both high and low income households is Mokokchung with 3.86% and 20.9% respectively, while in middle income household is Phek with 1.83%. The t-statistics shows that the impact is statistically not significant in middle and high income households of Phek and Mokokchung respectively, but it is significant at 1% level in low income household of Mokokchung as their calculated 't' values are $|t|=6.78$, $|t|=3.42$ and $|t|=0.110$ respectively.

The analysis has shown that for all the sample districts in LIH, the impact is statistically significant at 1% level. For MIH category, it is statistically significant at 5% level only in Mokokchung, whereas in HIIH, the impact is statistically not significant in all the sample districts. Thus, in general, the impact is higher among the lower income households.

c. Medicine: It has been observed that the impact of additional household income on expenditure in medicine is highest in low income household, followed by high and middle income households. The estimated impacts are 3.65%, 2.52% and 0.95% respectively with corresponding calculated 't' values of $|t|=11.26$, $|t|=2.44$ and $|t|=0.774$. This implies that the impact is statistically significant in low and high income households at 1% and 5% levels respectively, but not significant in middle income household. Hence, lower income households allocate larger proportion of their additional income on medicines.

Among the sample districts, the impact in all the household categories is highest in Mokokchung. It is highest in low income household, followed by high and middle income households with the corresponding impacts of 5.30%, 2.51% and 1.69%. T-test shows that their calculated 't' values are $|t|=5.10$, $|t|=1.65$ and $|t|=0.629$ respectively. This shows that the impact is statistically significant at 1% level in low income household, but not significant in high and middle income household categories. On the other hand, the lowest impact in both low and high income household categories is Phek with 2.67% and 0.43% respectively and in middle income household is Tuensang with 0.87%. The corresponding calculated 't' values are $|t|=6.64$, $|t|=0.308$ and $|t|=0.664$, implying that the impact is statistically significant at 1% level in low income household Phek, but not significant in middle and high income household categories.

d. Sanitation: In sample aggregate, the impact of additional household income on expenditure in sanitation is highest in middle income household, followed by low and high income household categories. It is estimated that the regression coefficient 'b' values for middle, low and high income households are 0.050, 0.045, and 0.035 respectively. This implies that 1% increase in household income will increase in expenditure on sanitation by 5.0%, 4.5% and 3.5%

respectively. The corresponding calculated ‘t’ values are $|t|=3.35$, $|t|=10.54$ and $|t|=2.98$. This implies that the impact is statistically significant at 1% level in all the categories. Thus, it is observed that the impact of additional household income on expenditure in health care is comparatively higher in low income households than in higher income households.

Among the sample districts, the impact in low income household is highest in Mokokchung with 6.29%, while in both middle and high income household categories, it is highest in Tuensang with 16.1% and 4.49% respectively. The corresponding calculated ‘t’ values are $|t|=4.63$, $|t|=3.88$ and $|t|=3.56$, which implies that the impact are statistically significant at 1% level in all the household categories. On the other extreme, the lowest impact in all the categories such as low, middle and high income household is Phek with 3.44%, 2.60% and 0.35% respectively. The corresponding calculated ‘t’ values are $|t|=6.64$, $|t|=1.14$ and $|t|=1.62$, which implies that the impact is statistically significant at 1% level in low income household, while in middle and high income household categories, it is statistically not significant.

e. Other items: The regression analysis result presented in tables 6.4, 6.5 and 6.6 shows that the impacts in all the three household categories are highly significant. It is estimated that 1% increase in household income will lead to increase in expenditure on other items by 34.6%, 42.1% and 48.7% in low, middle and high income households respectively. The impacts are statistically significant at 1% level in all the categories as their calculated ‘t’ values are $|t|=14.28$, $|t|=5.81$ and $|t|=9.59$ respectively. It is, thus, observed from the study that there exists high impact of household income on expenditure in other items irrespective of levels of household income.

Table 6.4: Impact of Household Income on Expenditure in HDRIs and Other Items in Low Income Household in Nagaland

Independent Variables	Area		Dependent Variables					N
			Food	Education	Medicines	Sanitation	Other Items	
HOUSEHOLD INCOME	Mokokchung	<i>b</i>	.337 (6.85)**	.209 (3.42)**	.0530 (5.10)**	.0629 (4.63)**	.335 (5.75)**	71
		γ	369.58	136.36	2.426	12.73	-511.01	
		<i>r</i>	.636	.381	.523	.487	.569	
		<i>r</i> ²	.405	.145	.273	.238	.324	
		<i>Adj r</i> ²	.396	.133	.263	.226	.314	
		SE	.049	.061	.010	.014	.058	
	Phek	<i>b</i>	.297 (12.15)**	.245 (7.09)**	.0267 (7.17)**	.0344 (6.64)**	.398 (10.5)**	139
		γ	128.15	215.35	61.99	135.80	-542.90	
		<i>r</i>	.720	.518	.522	.493	.668	
		<i>r</i> ²	.519	.268	.273	.243	.446	
		<i>Adj r</i> ²	.515	.263	.268	.238	.442	
		SE	.024	.035	.004	.005	.038	
	en sa	<i>b</i>	.346 (13.98)**	.291 (9.51)**	0.0363 (12.48)**	.0504 (10.31)**	.277 (13.90)**	85

		γ	130.97	213.1	24.23	81.32	-429.8	295
		r	.838	.528	.632	.559	.673	
		r^2	.702	.279	.399	.312	.452	
		$Adj r^2$	.698	.276	.397	.310	.450
		SE	.025	.024	.003	.005	.026	
	Total	b	.328 (18.60)**	.244 (10.45)**	.0365 (11.26)**	.0454 (10.54)**	.346 (14.28)**	
		γ	153.11	175.89	40.36	96.89	-465.00	
		r	0.736	0.521	0.550	0.524	0.640	
		r^2	0.540	0.269	0.300	0.273	0.408	
		$Adj r^2$	.541	.271	.302	.275	.410
SE	0.018	0.023	0.003	0.004	0.24			

INDEPENDENT VARIABLE: Household Income.

Note: γ is intercept, b is regression coefficient, t-statistics are given in brackets, **and* represents 1 and 5 percent levels of significant respectively, r is correlation coefficient, r^2 is coefficient of determination, SE is standard error and N is number of observation.

Table 6.5: Impact of Household Income on Expenditure in HDRIs and Other Items in Middle Income Household in Nagaland

Independent Variables	Area	Dependent Variables					N	
		Food	Education	Medicine	Sanitation	Other Items		
HOUSEHOLD INCOME	Mokokchung	b	.379 (5.23)**	.280 (2.46)*	.0169 (.629)	.0261 (2.56)*	.299 (2.56)*	58
		γ	-749.61	-988.38	389.69	359.34	998.86	
		r	.576	.315	.084	.117	.326	
		r^2	.332	.099	.007	.014	.106	
		$Adj r^2$	.320	.083	-.011	-.004	.090
		SE	.072	.114	.027	.030	.117	
	Phek	b	.310 (2.82)**	.0183 (.110)	.0164 (1.68)	.0260 (1.14)	.646 (3.59)**	39
		γ	-443.14	3960.56	84.89	165.18	-3767.11	
		r	.442	.018	.266	.189	.508	
		r^2	.178	.000	.071	.036	.258	
		$Adj r^2$	.156	.027	.046	.010	.238
		SE	.109	.167	.010	.022	.186	
	Tuensang	b	.385 (6.23)**	.115 (.365)	.0087 (.664)	.161 (3.88)**	.330 (9.57)**	69
		γ	-698.45	1584.36	106.90	-1462.58	469.98	
		r	.874	.105	.188	.746	.266	
		r^2	.764	.011	.035	.556	.071	
		$Adj r^2$	.744	-.071	-.045	.519	-.007
		SE	.062	.316	.013	.041	.345	
	Nagaland	b	.315 (7.17)**	.205 (1.48)	0.0095 (0.774)	.0503 (3.35)**	.421 (5.81)**	164
		γ	86.62	2259.35	354.19	-41.57	-2658.50	
r		0.489	0.114	0.063	0.253	0.414		
r^2		0.235	0.007	-0.002	0.059	0.166		
$Adj r^2$		.235	.007	-.002	.059	.166	
SE		0.044	0.079	0.012	0.015	0.087		

INDEPENDENT VARIABLE: Household Income.

Note: γ is intercept, b is regression coefficient, t-statistics are given in brackets, **and* represents 1 and 5 percent levels of significant respectively, r is correlation coefficient, r^2 is coefficient of determination, SE is standard error and N is number of observation.

Table 6.6: Impact of Household Income on Expenditure in HDRIs and Other Items in High Income Household in Nagaland

Independent Variables	Area		Dependent Variables					N
			Food	Education	Medicines	Sanitation	Other Items	
HOUSEHOLD INCOME	Mokokchung	<i>b</i>	.420 7.03)**	.0386 (.678)	.0251 (1.65)	.0325 (1.81)	.484 (7.30)**	34
		γ	-5158.46	4629.95	453.19	517.40	-442.9	
		<i>r</i>	.779	.119	.280	.305	.790	
		<i>r</i> ²	.607	.014	.078	.093	.624	
		<i>Adj r</i> ²	.595	-.017	.050	.065	.612	
		SE	.060	.057	.015	.018	.066	
	Phek	<i>b</i>	.313 (2.54)*	.201 (1.33)	.0043 (.308)	.0035 (1.62)	.447 (2.68)*	21
		γ	224.95	-849.63	405.59	276.33	-57.23	
		<i>r</i>	.504	.291	.071	.349	.524	
		<i>r</i> ²	.254	.085	.005	.122	.274	
		<i>Adj r</i> ²	.215	.037	-.047	.076	.236	
		SE	.123	.152	.014	.022	.16	
	Tuensang	<i>b</i>	.212 (6.03)**	.233 (2.43)*	.0148 (1.96)	.0449 (3.56)**	.495 (4.16)**	10
		γ	1359.66	-685.9	-81.87	-78.28	-513.62	
		<i>r</i>	.905	.651	.569	.783	.827	
		<i>r</i> ²	.819	.423	.324	.613	.683	
		<i>Adj r</i> ²	.797	.351	.239	.565	.644	
		SE	.035	.096	.008	.013	.119	
	Nagaland	<i>b</i>	0.370 (8.43)**	.0827 (1.83)	.0252 (2.44)*	.0351 (2.98)**	.487 (9.59)**	65
		γ	-2853.65	3095.20	113.29	352.33	-707.17	
		<i>r</i>	0.728	0.224	0.293	0.352	0.771	
<i>r</i> ²		0.522	0.035	0.072	0.110	0.587		
<i>Adj r</i> ²		.522	.035	.072	.110	.587		
SE		0.044	0.045	0.010	0.012	0.051		

INDEPENDENT VARIABLE: Household Income.

Note: γ is intercept, *b* is regression coefficient, t-statistics are given in brackets, **and* represents 1 and 5 percent levels of significant respectively, *r* is correlation coefficient, *r*² is coefficient of determination, SE is standard error and N is number of observation.

Among the sample districts, there is high impact of additional household income on expenditure in other items in all the sample districts. The impact in both low and middle income households is highest in Phek with 39.8% and 64.6% respectively. While in high income household, it is Tuensang with 49.5%. The corresponding calculated ‘t’ values are |t|=10.5, |t|=3.59 and |t|=4.16, which shows that the impacts are statistically significant at 1% level in all the categories. On the other hand, the lowest impact in low income household is Tuensang with 27.7% and that of middle and high income households are Mokokchung and Phek with 29.9% and 44.7% respectively. The t-statistics shows that the impact is statistically significant at 1% level in low income household of Mokokchung and 5% level in middle and high income household of Mokokchung and Phek with their corresponding calculated ‘t’ values of |t|=13.90 |t|=2.56, and |t|=2.68.

Thus, from the above discussion following inferences may be drawn as:

a. In sample aggregate as well as for individual sample districts and in all the household categories, the impact of an additional income on expenditure in HDrIs (summation of food, education, medicine and sanitation) is higher than on other items.

b. The impact of additional income on HDrIs is highest in LIH with 66%, followed by MIH and HIH with 58% and 51.3% respectively. This may be interpreted that the impact of additional income on other items is highest in HIH with 48.7%, followed by MIH and LIH with 42% and 34% respectively. Hence, it may be observed that as household income increases, the expenditure on HDrIs goes on declining and vice versa for other items.

c. It is observed that the impact of additional income on *education* is highest in LIH. It is higher than that of middle and high income households by 3.9% and 16.13% respectively. Further, the impact of additional income on *medicine* is also highest in LIH, which is higher than that of middle and high income households by 2.68% and 1.11% respectively.

d. In *sanitation*, the impact in MIH is highest, wherein its impact is higher than that of LIH and HIH by 0.49% and 1.52% respectively.

e. For *food* and *other items*, the impacts are highest in HIH. In *food*, it is higher than that of low and middle income households by 4.2% and 5.5% respectively, while in *other items*, it is higher by 14.1% and 6.7% respectively.

Hence, in all the household categories, the impacts of additional income on expenditure in all *HDrIs* as well as in *other items* are found to be statistically significant, but it is higher in HDrIs. Further, among the different household categories, the impact of additional income on HDrIs is highest in low income household. Therefore, the hypothesis which states that the impact of additional income on expenditure in HDrIs is higher in lower income household than in higher income households is accepted.

It is also evident from the study that the lower income households have greater priority of investment is in education and health, whereas the middle income households spent more of their additional income on other items such as housing, recreation, traveling etc. The high income households have spent comparatively more of their additional income on food as far as the household expenditure pattern is concerned.

6.1.4: Household Expenditure Pattern by Gender

Besides the level of income, the household expenditure is also determined by social factors like who (male or female or jointly) has the command over the household income and

expenditure decisions.³¹⁷ There is an argument that when women control cash income, the expenditure patterns are geared relatively more towards HD inputs such as food and education.³¹⁸ Moreover, in female headed households, the expenditure towards food items tends to be higher than that of male.³¹⁹ In society, where women contribute more to household income, they tend to have more influence on household decision-making and thus, the household expenditure on human development oriented items are likely to be relatively higher.

Thus, it is felt imperative to explore the household behavioural patterns of resource allocation by gender-wise on HDRIs and other items in Nagaland. The total sample (525) households are categorised into three groups based on who control household income and expenditure viz; (i) Male Control Households (MCH), (ii) Female Control Household (FCH), and (iii) Jointly Control Households (JCH).

It is observed from the household survey data that in households where the income and expenditure are solely control by male constitutes 35.24%, while that of female alone and jointly are 20.57% and 44.19% households respectively. In sample aggregate, the average household monthly income in male control household is Rs. 15,935, while that of female and jointly control households are Rs. 10,806 and Rs. 12,782 respectively.

Table 6.7: Average Household Monthly Income by Gender in Nagaland during 2009-10

Districts	Male Control Household (MCH)		Female Control Households (FCH)		Jointly Control Households (JCH)	
	No. of household	Average income	No. of household	Average income	No. of household	Average income
Mokokchung	23 (23.49)	20775	37 (34.26)	13285	103 (44.39)	15922
Phek	106 (57.30)	10559	26 (24.07)	10675	66 (28.45)	10732
Tuensang	56 (30.27)	11046	45 (41.67)	11459	63 (21.98)	11692
Nagaland	185 (35.24)	15935	108 (20.57)	10806	232 (44.19)	12782

Source: Household Survey 2009-10.

Note: The figures in parentheses represent percentage in respective district aggregate.

Among the sample districts, the proportion of household that control solely by male in household expenditure (MCH) was highest in Phek with 57%, followed by Tuensang and Mokokchung with 30.27% and 23.49% respectively. Similarly, the proportion of household that solely control by female (FCH) in household expenditure was highest in Tuensang with 41.67%,

³¹⁷ Ranis, G, F Stewart and A Ramirez (2005): "Economic Growth and Human Development" in Fukuda-Parr and Shiva Kumar (eds), *Readings in Human Development*, Oxford University Press, New Delhi.

³¹⁸ von Braun, J (1988): "Effects of Technological Change in Agriculture on Food Consumption and Nutrition: Rice in a West African Setting", *Economic Development and Cultural Change*, 37.

³¹⁹ Ezung, Zarengthung T (2011): *Poverty in Nagaland*, Akansha Publishing House New Delhi:176

followed by Mokokchung and Phek with 34.26% and 24.07% respectively. On the other hand, household that control by jointly (JCH) in its expenditure was highest in Mokokchung with 44.39%, followed by Phek and Tuensang with 28.45% and 21.98% respectively.

The household expenditure pattern by gender-wise can be outlined as below:

i) In sample aggregate, the expenditure on *food* items was highest in female control household that constitutes 34%, followed by male and jointly controls households with 32% and 31% respectively.

ii) Also, in *education*, it was highest in female control household with 26%, followed by jointly and male control household with 24% and 21% respectively.

iii) Similarly in *medicine*, female control household has the highest proportion of household expenditure with 5%, while that of male and jointly control households are 3% each.

iv) In *sanitation*, female and male control households had the same proportion of household expenditure with 6% each, while that of jointly control household is 5%.

v) It is observed that in *other items*, male control household spent the highest proportion of income with 38%, followed by jointly and female control households with 33% and 29% respectively.

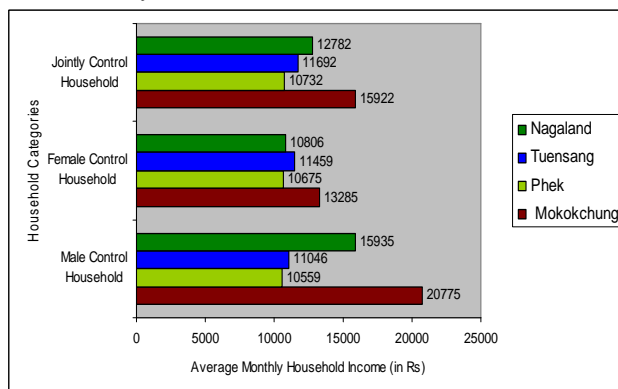
Table 6.8: Household Expenditure Pattern by Gender in Nagaland during 2009-10

Districts	Categories	Food	Education	Medicines	Sanitation	Other Items	Total
Mokokchung	MCH	6811 (33)	3274 (16)	740 (4)	885 (4)	9157 (44)	20775
	FCH	4375 (33)	3543 (27)	860 (6)	659 (5)	3437 (27)	13285
	JCH	4195 (26)	3927 (25)	731 (5)	840 (5)	6222 (39)	15922
Phek	MCH	3155 (31)	3011 (30)	370 (3)	954 (9)	2726 (26)	10559
	FCH	3523 (33)	2989 (28)	214 (2)	747 (7)	3309 (31)	10675
	JCH	3399 (32)	1807 (17)	309 (3)	530 (5)	3154 (29)	10732
Tuensang	MCH	3495 (32)	3032 (27)	328 (3)	516 (5)	3674 (33)	11046
	FCH	4016 (35)	2780 (24)	444 (4)	643 (6)	3726 (33)	11459
	JCH	3949 (34)	3276 (28)	287 (2)	679 (6)	3503 (30)	11692
Nagaland	MCH	5151 (32)	3329 (21)	540 (3)	910 (6)	6005 (38)	15935
	FCH	3634 (34)	2822 (26)	485 (5)	605 (6)	3173 (29)	10806
	JCH	3848 (30)	3003 (24)	442 (3)	683 (5)	4293 (33)	12782

Source: Household Survey 2009-10

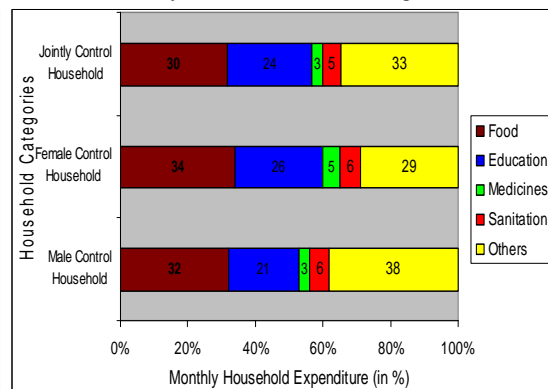
Note: The figures in parentheses represent percentage in respective district aggregate. MCH-Male Control Household, FCH-Female Control Household and JCH-Jointly Control Household.

Figure 6.3: Average Household Monthly Income by Gender



Source: Based on table 6.8.

Figure 6.4: Household Expenditure Pattern by Gender (in %) in Nagaland



Source: Based on table 6.8.

Thus, when female controls household income, the expenditure out of additional income towards HDrIs (food, education and health) is higher than that of male and jointly controls households. On the other hand, male tend to spend more towards other items (other than HDrIs) than that of female.

Further, it has been observed that among the sample districts, the highest proportion of expenditure in *food* is made by FCH of Tuensang with 35%, while it was lowest in JCH of Mokokchung with 26%. In *education*, the highest proportion of household expenditure was made in MCH of Phek with 30%, while the lowest was in MCH of Mokokchung with 16%. Data shows that the highest proportion of household expenditure in *medicine* is made by FCH of Mokokchung with 6%, while the lowest was in FCH in Phek and JCH of Tuensang with 2% each. In *sanitation*, it was highest in MCH in Phek with 9%, while it was lowest in MCH of Mokokchung with 4%. Thus, in health related items (medicine and sanitation), the highest proportion of household expenditure was made in MCH of Phek with 12%. On the other hand, MCH of Mokokchung, JCH of Phek, MCH and JCH of Tuensang spend only 8% each of their household expenditures on health related items. The proportion of household expenditure on *other items* is highest in MCH in Mokokchung with 44%, while the lowest was MCH of Phek with 26% of their household income.

The Linkage: The analysis has revealed that there is positive relationship between income and expenditure on all HDrIs as well as other items in sample aggregate. The figures given in table 6.9, 6.10 & 6.11 showed that the correlation coefficient ‘r’ values are positive in all the household categories as well as in all the items for sample aggregate as well as for all the sample districts. The linkages between income and expenditure for each item are discussed as follows.

a. Food: It is estimated that the impact of household income on expenditure in food items is highest in FCH, followed by MCH and JCH in Nagaland. The regression coefficient 'b' values showed that 1% increase in income in FCH, MCH and JCH increases the expenditure in food items by 35.5%, 31.9% and 22.7% respectively. The corresponding calculated 't' values are $|t|=16.95$, $|t|=19.71$ and $|t|=20.06$, which implies that the impacts are statistically significant at 1% level in all the household categories.

Among the sample districts, the impact of additional household income on food items in FCH is highest in Mokokchung with 37.3% and the same in both MCH and JCH categories, Phek has the highest impact with 33.7% and 27.8% respectively. All these impacts are statistically significant at 1% level as their calculated 't' values are $|t|=9.13$, $|t|=14.38$ and $|t|=13.83$ respectively. On the other extreme, the lowest impact in JCH and MCH is Mokokchung with 20.8% and 22.9% respectively, while that of FCH is Tuensang with 27.7%. The t-statistics shows that the impacts are statistically significant at 1% level for all the household categories as their calculated 't' values are $|t|=10.94$, $|t|=5.26$ and $|t|=16.80$ respectively.

Thus, the impact of additional income on expenditure in food items is higher when household income and expenditure decisions are taken by female than male in Nagaland.

b. Education: The regression coefficient analysis result showed that the impact of additional household income on expenditure in education is highest in JCH with 19.4%, followed by MCH and FCH in sample aggregate with 18.4% and 13.3% respectively. All the impacts are statistically significant at 1% level as the calculated 't' values are $|t|=11.98$, $|t|=8.21$, and $|t|=7.07$ respectively.

Among the sample districts, the analysis showed that the relatively less developed district Tuensang has comparatively the highest impact in all three household categories. The impact is highest in MCH with 28.4%, followed by JCH and FCH with 22.9% and 22.1% respectively. The t-statistics shows that the impacts are statistically significant at 1% level in all the households categories as their calculated 't' values are $|t|=6.18$, $|t|=8.24$, and $|t|=5.70$ respectively. On the other end, the lowest impact is FCH of Mokokchung with 11.8%, while in both MCH and JCH, it is lowest in Phek with 16.2% and 18.2% respectively. The corresponding calculated 't' values are $|t|=4.40$, $|t|=5.90$ and $|t|=5.40$. This implies that the impacts are statistically significant at 1% level.

Thus, irrespective of social factors like who (male or female or jointly) has the command over the household income and expenditure, the impact of additional income on expenditure in education in relatively less developed district Tuensang is higher than Phek and Mokokchung.

c. Medicine: In sample aggregate, it is observed that the impact on Medicine is highest in FCH, followed by MCH and JCH. The impacts as resulted by regression coefficient 'b' values are 3.49%, 1.74% and 0.32% respectively. The t-statistics shows that all the impacts are statistically significant at 1% level in FCH and MCH as their calculated 't' values are $|t|=13.30$, $|t|=6.79$ and $|t|=0.296$ respectively.

Among the sample districts, the highest impact in FCH is Mokokchung with 3.85% and the same for MCH and JCH are Tuensang and Phek with 3.38% and 1.78% respectively. The t-statistics shows that all the impacts are statistically significant at 1% level as the calculated 't' values are $|t|=9.33$, $|t|=6.17$ and $|t|=5.70$. On the other hand, the lowest impact in JCH and FCH are Mokokchung and Tuensang with 0.97% and 1.30% respectively, while the same in MCH is Phek with 1.03%. All the impacts are statistically significant at 1% level as the corresponding calculated 't' values are $|t|=3.68$, $|t|=3.38$ and $|t|=4.79$.

Hence, it can be pointed out that the comparatively more developed district Mokokchung has the lowest impact of additional income on expenditure in medicine in both MCH and JCH categories, although the proportion of household expenditure is highest.

d. Sanitation: It is observed that the impact of additional household income on expenditure in sanitation is highest in FCH, followed by MCH and JCH. It is estimated that the corresponding impacts are 3.75%, 3.42% and 1.45% and their calculated 't' values are $|t|=15.40$, $|t|=9.70$ and $|t|=0.885$ respectively. This implies that the impacts are statistically significant at 1% level in FCH and MCH, while in JCH, it is statistically not significant.

Among the sample districts, the impact in both FCH and MCH is highest in Phek with 5.08% and 3.59% respectively and the same for JCH is highest in Tuensang with 4.62%. The corresponding calculated 't' values are $|t|=6.41$, $|t|=9.05$ and $|t|=11.14$, which implies that all the impacts are statistically significant at 1% level. On the other hand, the lowest impact in both MCH and JCH is Mokokchung with 0.72% and 1.94% respectively, while the same in FCH is Tuensang with 3.30%. The calculated 't' values are $|t|=0.484$, $|t|=0.0601$ and $|t|=6.36$ respectively. This shows that the impact is statistically not significant in MCH of Mokokchung, but significant at 1% level in JCH of Mokokchung and FCH of Tuensang.

It is observed that when female are given opportunity to handle the household income and expenditure, the allocation household additional income towards health related items is higher than male. It is also observed that the relatively less developed districts Tuensang and Phek have lower proportion of income allocation on health care, but their impacts of additional income on health care are higher than Mokokchung, which have higher proportion of expenditure on it.

e. Other items: The regression coefficient result has shown that the impact of additional income on expenditure in other items is highest in order of JCH, MCH and FCH with 44.5%, 44.4% and 44% respectively. The impacts are statistically significant at 1% level in all the household categories as the calculated 't' values of $|t|=12.41$, $|t|=18.42$ and $|t|=24.67$ respectively.

Among the sample districts, the impact in MCH is highest in Mokokchung with 57.1%, and that of JCH and FCH are Phek and Tuensang with 48.6% and 45.7% respectively. The corresponding calculated 't' values are $|t|=7.85$, $|t|=13.77$ and $|t|=10.70$. This implies that the impacts are statistically significant at 1% level in all the categories. On the other hand, the lowest impact in MCH is Tuensang with 36.2% and the same in JCH and FCH are Mokokchung and Phek with 38.6% and 41.2% respectively. The corresponding calculated 't' values are $|t|=8.12$, $|t|=5.86$ and $|t|=5.91$, which implies that the impacts are statistically significant at 1% level in all the household categories.

It is, thus, observed from the study that there exists high impact of household additional income on other items irrespective of social factor like who (male, female and jointly) has the command over the household income and expenditure in Nagaland, but the impact is significantly higher when it is control by male than by female.

Table 6.9: Impact of Household Income on Expenditure in HDRIs and Other Items in MCH.

Area		Dependent Variables					N
		Food	Education	Medicines	Sanitation	Other Items	
Mokokchung	<i>b</i>	.229 (5.26)**	.166 (2.06)	.0262 (1.84)	.0072 (.484)	.571 (7.85)**	23
	γ	842.92	565.67	183.42	479.71	-2071.73	
	<i>r</i>	.762	.418	.380	.108	.869	
	<i>r</i> ²	.581	.174	.145	.012	.755	
	<i>Adj r</i> ²	.560	.133	.102	-.038	.743	
	SE	.044	.081	.014	.015	.073	
Phek	<i>b</i>	.337 (14.38)**	.162 (5.90)**	.0103 (4.79)**	.0359 (9.05)**	.455 (14.53)**	106
	γ	-260.53	1125.4	149.54	108.15	-1119.74	
	<i>r</i>	.816	.501	.425	.664	.818	
	<i>r</i> ²	.665	.251	.181	.441	.670	
	<i>Adj r</i> ²	.662	.244	.173	.435	.667	
	SE	.023	.027	.002	.004	.031	
Tuensang	<i>b</i>	.285 (17.65)**	.284 (6.18)**	.0338 (6.17)**	.0356 (4.39)**	.362 (8.12)**	56
	γ	270.92	279.87	79.95	86.45	-716.74	
	<i>r</i>	.924	.647	.647	.516	.745	
	<i>r</i> ²	.855	.419	.418	.266	.554	
	<i>Adj r</i> ²	.852	.408	.407	.253	.546	
	SE	.016	.046	.005	.008	.045	
Nagaland	<i>b</i>	.319 (19.71)**	.184 (8.21)**	.0174 (6.79)**	.0342 (9.70)**	.444 (18.42)**	183
	γ	-88.21	940.47	154.28	122.46	-1127.25	
	<i>r</i>	0.826	0.521	0.451	0.585	0.808	

	r^2	0.682	0.271	0.203	0.342	0.652	
	$Adj r^2$	.680	.267	.199	.339	.650	
	SE	0.016	0.022	0.003	0.004	0.024	

INDEPENDENT VARIABLE: Household Income.

Note: γ is intercept, b is regression coefficient, t-statistics are given in brackets, **and* represents 1 and 5 percent levels of significant respectively, r is correlation coefficient, r^2 is coefficient of determination, SE is standard error and N is number of observation.

Table 6.10: Impact of Household Income on Expenditure in HDRIs and Other Items in FCH.

Area		Dependent Variables					N
		Food	Education	Medicines	Sanitation	Other Items	
Mokokchung	b	.373 (9.13)**	.118 (4.40)**	.0385 (9.33)**	.0373 (9.87)**	.434 (18.63)**	37
	γ	-241.45	549.20	63.73	171.32	-543.74	
	r	.843	.602	.848	.861	.954	
	r^2	.710	.363	.719	.741	.911	
	$Adj r^2$	.702	.344	.711	.734	.908
	SE	.041	.027	.004	.004	.023	
Phek	b	.318 (7.78)**	.204 (3.06)**	.0159 (2.90)**	.0508 (6.41)**	.412 (5.91)**	26
	γ	-110.73	393.35	91.87	28.43	-412.30	
	r	.846	.530	.509	.795	.770	
	r^2	.716	.281	.259	.631	.593	
	$Adj r^2$	.704	.251	.228	.616	.576
	SE	.041	.066	.005	.008	.070	
Tuensang	b	.277 (16.80)**	.221 (5.70)**	.013 (3.38)**	.033 (6.36)**	.457 (10.70)**	45
	γ	587.12	951.74	171.01	212.75	-1920.65	
	r	.934	.665	.467	.706	.858	
	r^2	.873	.442	.218	.499	.736	
	$Adj r^2$	.870	.428	.199	.486	.730
	SE	.016	.039	.004	.005	.043	
Nagaland	b	.355 (16.95)**	.133 (7.07)**	.0349 (13.30)**	.0375 (15.40)**	.440 (24.67)**	108
	γ	-147.84	1048.83	24.77	154.34	-1081.88	
	r	0.858	0.571	0.795	0.835	0.925	
	r^2	0.736	0.327	0.632	0.697	0.855	
	$Adj r^2$	0.734	0.320	0.628	0.694	0.854	
	SE	0.021	0.019	0.003	0.002	0.018	

INDEPENDENT VARIABLE: Household Income.

Note: γ is intercept, b is regression coefficient, t-statistics are given in brackets, **and* represents 1 and 5 percent levels of significant respectively, r is correlation coefficient, r^2 is coefficient of determination, SE is standard error and N is number of observation.

Table 6.11: Impact of Household Income on Expenditure in HDRIs and Other Items in JCH.

Area		Dependent Variables					N
		Food	Education	Medicines	Sanitation	Other Items	
Mokokchung	b	.208 (10.94)**	.185 (7.95)**	.0146 (3.68)**	.0194 (3.60)**	.386 (5.86)**	103
	γ	1231.5	359.56	1390.46	2058.05	2350.02	
	r	.735	.619	.067	.057	.502	
	r^2	.540	.383	.004	.004	.252	
	$Adj r^2$	.535	.377	-.005	-.006	.245
	SE	.019	.023	.021	.032	.066	
Phek	b	.278	.182	.0178	.0376	.486	66

		(13.83)**	(5.40)**	(5.70)**	(7.76)**	(13.77)**	
	γ	379.13	-2.71	111.07	125.19	-612.36	
	r	.866	.559	.580	.696	.865	
	r^2	.749	.313	.337	.485	.748	
	$Adj\ r^2$.745	.302	.326	.477	.744	
	SE	.020	.034	.003	.005	.035	
Tuensang	b	.230 16.33)**	.229 (8.24)**	.0197 (3.31)**	.0462 (11.14)**	.485 (12.59)**	63
	γ	1260.09	941.40	210.16	115.09	-2526.57	
	r	.902	.726	.391	.819	.850	
	r^2	.814	.527	.153	.671	.722	
	$Adj\ r^2$	.811	.519	.13	.665	.718
	SE	.014	.028	.003	.004	.038	
Nagaland	b	.227 (20.06)**	.194 (11.98)**	.0032 (3.30)**	.0145 (3.89)**	.445 (12.41)**	232
	γ	1060.71	433.94	649.32	937.31	36.95	
	r	0.797	0.620	0.019	0.055	0.633	
	r^2	0.636	0.384	0.00	0.003	0.401	
	$Adj\ r^2$	.635	.382	-.004	-.001	.398
	SE	0.011	0.016	0.011	0.016	0.036	

INDEPENDENT VARIABLE: Household Income.

Note: γ is intercept, b is regression coefficient, t-statistics are given in brackets, **and* represents 1 and 5 percent levels of significant respectively, r is correlation coefficient, r^2 is coefficient of determination, SE is standard error and N is number of observation.

The following conclusions may be drawn from gender-wise behavioural pattern of household expenditure.

a. In general, the impact on HDRIs is highest in FCH with 66%, followed by JCH and MCH with 65.6% and 65.4% respectively.

Further, the impact on *medicine* is highest in FCH which is higher than that of MCH and JCH by 1.75% and 3.17% respectively. For *sanitation*, it is higher than MCH and JCH by 0.07% and 2.3% respectively. Also, the impact of additional income on expenditure in *food* items is highest in FCH. It is higher than that of MCH and JCH by 3.6% and 12.8% respectively.

b. The impact of additional income on expenditure in *education* is highest in JCH. It is higher than that of MCH and FCH by 1% and 6% respectively.

c. The impact of additional income on expenditure in *other items* is highest in MCH. It is higher than that of FCH and JCH by 0.5% and 0.01% respectively.

Hence, it can be summarised that when female control household income, the impact tends to be higher towards food items and health care such as visiting clinics, purchasing drugs, keeping surroundings healthy, etc. On the other hand, when male control household income, their expenditure is more inclined towards other items like housing, traveling, recreation, etc. from their additional income. Similarly, when it is done by jointly (male and female), the household

expenditure out of additional income is relatively higher to education than that of male and female alone as far as their household expenditure pattern is concerned.

Hence, in all the sample districts, whoever controls the household's income, the impact is significantly higher in HDrIs than in other items. Hence, the hypothesis which states that the impact of additional income on expenditure in HDrIs is higher in FCH in Nagaland is accepted.

Therefore, it can be outlined that there is a positive linkage between public expenditure on education and income on education and health. Also, there is positive impact of additional household income on expenditure in HDrIs and other items in Nagaland. Moreover, it has been observed that the allocation of additional income on HDrIs is higher than the other items irrespective of income level as well as who (i.e. either male, female or jointly) has the command over the household income and expenditure. Hence, it is evident that there is a close linkage in Chain A, whereby economic growth has a strong inducement to human development in Nagaland.

6.2: CHAIN B

The role of social development such as education and health in promoting basic capabilities emerges as the pre-requisite for overall development.³²⁰ There is a presumption that educated and skilled labor force is necessary for the use of improved technologies, thereby, generating faster growth.³²¹ It is argued that an increase in national output due to increase in the level of education is larger, as compared to that of man-hours and physical reproducible capital. Also, income received due to higher education and skilled through salary and wages are higher to that of physical capital in the form of dividends and undistributed corporate profits.³²²

There is also an argument that rapid and steady EG is necessary condition for economic development in the short and medium terms. But in long term, unless it is accompanied by improvement in education and health, the development would be unsustainable.³²³ Thus, human development becomes an important phenomenon for sustainable economic development and growth of an economy.

³²⁰ Das, Abhiman (1999): "Socio-Economic Development in India: A Regional Analysis", *Development and Society*, Volume 28 (2).

³²¹ Benhabib, J and Spiegel (1994): "The Role of Human Capital in Economic Development: Evidence from Aggregate Cross-country Data", *Journal of Monetary Economics*, 34: 143-174.

³²² World Bank (2004): "Beyond Economic Growth", Student Book, Chapter 7. <http://www.worldbank.org/depweb/English/beyond/global/chapter7.htm/>. accessed on 20/08/2008

³²³ Tambunan, T (2005): "Economic Growth, Appropriate Policies and Poverty Reduction in A Developing Country: Some Experience from Indonesia", *South Asia Economic Journal*, Vol. 6 (1), Jan-June.

Hence, the following analysis is to explore the inducement from HD to EG in the context of Nagaland. The variables chosen as proxy for HD are adult literacy rate, enrolment in higher education, years of schooling and IMR, while for EG are PCI, adoption of improved methods in cultivation in agriculture and labour productivity.

MACRO-LEVEL

At *macro level*, the higher level of education of workforce leads to higher productivity as a result of its positive effects on innovation.³²⁴ Also, it is a widely accepted notion that there is a significant effect of HD on increase in per capita income. The stock of educational capital represented by the secondary school enrolment rate has a significant positive impact on steady per capita income.³²⁵ Also, there is positive effect of education on EG at *macro-level* with its size varying according to the levels of education.³²⁶

Based on the argument made above, it is assumed that the higher the level of education such as adult literacy rate, Enrolment in Higher Education (EnHE) and improved health (IMR), the higher will be the Per Capita Income (PCI). Literacy rate and IMR are available for discrete period of 10 years gap. Hence, the analysis is undertaken with a gap of 10 years. The Literacy Rate, Enrolment in Higher Education (EnHE) and IMR have been taken 3 years time lag to PCI at time 't'.

6.2.1: Education and Income

(i) **Inducement of Literacy Rate (LR) on PCI:** The correlation coefficient result showed that the relationship between LR and PCI is highly positively correlated as 'r' value is estimated to be 0.994 as indicated in table 6.12. Further, regression coefficient 'b' value is estimated to be 0.0837, implying that 1% increase in the LR (adult) will increase PCI by 8.37% in Nagaland.

To examine whether the impact is statistically significant, t-test is undertaken. It is resulted that the calculated value of 't' ($|t|=21.84$) is greater than the table value of 't' ($|t|=9.92$) at 1% level. This shows that the impact is statistically significant at 1% level. Hence, the higher the literacy rate, the higher is the per capita income.

(ii) **Inducement of Higher Education on PCI:** The linkage between Enrolment in Higher Education (EnHE) and PCI is presented in table 6.12. It is observed that the relationship between the two is positively highly correlated as 'r' value is 0.969. Also, the regression coefficient 'b'

³²⁴ Trivedi, K (2002): *Educational Human Capital ad Levels of Income: Evidence From States in India, 1963 – 1992*, Discussion Paper No. 97, Department of Economics, Nuffield College, University of Oxford, Oxford.

³²⁵ Dholakia, R H (2003): "Regional Disparity in Economic and Human Development in India", *Economic and Political Weekly*, Vol.38 (39) Sept. 27: 4166-72.

³²⁶ Barro, J R (1991): "Economic Growth in a Cross-Section of Countries", *Quarterly Journal of Economics*, 106.

value is estimated to be 0.119, which implies that 1% increase in EnHE will increase PCI by 11.9%.

Further, t-test is undertaken to examine whether the resultant impact is statistically significant at 5% level. It has resulted that the calculated value of 't' ($|t|=17.98$) is higher than the table value of 't' ($|t|=12.7$) at 5% level. Thus, the impact of higher education on PCI is statistically significant at 5% level. Hence, we can conclude that the higher the level of education, the higher is the level of PCI.

Thus, it is observed that the impact of education on PCI is positive and statistically significant. Hence, the hypothesis which states that the higher the level of education, the higher is the per capita income is accepted.

Table 6.12: Impact of Education and IMR on PCI in Nagaland

Independent Variables	Constant (γ)	Coefficient (b)	r	r^2	SE	df ²
Literacy Rate (adult)	4.39	0.0837 (21.84)**	0.994	0.988	.0004	4
Enrolment in Higher Education	7.42	0.119 (17.98)*	0.969	0.939	0.994	1
IMR	12.95	-0.0757 (-3.93)	-0.969	0.939	0.879	1

DEPENDENT VARIABLE: PCI (natural logarithm).

Note: γ is intercept, b is regression coefficient, t-statistics are given in brackets. **and* represents 1 and 5 percent levels of significant respectively, r is correlation coefficient, r^2 is coefficient of determination, SE is standard error and df² denotes degree of freedom in two-tailed.

6.2.2: Health and Income

Generally, it is perceived that when a person is physically healthy, the capability and efficiency to work is higher. In other words, an improvement in health condition will increase the level of income. The indicators of health such as life expectancy, illness and IMR are important determinants of the health condition. However, due to nonavailability of time series data of the first two, IMR is chosen as a proxy for health indicator in the present analysis. Hence, it is hypothesised that the lower the level of IMR, the higher is the level of income (PCI).

The Linkage: It is observed that the relationship between IMR and PCI is highly negatively correlated as the estimated 'r' value is -0.969. This shows that when IMR reduces, PCI increases. Further, the regression coefficient 'b' value is estimated to be -0.0757, which implies that 1% reduction in IMR will lead to an increase in PCI by 7.57%. T-test is undertaken to examine whether the resultant impact is statistically significant at 5% level. The result shows that the calculated value of 't' ($|t|=3.93$) is lower than the table value of 't' ($|t|=12.7$) at 5% level. Thus, the impact of IMR on PCI is statistically not significant at 5% level, though negative. Hence, the hypothesis which states that the lower the IMR, the higher is the PCI may be rejected.

Hence, at the macro-level analysis, it is observed that there exists significant linkage between HD and EG. Therefore, it may be concluded that there is strong inducement from HD to EG in Nagaland. An interesting finding is that the impact of education on the PCI is higher than that of health (IMR) on PCI. Further, the impact of higher education (11.9%) on income is higher than that of adult literacy rate (8.37%) by 3.53%.

MICRO-LEVEL

At *micro level*, many studies have shown that the higher level of HD due to improved in education and health of people affects EG by enhancing their capabilities, efficiency and productivity. Also, an improvement in health condition has direct effect on labour productivity.³²⁷ It is higher especially among poorer households.³²⁸ It is argued that the returns to primary schooling tend to be greater than the returns to secondary and tertiary education in agriculture.³²⁹ Empirical evidences have shown that increased in education of individual raises not only their own productivity but also that of others with whom they interact; as a result the average level of income has increased.³³⁰ The use of modern technologies by means of receiving higher education yields more productivity and efficiency among farmers in agriculture.³³¹ It has been empirically proved that increase in additional years of schooling have significant impact on growth.³³² Studies have revealed that increase in earning is associated with additional years of schooling with the rate of return varying according to the levels of education.³³³

Against this back drop, the impact of education like levels and years of schooling on income and agriculture are examined. The levels and years of schooling are taken as educational variables (independent variables), while income, labour productivity and uses of improved methods in farming are taken as economic growth variables (dependent variables). To determine the levels of impacts, simple regression method is used in the analysis, whereby to run the analysis possible, dummy 1 is employed for those who have *never attended* formal school.

6.2.3: Level of Education and Income

In aggregate, 931 individuals' incomes have taken into consideration. Out of which, 6% have *never attended* formal schooling, 9% have attended up to *primary* level, while individuals

³²⁷ Kalirajan, K P and R J Shand (1985): "Types of Education and Agricultural Productivity: A Quantitative Analysis of Tamil Nadu Rice Farming", *Journal of Development Studies*, Vol 21 (2): 232-43.

³²⁸ Rosenweig, M R (1995): "Why Are There Returns in Schooling?" *American Economic Reviews*, 85 (2)

³²⁹ Psacharopoulos, G, S Morley, A Fiszbein, H Lee and B Wood (1992): "*Poverty and Income Distribution in Latin America: The Story of the 1980's*," Washington, DC: World Bank.

³³⁰ Romer (1990), Perotti (1993)

³³¹ Chaudhuri, D P (1979): *Education, Innovations and Agricultural Development*, Croom Helm, London.

³³² Nauriyal, D K, Bimal K Sahoo and Anil Dixit (2009): "Economic Growth, Globalization and Human Capital", *The Indian Economic Journal*, Vol. 56 (1), Jan-Mar.

³³³ Behrman and Deolalikar (1988): Behrman, (1990, 1993, 1996); Schultz 1988; Strauss and Thomas 1995

who have attended *middle* and *secondary* levels constitute maximum proportion with 26% each. Further, earning members having *higher secondary* and *graduate & above* education constitute 15% and 18% respectively.

It has been observed that the average monthly income of 931 individuals was Rs.5,670. Educational qualification-wise data shows that the average monthly incomes of individuals who have *never attended* formal schooling was Rs. 1,823, while that of *primary, middle* and *secondary, higher secondary* and *graduate & above* level of education were Rs. 2,041, Rs. 4,448, Rs. 6,571, Rs. 8,944 and Rs. 9,854 respectively. Hence, it is obvious that higher level of schooling is associated with higher level of income in Nagaland.

District-wise data shows that the average individual's income was highest in relatively more developed district Mokokchung with Rs. 6,611, followed by Tuensang and Phek with Rs. 5,460 and Rs. 4,913 respectively.

Further, the proportion of earning members for those who have *never attended* formal schooling was highest in Phek district with 9%, while that of Mokokchung and Tuensang were 4% each. The corresponding average monthly incomes were Rs. 2,175, Rs. 2,492 and Rs. 1,663. For *primary* level of schooling, the highest proportion of earning member was in Phek with 13%, followed by Tuensang and Mokokchung with 12% and 3% respectively with an average monthly income of Rs. 1,754, Rs. 2,948 and Rs. 1,816 respectively. In *middle* level of schooling, the highest proportion of earning member was Tuensang with 40%, followed by Phek and Mokokchung with 23% and 6% respectively with an average monthly income of Rs. 5602, Rs. 3,898 and Rs. 3,788 respectively.

For *secondary* level of schooling, Mokokchung had the highest proportion with 34%, followed by Tuensang and Phek with 23% and 22% with their average monthly income of Rs. 7,819, Rs. 7,606 and Rs. 4,596 respectively. In *higher secondary* level, the highest percentage of individual was in Phek, followed by Mokokchung and Tuensang with 17%, 16% and 11% with an average monthly income of Rs. 6,634, Rs. 9,612 and Rs. 9,818 respectively. For those who have *graduate & above* level of education, the highest proportion of individual was in Mokokchung with 29%, followed by Phek and Tuensang with 16% and 12% respectively. The corresponding average monthly incomes were Rs. 9,700, Rs. 10,422 and Rs. 8,669.

It is observed that in lesser developed districts such as Tuensang and Phek, the number of earning members in lower levels of education (secondary and below) is more than the higher level of education (higher secondary and above). Conversely, in relatively more developed district Mokokchung, the proportion of earning members in higher level of education is more

than the lower level of education. Another observation is that in sample aggregate, those who have higher level of education, their earning are comparatively higher than lower level of education. Hence, this is in conformity to the stated assumption that higher level of education is associated with higher income.

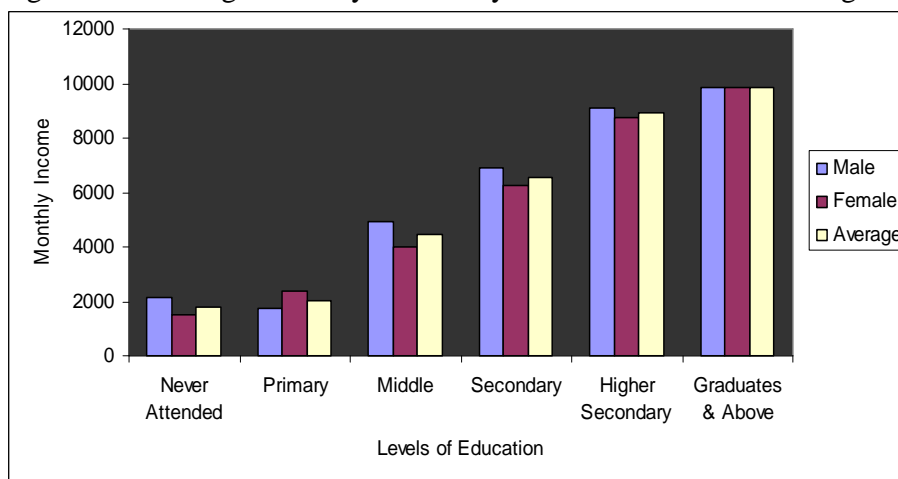
Table 6.13: Level of Education and Income in Nagaland during 2009-10

Districts	Sex	Level of Education													
		Total		Never Attended		Primary		Middle		Secondary		Higher Secondary		Graduates & above	
		N	AY	N	AY	N	AY	N	AY	N	AY	N	AY	N	AY
Mokokchung	M	173	6672	6	2553	5	1800	32	3733	66	7451	27	8041	37	9674
	F	106	6566	4	1000	5	1833	7	2310	29	8160	17	10891	44	9732
	T	279	6611	10 (4)	2492	10 (3)	1816	18 (6)	3788	95 (34)	7819	44 (16)	9612	81 (29)	9700
Phek	M	220	4850	23	2210	32	1546	49	3789	46	4629	34	8056	36	9371
	F	125	5122	9	1084	12	1528	32	4007	30	4562	24	5213	18	11473
	T	345	4913	32 (9)	2175	44 (13)	1754	81 (23)	3898	76 (22)	4596	58 (17)	6634	54 (16)	10422
Tuensang	M	171	6578	9	2143	13	2079	50	6944	49	8955	28	10386	22	9742
	F	136	5232	4	1184	16	3870	73	4572	22	5535	6	8167	15	7595
	T	307	5460	13 (4)	1663	29 (9)	2948	123 (40)	5602	71 (23)	7606	34 (11)	9818	37 (12)	8669
Nagaland	M	564	5781	38	2131	50	1732	131	4924	161	6907	89	9124	95	9873
	F	367	5578	17	1514	33	2350	112	3972	81	6235	47	8764	77	9834
	T	931	5670	55 (6)	1823	83 (9)	2041	243 (26)	4448	242 (26)	6571	136 (15)	8944	172 (18)	9854

Source: Household Survey 2009-10.

Note: The figures in parentheses indicate percentage, N- number of persons, AY- average monthly income

Figure 6.5: Average Monthly Income by Levels of Education in Nagaland during 2009-10



Source: Based on table 6.14

The Linkage: The analysis of linkage between years of schooling and level of income showed that there is positive correlation between the two as 'r' value is estimated to be 0.592. Further, the regression coefficient 'b' value has estimated that the impact of an additional year of schooling on income is 12.8%. The t-statistics shows that the impact is statistically significant at 1% level as the calculated 't' value is |t|=22.38 for 929 degrees of freedom.

Table 6.14: Impact of Years of Schooling on Income in Nagaland

Dependent Variables	Districts	Constant (γ)	b	r	r^2	Adj. r^2	SE	df2
Income	Mokokchung	7.61	.0949 (10.30)**	0.525	0.276	0.273	0.009	277
	Phek	7.05	.114 (13.02)**	0.575	0.331	0.329	0.009	343
	Tuensang	6.34	.171 (12.23)**	0.608	0.370	0.367	0.014	305
	Nagaland	6.99	.128 (22.38)**	0.592	0.350	0.349	0.006	929

INDEPENDENT VARIABLE- Years of schooling. Note: γ is intercept, b is regression coefficient, t-statistics are given in brackets, ** represents 1 percent level of significant respectively, r is correlation coefficient, r^2 is coefficient of determination, SE is standard error and df^2 is degree of freedom at two-tailed.

Among the sample districts, the relatively less developed district Tuensang has the highest impact with 17.1%, followed by Phek with 11.4% and Mokokchung with 9.49%. The t-statistics shows that the impact is statistically significant at 1% level in all the sample districts as their corresponding calculated 't' values are $|t|=12.23$, $|t|=13.02$ and $|t|=10.30$. Hence, the hypothesis which states that the additional year of schooling is associated with higher level of income is accepted.

It is observed that the impact is higher in relatively lesser developed district than that of the relatively more developed districts. The impact in Tuensang is found to be higher than that of Mokokchung and Phek by 7.61% and 5.7% respectively. Hence, an inference can be drawn that in less developed district, educated persons are relatively fewer, therefore, when one obtains higher level of education, they avail more earning opportunities.

6.2.4: Education and Agriculture

In agriculture, evidences show that education has positive effects on productivity and efficiency by using modern technologies.³³⁴ Study showed that farmer's years of schooling are also associated with more efficiency in agricultural farming and higher productivity.³³⁵ Many developing countries have experienced that there is positive correlation between additional year of farmer's schooling and annual increase in output.³³⁶ Also, there is an evidence that an increased in the level of education is associated with technology adoption in agricultural farming.³³⁷ Moreover, skilled and higher educational levels of workers and entrepreneurs are

³³⁴ Kalirajan, K P and R J Shand (1985): "Types of Education and Agricultural Productivity: A Quantitative Analysis of Tamil Nadu Rice Farming", *Journal of Development Studies*, Vol. 21 (2): 232-43.

³³⁵ Chaudhuri, D P (1979): "Education, Innovations and Agricultural Development", Croom Helm, London.

³³⁶ Birdsall, N (1993): *Social Development is Economic Development*, World Bank Policy Research Working Papers, WPS, 1123, Washington, DC.

³³⁷ Foster, A D and M R Rosenzweig (1995): "Learning by Doing and Learning from Others: Human Capital and Technical Change in Agriculture", *Journal of Political Economy*, Vol. 103.

positively correlated to the rate of technological changes in the firm.³³⁸ Further, an improvement in education enhances agricultural performance through application of essential intermediary factors such as effective use of new technologies and inputs.³³⁹

In this effect, the present section attempts to explore the linkage between farmer's years of schooling with productivity and uses of improved methods in agriculture in Nagaland. Hence, it is hypothesised that the higher the years of schooling, the higher is the uses of improved methods in agriculture and the higher is the productivity. In the analysis, only the farming household head's years of schooling is taken into consideration and it is taken as an independent variable. The uses of improved methods in farming including high yielding variety seeds and machines such as tools, tillers and spray, while the crop productivity measured in metric tonne per hectare (MT/Hec) are taken as dependent variables.

The study has taken 184 farmers into consideration. Out of which, Phek constitute the highest proportion with 48.91%, followed by Tuensang and Mokokchung with 30.44% and 19.57% respectively. In sample aggregate, the farmers who have *never attended* formal schooling consist of 20.65%, while that of *primary, middle, secondary, higher secondary and graduate & above* accounted for 24.46%, 25.54%, 22.83%, 4.89% and 1.63% respectively.

Table 6.15: Education and Agriculture in Nagaland.

Districts	Level of Education of Farmer	No. of Farmers	Units of Use of Improved Methods			Average Labour Productivity (MT/Hec)
			HYV Seeds	Machines/Tools	Total	
Mokokchung	1	06 (16.67)	2	5	07 (20.00)	0.933
	2	07 (19.44)	2	0	02 (05.71)	1.318
	3	07 (19.44)	2	8	10 (28.57)	1.340
	4	12 (33.33)	5	7	12 (34.29)	1.442
	5	02 (05.56)	1	0	01 (02.88)	1.300
	6	02 (05.56)	1	2	03 (08.57)	1.713
	Total	36	13	22	35	1.307
Phek	1	24 (26.67)	1	24	25 (15.15)	1.129
	2	30 (33.33)	3	50	53 (32.12)	1.123
	3	19 (21.11)	1	40	41 (24.85)	1.237
	4	11 (12.22)	3	20	23 (13.94)	1.255
	5	06 (06.67)	3	20	23 (13.94)	1.465
	6	00 (00.00)	0	0	0 (00.00)	0
	Total	90	11	154	165	1.242
Tuensang	1	08 (14.29)	0	1	01 (06.25)	1.377
	2	08 (14.29)	0	1	01 (6.25)	1.398
	3	21 (37.50)	4	3	07 (43.75)	1.379
	4	19 (33.93)	2	2	04 (25.00)	1.568
	5	01 (01.79)	1	1	02 (12.50)	1.371
	6	01 (01.79)	1	0	01 (06.25)	1.507

³³⁸ Deraniyagala, S (1995): *Technical Change and Efficiency in Sri Lanka's Manufacturing Industry*, D.Phil., Oxford.

³³⁹ Kohima District Human Development Report (2009): Department of Planning and Coordination, Government of Nagaland: 25

	Total	56	8	8	16	1.424
Total	1	38 (20.65)	3	30	33 (15.28)	1.113
	2	45 (24.46)	5	51	56 (25.93)	1.280
	3	47 (25.54)	7	51	58 (26.85)	1.285
	4	42 (22.83)	10	29	39 (18.06)	1.422
	5	09 (04.89)	5	21	26 (12.03)	1.492
	6	03 (01.63)	2	2	04 (01.85)	1.610
	Total	184	32	184	216	1.367

Source: Household Survey 2009-10.

Note: For educational levels of farmers; 1 stands for never attended schooling, 2- primary level, 3-middle level, 4-secondary standard, 5-higher secondary and 6-graduates and above. The figures in parentheses denote percentage.

Among the sample districts, the proportion of farmers who have *never attended* schooling was highest in Phek with 26.67%, followed by Mokokchung and Tuensang with 16.67% and 14.29% respectively. The same order of the districts follows for *primary* level of schooling with 33.33%, 19.44% and 14.29% respectively. In *middle* level, the highest percentage of farmer was in Tuensang with 37.5%, followed by Phek and Mokokchung with 21.11% and 19.44% respectively. The proportion of farmer with *secondary* level of education was highest in Tuensang with 33.93%, followed by Mokokchung and Phek with 33.33% and 12.22% respectively. For *higher secondary* level, it was highest in Phek with 6.67%, followed by Mokokchung and Tuensang with 5.56% and 1.79% respectively. It is observed that the proportion of farmer with *graduate & above* level of education in Phek was nil as per the survey, while that of Mokokchung and Tuensang are 5.56% and 1.79% respectively. Hence, it is observed that when higher levels of education are obtained, there is less dependence on agriculture. In other words, there is an inverse relationship between level of education and dependency on agriculture in Nagaland.

(i) Years of Schooling and Uses of Improved Methods: In sample aggregate, the total units of improved method uses in agriculture were 216 including 32 HVY seeds and 184 machines. Among the sample districts, the number of improved methods used was highest in Phek with 165 units, followed by Mokokchung and Tuensang with 35 and 16 units respectively.

In sample aggregate, the proportion of improved methods used by those who have *never attended* formal school was 15.28% of the total units, while that of *primary, middle, secondary, higher secondary* and *graduate & above* levels constitute 25.93%, 26.85%, 18.06%, 12.03% and 1.85% of total units respectively.

Among the sample districts, the proportion of farmers adopting *improved methods* by those who have *never attended* formal schooling was highest in Mokokchung with 20%, followed by Phek and Tuensang with 15.15% and 6.25% respectively. In *primary* level of schooling, it was highest in Phek with 32.12%, followed by Tuensang and Mokokchung with 6.25% and 5.71%

respectively. The proportion of improved methods used by farmers who have *middle* level of education was highest in Tuensang with 43.75%, followed by Mokokchung and Phek with 28.57% and 24.85% respectively. In *secondary* level, Mokokchung had the highest proportion with 34.29%, followed by Tuensang and Phek with 25% and 13.94% respectively. It has been observed that for *higher secondary* level, Phek had the highest proportion with 13.94%, followed by Tuensang and Mokokchung with 12.5% and 2.88% respectively. In *graduate & above* level, the proportion of improved methods uses in Mokokchung and Tuensang are 8.57% and 6.25% respectively, while Phek was nil in this category.

Thus, the *uses of improved methods* in agriculture was highest with those who have attended primary and middle levels of schooling. Further, the highest number of unit uses of improved methods in order is Phek, Mokokchung and Tuensang.

The Linkage: The analysis result as indicated in table 6.17 has revealed that although there exists positive correlation between years of schooling and uses of improved methods as ‘r’ value is 0.111, but is low. Further, the regression coefficient ‘b’ value is estimated that additional year of schooling would increase the use of improved methods by 3.17% only. T-test result has shown that the calculated value of ‘t’ ($|t|=1.63$) is smaller than the table value of ‘t’ ($|t|=1.96$) for 182 degrees of freedom at 5% level (two-tailed). Hence, the impact is statistically not significant for sample aggregate, though positive. Thus, the hypothesis which states that the higher level of education increases the uses of improved methods in agriculture cannot be accepted.

Table 6.16: Impact of Years of Schooling on Uses of Improved Methods in Nagaland.

Dependent variables	Districts	Constant (γ)	Coefficient (b)	r	r^2	Adj. r^2	SE	df2
Use of Improved Methods	Mokokchung	2.44	.0470 (1.95)	0.176	0.031	0.023	0.024	36
	Phek	0.90	.0896 (2.74)*	0.436	0.190	0.164	0.033	90
	Tuensang	1.11	.0210 (0.895)	0.120	0.014	-0.004	0.024	58
	Nagaland	1.95	.0317 (1.63)	0.111	0.012	0.008	0.020	182

INDEPENDENT VARIABLE: Years of schooling (level of education).

Note: γ is intercept, b is regression coefficient, t-statistics are given in brackets, * indicates 5 percent level of significant (2-tailed), r is correlation coefficient, r^2 is coefficient of determination and SE is standard error.

Among the sample districts, the impact of additional year of schooling on uses of improved methods in agriculture is highest in Phek with 8.96%, followed by Mokokchung and Tuensang with 4.70% and 2.10% respectively. The corresponding calculated ‘t’ values are $|t|=2.74$, $|t|=1.95$ and $|t|=0.895$. This shows that the impact in Phek district is statistically

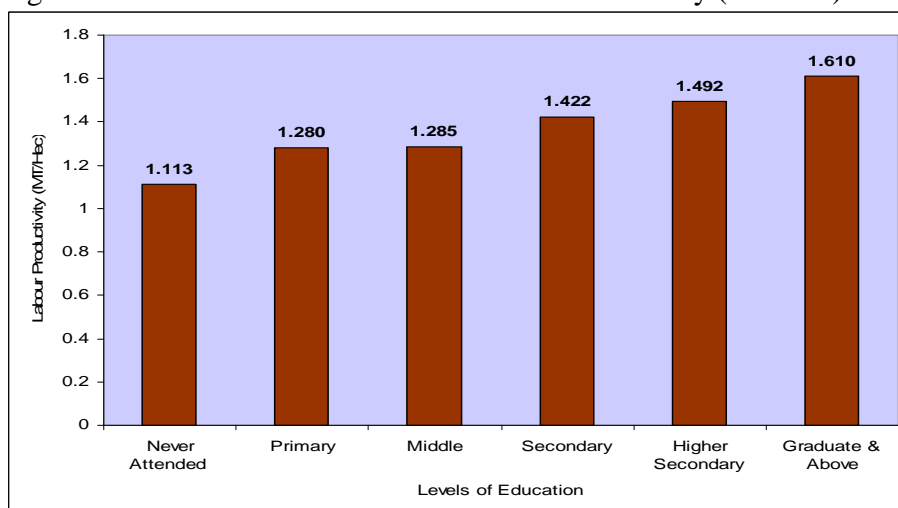
significant at 5% level, but in Mokokchung and Tuensang, although there is positive impact, it is statistically not significant.

This may be due to the fact that shifting cultivation is the dominant agricultural system in Nagaland particularly in Mokokchung and Tuensang. The scope for application of modern technology and inputs are limited in such type of cultivation. Thus, the impact of education on adoption of improved tools and other inputs are not statistically significant. On the other hand, Phek district practices terrace cultivation with irrigation whereby uses of modern tools and inputs is relatively convenient than shifting type of cultivation. Hence, it can be concluded that the uses of improved methods in agriculture is generally predetermined by its agricultural system rather than by the level of education in Nagaland.

(ii) Years of Schooling and Productivity: The study showed that the average productivity for sample aggregate is estimated to be 1.367 MT/Hec. Among the sample districts, Tuensang had the highest productivity with 1.424 MT/Hec, followed by Mokokchung and Phek with 1.307 MT/Hec and 1.242 MT/Hec respectively.

In sample aggregate, farmers who have *never attended* and attended *middle* level of schooling, the yields are lower than the State's average as indicated in table 6.16. The average productivity for farmers who have *never attended* schooling, attended *primary* and *middle* are 1.113, 1.280 and 1.285 MT/Hec respectively, while the same for *secondary*, *higher secondary* and *graduate & above* are 1.422, 1.492 and 1.610 MT/Hec respectively. It is observed that additional year of schooling is associated with higher labour productivity in Nagaland.

Figure 6.6: Levels of Education and Labour Productivity (MT/Hec) in Nagaland during 2009-10.



Source: Based on table 6.16

Among the sample districts, the average labour productivity for those who have *never attended* schooling was highest in Tuensang with 1.377 MT/Hec, followed by Phek and

Mokokchung with 1.129 and 0.933 MT/Hec respectively. For *primary* level, it was highest in Tuensang with 1.398 MT/Hec, followed by Mokokchung and Phek with 1.318 and 1.123 MT/Hec respectively. The same sequence of the districts followed for *middle* and *secondary* levels of schooling. In *middle* school level, it was 1.379, 1.340 and 1.237 MT/Hec respectively, while the same for *secondary* level were 1.568, 1.442 and 1.255 MT/Hec respectively. For *higher secondary* level of schooling, Phek had the highest with 1.465 MT/Hec, followed by Tuensang and Mokokchung with 1.371 and 1.300 MT/Hec respectively. The productivity for those who have *graduate & above* was highest in Mokokchung with 1.713 MT/Hec and that of Tuensang is 1.507 MT/Hec, while Phek was nil as indicated in table 6.16.

Therefore, it may be inferred that the higher level of education is associated with higher productivity in Nagaland. Thus, this is in conformity to the above assumption that higher the level of education, higher is the level of productivity.

The Linkage: It has been observed from the analysis of correlation coefficient that there exists positive correlation between years of schooling and labour productivity as ‘r’ value is 0.427. Further, regression coefficient has estimated that an additional year of schooling would increase the productivity by 2.84%. T-test result shows that the calculated value of ‘t’ ($|t|=3.37$) is greater than the table value of ‘t’ ($|t|=2.58$) at 1% level for 182 degrees of freedom. Hence, the impact is statistically significant at 1% level. It may be stated that although it is significant, the value of correlation is modest as productivity is determined by many other factors.

Table 6.17: Impact of Years of Schooling on Agricultural Productivity in Nagaland

Dependent Variables	Districts	Constant (γ)	Coefficient (b)	r	r^2	Adj. r^2	SE	df ²
Productivity	Mokokchung	1.00	.0365 (3.27)**	0.473	0.224	0.203	0.011	37
	Phek	1.03	.0206 (3.83)**	0.388	0.149	0.139	0.005	84
	Tuensang	1.26	.0183 (2.21)*	0.281	0.079	0.063	0.008	57
	Nagaland	1.06	.0284 (3.37)**	0.427	0.182	0.178	0.004	182

INDEPENDENT VARIABLE: Years of schooling (level of education).

Note: γ is intercept, b is regression coefficient, t-statistics are given in brackets, ** and * indicates 1 and 5 percent levels of significant respectively, r is correlation coefficient, r^2 is coefficient of determination, SE is standard error and df² is degree of freedom at two-tailed.

Among the sample districts, the impact of additional year of schooling on productivity is highest in Mokokchung with 3.65%, followed by Phek and Tuensang with 2.06% and 1.83% respectively. The calculated ‘t’ values are $|t|=3.27$, $|t|=3.83$ and $|t|=2.21$ respectively, which shows that the impact is statistically significant at 1% level in Mokokchung and Phek, while in Tuensang, it is statistically significant at 5% level. Therefore, it can be concluded that the higher

the level of education, the higher is the labour productivity. Thus, the hypothesis which states that the higher the level of education, the higher is the productivity in Nagaland is accepted.

Hence, it is empirically evident that there is positive impact of education (literacy rate and years of schooling) on income, productivity and usage of improved methods in agriculture in Nagaland. Also, there is negative correlation between health (IMR) and level of income, though the impact is not significant. Thus, it is obvious that there exists strong inducement from Human Development to Economic Growth in Nagaland. Therefore, it can be concluded that the hypothesis which states that there is two-way positive linkages between Economic Growth and Human Development in Nagaland is accepted.

6.3: FEMALE EDUCATION AND HUMAN DEVELOPMENT

There is evidence that female education have positive effects on improvement in human development. Evidence has shown that higher level of female literacy rate yields higher return of economic growth.³⁴⁰ Female education also adds additional income to the household, improve in standards of hygiene and decline in population growth.³⁴¹ Basic female education is considered as one of the most powerful factors that influence infant mortality.³⁴² Studies have shown that there is negative correlation between female education and fertility rate varying with level of education.³⁴³ The girl's education has a negative impact on fertility rate especially in developing countries.³⁴⁴ Also, there is evident that female years of schooling are associated with the use of contraceptives and adoption of small family norms, which reduces fertility rate.³⁴⁵

Thus, it is felt imperative to examine the impact of female education on human development in Nagaland. It is hypothesised that i) the higher the female literacy rate, (a) the higher is the PCI, (b) the lower will be the IMR, and ii) the higher the years of schooling of female (mothers), the smaller is the family size.

6.3.1: Female Literacy Rate and PCI: Following the perception that female education has positive impact on income, the present section examines the linkage of female literacy rate with level of per capita income. The female literacy rate is taken 3 years time lag to PCI at time

³⁴⁰ Kingdom, Geeta G and Jeemol Unni (2001): "Education and Women's Labour Market Outcomes in India", *Education Economics*, Vol.9 (2): 73-95.

³⁴¹ NCEAR, (2001): South India Human Development Report: 103. (The Gulf effect in Kerala: Many Muslims households were headed by Wives due to migration of husband to the Gulf. This has positively impact on human development in the State.)

³⁴² Kapoor, Shruti (2010): *Infant Mortality Rates in India: Districts Level Variations and Correlations*, http://www.isid.ac.in/~pu/conference/dec_10_conf/Papers/ShrutiKapoor.pdf. accessed on 29/05/2011

³⁴³ Birdsall, Ross and Sabot (1995), Strauss and Thomas, (1995), Behrman and Wolfe, (1987a).

³⁴⁴ Thomas, D, J Strauss and M H Henriques (1991): "How Does Mother's Education Affect Child Height", *Journal of Human Resources*, Vol.26.

³⁴⁵ MHHDC (2002): *Human Development in South Asia*, Oxford University Press, Karachi:15

't'. The female literacy rate is taken as independent variable and PCI (general) is taken as dependent variable.

The correlation coefficient analysis has shown that there is highly positively correlated between female literacy rate and PCI as 'r' value is 0.953. Further, the regression coefficient 'b' value is estimated to be 0.0725, implying that 1% increase in the female LR will have a positive impact on PCI by 7.25%. The t-statistics shows that the calculated value of 't' ($|t|=42.35$) is higher than the table value of 't' ($|t|=9.92$) at 1% level. Hence, the impact of female LR on PCI is statistically significant at 1% level. Thus, the higher the female LR, the higher is the PCI in Nagaland.

Table 6.18: Impact of Female Literacy Rate on PCI and IMR in Nagaland.

Dependent Variables	Constant (γ)	Coefficient (b)	r	r^2	SE	df ²
PCI ₊₃	5.47	0.0725 (42.35)**	0.953	0.909	0.002	1
IMR	15.6	-0.0895 (14.12)*	-0.963	0.927	0.887	1

INDEPENDENT VARIABLE: Female Literacy Rate.

Note: IMR- Infant Mortality Rate, PCI₊₃-Per Capita Income in 3 years time lag, γ is intercept, b is regression coefficient, t-statistics are given in brackets, ** and * indicates 1 and 5 percents level of significant respectively, r is correlation coefficient, r^2 is coefficient of determination, SE is standard error and df² denotes degree of freedom in two-tailed.

6.3.2: Female Literacy Rate and IMR: Female literacy rate is assumed to be independent variable, whereby it is taken 10 years time lag to the dependent variable IMR at time 't'. The figure in table 6.19 has depicted that there is highly negatively correlated between female literacy rate and IMR as correlation coefficient (r) value is estimated to be -0.963. Further, the impact of female literacy rate on IMR has been examined, whereby female literacy rate is taken as independent variable and IMR as dependent variable. It is estimated that the regression coefficient (b) value is -0.0895. This implies that 1% increase in female literacy rate will reduce IMR by 8.95%. To examine whether the impact is statistically significant at 5% level, t-test is undertaken. It is observed that the calculated value of 't' ($|t|=14.12$) is higher than the table value of 't' ($|t|=12.7$) at 5% level of significant. Hence, it can be concluded that the higher the female literacy rate, the lower is the IMR in Nagaland.

6.3.3: Females' Years of Schooling and Family Size: In the study of effect of female years of schooling on family size has taken 488 mothers into consideration. Out of which, Phek constitutes 34.84%, while Tuensang and Mokokchung constitute 32.99% and 32.17% respectively as indicated in table 6.20. In the same table, it is shown that 15% mothers have *never attended* formal schooling, while those who have attended *primary, middle, secondary, higher secondary* and *graduate & above* levels comprise of 14%, 32%, 22%, 8% and 8% respectively.

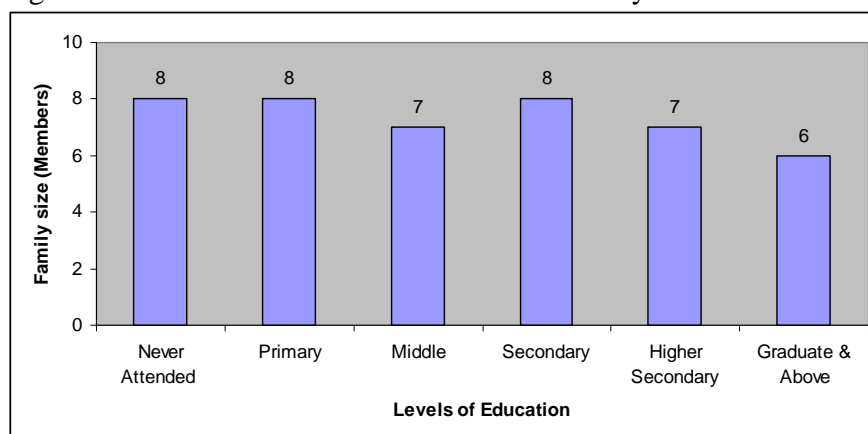
Further, it is observed that the average *family size* for sample aggregate was 6.67 members. The average family size for mothers who have *never attended* schooling, attended *primary* and *secondary* levels were 8 members each, while for *middle* and *higher secondary*, it was 7 members each and that of *graduate & above* was 6 members.

Table 6.19: Years of Schooling of Mothers and Average Family Size

District	Years of Schooling of Mothers													
	Total		Never attended		Primary		Middle		Secondary		Higher Secondary		Graduate & above	
	No. of mothers	Family Size	No. of mothers	Family Size	No. of mothers	Family Size	No. of mothers	Family Size	No. of mothers	Family Size	No. of mothers	Family Size	No. of mothers	Family Size
Mokokchung	157 (31.72)	6.5	16 (10)	7	10 (06)	7	34 (22)	6	60 (38)	7	18 (12)	6	19 (12)	6
Phek	170 (34.34)	7.5	45 (26)	8	34 (20)	9	40 (24)	8	28 (16)	8	12 (07)	7	11 (06)	5
Tuensang	161 (32.53)	7.8	11 (07)	8	24 (15)	7	84 (52)	9	23 (14)	8	9 (06)	8	10 (06)	7
Nagaland	488 (100)	6.7	72 (15)	8	68 (14)	8	158 (32)	7	111 (23)	8	39 (08)	7	40 (08)	6

Source: Household Survey 2009-10. Note: The figures in parentheses represent percentage.

Figure 6.7: Levels of Female Education and Family Size



Source: Based on table 6. 20.

Among the sample districts, the proportion of mothers who have *never attended* formal schooling was highest in Phek with 26%, followed by Mokokchung and Tuensang with 10% and 7% respectively. The corresponding average family sizes were 8, 7 and 8 members. For *primary* level of schooling, the highest proportion of mothers was also Phek with 20%, followed by Tuensang and Mokokchung with 15% and 6% respectively with an average family size of 9 members in Phek and 7 members each in Mokokchung and Tuensang. In *middle* school level, the highest percentage was in Tuensang with 52%, followed by Phek and Mokokchung with 24% and 22% with corresponding average family size of 9, 8 and 6 members.

For *secondary, higher secondary and graduate & above*, the proportion of mothers was highest in Mokokchung, while the same follows by Phek and Tuensang in all the mentioned levels of education. In *secondary*, it was 38%, 16% and 14% respectively with an average family size of 8 members each for the first two and 7 members for the third district. In *higher secondary*, it was 12%, 7% and 6% with an average family size of 6, 7 and 8 members respectively. Similarly, for *graduate & above*, Mokokchung had 12%, while Phek and Tuensang were 6% each with an average family size of 6, 5 and 7 members respectively.

The Linkage: The linkage between years of schooling (of mother) and family size has been analysed and the result is presented in table 6.21. It is estimated that the correlation between the two is negatively correlated as estimated 'r' value is -0.277. This implies that additional year of schooling is associated with reduction in family size. Further, the regression coefficient 'b' value is estimated to be 0.141, which implies that additional year of schooling reduces family size by 14.1% in Nagaland. T-test shows that the resultant impact is statistically significant at 1% level as the calculated 't' value is $|t|=6.51$. Therefore, the hypothesis which states that the higher the years of schooling of mother, the lower is the family size is accepted.

Among the sample districts, it is observed that the impact of additional year of schooling on reducing family size is highest in Phek with 18.6%, followed by Mokokchung and Tuensang with 8.24% and 1.08% respectively. The corresponding calculated 't' values are $|t|=6.39$, $|t|=2.92$ and $|t|=2$. It implies that the impacts are statistically significant at 1% level in Phek and Mokokchung, while it is statistically significant at 5% level in Tuensang. Hence, the additional year of schooling is associated with reduction in family size in all the sample districts.

Table 6.20: Impact of Years of Schooling of Mothers on Family Size in Nagaland

Dependent Variable	Districts	Constant (a)	b	r	r ²	Adj r ²	SE	df2
Family Size	Mokokchung	5.82	-.0824 (2.92)**	-.229	0.052	0.046	0.028	155
	Phek	7.80	-.186 (6.38)**	-.419	0.175	0.171	0.029	175
	Tuensang	7.40	-.0108 (2.00)*	-.016	0.064	0.062	0.027	159
	Nagaland	7.49	-.141 (6.51)**	-.277	0.077	0.075	0.022	493

INDEPENDENT VARIABLE-Mother's Years of Schooling.

Note: γ is intercept, b is regression coefficient, t-statistics are given in brackets, ** and * represents 1 and 5 percent levels of significant respectively, r is correlation coefficient, r^2 is coefficient of determination and SE is Standard error.

It can be noted that the impact of additional year of schooling on family size is lowest in relatively less developed district Tuensang. It is empirically evident that the impact of additional

year of schooling (female) on reduction in family size in Phek is higher than that of Tuensang by 17.52%, while the same for Mokokchung is higher than that of Tuensang by 7.16%.

Hence, it is evident that there is positive impact of female education on human development particularly in income, health and family size. Therefore, the hypothesis which states that female education has positive impact on human development in Nagaland is accepted.

From the overall analyses of linkages, it is empirically evident that there exist strong linkages between EG and HD in Nagaland. An interesting finding is that the impact of LR on PCI is higher than the impact of PCI on LR by 6.61%. Also, the impact of higher education on PCI is higher than that of the reverse by 2.14%. Hence, although there exist two-way positive linkages between EG and HD, the inducement from HD to EG is found to be stronger than that of the reverse in Nagaland. Further, it is evident that female education plays an important role in improvement in human development. Therefore, it may be concluded that it is vital to stress on improvement in human development prior to income.

Appendices

Appendix 6.1: Public Expenditure in Education and Health, and PCI (t-5) in Nagaland during 1975-2011

Year (t)	Public Expenditure on Education (in Rs. Lakhs) (t-5)	Public Expenditure on Health sector (in Rs. Lakhs) (t-5)	Per Capita Income (PCI) (In Rupees) (t-5)
1981	789.39	1026.04	948
1991	2574.29	5038.57	3034
2001	7936.79	18349.31	13052 (1997-98)
2011	15122 (2001-06)	27805 (2001-06)	21083 (2005-06)

Sources: Statistical Handbooks 2008, 2007, 2006, 2004, 1991 & 1983.

Note: PCI-per capita income is measured at current prices, t-5 denotes 5 years prior to time 't' respectively, The figures in parentheses represent period in years.

Appendix 6.2: PCI (t+3), IMR, LR, Female LR and Enrolment in Higher Education in Nagaland during 1975-2011

Year (t)	PCI (In Rupees) (t+3)	IMR	Literacy rate	Female Literacy Rate	Enrolment in Higher Education (in '000)
1971	780	93**	27.40	18.65	0.724**
1981	2705	*68	42.57	33.72	4.380
1991	6652	*51	51.09	45.52	11.056
2001	20821	^42.10	67.11	61.92	21.485
2011	28665**	34**	80.11	76.69	24.885 (2007-08)

Sources: Statistical Handbooks 2008, 2007, 2006, 2004, 1991 & 1983.

Note: The figure in parenthesis represents years. *-National HDR 2001, **approximated value using interpolation and extrapolation (based on Annual Growth Rate), ^-Nagaland HDR 2004, PCI t+3 is per capita income is measured at current prices 3 years succeeding to time 't'.

CHAPTER VII

FINDINGS AND CONCLUSION

Many studies have been done on growth, development disparities and linkages between growth and human development. Yet, no detail and comprehensive studies have been done in Nagaland. Therefore, the basic objective of the study is to assess growth in various sectors and its spatial disparities among the districts, income and genders, also, the two-way linkages between economic growth and human development. Moreover, the socio-economic indicators, which are bearing direct relation to human well-being, have been empirically assessed. The important findings from the preceding chapters are highlighted below.

7.1: SOCIO-ECONOMIC PROFILE

The socio-economic profiles of Nagaland in general and Sample areas, which have been discussed at length in Chapter 3 are summarised below.

7.1.1: Demographic Characteristics of the State

(i) *Population and its Density:* According to 2011 census, the population of Nagaland is 19,80,602. The density of population is 119 per sq. km against the country's average of 362 per sq. km in the same period.

(ii) *Decadal Growth:* During 1981-91 and 1991-01, the State has witnessed the highest growth rate of population in the country with 56.08% and 64.41% respectively. However, during 2001-2011, it has exhibited negative growth of -0.47%.

(iii) *Rural-Urban Distribution:* The proportion of rural population in Nagaland is 71.03%, which is higher than India of 68.84% in 2011. Correspondingly, the proportion of urban population in Nagaland is lower than India with 28.97% and 31.16% respectively.

(iv) *Sex Ratio:* The sex ratio in Nagaland is only 931 females per 1000 males as compared to India of 940 in 2011. Among the districts, the highest is Zunheboto and lowest is Mon with 981 and 898 respectively.

(v) *Education:* As far as *literacy rate* is concerned, the general education in Nagaland is better than India. The literacy rate for Nagaland in 2011 is 83.29%, which is marginally higher than that of India (82.14%). Also, the *teacher-pupil ratio* in Nagaland is lower than India with 1:19 (2006) and 1:40 (2004) respectively.

(vi) *Health*: The health status in Nagaland is better than India in respect of life expectancy and Infant Mortality Rate. The *life expectancy* for Nagaland in 2001 was 73.4 years as compared to 63 years of India, while for *Infant Mortality Rate*, it was 40 for Nagaland as compared to 69 of India in the same year.

7.1.2: Economic Development

(i) *Sectoral Contribution in NSDP during 1981 to 2006*: The main observations are as follows:

- a. The share of tertiary sector in NSDP has declined marginally, but it has been the leading sector in the State's economy, followed by primary and secondary sectors.
- b. Among the sub-sectors, agriculture is still the major contributing sector in NSDP.
- c. During the last decade, transport and communication has emerged as an important sector in the State's economy.
- d. Other major sub-sectors are (i) construction, (ii) public administration, (iii) real estate, ownership of dwelling and business services, (iv) other services and (v) trade, hotel and restaurant.

(ii) *Per Capita Income*: The Per Capita Income (PCI) in Nagaland during 2005-06 was only Rs. 18,318 as compared to India of Rs. 25,956 during the same period. This means that the PCI of Nagaland was only 70.57% to that of India. Moreover, the household survey has estimated that the PCI of Nagaland (for sample aggregate) during 2009-10 was even lower with only Rs.15,188.

(iii) *Sectoral Employment*: In Nagaland, workers constitute 42.47% of its total population in 2001. It is obvious that the State is predominantly an agrarian economy as 68.03% of the working force were engaged in agriculture and allied activities. The workers in household industries and other workers composed of only 2.20% and 29.84% respectively.

7.1.3: Infrastructural development

(a) Physical Infrastructure

(i) *Transport and communication*: It has been observed that during 2007-08, the total road length in the State was 14,648.68 Kms, out of which only 26% were surfaced. The State has only one *Railway* station and one *Airport*, both located in Dimapur. Besides, the road length per 100 sq. km in Nagaland was only 2.16 in 2008.

(ii) *Industrial Infrastructure*: There is no significant industrial development has been observed in the State. The State has 1 (one) medium scale Cement plant located at Wazeho with the capacity of producing 50 TDP, while paper mill at Tuli and sugar mill at Dimapur have become non-functional. Besides, the State had only 3.61 SSI units per 10,000 population during 2005-06.

(iii) *Electricity and Power:* Among various source of energy, Nagaland has 24 MW Likimro Project and 75 MW Doyang Power Station. But, the State's share in Doyang Power Station is only 12% (9MW), while additional 6% (4.5MW) is being purchased from NEPCO from the same Station. Besides, the State purchases power from other sources through National Grid system. Yet, load shedding becomes daily affairs in the State. During 2005-06, the per capita electricity consumption in Nagaland was 1.35 KWH.

(iv) *Banking:* The data showed that in 2006, *Banks per lakh population* in the State was only 4.69. There were 72 commercial banks operating across the State in 2008 with credit-deposit ratio of 1:4.07, whereas, the 10 Regional Rural Banks had the credit-deposit ratio of 1:0.91 during the same year.

(v) *Agricultural Infrastructure:* To facilitate agricultural development, the State has 1 (one) ICAR at Jarnapani, 1 (one) SARS at Yisemyong and 8 (eight) KVKs. During 2006-07, the proportion of total area under agriculture in the State was 30.08%, out of which, only 27.16% of the total cultivated area was covered with irrigated facility.

(b) Social Infrastructure

(i) *Educational Institution:* The State has 2624 educational institutions for various levels during 2007-08. It includes 14 Central institutions, 1878 State government and 732 Private owned institutions. During the same year, there were 2 Polytechnics, 3 Nursing Schools, 6 Teacher Training Institutes, 4 Industrial Training Institutes, 1 School of Music, 3 Law Colleges, 1 School of Engineering and Management and 1 School of Agriculture each for College and University levels.

(ii) *Health:* In 2006, there were 581 Medical institutions and 2335 medical personnel in the State medical service. In other words, there were 3.04 Medical Institutions per 10,000 population and 10.63 Medical Personnel per 10,000 population respectively.

(iii) *Housing:* According to NSHDR 2004, only 11.68% of the total households reside in pucca house, 42.51% households in semi-pucca house; while for the major proportion (44.14%) of the households reside in kutcha house.

(iv) *Water Supply and Sanitation:* The data showed that only 18.97% of the total villages were fully covered with safe drinking water supply in 2003, while 75.8% were partially covered and 5.23% of the total villages have not been covered. In the same year, 25.87% of the household in Nagaland do not have proper sanitation facility as compared to 30% of all India average.

7.1.4: Village Council and Village Development Boards

The Village Council (VC) is the overall authority of village administration, while VDBs are involved in all phases of developmental activities as a part of their responsibilities like allocation of funds, selection of beneficiaries or schemes, monitoring of work progress and completion of schemes. Hence, VCs and VDBs play key role in building up of all round development of the community especially in administering justice and implementing developmental programmes.

7.2: SOCIO-ECONOMIC PROFILE OF SAMPLE AREAS

7.2.1: Demographic Characteristics of Sample Areas

(i) *Sample Population*: The sample size in aggregate is 2999 people comprises of 1442 female and 1557 male.

(ii) *Rural and Urban Distribution*: The *Rural* and *Urban* population of sample areas comprises of 80.89% and 19.11% respectively. In *rural area* Mokokchung consist of 28.61%, Phek-37.88% and Tuensang constitutes 34.05%. Among the *urban* area, Mokokchung consist of 17.45%, while Phek and Tuensang constitute 55.59% and 27.40% respectively.

(iii) *Age-wise Composition*: It is observed that at the time of survey more than one-fifth (22%) of the total sample population are children below 14 years of age. The same for *rural* area is higher than *urban* area with 22% and 21% respectively.

(iv) *Sex-Ratio*: The sex-ratio in sample aggregate was found to be 926 females per 1000 males, which lower than State's average of 931 in 2011. The same for sample *rural* and *urban areas* were 933 and 897 as compared to that of State's average of 942 and 905 respectively.

(v) *Household Size*: In rural areas, according to VCC and VDB's records, the average household size was 6.82 members. However, household survey has revealed that the same was only 5.71 members. For sample *urban* area, it was 5.07 members, which was lower than that of the sample *rural* area of 5.89 members.

(vi) *Educational Profile*: In sample aggregate, 7% of the sample population have never been to school. The same in *rural* area was higher as compared to *urban* area with 8% and 5% respectively. Further, currently attending schools in sample aggregate consist of 36%. It was lower in *rural* than in *urban* areas with 34% and 42% respectively. On the other hand, attended but not currently attending schools in sample aggregate was 57%, the same in rural is higher than urban areas with 58% and 53% respectively.

(vii) *Occupation of Household Head*: The occupations of the household head showed that maximum of the household depend primarily on Agriculture, which was 42% of the sample

aggregate. The same for Salaried, Business, Pensioner and Social Activist were 36%, 13%, 6% and 3% respectively.

(viii) *Gender-wise Household Head*: It is observed that the household headed by female is still insignificant as in sample aggregate, as much as 90% households in aggregate are headed by male, while only 10% households are headed by female. In *urban* areas, the male headed household consists of 91.15% which is higher as compared to *rural* areas of 89%.

(ix) *Educational Qualification of Household Head*: In sample aggregate, 10% of the household heads have never been to school. Out of which, it was only 1% in *urban areas* as compared to 12% in *rural* area.

7.2.3: Infrastructure Profile of Sample Areas

(i) *Transport and Communication*: It is observed that half of the sample villages are linked with pucca road. Among the sample villages, 50% have transport facilities such as bus and private taxis based in their village for cummuting. All the sample villages have access to telephone facility. However, only 16.67 % of the sample villages have post office within their jurisdiction. Hence, post office per 10,000 population was only 0.30 in 2009-10 as observed in sample rural area.

(ii) *Power*: The survey has revealed that only 92.38% households have electricity connectivity during 2009-10, which was lower than that of the State's average in 2003 of 93.75%. It is observed that the household electrification in urban area was better than in rural areas as the same for urban and rural were 97% and 91.17% respectively.

(iii) *Banking*: In banking, it is found that there are 11 banks in sample towns, whereas, none of the sample villages has banking facility in their jurisdiction.

(iv) *Educational Infrastructure*: The educational infrastructure of sample areas are summarised as below:

a. *Educational Institutions*: There were 75 educational institutions in sample towns including 10 colleges, 11 Higher Secondary and 54 Schools. Whereas, 50% of sample villages have middle government school and 33% have private middle schools. Only 16% (1) of the sample village has Government secondary school, while 33% (2) had private secondary school.

b. *School-Pupil Ratio*: The school-pupil ratio in aggregate for sample villages during 2009-10 was 1:156, which was lower than the State's average of 1:178 in 2006. In sample aggregate, the same for government school was lower than that of the private school with 1:125 and 1:243 respectively.

c. *Teacher-Pupil Ratio*: The study showed that teacher-pupil ratio in aggregate for sample villages during 2009-10 was 1:18, which was marginally lower than the State's average of 1:19 in 2006. The same for sample aggregate in public school was higher than private school with 1:16 and 1:25 respectively.

(v) *Health Care*: In health care, in spite of all efforts given by the government and NGOs, its services are yet to reach a satisfactory level. In sample towns, there are 3 (three) District Hospitals and 11 (eleven) Dispensaries. In sample rural area, it is observed that there was only 1.69 medical staff per 10,000 population in sample villages during 2009-10, which was much lower than the State's average of 10.63 in 2006. Besides, there was only 1 Sub-centre which was manned by doctor in rural areas.

(vi) *Water Supply and Sanitation*: It is observed that only 70.84% households were covered with safe drinking water supply in sample aggregate, whereby it was higher in urban than rural areas with 75% and 66.57% respectively. This was much lower than the State's average of 94.77% in 2003.

The household survey has also revealed that 85% households have access to proper sanitation facility, while the same in urban was higher than in rural with 92% and 82.33% respectively against the State's average of 74.3% in 2003.

7.3: ANALYSIS OF GROWTH TRENDS IN NAGALAND ECONOMY

The important findings of growth in economic and human development in Nagaland which have discussed detail in Chapter 4 are summarised as follows:

7.3.1: Sector-wise Development: In sector-wise growth and development in the State, the main findings are highlighted below.

(i) *Agricultural Sector*: There has been an improvement in agricultural sector in the State as far as ADI value is concerned; it has increased from 71.31 to 97.06 in 1991 and 2006 respectively. The growth trend shows that the growth rate was 1.99% per annum during 1991-2006.

Among the districts, Dimapur had the highest growth rate with 3.18% per annum, followed by Zunheboto, Kohima, Mokokchung, Tuensang and Mon with 2.81%, 2.58%, 1.69%, 1.04% and 0.02% respectively. On the other hand, Wokha and Phek had exhibited negative growth with -0.03% and -0.23% per annum respectively.

In five yearly periodical analyses, the growth during 1991-96 was negative with -1.90% per annum. Thereafter, it has turned positive during 1996-01 and 2001-06 with 1.43% and 8.08% per annum respectively.

(ii) *Industrial Sector*: The Industrial sector showed an improvement over the period as IDI value has increased from 3.54 to 13.03 in 1991 and 2006 respectively. This shows that growth rate during the same period was 9.98% per annum.

Among the districts during 1991-2006, Dimapur has exhibited the highest growth rate with 18.13% per annum, followed by Zunheboto, Mon, Mokokchung, Kohima, Wokha, Tuensang and Phek with 11.28%, 8.36%, 7.24%, 6.72%, 5.75% and 5.02% per annum respectively, while Phek had the lowest with 4.35% per annum.

The inter-temporal analyses showed that during 1991-96 and 1996-2001, the growth of industrial sector was 11.35% and 38.81% per annum respectively. However, during 2001-2006 it has witnessed negative growth rate with -4.03% per annum.

(iii) *Infrastructural Sector*: The Infrastructural development as indicated by InDI value had marginally increased from 4.68 to 4.98 in 1991 and 2006 respectively. Hence, its growth rate was 0.86% per annum during 1991-2006.

Among the districts during the same period, the highest growth is exhibited by Dimapur with 1.11% per annum, followed by Kohima and Mokokchung with 0.86% and 0.81% respectively. On the other hand, Mon, Wokha, Tuensang, Phek and Zunheboto exhibited negative growth with -0.24%, -2.81%, -1.75%, -1.49% and -0.68% per annum respectively.

The periodical analysis showed that the growth in Infrastructural sector in Nagaland has been fluctuated; during 1991-96, it was negative with -1.58% per annum, but it has turned positive during 1996-01 with 7.98% per annum and again, it has witnessed negative growth with -4.44% per annum during 2001-06.

(iv) *Educational Sector*: The development in educational sector has been consistent throughout the study period as EDI value has increased from 33.40 in 1991 to 39.29 in 2006. The growth in educational sector was 1.01% per annum during the period under consideration.

Among the districts, Mon has exhibited the highest growth rate with 1.96% per annum during 1991-2006, followed by Tuensang, Wokha, Dimapur, Mokokchung, Phek, Kohima and Zunheboto with 1.77%, 0.95%, 0.93%, 0.80%, 0.80%, 0.75% and 0.66% per annum respectively.

The growth in educational sector during 1991-96 in Nagaland was 1.29% per annum. Further, in 1996-01 and 2001-06, it has increased by 0.35% and 1.73% per annum respectively.

(v) *Health Sector*: The HeDI value showed that the health sector has been deteriorated over the period in the State as it has declined from 29.33 to 22.92 in 1991 and 2006 respectively. It is estimated that the health sector witnessed negative growth by -1.34% per annum during 1991-2006.

All the districts have witnessed negative growth during the same period, whereby the highest negative growth rate was Tuensang with -3.99% per annum, followed by Wokha, Mon, Zunheboto, Phek, Dimapur, Kohima and Mokokchung with -3.63%, -2.54%, -2.20%, -1.60%, -1.51%, -0.34% and -0.10% per annum respectively.

During 1991-96 and 1996-2001, the State has witnessed negative growth rate by -3.75% and -3.66% respectively, thereafter it has witnessed positive growth by 3.52% per annum during 2001-06.

Death Rate: The *death rate* per thousand population in Nagaland has shown a fluctuating trend during the period under observation. In 1991, it was 2.56, which has declined to 1.95 in 1996, but increased to 3.65 in 2001. Thereafter, it has declined again to 2.61 in 2006. Hence, it is estimated that the death rate per 1000 population has increased by 1.37% per annum during 1991-2006.

Among the districts, only Mon has showed negative trend value with -1.88% per annum during 1991-2006, whereas the highest positive growth has exhibited by Dimapur with 14.50%, followed by Tuensang, Kohima, Wokha, Mokokchung, Phek and Zunheboto with 9.83%, 1.66%, 1.02%, 0.93%, 0.93% and 0.09% per annum respectively during the same period.

It has been observed that during 1991-96, it has declined by -4.77% per annum, but increased during 1996-01 by 17.44% and declined again during 2001-06 by -5.67% per annum.

(vi) *Overall Growth:* The overall growth has exhibited a downward trend in the early nineteen nineties as the ODI value was declined from 26.42 to 24.79 in 1991 and 1996 respectively. Since then, it has started to increase, whereby its value in 2001 and 2006 were 25.96 and 32.31 respectively.

The *growth trend* of overall development during 1991-2006 was 1.30% per annum. Among the districts, Dimapur has exhibited the highest growth with 3.08% per annum, followed by Zunheboto, Kohima, Mokokchung, Mon and Tuensang with 1.59%, 1.48%, 1.17%, 0.40% and 0.07% per annum, while Phek and Wokha had witnessed negative growth rates with -0.47% and -0.33% per annum during the same period.

The inter-temporal analyses showed that the entire districts have exhibited negative growth during 1991-96 with -1.24% per annum. Thereafter, it has increased by 0.95% and 4.89% per annum during 1996-2001 and 2001-2006 respectively.

7.3.2: Annual Exponential Sectoral Growth of NSDP during 1980-81 to 2005-06

The main observations of annual exponential growth rates of sectoral contribution to NSDP in Nagaland are as follows:

- (i) The growth rate of NSDP in Nagaland during 1981-2006 was 15.84% per annum, while that of PCI was 11.13% per annum.
- (ii) The decadal decomposition of growth rate has shown that the State has witnessed the highest growth rates in NSDP and PCI as well as population during 1990-91 to 2000-01 with 22.38% and 17.22% per annum respectively. However, in the last decade (during 2000-01 to 2005-06), the growth rates in both NSDP and PCI have reduced to 14.33% and 9.36% per annum respectively. Therefore, in the last decade, there has been a decline in growth rate of the economy in respect of NSDP and PCI in Nagaland.
- (iii) Among the sectors, the growth of Primary sector was highest with 16.09% per annum, followed by Tertiary and Secondary sectors with 15.85% and 14.62% per annum respectively.
- (iv) Among the *Primary Sub-sectors*, the highest growth during 1981-2006 was Fishery with 19.25% per annum. However, it is observed that during 2001-06, Mining and Quarrying became the fastest growing Primary sub-sector with 19.74% per annum. This could be due to developmental activities being taking place in the State. However, the agricultural sub-sector has remained the major contributing sub-sector to NSDP over the period.
- (v) In *Secondary Sector*, Construction continued to be the dominant sub-sector during 1981-2006 with a growth rate of 13.78% per annum. It may be mentioned that till 1993-94, sectors like Electricity, Water Supply and Gas have witnessed deficit in their contribution to NSDP.
- (vi) Among *Tertiary Sub-sectors*, transport and communication has witnessed the highest growth rate during 1981-2006 with 28.17% per annum. But, in the last decade (2001-2006), Real Estate, Ownership of dwelling and Business services has emerged a major sub-sector with a growth rate of 10.56% per annum.

7.3.3: Public Spending and Level of NSDP

The study showed that public spending is positively associated with the level of NSDP in Nagaland. It has shown that the elasticity of public expenditure on overall level of NSDP is 0.996.

Among the sectors, the highest impact is on social service sector such as education and health with an elasticity of 0.989, followed by secondary sector, infrastructure and agriculture with 0.973, 0.950 and 0.878 respectively.

7.3.4: Changing Pattern of NSDP and Employment in Nagaland during Pre-reform (1981-1991) and Post-reform (1991-2006)

The findings of changing pattern in sectoral contribution to NSDP and occupational structure in the economy of Nagaland during pre-reform and post-reform periods are given below.

i) Primary Sector: The contribution of Primary sector to NSDP in pre-reform period was declined by -1.01% per annum. But, it was increased during post-reform period by 1.23% per annum. During the same period, the proportionate share of workforce has marginally increased in pre-reform period by 0.09% per annum, but declined in post-reform period (1991-2001) by -0.68% per annum.

ii) Secondary sector: The proportionate share of secondary sector in NSDP has increased in pre-reform period by 8.2% per annum, but declined in post-reform period by -3.31% per annum. During the corresponding periods, the proportionate share in Employment has continuously increased by 0.41% and 4.11% per annum.

iii) Tertiary sector: The Tertiary sector's contribution to NSDP has declined during pre-reform period by -1.56% per annum, but increased in post-reform period by 0.94% per annum. Similarly, its percentage share of Employment has reduced in pre-reform period by 0.26% per annum and increased in post-reform period by 1.69% per annum.

Hence, with the advent of the new economic policy in the country in 1991, the structure of the State's economy has been changing in such a way that (a) the contribution of Primary sector to NSDP have increased, although it has declined in proportionate share of workforce, (b) the share of Secondary sector in NSDP has declined, but its share in employment has increased, (c) in Tertiary sector, its share in both NSDP and employment have increased.

Further, it is observed that the structural change in the economy of Nagaland has led to an increase in the contribution of primary and tertiary sectors to NSDP with a matching decline in the contribution of secondary sector, while the decline in proportion of workforce in primary sector has a matching increase in secondary and tertiary sector.

7.3.5: Growth of Human Development Index in Nagaland and India during 1981 to 2001

As far as HDI is concerned, the human development in the State was better than the country's average over the observed period. The HDI in Nagaland has increased by 89% during 1981-2001 as compared to that of 35.76% of India during the same period. In 2001, among the districts in Nagaland, it is observed that the HDI was highest in Dimapur, while the lowest was in Mon with 0.733 and 0.450 respectively.

7.4. INTER-DISTRICT DISPARITIES IN ECONOMIC HUMAN DEVELOPMENT

The important findings of inter-district disparities in economic and human development have been analysed in detail in Chapter 5 are summarised below.

7.4.1: Sector-wise Disparity in Economic and Human Development

(i) *Agricultural Sector*: The inter-district disparity in development of agricultural sector has been significant throughout the period under observation. The extent of disparities estimated by Coefficient of Variation (CV) has revealed that it has increased from 43.58% to 49.18% in 1991 and 2006 respectively, which shows that it has widened by 0.84% per annum. The ADI value showed that in 2006, the relatively most developed district was Dimapur, while the least was Mon with its value of 182.39 and 47.72 respectively.

The study has shown that there is convergence in indicators such as *Land Productivity (MT/Hectare)*, *Per Capita Production (in KG)* and *Total Cultivated Area (in Hectare) per 1000 Population* by 1.01%, 0.14% and 2.65% per annum respectively during 1991-2006. But, in *Percentage of Cultivated Area to Total Area* and *Percentage of Gross Irrigated Area to Total Cultivated Area*, the disparity has widened by 4.10% and 1.36% per annum respectively during the same period.

The inter-temporal analyses showed that the inter-district disparity in agricultural sector during 1991-96 has declined by -0.05% per annum, but has increased during 1996-01 and 2001-06 by 1.16% and 1.39% per annum respectively.

(ii) *Industrial Sector*: The Industrial development in the State has experienced vast inter-district disparity over the period. The disparity has widened by 3.92% per annum during 1991-2006 as its CV value has increased from 35.92% in 1991 to 66.27% in 2006. Among the districts, Dimapur has been relatively developed among as far as its IDI value is concerned in 2006, while Tuensang showed the least as their IDI value were 36.05 and 5.75 respectively.

The disparities have widened in all the indicators except *ITC per Lakh Population*, which has declined by 0.89% per annum. It is estimated that the disparities in *SSI Unit per Lakh Population*, *Employees per SSI units* and *Veterinary Hospitals/Dispensary per 100 Sq. Km* have widened by 6.81%, 7.36% and 0.78% per annum respectively during 1991-2006.

During 1991-96, the disparity has widened by 9.05% per annum, while during 1996-01 and 2001-06, it has widened by 2.64% and 2.44% per annum respectively.

(iii) *Infrastructural Sector*: The inter-district disparity in infrastructural sector has initially widened and then narrowed down over the observed period, but it has remained significant. The disparity has widened from 59.75% in 1991 to 69.54% in 1996, thereafter, it has narrowed down

to 57.14% and further to 53.68% in 2001 and 2006 respectively. Hence, the growth trend of disparity in infrastructural sector showed that it has narrowed down by -0.31% per annum during 1991-2006. It has observed from the study that in 2006, Dimapur was the most developed district as revealed by InDI value, while the least developed was Tuensang. Their InDI values were 6.94 and 2.77 respectively.

Among the indicators during 1991-2006, the disparity has converged in *Post Office per Lakh Population*, *Post Office per 100 Sq. Km*, *Road Length (Km) per 100 Sq. Km* and *Per Capita Electricity Consumption (in KWH)* by -0.12%, -0.14%, -0.66% and -14.56% per annum respectively. On the other hand, the disparity has diverged in *Bank per Lakh Population*, *Banks per 100 Sq. Km*, *Telephone per 1000 Population* and *Surfaced Road per 100 Sq. Km* by 0.04%, 0.93%, 0.44% and 1.46% per annum respectively during the same period.

The inter-district disparity in infrastructural sector during 1991-2006 has widened by 3.28% per annum, but it has narrowed down by -3.57% and -1.21% per annum during 1996-2001 and 2001-06.

(iv) *Educational Sector*: The study has revealed that there was convergence in educational sector during the period under consideration. The disparity has reduced from 34.85% to 25.61% in 1991 and 2006 respectively, which shows that it has narrowed down by 1.88% per annum during 1991-2006. In 2006, the EDI value showed that in education, Dimapur has witnessed the highest value, while Mon has witnessed the lowest with 46.88 and 34.25 respectively.

The convergence has been observed in all the individual educational indicators, where the highest and lowest convergence rate was in *Children Enrollment Ratio* and *School per 1000 Population* with -9.93% and -0.87% per annum respectively during 1991-2006.

The pace of convergence during 1991-96 was -2.07% per annum, it continued to converge by -0.30% and -3.36% per annum during 1996-01 and 2001-06 respectively.

(v) *Health Sector*: The inter-district disparity in health care services has narrowed down over the time, but it has remained significant. The disparity was reduced from 36.61% in 1991 to 32.46% in 2006, which shows that it was narrowed down by -0.75% per annum. The analysis has revealed that the health sector is relatively most developed in Mokokchung among the districts in 2006 as its HeDI value was highest with 30.91, while the extreme bottom was witnessed by Dimapur with its value of 4.23 during the same period.

Among the health indicators, three have witnessed divergence namely; *Medical Institution per 100 Sq. Km*, *Bed per 10,000 Population* and *Nurse per Lakh Population* by 1.17%, 3.26% and 2.68% per annum respectively. On the other hand, the fastest convergence is observed to be

Death Rate with -3.83% per annum, followed by *Compounders per Lakh Population*, *Medical Officers per Lakh Population* and *Medical Institutions per 10000 Population* with -0.70%, -1.80% and -1.85% per annum respectively during the same period.

The inter-district disparity in health sector during 1991-96 has narrowed by -0.82% per annum, further, it continued to reduce by -0.26% and -1.26% per annum during 1996-01 and 2001-06 respectively.

(vi) *Overall Inter-District Disparity*: It has been observed that the overall inter-district disparity has widened from 42.14% to 45.44% in 1991 and 2006 respectively, which shows that it has widened by 0.42% per annum during the same period.

The study has revealed that among the districts in 1991, Wokha has the highest ODI value with 40.14, followed by Phek, Dimapur and Zunheboto with 36.69, 33.32 and 28.50 respectively. All these districts were above the State's average of 26.42. On the other hand, the lowest was Mon with 19.07, followed by Tuensang, Kohima and Mokokchung with 20.77, 24.07 and 25.61 respectively.

There were changes in the ranks of ODI values among the districts in 2006. Dimapur became the top in ODI value with 50.84, followed by Wokha, Zunheboto and Phek with 39.88, 37.85 and 34.40 respectively. All these values were above the State's average of 32.31. On the other hand, Mon remained at the lowest with 20.74, followed by Tuensang, Kohima and Mokokchung with 21.87, 29.31 and 30.21 respectively.

Hence, (a) ODI values have improved for all the districts except for Wokha and Phek, (b) Dimapur has improved in ranking, while Wokha and Phek have deteriorated in their ranks, (c) Dimapur, Wokha, Zunheboto and Phek have remained above the State's average and (d) Mon and Tuensang have remained at the lowest spectrum.

In periodical analysis, the overall inter-district disparity during 1991-96 has widened by 1.98% per annum. Thereafter, it has marginally declined by -0.34% and -0.04% per annum during 1996-2001 and 2001-2006 respectively. However, in general, it is estimated that the inter-district disparity over the period 1991-2006 has widened by 0.42% per annum. Therefore, the hypothesis which states that there is no tendency to converge inter-district disparity in Nagaland is accepted.

Among the sectors, the widest disparity in 1991 as well as in 2006 was infrastructure. On the other end, the least disparity during the corresponding period was educational sector. There is divergence in industrial and agricultural sectors, which have been widened by 3.92% and 0.84% per annum during 1991-2006. On the other hand, the fastest convergence was in educational

sector with -1.88% per annum, followed by health and infrastructure with -0.75% and -0.31% per annum respectively.

7.4.2: Plan Outlay and Sector-Wise Inter-District Disparity

(i) The study shows that the correlation between plan outlay and inter-district disparity is negative in sectors such as infrastructure, education and health during 1991-2006. It is estimated that 1% increase in plan outlay in corresponding sectors has an impact in reducing the inter-district disparity by -15.5%, -17.8% and -0.54% respectively.

(ii) In economic indicators such as agriculture and industry, 1% increase in plan expenditure lead to an increase in inter-district disparity by 11.1% and 33.1% respectively.

(iii) It is estimated that in overall development, the impact of plan outlay on disparity is positive in Nagaland that 1% increase in plan outlay would increase disparity by 9.6%, but it is statistically not significant.

Hence, plan expenditure in Nagaland did not make significant impact in reducing inter-district disparity in the past except in education and health sectors.

7.4.3: Disparity in Income Distribution in Nagaland

(i) *Income Distribution in Sample Districts during 2009-10:* The income inequality in Nagaland during 2009-10 as measured by Gini Coefficient was 0.401 in sample aggregate. Among the sample districts, income inequality was highest in Phek, followed by Tuensang and district Mokokchung with corresponding Gini coefficient values of 0.412, 0.391 and 0.363.

(ii) *Income Distribution in Sample Rural and Urban Areas during 2009-10:* It is found that the inequality in income distribution was higher in rural than in urban areas as their GiniC value are estimated to be 0.392 and 0.309 respectively.

In rural areas, the richest 12% households receive more than 9 times income higher than that of the poorest 12% households. For urban areas, the richest 23% household shared 5 times income higher than that of the poorest 23% households.

(iii) *Disparity in PCI during 2001 to 2009-10:* The inequality in income distribution has increased from 20.65% to 31.37% in 2001 and 2009-10 respectively in Nagaland. The annual average growth rate showed that the disparity has widened by 4.65% per annum during 2001 to 2009-10.

Hence, the hypothesis which states that there is no tendency to converge in income disparity in Nagaland is accepted.

7.4.4: Gender Disparities

The important findings of gender disparities in Nagaland are summarised below.

- (i) *Education*: The gender disparity in literacy rate has narrowed down in the State over the time by -9.80% per annum during 1981 to 2011. Also, the same in children enrolment ratio has converged by -4.41% per annum during the same period.
- (ii) *Health*: The gender disparity in health as reflected by IMR during 1981-2001 has been converged by -4.20% per annum as its CV value has increased from 19% in 1981 to 8.21% in 2001.
- (iii) *Workforce Participation*: The gender disparity in workforce participation has widened by 0.12% per annum during 1981-2001 as its CV value has increased from 13.94% to 14.27% in 1981 and 2001 respectively.
- (iv) *Gender-related Development Index (GDI)*: As far as GDI is concerned the gender gap in the State was narrower than the country's average in 1981 and 1991. But, it became wider than country's average in 2001 as the GDI for Nagaland was declined to 0.410, compared to 0.540 of country's average. Moreover, the GDI values for Nagaland, which continued to reduce since 1981 shows that the gender disparity has widened over the period.
- (v) *Gender Differential in Human Development Indices*: The gender disparity in HD indices has widened since 1981. The Gender Differential (GD) in human development indices (i.e. difference between HDI and GDI) has increased as its value has turned from negative to positive with -138.72 to 32.58 in 1981 and 2001 respectively.
- (vi) *Gender Time Allocation*: The study showed that the gender disparities in time allocation for social activities, leisure and preparation of meals are highly significant as their corresponding coefficient of variation values are 90%, 85.44% and 93.52%. It has also revealed that women spent marginally more time than men in agriculture, yet household chores are exclusively done by women, while men enjoy much higher leisure than women.
- (vii) *Participation in Household Expenditure Decision Making*: The main observation in household expenditure decision making between the genders are as follows:
 - a. It is observed that the household's expenditure decision making is generally made jointly in Nagaland. Study has confirmed that the household expenditure made jointly is 44.19%, while that of male is 34.15% and female is only 20.57%.
 - b. Among the sample districts, the household's expenditure decision taken by male alone was highest in Phek with 53.54%, followed by Tuensang and Mokokchung with 34.15% and 14.11% respectively.

c. The household where its decision household expenditure is done by female was highest in Tuensang with 27.44%, followed by Mokokchung and Phek with 22.70% and 13.13% respectively.

d. On the other hand, the jointly decision in household expenditure in Mokokchung (63.19%) and Tuensang (38.41%) were higher than that of male and female alone. While the same for Phek district was only one-third of total sample households. Hence, female participation in household decision making is trivial.

It is confirmed from the study that the gender disparity in respect of education and health tend to converge. But in respect of workforce participation both at macro and household levels, it has widened.

7.5: TWO-WAY LINKAGES BETWEEN ECONOMIC GROWTH AND HUMAN DEVELOPMENT

The two-way linkages between Economic Growth (EG) and Human Development (HD) which have been analysed in two chains in Chapter 6 are summarised below.

CHAIN A

MACRO LEVEL

7.5.1: PCI, Public Expenditure in Educational Sector (PEES) and Educational Development

The study has estimated that 1% increase in PCI has positive impact on Literacy Rate (LR) and Enrolment in Higher Education (EnHE) by 1.76% and 9.76% respectively in Nagaland. The impacts are statistically significant at 1% and 5% levels respectively. Hence, the higher the level of PCI, the higher is the LR and EnHE in Nagaland.

Further, it is estimated that 1% increase in public spending in education lead to an increase in LR by 2.5%, which is statistically significant at 5% level. Hence, the higher the level of PEES, the higher is the level of LR.

An interesting finding is that, the impact of PEES on adult LR is greater than the impact of PCI on LR by 0.74%. This implies that government spending in education like better infrastructure, mid-day meals and other related facilities are more attractive than the level of income for children to enroll them in school, which is the base for increasing literacy rate. Further, the impact of PCI on EnHE is higher than that of PCI on LR by 8%. It implies that the level of income is more effective on higher studies than on general enrolment in lower level of schooling, which generally raises (mere) literacy rate.

7.5.2: PCI, Public Expenditure in Health Sector (PEHS) and Health Development

The study has revealed that 1% increase in PCI and PEHS will reduce IMR by -1.70% and -1.30% respectively in Nagaland, but it is statistically not significant at 5% level. Therefore, the hypothesis which states that the higher the level of PCI and PEHS, the lower is the level of IMR may not be accepted, though the impacts are negative.

MICRO LEVEL

7.5.3: Household Expenditure Pattern by Levels of Income

The proportion of household expenditure in Human Development related Items (HDrIs) is highest in Low Income Household (LIH) with 74% (food is 36%, education - 28%, sanitation - 6% and medicine - 4%), followed by Middle Income Household (MIH) and High Income Household (HIH) with 72% and 53% respectively. Hence, poorer household allocates comparatively higher proportion of income on HDrIs than the richer households.

The impacts of additional income on expenditure in various items among the different levels of income households are as follows:

(i) In sample aggregate as well as for all sample districts and for all the household categories, the impact of additional income on expenditure in HDrIs is higher than on the other items. Among the household categories by levels of income it is highest in LIH with 66%, followed by MIH and HIH with 58% and 51.3% respectively.

(ii) The impact of additional income on *education* is highest in LIH. It is higher than that of middle and high income households by 3.9% and 16.13% respectively. Further, the impact on *medicine* is also highest in LIH, which is higher than that of middle and high income households by 2.68% and 1.11% respectively.

(iii) In *sanitation*, the impact is highest in MIH, which is higher than that of LIH and HIH by 0.49% and 1.52% respectively.

(iv) In *food items*, the impact is highest in HIH, which is higher than that of low and middle income households by 4.2% and 5.5% respectively. Also, in *other items*, it is higher by 14.1% and 6.7% respectively.

Hence, it is evident that the impact on HDrIs is higher in poorer households (LIH) than the richer households (MIH and HIH). Therefore, the hypothesis which states that the impact of additional income on expenditure in HDrIs is higher in lower than higher income households is accepted.

7.5.4: Household Expenditure Pattern by Gender

The household expenditure pattern has revealed that when female controls household income, the proportion of expenditure towards HDrIs (food with 34%, education - 26%, medicine - 5% and sanitation - 6%) is higher than that of male and jointly controls households by 9% and 4% respectively.

The impacts of household additional income on expenditure in various items when it is control by male, female and jointly are summarised below.

(i) In general, the impact of additional income on HDrIs is highest when female control household expenditure with 66%, followed by JCH and MCH with 65.6% and 65.4% respectively. It is also higher in food, medicine and sanitation than male and jointly controls household. In *food*, it is higher than male and jointly controls households by 3.6% and 12.8% respectively; on *medicine*, it is higher by 1.75% and 3.17% respectively and in *sanitation*, it is higher by 0.07% and 2.3% respectively.

(ii) When male controls household income, the impact of additional income on *education* is higher than that of MCH and FCH by 1% and 6% respectively.

(iii) Whereas, when the household income is control jointly by male and female, the impact of additional income is higher than that of male and female alone by 0.5% and 0.01% respectively.

Thus, it is obvious that when female controls household income, the impact of additional household income towards HDrIs is higher than male and jointly controls households.

Hence, it is observed (in Chain-A) that there is positive linkage from economic growth towards enhancement in human development in Nagaland.

CHAIN-B

MACRO LEVEL

7.5.5: Education and PCI

(i) *Literacy Rate (LR) and PCI*: The analysis has shown that 1% increase in LR (adult) increases PCI by 8.37%, which is statistically significant at 1% level. Hence, the higher the level of literacy rate, the higher is the level of per capita income.

(ii) *Enrolment in Higher Education (EnHE) and PCI*: It is empirically evident that 1% increase in higher education lead to an increase in PCI by 11.9%. The impact is statistically significant at 5% level. Hence, the higher the level of education, the higher is the level of PCI.

Hence, although both literacy rate and higher education have positive impact on PCI, the impact of higher education on PCI is higher than that of literacy rate by 3.53%.

7.5.6: Health and PCI

The study found that the relationship between improvement in health condition increases PCI in Nagaland. It is estimated that 1% reduction in IMR lead to an increase in PCI by 7.57%, but it is statistically not significant.

Hence, at macro-level analysis, the impact of education on LR is greater when compared to that of health on PCI in Nagaland.

MICRO LEVEL

7.5.7: Education and Income

Study showed that individual who have never attended formal schooling have earned an average income of Rs. 1,823, while for those who have primary, middle, secondary, higher secondary and graduate & above levels of education receive an average income of Rs. 2,041, Rs. 4,448, Rs. 6,571, Rs. 8,944 and Rs. 9854 respectively. Hence, there is positive relationship between level of education and income.

The study at micro-level showed that an additional year of schooling lead to an increase the level of income by 12.8% in Nagaland, which is statistically significant at 1% level. Hence, additional year of schooling is positively associated with higher level of income.

Further, the impact is higher in relatively lesser developed district Tuensang than that of the relatively more developed districts Mokokchung and Phek by 7.61% and 5.7% respectively. Hence, an inference can be drawn that in less developed district, educated persons are relatively fewer. Therefore, when one obtains higher level of education, they have relatively higher earning opportunities.

7.5.8: Education and Agriculture

(i) *Level of Education and Uses of Improved Method:* The uses of improved method in agriculture is found to be highest with those who have attended primary and middle levels of education. The analysis has shown that additional year of schooling would increase the uses of improved methods by 3.17% in Nagaland, but it is statistically not significant. Thus, the higher the level of education, the higher is the use of improved methods may not be applicable in the State.

Further, it is found that the highest uses of improved method in cultivation among the sample districts was Phek, followed by Mokokchung and Tuensang. It is estimated that the impact is also highest in Phek with 8.96%, followed by Mokokchung and Tuensang with 4.70% and 2.10% respectively. The impact in Phek district is statistically significant at 5% level, but in Mokokchung and Tuensang, it is statistically not significant, though positive.

This may be due to the fact that shifting cultivation is the dominant agricultural system in Nagaland particularly in Mokokchung and Tuensang, where the scope for application of modern technology and inputs are limited. On the other hand, Phek district practices terrace cultivation where uses of modern tools and inputs is relatively convenient than shifting cultivation. Hence, it may be concluded that adoption of improve methods in cultivation is predetermined by agricultural system in practice rather than the levels of education in Nagaland.

(ii) *Level of Education and Productivity*: The analysis has shown that additional year of schooling lead to an increase in the level of productivity by 2.84%, which is statistically significant at 1% level.

Among the sample districts, the impact is highest in relatively most developed district Mokokchung with 3.65%, followed by Phek and Tuensang with 2.06% and 1.83% respectively. The impacts in Mokokchung and Phek are statistically significant at 1% level and the same for Tuensang is significant at 5% level. Hence, the level of education of farmer is positively associated with the productivity in agriculture.

Thus, it is obvious that there exists a strong inducement from Human Development to Economic Growth (chain-B) in Nagaland.

Hence, there is two-way positive linkages between EG and HD in Nagaland. Therefore, the hypothesis which states that there is two-way positive linkage between Economic Growth and Human Development is accepted.

7.6: Female Education and Human Development

Followings are some of the effects of female education on human development.

(i) *Female Literacy Rate and PCI*: It is estimated that 1% increase in female LR has positive impact on PCI by 7.25%, which is statistically significant at 1% level.

(ii) *Female Literacy Rate and IMR*: The study has found that the correlation between female LR and IMR is negative. Further, it is estimated that 1% increase in female LR lead to a reduction in IMR by -8.95%, which is statistically significant at 5% level.

(iii) *Female Years of Schooling and Family Size*: The correlation between female LR and family size is found to be negatively correlated. Further, the regression analysis has confirmed that additional year of schooling of mother reduces family size by -14.1%, which is statistically significant at 1% level.

Among the sample districts, the impact is highest in Phek with 18.6%, followed by Mokokchung and Tuensang with 8.24% and 1.08%. The impacts in Phek and Mokokchung are

statistically significant at 1% level and at 5% level in Tuensang. Hence, additional year of schooling of mothers is associated with the lower family size in Nagaland.

Thus, female education has positive impact on human development particularly in income, health and population growth in Nagaland. Hence, the hypothesis which states that the female education has positive impact on human development is accepted.

7.7: CONCLUSION AND POLICY IMPLICATIONS

The State is predominantly inhabited by rural population (71.03%), whereby its economy is mainly based on agrarian culture. It may be pointed out that more than two-thirds (68.03%) of the working population engaged in agriculture and allied activities, where the income generation is comparatively lower in this sector. Consequently, the PCI of Nagaland is low, as it is only 70.57% of all India's average. The living condition of the people in the State is poor as major portion (44.14%) of the population lives in kutch house, while only 18.97% of total villages are fully covered with potable safe drinking water supply. The infrastructural facilities like banking, power, road condition, education, health, potable drinking water supply and sanitation need to be improved. This will enable to enhance the standard of living and improve the quality of life.

It is empirically shown that the overall development (among 28 selected indicators) of the State has increased by 1.30% per annum during 1991-2006. However, it is also observed that there was no uniformity in the growth rates among the districts, whereby Dimapur has the highest overall growth rate with 3.08% per annum during the same period. On the other hand, Wokha and Phek have witnessed negative growth rates with -0.33% and -0.47% per annum respectively. In economic indicators such as agriculture, industry and infrastructure, Dimapur has the highest growth rates with 3.18%, 18.15% and 1.1% per annum respectively during the afore mentioned period. In human development indicator, particularly in education, despite low in ODI rankings, the relatively lesser developed districts Mon and Tuensang have exhibited the highest growth rates with 1.96% and 1.77% per annum respectively during the same period.

It is empirically evident from the study that there has been spatial imbalanced development among the districts in different sectors in the State. Among the districts, Dimapur is the most developed district, which ranks the top (first) among the district in ODI throughout the period under study (1991-2006). On the other hand, the relatively less developed districts are Mon and Tuensang, which remained at rank 7 (seventh) and 8 (eighth) respectively during the same period. Hence, the relatively lesser developed districts such as Mon and Tuensang are unable to advance in their ranks over the time.

The study has revealed that inter-district disparity in the State does not only persists but it has been increasing significantly over the period that the disparity in Overall Development Index has widened by 0.42% per annum during 1991-2006. In economic indicators such as industrial (3.92% per annum) and agricultural sectors (0.84% per annum), the disparity have widened during the same period. Also, the disparity in income has widened by 4.65 per annum during the last decade (2001-2009/10). On the other hand, there has been significance convergence in sectors such as education (-1.88% per annum) and health (-0.75% per annum) during 1991-2006. This is due to the fact that the relatively less developed districts especially Mon and Tuensang, which are unable to catch up in terms of economic development could make significant improvements in human development indicators.

It is also found that the government spending stimulates the growth of the economy in the State significantly. The impact of State expenditure on NSDP is found to be 0.996 in Nagaland. Among the sectors, the impact is highest on social services (0.989) such as education and health, followed by secondary sector (0.973), infrastructure (0.950) and agriculture (0.878). On the other hand, it is empirically found that increased in plan outlay has increased inter-district disparity with an elasticity of 0.096. However, among the sectors, public spending reduces disparities in education (-17.8%), health (-0.54%) and infrastructure (-15.5%), while there has been positive impact on agriculture (11.1%) and industry (33.1%).

In the State's economy, it has been observed that the growth of NSDP and PCI were 15.84% and 11.13% respectively during 1981-2006. Further, it is observed that the tertiary sector remained the leading sector with 51.20% in 2006, followed by primary sector, while the contribution of secondary sector has remained low, which was only 13.94% in the same period. It is observed that there was no major change in the structure of the State's economy.

Empirically, it is evident that there is gender disparity in socio-economic aspects. In human development indicators such as education and health, although the gender disparities persist, it has been declining over the observed period. But in economic indicator (workforce participation), it has been diverged by 0.12% per annum during 1981-2001. Further, in decision making at household level like the household expenditure, only 20.57% households have made its decision by female alone. Moreover, women engaged more time in economic as well as domestic activities, while generally men spent more time outside the household and enjoy leisure 3.61 times higher than female. Thus, there are clear indications that there is gender disparity in Nagaland. It may be purported that male folks occupy the headship of the household, but render less service for the household is in fact a matter of concern.

It is also evident that there exist two-way positive linkages between EG and HD in Nagaland. Improvement in EG by way of increase in the level of income and increase in public and household expenditure towards HD inputs raises education and health significantly. On the other hand, improvement in HD in the form of attainment of higher education and improvement in health condition significantly enhances the level of income and productivity in the State. An interesting finding is that the impact of literacy rate on PCI is higher than the impact of PCI on literacy rate by 6.61%. Further, the impact of higher education on PCI is greater than that of the reverse by 2.14%. Similarly, the impact of improvement in health condition (reduction in IMR) on income is higher than that of PCI and PEHS by 1.70% and 1.30% respectively. Also, study at household level shows that additional year of schooling increases the level of income and productivity (by 12.8% and 2.84% respectively) significantly. Hence, although, there exists two-way positive linkages between EG and HD, the impact of HD on EG is greater than that of the reverse in Nagaland.

There is also an evident that female education plays an important role in augmenting human development in the State. The study has revealed that female education enhance the level of income, improves health condition and reduces population growth. It is empirically found that 1% increase in female literacy rate increases PCI by 7.25% and reduces IMR by -8.95%, while additional year of schooling of female (mother) reduces family size by -14.1%. Thus, female education has significant impact on improvement in human development in Nagaland. Hence, it can be concluded that human development acts as a *means* as well as an *ends* in themselves.

Basing on the findings, following *policy suggestions* are put forward.

1. Agriculture development need to be given priority as it is the backbone of the economy

(i) It is obvious that the economy of Nagaland is an agrarian as more than two-thirds of its labour force engaged mainly in agriculture. Moreover, agriculture alone contributes about one-third (31.28%) of the State's NSDP in 2006. Hence, agricultural sector that needs to be strengthened is self explanatory. It is further observed that the impact of public spending on the level of output is not only high, but also highly significant with an elasticity of 0.878. Therefore, it is vital to enhance public spending in agriculture especially in its infrastructure like irrigations, credits, marketing facilities, storage facilities and develop modern technique that is appropriate for hilly area, which will augment agricultural produce in the State. Also there are needs to increase land use intensity by increasing double cropped area and adopt integrated farming (livestock and fisheries production) shifting from subsistence to commercial farming by introducing cash crops suitable to the climatic condition of each districts. Development of

Horticulture and Floriculture needs to be encouraged as it has market potentiality which enhances the level of income of the people. Activities like bee keeping, poultry etc. should be encouraged as it will generate additional income in the rural areas. Besides, Research and Development activities needs to intensify to develop improve methods of farming suited to the upland rainfed agriculture so as to increase productivity. This will ensure not only food sufficiency but it will also increase surplus produce, which in turn will enhance the level of income of farmers. Agricultural growth also contributes to urban economy by lowering food prices and providing food security.³⁴⁶

(ii) Further, the study has shown that the disparity in agricultural sector was as high as 49.18% in 2006, with Dimapur (182.39) as relatively the most developed district, while Mon (47.72) and Tuensang (53.47) are the least developed districts as indicated in ADI value. Moreover, the inter-district disparity in agricultural development has been increasing over the period (it has increased by 0.84% per annum). It is also found that the impact of plan expenditure on disparity in agricultural sector is not only positive, but also significant. Therefore, fiscal allocation needs to be reviewed that increase in public spending should target not only to raise production, but also to ensure equitable development among the districts.

2. The secondary sector needs a strong base in order to boost up the economy

(i) Secondary sector which have both backward and forward effects, linking with primary and tertiary sectors, has the lowest contribution in the State's NSDP over the time (only about 13% in 2006). Thus, secondary sector like agro-based industry needs to be established in rural areas so as to encourage and absorb the agricultural product. Moreover, a strong base of secondary sector will enable to support in sustaining primary and tertiary sectors in the long-run of an economy. The small scale and cottage industry like traditional handloom and handicrafts, which is an integral part of the culture, need to be strengthened with modern technology and required infrastructure as it will enable to equip with contemporary fashion and taste. This will create employment and earning opportunity; also it will boost up rural economy.

(ii) The study has revealed that the inter-district disparity in industrial development was as high as 66.27% in 2006, where Dimapur (IDI value - 36.05) was relatively the most developed and Tuensang (IDI value - 5.75) was the lowest as indicated in IDI value. It is empirically shown that the state's spending in secondary sector was positively associated with its share contribution to NSDP. At the same time, it is observed that in the past years, the impact of plan outlay in

³⁴⁶ Ram, K and Simrit Kaur (2011): "Inter-State Variation in Economic Growth: Does Size and Composition of State Spending Matter?", *The Indian Economic Journal*, Vol 59 (1) April-June: 115.

industrial sector was also positively associated with the level of disparity. This showed that increase in the share contribution of secondary sector to NSDP due to increase in public spending has accompanied by increasing inter-district disparity. Therefore, there is a need to re-look into the State's investment planning, giving more emphasis to less developed districts.

3. Infrastructure need to be strengthened as it plays a key role for overall development

(i) In order to accelerate an overall economic development as well as human development in the State, it is important to strengthen infrastructural sector as it is the basic input factor for all-round developmental activities of the economy. It is found that the level of development in infrastructural sector was very low (4.98 in 2006 as indicated by InDI). Moreover, the inter-district variation has remained highly significant (CV is 53.68% in 2006). Among the districts, Dimapur remained as the most developed (InDI - 6.94 in 2006), while Tuensang (2.56) and Mon (2.77) remained the least developed districts. A remarkable finding of current study is that the impact of States expenditure on sectoral share contribution to NSDP like transport and communication is highly significant (elasticity is 0.950). Also, it is empirically shown that the impact of increase in plan outlay of infrastructural sector reduces its inter-district disparity (elasticity is 0.155). Therefore, it is convinced that public spending in infrastructural sector should be increased in the State. However, if we look at the proportion of budget allocation, there has been a declining trend in recent years. Hence, fiscal allocation needs to be reviewed, giving higher importance in less developed districts. This will improve overall socio-economic development of the State. Moreover, this will enhance the level of development as well as it will enable to reduce inter-district disparity.

(ii) In Nagaland, the total road length per 100 Sq Km is only 2.16 in 2006, while telephone (landline) per 1,000 population and post office per lakh population were only 4.68 and 16.53 respectively during the same period. Therefore, infrastructure like upgradation in the quantity and the quality of transport and communication facilities like all weather roads and constant telecommunication facilities need to be improved. Further, strengthening and improvement of agri link roads, air connectivity and railroads should be emphasised on priority basis. This will improve not only connectivity of rural people and mobility of goods with urban and advanced areas, but also it will accelerate the functioning of the entire economy.³⁴⁷ Such improvement will equip people with up-to-date knowledge and information, which in turn will improve standard of living and enlarge people's choices.

³⁴⁷ Fan, Shenggen (2008): *Public Expenditure, Growth and Poverty: Lessons from Developing Countries*, Oxford University Press.

(iii) Power is one of basic needs for all round activities of the States. Therefore, electricity should be provided to individual household as well as industrial units in order to accelerate economic activities. In spite of irregular power supply, household survey has revealed that only 92.38% households have electricity connectivity in 2009-10, which was even lower than that of 93.75% in 2003 in Nagaland. Hence, electricity facility should be extended to entire household with regular power supply as it is one of the most important factors for individual as well as industry to boost up the economy in the state.

(iv) The study also found that Banks per lakh population is very low (only 4.69 in 2008) in Nagaland. Besides, the existing banks are mostly located in commercial hub Dimapur and State capital Kohima. Therefore, banking facilities need to be extended to rural areas as it is essential for facilitating financial assistance to the rural farmers, which in turn will enhance rural economy.

4. Investment in Education and Knowledge need to be prioritised as it stimulates growth

(i) The level of development in education in the State is most consistent among the sectors under consideration; though at a slow pace (1.01% per annum during 1991-2006). Also, the inter-district disparity in educational development has declined over the observed period. However, in area like schools per 100 Sq. Km, there is wide inter-district disparity as its CV value was 54.49% in 2006 with the highest in Dimapur (36.78) and the lowest in Tuensang (10.27). Thus, institutional infrastructure, both in quantity and quality needs to be developed, especially in the lesser developed districts like Mon and Tuensang.

(ii) It is also found that increase in public expenditure in educational sector in the form of improvement in infrastructure like buildings, teaching aids, providing meals in the schools attracts more children to school which raises literacy rate in the State. The impact of public spending in education on literacy rate (2.5%) is not only positive but also significant and the impact of budgetary allocation on the level of share contribution of service sector to NSDP is highest among the sectors with an elasticity of 0.989 during 1986-2006. Further, it is confirmed that the State plan expenditure on education reduces its inter-district disparity significantly (elasticity is 0.178). Hence, it is very clear that fiscal allocation for educational development need to be intensified in the State as it plays crucial roles like increases in educational attainment (literacy rate), enhances the level of output in NSDP and reduces inter-district disparity.

(iii) Also, there is enough evidence from the study that higher education, both at macro and micro levels, has positive impact on level of per capita income significantly. Therefore, establishment of institutions for higher education, especially professional education is extensively

required in the State, as it will reduce the economic constraints of parents for sending children outside the state to attain such education and also enhance the level of income, which in turn will enlarge people's capabilities and choices. Also, Industrial Training Institutes need to be promoted with up-to-date courses and curriculums in imparting vocational education so as to generate and increase employable personnel in the State. Moreover, the level of education of farmers enhances the uses of improved methods and also increases productivity in agriculture. Therefore, investment in training and educational institutions and support to the farmers needs to be increasingly emphasised. This will enable to boost economic development, at the same time it will enable to enhance the overall well-being of individual and the society.

5. Investment in Health related services need higher priority, as it raises people capabilities

(i) The study showed that the level and trend of health related development in the State has been declining over the period 1991-2006 by -1.34% per annum. This is a major concern that needs to be seriously addressed. On the other hand, it is found that the inter-district variation in health sector has declined by -0.75% per annum during the same period. It is also empirically found that the State's plan outlay reduces the inter-district variation significantly by -0.54%. More so, the study showed that increase in plan expenditure in health sector lowers IMR by -1.30%. Further, there exist negative correlation between IMR and PCI in Nagaland. Therefore, public expenditure plays important role not only in reducing inequalities, but also improves health condition, which in turn will enable to raise the level of income of the individual.

(ii) Study has revealed that better health care facilities in rural areas need to be improved as it is found that there was only 1 (one) medical personnel for 5,859 population and 1 (one) doctor for 14,648 population. Thus, proper health and medical facilities need to be widely extended in rural areas in terms of both material as well as medical personnel. Upgradation of health care facilities by investing in advanced medical equipments in urban areas. Also, the ongoing National Rural Health Mission (NRHM) needs to be strengthened. It will save time, money and health of the people, and hence, improve well being of the people.

(iii) According to NSHDR 2004, 94.77% and 74.3% of the households have access to safe drinking water and proper sanitation facilities. But, household survey (2009-10) has revealed that only 70.84% households have access to safe drinking water supply and 85% households have proper sanitation facility. Hence, providing safe drinking water supply and proper sanitary facility need to be emphasised especially in rural areas. The ongoing Total Sanitation Campaign (TSC) need to be strengthened by giving more awareness about its importance through rural base

workshops and public information system. This will enable to improve health status, which is the basic minimum necessity for enabling all round activity of human being.

6. Overall Development need to be accelerated, with the target to reduce inequality

(i) The study showed that increased in public spending has significantly increased the level of NSDP during the observed period (elasticity is 0.996). Also, the level of overall development in the State has increased by 1.30% per annum during 1991-2006. However, it is observed that the overall inter-district disparity has widened by 0.42% per annum, whereas the State plan expenditure has positive impact on overall disparities (with an elasticity of 0.096). Further, districts like Mon and Tuensang continued to remain at the lowest spectrum in overall development among the districts throughout the period. Hence, while improvement in the level of development is worth mentioning, increasing disparity in the State is a matter of concern.

Therefore, it may be suggested that since public spending stimulates growth, the state expenditure need to be enhanced so as to increase the level of output. At the same time, there is a need to reallocate the state expenditure targeting to improve the less developed districts so as to ensure equitable development as it has positive impact on increasing inter-district disparity in past years. The present government effort to raise the backward areas through budgetary allocation and employment opportunities need to be strengthened. Also, it may be suggested that special economic zone specifically for Mon and Tuensang (including Longleng and Kiphire) be established so as to reduce the development deficits in those regions.

(ii) It is also evident that there was no uniformity in the growth rates among the districts as well as in various sectors within the district. For instance, despite, the highest growth rate in economic indicators, Dimapur has highest declining rate in health care development (HeDI) and therefore has been witnessing the highest increase in death rate. Wokha and Phek districts, although higher in the level of agricultural development (ADI), they have witnessed negative growth rates in this sector. Districts such as Tuensang, Phek, Zunheboto, Wokha and Mon witnessed negative growth rates in infrastructural sector over the observed period. Hence, it is imperative for policy planners to address the issues in those poor sectors of lesser developed districts. For instance, health care in Dimapur, agriculture in Kohima and Mokokchung and infrastructure in Tuensang, Phek, Zunheboto, Wokha and Mon.

7. Female education need to be intensified, as it is vital for fuller realisation of human development

(i) It is empirically evident that female education plays an important role in advancing human development. For instance, female education contributes significantly to socio-economic

development of the State by raising PCI (by 7.25%), improves health condition by reducing IMR (by -8.95%) and reduces family size (by -14.1%). However, it is observed that women are more deprived in receiving education as compared to men as the proportion of illiterate female (23.31% in 2011) is higher than that of male (16.31%). Therefore, female education needs to be given importance, starting from primary education to providing skills and vocational trainings that can create employment avenues (other than household chores). This will improve standard of living, better health and stabilize population growth, which in turn will enable to enlarge capabilities and choices. Short term training courses and awareness programme for women especially on sanitation, child care, nutrition, health etc. should be given regularly covering the entire State even the remotest rural villages.

(ii) Nagaland has witnessed a continuous decline in GDI value since 1981, which implies that the gender disparity has been continuously widened. It is found that male workforce participation (macro-level) is higher than female over the period in the State for which the gender disparity has been increased by 0.12% per annum during 1981-2001. Similarly, at micro level, study showed that women renders almost equal time (relatively higher) with men in agriculture and allied activities, yet, domestic chores are almost done by women, while male enjoy leisure much higher than female (CV is 93.52%). This constraint female to attend productive programmes that can equip her with knowledge and information which can lead to avail opportunities like earning income, well-being of herself, family and society. Thus, time allocation of male and female needs to be reconsidered so as to reduce not only imbalances between the two, but also to enhance economic as well as human development aspects in the State.

(iii) The study reveals that in decision makings, women participation is still very low in Nagaland as men has almost full control (about 80%) over household decisions especially in its expenditure. The study further reveals that when female control over household income and expenditure, the impact of additional income on expenditure in HDrIs is higher than male and jointly control households. Therefore, it is convinced that female participation in decision especially in expenditure is important as this will enable to steer up their political will power; also it will enable to maximise the fuller objective of human well-being.

Thus, it is important to address gender inequality with disaggregated data and that the policy intervention needs to be gender sensitive, which will promote gender equality in all aspects. Further, both men and women should be given equal opportunity in policy formulation. This will enable to reduce gender disparity at the same time; it will enhance all round development of the society.

8. Income generating opportunities need to be enhanced as it enlarges people's choices

It is observed that the growth rate of PCI during 2001-2006 has been 9.36% per annum in Nagaland. Also, inequality in PCI has increased by 4.65% per annum during 2001 to 2009-10. This shows that increase in PCI has been accompanied by increase in its inequality. Further, it is estimated that income inequality in Nagaland as measured by Gini Coefficient is 0.401, where 29.9% of the lowest income households receive only 8.19% of total income. The situation is worse in rural than in urban areas as the estimated Gini coefficient value for the same are 0.392 and 0.309 respectively. Therefore, income earning opportunities need to be extended to rural areas as the incomes of the rural areas are lower than that of urban areas. The ongoing scheme NREGA which is providing supplementary income opportunities to rural people irrespective of skilled or unskilled need to be strengthened. This is one way to increase the level of income and reduce income inequality in rural areas. It is also evident that when income increases in poorer households, the impact of additional income on human development related items is higher than that of richer households. Therefore, income and job-oriented skill development programmes which are suitable for poorer and illiterate people need to be intensified specially in rural area. Subsidiary income generating activities such as bee keeping, animal husbandry, poultry, mushroom cultivation etc. should be promoted especially in rural areas by giving training on technical skill, marketing information and credit facilities. The benefits of ongoing government programmes like bamboo mission, medical herbs cultivation etc. must reach the rural artisans and farmers. Further, strengthen the Self Help Groups by giving technical, marketing and credits supports will boost up the rural economy.

9. Human Development need to prioritise as it has significant impact on growth

There is empirical evidence that increase in the level of income and increase in government and household expenditures raise the level of education and health condition, on one hand, while increase in the level of education and improve health condition raises the level of income and productivity significantly, on the other. Study at macro-level shows that the impact of LR on PCI is higher than that of PCI on LR (by 6.71%). Also, the impact of higher education on PCI is greater than that of the reverse (by 2.14%). Similarly, study at household level shows that additional year of schooling increases the level of income and productivity (by 12.8% and 2.84% respectively). Further, the impact of improvement in health condition (reduction in IMR) on income is higher than that of PCI and PEHS by 1.70% and 1.30% respectively. Hence, it is obvious that although there exist two-way positive linkages between EG and HD, the inducement of HD on EG is higher than that of the reverse in Nagaland. Therefore, while balanced approach

to economic growth and human development has to be emphasised, it is imperative to emphasise on human development from the very outset, so as to ensure optimum sustainable growth of the State.

10. Village Councils and Village Development Boards need to be strengthened to accelerate development progress at the grassroots level

VCs and VDBs play key role in all round development of the community especially in administering justice and implementing developmental programmes. However, bottlenecks like lack of adequate infrastructural facilities, poor resources base and dearth of technical know-how have handicapped the VDBs in the developmental progress. Therefore, there are needs to provide an alternative means to the rural people to avail credits and loans as this can generate income required for the rural economy. Moreover, VCs and VDBs need to be strengthened by giving up-to-date information and knowledge through workshops, seminars and educative exposures. This will enhance not only the administrative capacity of the members but it will also enable to accelerate the development progress at the grassroots (villages) in the State.

To conclude, there are lots to be done especially in development of infrastructural sector like roads and communication, both in quantity and quality. The potential rural base small scale and cottage industries need to be accelerated so as to boost up the economy. Also, establishment of institutions for higher and professional education, health centres and provide medical facilities and personnel need to be addressed with utmost concern in the State. Nevertheless, the economic and human development is the major objective in planning; there is a need to establish a strong policy framework for overall development, which would be adequate to reduce the disparities in the State. Also, the village based institution “VDB” need to be strengthened as it plays a key role in developmental activities at the grassroots. As public spending stimulates growth, there is a need to enhance the level of investment both public and private, targeting to reduce the present regional imbalances in growth and developemnt of the State. It is an undeniable fact that the female contribution to society has been immense in terms of socio-economic aspect; hence, female participation needs to be encouraged in these respects. In quest, whether human development or economic development need to be prioritised, it is important that balanced development approach needs to be emphasised, yet, it is imperative to prioritise human development approach, as the same has greater impact on economic growth. Moreover, human development is the *means* as well as an *ends* in themselves.

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Degree	Year	Division	Percentage (%)	Board/University
HSLC	1997	III	36.20	NBSE
P.U (Com)	2000	III	38.30	NU
B.A (Eco)	2003	II	54.12	NU
M.A (Eco)	2005	I	67.00	NU

ECONOMIC GROWTH AND HUMAN DEVELOPMENT IN NAGALAND

1.1: INTRODUCTION AND CONCEPT

Economic growth is the rate of increase in annual total production of goods and services in a country, leading to a rise in National Income. Earlier, the development of a country was measured only in terms of gross domestic product and subsequently per capita income became an important indicator. But, in late twentieth century, a new development concept known as *human development* has evolved in the history of economic literature.

The human development concept does not deny the importance of economic growth and wealth accumulation for the welfare of society. However, it claims that economic growth is though necessary; it is not a sufficient condition for human well-being. The United Nation Development programme (UNDP) rightly asserted that “people are the real wealth of the nation, so the basic purpose of development is to enlarge human freedoms”. Even before great wealth is accumulated, major improvement in the quality of life is possible. Human development is pro-poor, pro-nature, pro-jobs, pro-women and pro-children, enlarging people’s choices, opportunities and enables them to participate in decision-making that is affecting them. The human development is a concept much broader than the conventional theories of economic development (per capita income). It is the *end*, while the tributaries are the *means*; but human development can also acquire *ends*’ characteristics. It has to do with mental health, self-esteem, success in significant relationships and happiness.

A society does not have to be rich to be able to afford democracy. A family does not have to be wealthy to respect the rights of each member. A nation does not have to be affluent to treat women and men equal. Wealth facilitates the development of human aspects, but it is not the only significant factor for the welfare of human beings. Many countries have high Gross National Product (GNP) per capita, but low human development indicators and vice versa, while countries at similar levels of GNP per capita may have different human development indicators. Also, maximisation of wealth and enrichment of human lives need not move in the same direction as many human choices extend far beyond economic well-being. Knowledge, health, a clean physical environment, political freedom and simple pleasures of life are not exclusively dependent on income.

There is a growing realisation of the importance of human development. As plant and machinery and other physical assets are important instruments for production, so is human development important for production of goods and services. A nation may possess abundant

inexhaustible natural and physical resources, necessary machineries and capital equipments, but unless there are people who can mobilise, organise and harness the nature's bountiful resources, a country or state cannot make rapid strides towards economic advancement.

The purpose of development policy, therefore, is not necessarily to maximise economic growth (GNP) alone, but to establish a balance between growth in income, on one hand, and social equity, environment quality and public participation in a democratic setting, on the other. Hence, human development is a process of widening choices and improving human well-being.

In recent years, considerable attempts have been made to understand the dimensions of economic growth. Understanding the causes and nature of differences in levels and growth of income across the regions becomes important as even a small difference in the growth rates, if accumulated over a long period of time may have substantial impact on standards of living of people.

Another major shift in development thinking came as a result of the experience of the industrialised countries that the regional disparity has become a global phenomenon. Fisher (1913) has rightly stated that an economic growth could take place together with social ills, such as misdistribution of income, although undesirable. The economic development since Second World War (WWII) has been a spectacular, unprecedented and unexpected success. However, at all levels of development the regional disparity continues to be the major concern in planning strategies, especially developing countries. There has been increase in diversity of growth among developing countries and increase dualism within many of them. Despite high rate of economic growth, not enough employment has been created for the rapidly growing labour force. In this regard, Sen has stated that "A society can be Pareto optimal and still be disgusting".

Kuznets (1955) and Williamson (1965) claimed that the regional disparities increase in the early stages of economic development due to an uneven spatial coverage of technological progress. The regional disparity therefore, follows the so called "inverted U-shaped". The privileged position of more developed areas in terms of capital and labour mobility get better advantage in its growth. Thus, the gap would continue unless de-agglomeration effects take place due to diseconomies.

The neo-classical economists postulated that the disparity is a passing phase and that the market forces would ensure the returns of all factors of production to marginal products. It is argued that the regional disparity is temporary as the initial unbalance growth of an economy would be neutralised through trickle down effect. There is an opinion that the development can start only in a relatively few dynamic sectors and geographic locations from where it is expected to spread to the remaining sectors and geographical areas of a country. Several studies have predicted that if the

economies are similar in technology, taste and preferences, then the lower the initial level of per capita income, the higher is the growth rate of per capita income.

There is a concern in the development process of a nation that the *gender disparity* has become prominent around the globe. Men and women live under the same roof, but they follow distinct life styles. They do not share the same condition of living and privileges. An invisible contract between the two always exists. Women are generally assigned vulnerable job especially the task of unpaid kitchen work, particularly in cooking. They play physically demanding and important role in building up a society. Moreover, women carry out most of the agricultural activities. Yet, they are treated as “second sex” and still striving to be not less than equal.

Many tasks of the housewives have alternate market prices as every housewife performs work in the economic sense of the term, irrespective of the fact of direct payment. The famous statement of Alfred Marshall about housemaid and the housewife is pertinent here. Most part of a woman’s work at home is economic in nature. The real income is generated in the household by several tasks, but this could not find its way into the national income estimates due to its operational limitations. Therefore, female contribution in the process of development have been realised lately.

The development concept has been shifted to broad human development, yet, there still exist close relationship between economic growth and human development. Economic growth provides resources to achieve improvements in human development while improvement in human development plays a significant role in achieving economic growth. Thus, there is a casual connection between economic resource base and human development achievements of a State, but these connections are “not automatic”.

The two-way linkages between economic growth and human development can be easily conceived from both theoretical and empirical evidences. Growth acts on human development mainly through two routes; firstly, household activities like the unpaid works done by women such as managing the household, raising children and caring for elderly and the sick. Secondly, increase in public spending on social sector activity enhances human development. An increase in public spending for infrastructure like road connectivity will lead to an improvement in health and better educational facilities. It will also add to higher income, and hence better human development.

Income is an important means of enlarging people’s choices as it leads to higher spending on people’s health and acquiring knowledge. Subsequently, healthier and better knowledge can be more productive and can have greater access to opportunities to improve their lives. Thus, expenditure (both public and individual) on human development inputs viz; education, health, sanitation, drinking water, etc. constitute strong instruments of improving human well-being (Deolalikar, 1993; Thomas 1990).

Studies showed that at macro level, the distribution of the increased income from economic growth will also have a strong impact on human development. It is also found that poorer households spend a higher proportion of their income on goods which directly promote better health and education than those with higher incomes. At the micro level, household's propensity to spend in something that can contribute to the promotion of human development depends on level and distribution of income across households as well as on who controls the allocation of expenditure within households.

There are evidences that education plays an important role in advancing economic growth. Improvement in human development due to improvement in education, nutrition and health of people advances economic growth by enhancing their capabilities and efficiency in agriculture (Lucas, 1988; Romer, 1990). Improvements in health and nutrition have also found to be positively associated with labor productivity, especially among poorer individuals (Schultz 1988, Behrman 1993, 1996). In agriculture, there exists a positive effect of education on productivity among farmers by using modern technologies.

Education, especially female education has led to many social benefits, such as improvement in the standards of hygiene, reduction in infant and child mortality rates and decline in population growth. For instance, countries like Kenya, Botswana and Zimbabwe have the highest number of female schooling among African countries; as a result they are lowest in child mortality rates. Human development is thus, the *means* as well as an *ends* in themselves.

1.2: STATEMENT OF THE PROBLEM

The primary focus of developmental planning is to ensure the high growth of the economy and equitable development between regions, individuals and genders in the State or the Country. However, despite all the good intentions in planning strategies, the regional disparity has become a world-wide phenomenon, where the developing countries suffer the most. In India, there are evidences that regional disparity has widened during the era of centralised planning. Measures adopted were rather ad hoc and were influenced by political pressure groups. The trend of regional disparity would continue if no innovative strategy is adopted in low performing region. The regional disparities in the level of development reflect resource flow biasness towards some favoured region. This leads to differences in accessing social services, basic infrastructure and opportunities. India is one of the countries facing the dilemma of economic efficiency versus social and regional equality of development, whereby there is no exception, particularly in Nagaland.

In Nagaland, there is concern for inter-district inequality in the development of the state. This has been expressed in government's policies and planning since its Statehood. Hence, out of 16 major tribes in the State, nine tribes are recognised as backward, namely Chakhesang, Chang,

Khiamungan, Konyak, Phom, Pochury, Sangtam, Yimchunger and Zeliang. Therefore, special attention and privileges have been given to these regions in budget allocation and employment policies.

The State, in general, has progressed in several aspects of economic and human development. Yet, the extent of inter-district disparity, income inequality and gender disparities are still matters of concern. The relatively less developed districts such as, Mon and Tuensang (including Longleng and Kiphire) are unable to catch up with the rest of the districts particularly in terms of education, income and infrastructure. Consequently, this has reflected in their poorer performance of economic as well as human development. The NSHDR 2004 showed that the HDI value was highest in Dimapur with 0.733, followed by Mokokchung (0.705), Kohima (0.673), Wokha (0.669), Phek (0.651), Zunheboto (0.611), Tuensang (0.512) and the lowest was Mon with 0.450. This indicates that there exists inter-district disparity in human development indicators in Nagaland. Also, the same report provided that the highest per capita income district Dimapur has 3.8 times higher than that of the lowest Mon. Hence, it shows that there is development deficit particularly in Mon and Tuensang districts, which is one of the causes of social unrest leading to the demand for a separate Statehood, the so called “Frontier Nagaland”.

Although, there is no open discrimination against women in Naga society, the disparity between the genders is evident, especially in terms of political and socio-economic activities. This is one of the obstacles towards enhancing human development in the State. Further, there is no study on the nexus between economic growth and human development in the context of Nagaland. Hence, it is felt imperative to examine on these issues so as to assist in formulation of future strategies in planning and to ensure equitable development in the State.

1.3: OBJECTIVES

The present study attempts to analyse the following:

- 1) To examine the socio-economic conditions of Nagaland.
- 2) Sector-wise development and sectoral growth of the economy in Nagaland.
- 3) The inter-district disparity in economic and human development indicators, income distribution and gender disparities in Nagaland.
- 4) Government and Households’ expenditure pattern on Human Development related Items (HDrIs).
- 5) Two-way linkages between economic growth and human development.
- 6) Relationship between female education and human development.

1.4: HYPOTHESES

The study postulates:

- 1) There is no tendency to converge in inter-district disparity in development, level of income and gender disparities over time in Nagaland.
- 2) The higher the level of average income, the lower is the extent of inequality and vice versa.
- 3) The impact of additional income on expenditure in HDrIs is higher in lower than in higher income households, and when female control the household income, the expenditure towards HDrIs tends to be higher.
- 4) There are two-way positive linkages between economic growth and human development.
- 5) Female education has positive impact on human development.

1.5: AREA OF THE STUDY

Nagaland covers an area of 16,597 Sq. Km with a population of 19,80,602, out of which, 71.03% lives in rural area. According to 2011 census, the State has eleven districts, mostly inhabited by tribal population having similar socio-economic conditions. Keeping in mind all the common features of development, habits and social life of the people, the present study covers the State of Nagaland. In the analysis, the newly created districts namely, Longleng, Kiphire and Peren are included in the former districts as their required time series data are not available. At macro-level study, all the districts (eight) are taken into consideration in sector-wise analysis. At micro-level, three districts are selected as sample districts, namely Mokokchung, Phek and Tuensang. From each selected district, two villages and their respective headquarters are selected to represent sample rural and urban areas.

1.6: PERIOD OF STUDY

The analyses of sector-wise growth and inter-district disparities have covered the period 1991-2006 at four different points of time with five yearly intervals, i.e. 1991, 1996, 2001 and 2006. In sectoral growth of the State's economy, the study has covered the last twenty five years i.e. 1981-2006 on annually basis. The testing of two-way linkages at macro-level is taken for the period 1971 to 2011; while at micro level, it is taken a single time period, based on the sample survey conducted during 2009-10.

1.7: SCOPE OF THE STUDY

The study throws light on the socio-economic conditions of Nagaland which have bearing with direct relation to enhancement of people's well-being. The study brings out the inter-district relative growth rates in indicators of the State's economy and human development in different sectors such as agriculture, industry, infrastructure, education and health. The study also provides the magnitude of inter-district variation in indicators of economic growth and human development, income inequality and gender disparities. It also empirically examined the inducements from

economic growth to human development and vice versa at macro as well as micro levels. Furthermore, the impacts of female education on economic and human development have been explored. Hence, this study will provide a reliable source that will assist the policy planners while formulating effective policies for uplifting the standard of living, reducing regional and gender disparities; and enhancement of economic growth and human development for the state of Nagaland.

1.8: METHODOLOGY OF THE STUDY

1.8.1: Data Base: The study is based on both secondary and primary sources. The secondary data are collected from a variety of authentic government and other sources available in published and unpublished forms, such as statistical handbooks, census reports and official records. The primary data are collected by conducting a stratified random sample survey using questionnaire and direct interview methods. The sample survey has been conducted during 2009-10.

1.8.2: Sample Design: In the first stage, districts are stratified into relatively more developed (Dimapur - 0.733, Mokokchung - 0.705 and Kohima - 0.673), moderate (Wokha - 0.669, Phek - 0.651 and Zunheboto - 0.611) and less developed (Tuensang - 0.512 and Mon - 0.450) on the basis of HDI values 2001.

In the second stage, one district from each of the stratum is selected viz; Mokokchung, Phek and Tuensang respectively. Mokokchung district is inhabited by Ao tribe, Phek by Chakhesang and Pochury and in Tuensang district, it has inhabited by Chang, Khimiungan, Sangtam and Yimgunger. According to NSHDR 2004, the per capita income for Mokokchung district was Rs. 12,305/-, while that of Phek and Tuensang were Rs. 9,880/- and Rs. 8,149/- respectively. According to 2011 census, the literacy rate for Mokokchung district is 92.68%, Phek is 79.13%, while that of Tuensang is 73.70%.

Subsequently, the villages are stratified based on socio-economic conditions. Hence, two villages and one town are selected from each sample district. Accordingly, Mokokchung village, Luyong village and Mokokchung Town from Mokokchung district, Kikrüma village, Enhulumi village and Phek Town from Phek district, and Tuensang village, Konya village and Tuensang Town from Tuensang district are selected.

1.8.3: Sample Size: Altogether, 525 households are taken as sample units with a total population of 2,999. Out of sample aggregate, rural area comprises of 412 households and urban area of 113 households, making the composition 78.18% and 21.52% respectively. In total sample population, Mokokchung district consists of 26.07%, Phek-41.22% and Tuensang-32.81%.

In *rural* area, the number of sample households taken from Mokokchung village is 99, Luyong - 40, Kikrüma - 98, Enhulumi - 42, Tuensang village - 95 and Konya - 38. These households comprise of 13.2%, 15.63%, 6.32%, 20%, 7.56% and 20.43% of their respective village total

households. In *urban* area, 24 households are taken in Mokokchung town, 58 in Phek Town and 31 in Tuensang Town. Thus, these sample units should fairly represent the universe of the study.

1.9: LIST OF INDICATORS

To analyse growth and inter-district disparity at macro-level, 29 indicators are selected. The indicators are disaggregated into economic and human development under five sectors shown below:

1.9.1: Economic Indicators

(i) **Agricultural Sector:** Land Productivity (MT/Hec) (x1), Per Capita Production (in KG) (x2), Total Cultivated Area (in Hec) per 1000 Population (x3), Percentage of Cultivated Area to Total Area (x4) and Percentage of Gross Irrigated Area to Total Cultivated Area (x5).

(ii) **Industrial Sector:** Number of ITC(s) per Lakh Population (x6), SSI Units per Lakh Population (x7), Employees per SSI unit (x8) and Veterinary Hospital/Dispensary per 100 Sq. Km(x9).

(iii) **Infrastructural Sector:** Number of Post Office(s) per Lakh Population (x10), Post Office(s) per 100 Sq. Km (x11), Bank(s) per Lakh Population (x12), Bank(s) per 100 Sq. Km. (x13), Telephone(s) per 1000 population (x14), Surfaced Road per 100 Sq. Km (x15), Road Length km per 100 Sq. Km (x16) and Per Capita Electricity Consumption (in Kwh) (x17).

1.9.2: Human Development Indicators

(iv) **Educational Sector:** Five indicators chosen in educational sector are Literacy rate (x18), Teacher-Pupil ratio (x19), Children Enrolment ratio (x20), Schools per 1000 Population (x21) and Schools per 100 Sq. Km. (x22).

(v) **Health Sector:** The selected indicators in Health sector are Medical Institutions per 10,000 Population (x23), Medical Institutions per 100 Sq. km (x24), Beds per 10,000 Population (x25), Medical Officers per Lakh Population (x26), Nurses per Lakh Population (x27), Compounders per Lakh Population (x28) and Death Rate (per 1,000 population) (x29).

1.9.3: Sample Data: The data collected from sample survey include individual and household incomes, households' expenditure pattern, gender-wise control over household income, years of schooling, agricultural productivity, adoption of improved methods in cultivation and family size.

1.10: DATA ANALYSIS

The data collected are analysed at the State, district, household and individual levels using appropriate statistical tools, such as Mean, Standard Deviation, Variance, Coefficient of Variation, Correlation, Regression, Standard Error Estimate, *t*-Statistics, Lorenz Curve, Gini Coefficient, Exponential Growth Rates, Annual Average Growth Rate, Gender Differential (GD) Method and Composite Index.

1.11: CHAPTERISATION

The organisation of the chapters is as follows: Chapter I – Introduction, Chapter II- Review of Literature, Chapter III - Socio-Economic Profile of Nagaland, Chapter IV - Analysis of Growth Trends in Nagaland's Economy, Chapter V - Inter-District Disparities in Economic and Human Development in Nagaland, Chapter VI - Linkages between Economic Growth and Human Development in Nagaland and Chapter VII - Findings and Conclusion

MAJOR FINDINGS

2.1: SOCIO-ECONOMIC PROFILE

The socio-economic profiles of Nagaland in general and Sample areas, which have been discussed at length in Chapter 3 are summarised below.

2.1.1: Demographic Characteristics of the State

(i) *Population and its Density:* According to 2011 census, the population of Nagaland is 19,80,602. The density of population is 119 per sq. km against the country's average of 362 per sq. km in the same period.

(ii) *Decadal Growth:* During 1981-91 and 1991-01, the State has witnessed the highest growth rate of population in the country with 56.08% and 64.41% respectively. However, during 2001-2011, it has exhibited negative growth of -0.47%.

(iii) *Rural-Urban Distribution:* The proportion of rural population in Nagaland is 71.03%, which is higher than India of 68.84% in 2011. Correspondingly, the proportion of urban population in Nagaland is lower than India with 28.97% and 31.16% respectively.

(iv) *Sex Ratio:* The sex ratio in Nagaland is only 931 females per 1000 males as compared to India of 940 in 2011. Among the districts, the highest is Zunheboto and lowest is Mon with 981 and 898 respectively.

(v) *Education:* As far as *literacy rate* is concerned, the general education in Nagaland is better than India. The literacy rate for Nagaland in 2011 is 83.29%, which is marginally higher than that of India (82.14%). Also, the *teacher-pupil ratio* in Nagaland is lower than India with 1:19 (2006) and 1:40 (2004) respectively.

(vi) *Health:* The health status in Nagaland is better than India in respect of life expectancy and Infant Mortality Rate. The *life expectancy* for Nagaland in 2001 was 73.4 years as compared to 63 years of India, while for *Infant Mortality Rate*, it was 40 for Nagaland as compared to 69 of India in the same year.

2.1.2: Economic Development

(i) *Sectoral Contribution in NSDP during 1981 to 2006:* The main observations are as follows:

a. The share of tertiary sector in NSDP has declined marginally, but it has been the leading sector in the State's economy, followed by primary and secondary sectors.

b. Among the sub-sectors, agriculture is still the major contributing sector in NSDP.

c. During the last decade, transport and communication has emerged as an important sector in the State's economy.

d. Other major sub-sectors are (i) construction, (ii) public administration, (iii) real estate, ownership of dwelling and business services, (iv) other services and (v) trade, hotel and restaurant.

(ii) Per Capita Income: The Per Capita Income (PCI) in Nagaland during 2005-06 was only Rs. 18,318 as compared to India of Rs. 25,956 during the same period. This means that the PCI of Nagaland was only 70.57% to that of India. Moreover, the household survey has estimated that the PCI of Nagaland (for sample aggregate) during 2009-10 was even lower with only Rs.15,188.

(iii) Sectoral Employment: In Nagaland, workers constitute 42.47% of its total population in 2001. It is obvious that the State is predominantly an agrarian economy as 68.03% of the working force were engaged in agriculture and allied activities. The workers in household industries and other workers composed of only 2.20% and 29.84% respectively.

2.1.3: Infrastructural development

(a) Physical Infrastructure

(i) Transport and communication: It has been observed that during 2007-08, the total road length in the State was 14,648.68 Kms, out of which only 26% were surfaced. The State has only one *Railway* station and one *Airport*, both located in Dimapur. Besides, the road length per 100 sq. km in Nagaland was only 2.16 in 2008.

(ii) Industrial Infrastructure: There is no significant industrial development has been observed in the State. The State has 1 (one) medium scale Cement plant located at Wazeho with the capacity of producing 50 TDP, while paper mill at Tuli and sugar mill at Dimapur have become non-functional. Besides, the State had only 3.61 SSI units per 10,000 population during 2005-06.

(iii) Electricity and Power: Among various source of energy, Nagaland has 24 MW Likimro Project and 75 MW Doyang Power Station. But, the State's share in Doyang Power Station is only 12% (9MW), while additional 6% (4.5MW) is being purchased from NEPCO from the same Station. Besides, the State purchases power from other sources through National Grid system. Yet, load shedding becomes daily affairs in the State. During 2005-06, the per capita electricity consumption in Nagaland was 1.35 KWH.

(iv) Banking: The data showed that in 2006, *Banks per lakh population* in the State was only 4.69. There were 72 commercial banks operating across the State in 2008 with credit-deposit ratio of

1:4.07, whereas, the 10 Regional Rural Banks had the credit-deposit ratio of 1:0.91 during the same year.

(v) *Agricultural Infrastructure*: To facilitate agricultural development, the State has 1 (one) ICAR at Jarnapani, 1 (one) SARS at Yisemyong and 8 (eight) KVKs. During 2006-07, the proportion of total area under agriculture in the State was 30.08%, out of which, only 27.16% of the total cultivated area was covered with irrigated facility.

(b) Social Infrastructure

(i) *Educational Institution*: The State has 2624 educational institutions for various levels during 2007-08. It includes 14 Central institutions, 1878 State government and 732 Private owned institutions. During the same year, there were 2 Polytechnics, 3 Nursing Schools, 6 Teacher Training Institutes, 4 Industrial Training Institutes, 1 School of Music, 3 Law Colleges, 1 School of Engineering and Management and 1 School of Agriculture each for College and University levels.

(ii) *Health*: In 2006, there were 581 Medical institutions and 2335 medical personnel in the State medical service. In other words, there were 3.04 and 10.63 Medical Institutions per 10,000 population and Medical Personnel per 10,000 population respectively.

(iii) *Housing*: According to NSHDR 2004, only 11.68% of the total households reside in pucca house, 42.51% households in semi-pucca house; while for the major proportion (44.14%) of the households reside in kutcha house.

(iv) *Water Supply and Sanitation*: The data showed that only 18.97% of the total villages were fully covered with safe drinking water supply in 2003, while 75.8% were partially covered and 5.23% of the total villages have not been covered. In the same year, 25.87% of the household in Nagaland do not have proper sanitation facility as compared to 30% of all India average.

2.1.4: Village Council and Village Development Boards: The Village Council (VC) is the overall authority of village administration, while VDBs are involved in all phases of developmental activities as a part of their responsibilities like allocation of funds, selection of beneficiaries or schemes, monitoring of work progress and completion of schemes. Hence, VCs and VDBs play key role in building up of all round development of the community especially in administering justice and implementing developmental programmes.

2.2: SOCIO-ECONOMIC PROFILE OF SAMPLE AREAS

2.2.1: Demographic Characteristics of Sample Areas

(i) *Sample Population*: The sample size in aggregate is 2999 people comprises of 1442 female and 1557 male.

(ii) *Rural and Urban Distribution*: The Rural and Urban population of sample areas comprises of 80.89% and 19.11% respectively. In rural area Mokokchung consist of 28.61%, Phek-37.88% and

Tuensang constitutes 34.05%. Among the *urban* area, Mokokchung consist of 17.45%, while Phek and Tuensang constitute 55.59% and 27.40% respectively.

(iii) *Age-wise Composition:* It is observed that at the time of survey more than one-fifth (22%) of the total sample population are children below 14 years of age. The same for *rural* area is higher than *urban* area with 22% and 21% respectively.

(iv) *Sex-Ratio:* The sex-ratio in sample aggregate was found to be 926 females per 1000 males, which lower than State's average of 931 in 2011. The same for sample *rural* and *urban areas* were 933 and 897 as compared to that of State's average of 942 and 905 respectively.

(v) *Household Size:* In rural areas, according to VCC and VDB's records, the average household size was 6.82 members. However, household survey has revealed that the same was only 5.71 members. For sample *urban* area, it was 5.07 members, which was lower than that of the sample *rural* area of 5.89 members.

(vi) *Educational Profile:* In sample aggregate, 7% of the sample population have never been to school. The same in *rural* area was higher as compared to *urban* area with 8% and 5% respectively. Further, currently attending schools in sample aggregate consist of 36%. It was lower in *rural* than in *urban* areas with 34% and 42% respectively. On the other hand, attended but not currently attending schools in sample aggregate was 57%, the same in rural is higher than urban areas with 58% and 53% respectively.

(vii) *Occupation of Household Head:* The occupations of the household head showed that maximum of the household depend primarily on Agriculture, which was 42% of the sample aggregate. The same for Salaried, Business, Pensioner and Social Activist were 36%, 13%, 6% and 3% respectively.

(viii) *Gender-wise Household Head:* It is observed that the household headed by female is still insignificant as in sample aggregate, as much as 90% households in aggregate are headed by male, while only 10% households are headed by female. In *urban* areas, the male headed household consists of 91.15% which is higher as compared to *rural* areas of 89%.

(ix) *Educational Qualification of Household Head:* In sample aggregate, 10% of the household heads have never been to school. Out of which, it was only 1% in *urban areas* as compared to 12% in *rural* area.

2.2.3: Infrastructure Profile of Sample Areas

(i) *Transport and Communication:* It is observed that half of the sample villages are linked with pucca road. Among the sample villages, 50% have transport facilities such as bus and private taxis based in their village for commuting. All the sample villages have access to telephone facility. However, only 16.67 % of the sample villages have post office within their jurisdiction. Hence, post office per 10,000 population was only 0.30 in 2009-10 as observed in sample rural area.

(ii) *Power*: The survey has revealed that only 92.38% households have electricity connectivity during 2009-10, which was lower than that of the State's average in 2003 of 93.75%. It is observed that the household electrification in urban area was better than in rural areas as the same for urban and rural were 97% and 91.17% respectively.

(iii) *Banking*: In banking, it is found that there are 11 banks in sample towns, whereas, none of the sample villages has banking facility in their jurisdiction.

(iv) *Educational Infrastructure*: The educational infrastructure of sample areas are summarised as below:

a. *Educational Institutions*: There were 75 educational institutions in sample towns including 10 colleges, 11 Higher Secondary and 54 Schools. Whereas, 50% of sample villages have middle government school and 33% have private middle schools. Only 16% (1) of the sample village has Government secondary school, while 33% (2) had private secondary school.

b. *School-Pupil Ratio*: The school-pupil ratio in aggregate for sample villages during 2009-10 was 1:156, which was lower than the State's average of 1:178 in 2006. In sample aggregate, the same for government school was lower than and private school with 1:125 and 1:243 respectively.

c. *Teacher-Pupil Ratio*: The study showed that teacher-pupil ratio in aggregate for sample villages during 2009-10 was 1:18, which was marginally lower than the State's average of 1:19 in 2006. The same for sample aggregate in public school was higher than private school with 1:16 and 1:25 respectively.

(v) *Health Care*: In health care, in spite of all efforts given by the government and NGOs, its services are yet to reach a satisfactory level. In sample towns, there are 3 District Hospitals and 11 Dispensaries. In sample rural area, it is observed that there was only 1.69 medical staff per 10,000 population in sample villages during 2009-10, which was much lower than the State's average of 10.63 in 2006. Besides, there was only 1 Sub-centre which was manned by doctor in rural areas.

(vi) *Water Supply and Sanitation*: It is observed that only 70.84% households were covered with safe drinking water supply in sample aggregate, whereby it was higher in urban than rural areas with 75% and 66.57% respectively. This was much lower than the State's average of 94.77% in 2003.

The household survey has also revealed that 85% households have access to proper sanitation facility, while the same in urban was higher than in rural with 92% and 82.33% respectively against the State's average of 74.3% in 2003.

3: ANALYSIS OF GROWTH TRENDS IN NAGALAND ECONOMY

The important findings of growth in economic and human development in Nagaland which have discussed detail in Chapter 4 are summarised as follows:

3.1: Sector-wise Development: In sector-wise growth and development in the State, the main findings are highlighted below.

(i) *Agricultural Sector:* There has been an improvement in agricultural sector in the State as far as ADI value is concerned; it has increased from 71.31 to 97.06 in 1991 and 2006 respectively. The growth trend shows that the growth rate was 1.99% per annum during 1991-2006.

Among the districts, Dimapur had the highest growth rate with 3.18% per annum, followed by Zunheboto, Kohima, Mokokchung, Tuensang and Mon with 2.81%, 2.58%, 1.69%, 1.04% and 0.02% respectively. On the other hand, Wokha and Phek had exhibited negative growth with -0.03% and -0.23% per annum respectively.

In five yearly periodical analyses, the growth during 1991-96 was negative with -1.90% per annum. Thereafter, it has turned to positive growth during 1996-01 and 2001-06 with 1.43% and 8.08% per annum respectively.

(ii) *Industrial Sector:* The Industrial sector showed an improvement over the period as IDI value has increased from 3.54 to 13.03 in 1991 and 2006 respectively. This shows that growth rate during the same period was 9.98% per annum.

Among the districts during 1991-2006, Dimapur has exhibited the highest growth rate with 18.13% per annum, followed by Zunheboto, Mon, Mokokchung, Kohima, Wokha, Tuensang and Phek with 11.28%, 8.36%, 7.24%, 6.72%, 5.75% and 5.02% per annum respectively, while Phek had the lowest with 4.35% per annum.

The inter-temporal analyses showed that during 1991-96 and 1996-2001, the growth of industrial sector was 11.35% and 38.81% per annum respectively. However, during 2001-2006 it has witnessed negative growth rate with -4.03% per annum.

(iii) *Infrastructural Sector:* The Infrastructural development as indicated by InDI value had marginally increased from 4.68 to 4.98 in 1991 and 2006 respectively. Hence, its growth rate was 0.86% per annum during 1991-2006.

Among the districts during the same period, the highest growth is exhibited by Dimapur with 1.11% per annum, followed by Kohima and Mokokchung with 0.86% and 0.81% respectively. On the other hand, Mon, Wokha, Tuensang, Phek and Zunheboto exhibited negative growth with -0.24%, -2.81%, -1.75%, -1.49% and -0.68% per annum respectively.

The periodical analysis showed that the growth in Infrastructural sector in Nagaland has been fluctuated; during 1991-96, it was negative with -1.58% per annum, but it has turned positive during 1996-01 with 7.98% per annum and again, it has witnessed negative growth with -4.44% per annum during 2001-06.

(iv) *Educational Sector*: The development in educational sector has been consistent throughout the study period as EDI value has increased from 33.40 in 1991 to 39.29 in 2006. The growth in educational sector was 1.01% per annum during the period under consideration.

Among the districts, Mon has exhibited the highest growth rate with 1.96% per annum during 1991-2006, followed by Tuensang, Wokha, Dimapur, Mokokchung, Phek, Kohima and Zunheboto with 1.77%, 0.95%, 0.93%, 0.80%, 0.80%, 0.75% and 0.66% per annum respectively.

The growth in educational sector during 1991-96 in Nagaland was 1.29% per annum. Further, in 1996-01 and 2001-06, it has increased by 0.35% and 1.73% per annum respectively.

(v) *Health Sector*: The HeDI value showed that the health sector has been deteriorating over the period in the State as it has declined from 29.33 to 22.92 in 1991 and 2006 respectively. It is estimated that the health sector witnessed negative growth by -1.34% per annum during 1991-2006.

All the districts have witnessed negative growth during the same period, whereby the highest negative growth rate was Tuensang with -3.99% per annum, followed by Wokha, Mon, Zunheboto, Phek, Dimapur, Kohima and Mokokchung with -3.63%, -2.54%, -2.20%, -1.60%, -1.51%, -0.34% and -0.10% per annum respectively.

During 1991-96 and 1996-2001, the State has witnessed negative growth rate by -3.75% and -3.66% respectively, thereafter it has witnessed positive growth by 3.52% per annum during 2001-06.

Death Rate: The *death rate* per thousand population in Nagaland has shown a fluctuating trend during the period under observation. In 1991, it was 2.56, which has declined to 1.95 in 1996, but increased to 3.65 in 2001. Thereafter, it has declined again to 2.61 in 2006. Hence, it is estimated that the death rate per 1000 population has increased by 1.37% per annum during 1991-2006.

Among the districts, only Mon has showed negative trend value with -1.88% per annum during 1991-2006, whereas the highest positive growth has exhibited by Dimapur with 14.50%, followed by Tuensang, Kohima, Wokha, Mokokchung, Phek and Zunheboto with 9.83%, 1.66%, 1.02%, 0.93%, 0.93% and 0.09% per annum respectively during the same period.

It has been observed that during 1991-96, it has declined by -4.77% per annum, but increased during 1996-01 by 17.44% and declined again during 2001-06 by -5.67% per annum.

(vi) *Overall Growth*: The overall growth has exhibited a downward trend in the early nineteen nineties as the ODI value was declined from 26.42 to 24.79 in 1991 and 1996 respectively. Since then, it has started to increase, whereby its value in 2001 and 2006 were 25.96 and 32.31 respectively.

The *growth trend* of overall development during 1991-2006 was 1.30% per annum. Among the districts, Dimapur has exhibited the highest growth with 3.08% per annum, followed by Zunheboto, Kohima, Mokokchung, Mon and Tuensang with 1.59%, 1.48%, 1.17%, 0.40% and

0.07% per annum, while Phek and Wokha had witnessed negative growth rates with -0.47% and -0.33% per annum during the same period.

The inter-temporal analyses showed that the entire districts have exhibited negative growth during 1991-96 with -1.24% per annum. Thereafter, it has increased by 0.95% and 4.89% per annum during 1996-2001 and 2001-2006 respectively.

3.2: Annual Exponential Sectoral Growth of NSDP during 1980-81 to 2005-06

The main observations of annual exponential growth rates of sectoral contribution to NSDP in Nagaland are as follows:

- (i) The growth rate of NSDP in Nagaland during 1981-2006 was 15.84% per annum, while that of PCI was 11.13% per annum.
- (ii) The decadal decomposition of growth rate has shown that the State has witnessed the highest growth rates in NSDP and PCI as well as population during 1990-91 to 2000-01 with 22.38% and 17.22% per annum respectively. However, in the last decade (during 2000-01 to 2005-06), the growth rates in both NSDP and PCI have reduced to 14.33% and 9.36% per annum respectively. Therefore, in the last decade, there has been a decline in growth rate of the economy in respect of NSDP and PCI in Nagaland.
- (iii) Among the sectors, the growth of Primary sector was highest with 16.09% per annum, followed by Tertiary and Secondary sectors with 15.85% and 14.62% per annum respectively.
- (iv) Among the *Primary Sub-sectors*, the highest growth during 1981-2006 was Fishery with 19.25% per annum. However, it is observed that during 2001-06, Mining and Quarrying became the fastest growing Primary sub-sector with 19.74% per annum. This could be due to developmental activities being taking place in the State. However, the agricultural sub-sector has remained the major contributing sub-sector to NSDP over the period.
- (v) In *Secondary Sector*, Construction continued to be the dominant sub-sector during 1981-2006 with a growth rate of 13.78% per annum. It may be mentioned that till 1993-94, sectors like Electricity, Water Supply and Gas have witnessed deficit in their contribution to NSDP.
- (vi) Among *Tertiary Sub-sectors*, transport and communication has witnessed the highest growth rate during 1981-2006 with 28.17% per annum. But, in the last decade (2001-2006), Real Estate, Ownership of dwelling and Business services has emerged a major sub-sector with a growth rate of 10.56% per annum.

3.3: Public Spending and Level of NSDP

The study showed that public spending is positively associated with the level of NSDP in Nagaland. It has shown that the elasticity of public expenditure on overall level of NSDP is 0.996.

Among the sectors, the highest impact is on social service sector such as education and health with an elasticity of 0.989, followed by secondary sector, infrastructure and agriculture with 0.973, 0.950 and 0.878 respectively.

3.4: Changing Pattern of NSDP and Employment in Nagaland during Pre-reform (1981-1991) and Post-reform (1991-2006)

The findings of changing pattern in sectoral contribution to NSDP and occupational structure in the economy of Nagaland during pre-reform and post-reform periods are given below.

i) Primary Sector: The contribution of Primary sector to NSDP in pre-reform period was declined by -1.01% per annum. But, it was increased during post-reform period by 1.23% per annum. During the same period, the proportionate share of workforce has marginally increased in pre-reform period by 0.09% per annum, but declined in post-reform period (1991-2001) by -0.68% per annum.

ii) Secondary sector: The proportionate share of secondary sector in NSDP has increased in pre-reform period by 8.2% per annum, but declined in post-reform period by -3.31% per annum. During the corresponding periods, the proportionate share in Employment has continuously increased by 0.41% and 4.11% per annum.

iii) Tertiary sector: The Tertiary sector's contribution to NSDP has declined during pre-reform period by -1.56% per annum, but increased in post-reform period by 0.94% per annum. Similarly, its percentage share of Employment has reduced in pre-reform period by 0.26% per annum and increased in post-reform period by 1.69% per annum.

Hence, with the advent of the new economic policy in the country in 1991, the structure of the State's economy has been changing in such a way that (a) the contribution of Primary sector to NSDP have increased, although it has declined in proportionate share of workforce, (b) the share of Secondary sector in NSDP has declined, but its share in employment has increased, (c) in Tertiary sector, its share in both NSDP and employment have increased.

Further, it is observed that the structural change in the economy of Nagaland has led to an increase in the contribution of primary and tertiary sectors to NSDP with a matching decline in the contribution of secondary sector, while the decline in proportion of workforce in primary sector has a matching increase in secondary and tertiary sector.

3.5: Growth of Human Development Index in Nagaland and India during 1981 to 2001

As far as HDI is concerned, the human development in the State was better than the country's average over the observed period. The HDI in Nagaland has increased by 89% during 1981-2001 as compared to that of 35.76% of India during the same period. In 2001, among the

districts in Nagaland, it is observed that the HDI was highest in Dimapur, while the lowest was in Mon with 0.733 and 0.450 respectively.

4: INTER-DISTRICT DISPARITIES IN ECONOMIC HUMAN DEVELOPMENT

The important findings of inter-district disparities in economic and human development have been analysed in detail in Chapter 5 are summarised below.

4.1: Sector-wise Disparity in Economic and Human Development

(i) *Agricultural Sector:* The inter-district disparity in development of agricultural sector has been significant throughout the period under observation. The extent of disparities estimated by Coefficient of Variation (CV) has revealed that it has increased from 43.58% to 49.18% in 1991 and 2006 respectively, which shows that it has widened by 0.84% per annum. The ADI value showed that in 2006, the relatively most developed district was Dimapur, while the least was Mon with its value of 182.39 and 47.72 respectively.

The study has shown that there is convergence in indicators such as *Land Productivity (MT/Hectare)*, *Per Capita Production (in KG)* and *Total Cultivated Area (in Hectare) per 1000 Population* by 1.01%, 0.14% and 2.65% per annum respectively during 1991-2006. But, in *Percentage of Cultivated Area to Total Area* and *Percentage of Gross Irrigated Area to Total Cultivated Area*, the disparity has widened by 4.10% and 1.36% per annum respectively during the same period.

The inter-temporal analyses showed that the inter-district disparity in agricultural sector during 1991-96 has declined by -0.05% per annum, but has increased during 1996-01 and 2001-06 by 1.16% and 1.39% per annum respectively.

(ii) *Industrial Sector:* The Industrial development in the State has experienced vast inter-district disparity over the period. The disparity has widened by 3.92% per annum during 1991-2006 as its CV value has increased from 35.92% in 1991 to 66.27% in 2006. Among the districts, Dimapur has been relatively developed among as far as its IDI value is concerned in 2006, while Tuensang showed the least as their IDI value were 36.05 and 5.75 respectively.

The disparities have widened in all the indicators except *ITC per Lakh Population*, which has declined by 0.89% per annum. It is estimated that the disparities in *SSI Unit per Lakh Population*, *Employees per SSI units* and *Veterinary Hospitals/Dispensary per 100 Sq. Km* have widened by 6.81%, 7.36% and 0.78% per annum respectively during 1991-2006.

During 1991-96, the disparity has widened by 9.05% per annum, while during 1996-01 and 2001-06, it has widened by 2.64% and 2.44% per annum respectively.

(iii) *Infrastructural Sector:* The inter-district disparity in infrastructural sector has initially widened and then narrowed down over the observed period, but it has remained significant. The disparity has

widened from 59.75% in 1991 to 69.54% in 1996, thereafter, it has narrowed down to 57.14% and further to 53.68% in 2001 and 2006 respectively. Hence, the growth trend of disparity in infrastructural sector showed that it has narrowed down by -0.31% per annum during 1991-2006. It has observed from the study that in 2006, Dimapur was the most developed district as revealed by InDI value, while the least developed was Tuensang. Their InDI values were 6.94 and 2.77 respectively.

Among the indicators during 1991-2006, the disparity has converged in *Post Office per Lakh Population*, *Post Office per 100 Sq. Km*, *Road Length (Km) per 100 Sq. Km* and *Per Capita Electricity Consumption (in KWH)* by -0.12%, -0.14%, -0.66% and -14.56% per annum respectively. On the other hand, the disparity has diverged in *Bank per Lakh Population*, *Banks per 100 Sq. Km*, *Telephone per 1000 Population* and *Surfaced Road per 100 Sq. Km* by 0.04%, 0.93%, 0.44% and 1.46% per annum respectively during the same period.

The inter-district disparity in infrastructural sector during 1991-2006 has widened by 3.28% per annum, but it has narrowed down by -3.57% and -1.21% per annum during 1996-2001 and 2001-06.

(iv) *Educational Sector*: The study has revealed that there was convergence in educational sector during the period under consideration. The disparity has reduced from 34.85% to 25.61% in 1991 and 2006 respectively, which shows that it has narrowed down by 1.88% per annum during 1991-2006. In 2006, the EDI value showed that in education, Dimapur has witnessed the highest value, while Mon has witnessed the lowest with 46.88 and 34.25 respectively.

The convergence has been observed in all the individual educational indicators, where the highest and lowest convergence rate was in *Children Enrollment Ratio* and *School per 1000 Population* with -9.93% and -0.87% per annum respectively during 1991-2006.

The pace of convergence during 1991-96 was -2.07% per annum, it continued to converge by -0.30% and -3.36% per annum during 1996-01 and 2001-06 respectively.

(v) *Health Sector*: The inter-district disparity in health care services has narrowed down over the time, but it has remained significant. The disparity was reduced from 36.61% in 1991 to 32.46% in 2006, which shows that it was narrowed down by -0.75% per annum. The analysis has revealed that the health sector is relatively most developed in Mokokchung among the districts in 2006 as its HeDI value was highest with 30.91, while the extreme bottom was witnessed by Dimapur with its value of 4.23 during the same period.

Among the health indicators, three have witnessed divergence namely; *Medical Institution per 100 Sq. Km*, *Bed per 10,000 Population* and *Nurse per Lakh Population* by 1.17%, 3.26% and 2.68% per annum respectively. On the other hand, the fastest convergence is observed to be *Death*

Rate with -3.83% per annum, followed by *Compounders per Lakh Population*, *Medical Officers per Lakh Population* and *Medical Institutions per 10000 Population* with -0.70%, -1.80% and -1.85% per annum respectively during the same period.

The inter-district disparity in health sector during 1991-96 has narrowed by -0.82% per annum, further, it continued to reduce by -0.26% and -1.26% per annum during 1996-01 and 2001-06 respectively.

(vi) *Overall Inter-District Disparity*: It has been observed that the overall inter-district disparity has widened from 42.14% to 45.44% in 1991 and 2006 respectively, which shows that it has widened by 0.42% per annum during the same period.

The study has revealed that among the districts in 1991, Wokha has the highest ODI value with 40.14, followed by Phek, Dimapur and Zunheboto with 36.69, 33.32 and 28.50 respectively. All these districts were above the State's average of 26.42. On the other hand, the lowest was Mon with 19.07, followed by Tuensang, Kohima and Mokokchung with 20.77, 24.07 and 25.61 respectively.

There were changes in the ranks of ODI values among the districts in 2006. Dimapur became the top in ODI value with 50.84, followed by Wokha, Zunheboto and Phek with 39.88, 37.85 and 34.40 respectively. All these values were above the State's average of 32.31. On the other hand, Mon remained at the lowest with 20.74, followed by Tuensang, Kohima and Mokokchung with 21.87, 29.31 and 30.21 respectively.

Hence, (a) ODI values have improved for all the districts except for Wokha and Phek, (b) Dimapur has improved in ranking, while Wokha and Phek have deteriorated in their ranks, (c) Dimapur, Wokha, Zunheboto and Phek have remained above the State's average and (d) Mon and Tuensang have remained at the lowest spectrum.

In periodical analysis, the overall inter-district disparity during 1991-96 has widened by 1.98% per annum. Thereafter, it has marginally declined by -0.34% and -0.04% per annum during 1996-2001 and 2001-2006 respectively. However, in general, it is estimated that the inter-district disparity over the period 1991-2006 has widened by 0.42% per annum. Therefore, the hypothesis which states that there is no tendency to converge inter-district disparity in Nagaland is accepted.

Among the sectors, the widest disparity in 1991 as well as in 2006 was infrastructure. On the other end, the least disparity during the corresponding period was educational sector. There is divergence in industrial and agricultural sectors, which have been widened by 3.92% and 0.84% per annum during 1991-2006. On the other hand, the fastest convergence was in educational sector with -1.88% per annum, followed by health and infrastructure with -0.75% and -0.31% per annum respectively.

4.2: Plan Outlay and Sector-Wise Inter-District Disparity

- (i) The study shows that the correlation between plan outlay and inter-district disparity is negative in sectors such as infrastructure, education and health during 1991-2006. It is estimated that 1% increase in plan outlay in corresponding sectors has an impact in reducing the inter-district disparity by -15.5%, -17.8% and -0.54% respectively.
- (ii) In economic indicators such as agriculture and industry, 1% increase in plan expenditure lead to an increase in inter-district disparity by 11.1% and 33.1% respectively.
- (iii) It is estimated that in overall development, the impact of plan outlay on disparity is positive in Nagaland that 1% increase in plan outlay would increase disparity by 9.6%, but it is statistically not significant.

Hence, plan expenditure in Nagaland did not make significant impact in reducing inter-district disparity in the past except in education and health sectors.

4.3: Disparity in Income Distribution in Nagaland

- (i) *Income Distribution in Sample Districts during 2009-10:* The income inequality in Nagaland during 2009-10 as measured by Gini Coefficient was 0.401 in sample aggregate. Among the sample districts, income inequality was highest in Phek, followed by Tuensang and district Mokokchung with corresponding Gini coefficient values of 0.412, 0.391 and 0.363.
- (ii) *Income Distribution in Sample Rural and Urban Areas during 2009-10:* It is found that the inequality in income distribution was higher in rural than in urban areas as their GiniC value are estimated to be 0.392 and 0.309 respectively.

In rural areas, the richest 12% households receive more than 9 times income higher than that of the poorest 12% households. For urban areas, the richest 23% household shared 5 times income higher than that of the poorest 23% households.

- (iii) *Disparity in PCI during 2001 to 2009-10:* The inequality in income distribution has increased from 20.65% to 31.37% in 2001 and 2009-10 respectively in Nagaland. The annual average growth rate showed that the disparity has widened by 4.65% per annum during 2001 to 2009-10.

Hence, the hypothesis which states that there is no tendency to converge in income disparity in Nagaland is accepted.

4.4: Gender Disparities

The important findings of gender disparities in Nagaland are summarised below.

- (i) *Education:* The gender disparity in literacy rate has narrowed down in the State over the time by -9.80% per annum during 1981 to 2011. Also, the same in children enrolment ratio has converged by -4.41% per annum during the same period.

(ii) *Health*: The gender disparity in health as reflected by IMR during 1981-2001 has been converged by -4.20% per annum as its CV value has increased from 19% in 1981 to 8.21% in 2001.

(iii) *Workforce Participation*: The gender disparity in workforce participation has widened by 0.12% per annum during 1981-2001 as its CV value has increased from 13.94% to 14.27% in 1981 and 2001 respectively.

(iv) *Gender-related Development Index (GDI)*: As far as GDI is concerned the gender gap in the State was narrower than the country's average in 1981 and 1991. But, it became wider than country's average in 2001 as the GDI for Nagaland was declined to 0.410, compared to 0.540 of country's average. Moreover, the GDI values for Nagaland, which continued to reduce since 1981 shows that the gender disparity has widened over the period.

(v) *Gender Differential in Human Development Indices*: The gender disparity in HD indices has widened since 1981. The Gender Differential (GD) in human development indices (i.e. difference between HDI and GDI) has increased as its value has turned from negative to positive with -138.72 to 32.58 in 1981 and 2001 respectively.

(vi) *Gender Time Allocation*: The study showed that the gender disparities in time allocation for social activities, leisure and preparation of meals are highly significant as their corresponding coefficient of variation values are 90%, 85.44% and 93.52%. It has also revealed that women spent marginally more time than men in agriculture, yet household chores are exclusively done by women, while men enjoy much higher leisure than women.

(vii) *Participation in Household Expenditure Decision Making*: The main observation in household expenditure decision making between the genders are as follows:

a. It is observed that the household's expenditure decision making is generally made jointly in Nagaland. Study has confirmed that the household expenditure made jointly is 44.19%, while that of male is 34.15% and female is only 20.57%.

b. Among the sample districts, the household's expenditure decision taken by male alone was highest in Phek with 53.54%, followed by Tuensang and Mokokchung with 34.15% and 14.11% respectively.

c. The household where its decision household expenditure is done by female was highest in Tuensang with 27.44%, followed by Mokokchung and Phek with 22.70% and 13.13% respectively.

d. On the other hand, the jointly decision in household expenditure in Mokokchung (63.19%) and Tuensang (38.41%) were higher than that of male and female alone. While the same for Phek district was only one-third of total sample households. Hence, the female participation in household decision making is trivial.

It is confirmed from the study that the gender disparity in respect of education and health tend to converge. But in respect of workforce participation both at macro and household levels, it has widened.

5: TWO-WAY LINKAGES BETWEEN ECONOMIC GROWTH AND HUMAN DEVELOPMENT

The two-way linkages between Economic Growth (EG) and Human Development (HD) which have been analysed in two chains in Chapter 6 are summarised below.

CHAIN A

MACRO LEVEL

5.1: PCI, Public Expenditure in Educational Sector (PEES) and Educational Development

The study has estimated that 1% increase in PCI has positive impact on Literacy Rate (LR) and Enrolment in Higher Education (EnHE) by 1.76% and 9.76% respectively in Nagaland. The impacts are statistically significant at 1% and 5% levels respectively. Hence, the higher the level of PCI, the higher is the LR and EnHE in Nagaland.

Further, it is estimated that 1% increase in public spending in education lead to an increase in LR by 2.5%, which is statistically significant at 5% level. Hence, the higher the level of PEES, the higher is the level of LR.

An interesting finding is that, the impact of PEES on adult LR is greater than the impact of PCI on LR by 0.74%. This implies that government spending in education like better infrastructure, mid-day meals and other related facilities is more attractive than the level of income for children to enroll them in school, which is the base for increasing literacy rate. Further, the impact of PCI on EnHE is higher than that of PCI on LR by 8%. It implies that the level of income is more effective on higher studies than on general enrolment in lower level of schooling, which generally raises (mere) literacy rate.

5.2: PCI, Public Expenditure in Health Sector (PEHS) and Health Development

The study has revealed that 1% increase in PCI and PEHS will reduce IMR by -1.70% and -1.30% respectively in Nagaland, but it is statistically not significant at 5% level. Therefore, the hypothesis which states that the higher the level of PCI and PEHS, the lower is the level of IMR may not be accepted, though the impacts are negative.

MICRO LEVEL

5.3: Household Expenditure Pattern by Levels of Income

The proportion of household expenditure in Human Development related Items (HDrIs) is highest in Low Income Household (LIH) with 74% (food is 36%, education - 28%, sanitation - 6% and medicine - 4%), followed by Middle Income Household (MIH) and High Income Household

(HIH) with 72% and 53% respectively. Hence, poorer household allocates comparatively higher proportion of income on HDrIs than the richer households.

The impacts of additional income on expenditure in various items among the different levels of income households are as follows:

(i) In sample aggregate as well as for all sample districts and for all the household categories, the impact of additional income on expenditure in HDrIs is higher than on the other items. Among the household categories by levels of income it is highest in LIH with 66%, followed by MIH and HIH with 58% and 51.3% respectively.

(ii) The impact of additional income on *education* is highest in LIH. It is higher than that of middle and high income households by 3.9% and 16.13% respectively. Further, the impact on *medicine* is also highest in LIH, which is higher than that of middle and high income households by 2.68% and 1.11% respectively.

(iii) In *sanitation*, the impact is highest in MIH, which is higher than that of LIH and HIH by 0.49% and 1.52% respectively.

(iv) In *food items*, the impact is highest in HIH, which is higher than that of low and middle income households by 4.2% and 5.5% respectively. Also, in *other items*, it is higher by 14.1% and 6.7% respectively.

Hence, it is evident that the impact on HDrIs is higher in poorer households (LIH) than the richer households (MIH and HIH). Therefore, the hypothesis which states that the impact of additional income on expenditure in HDrIs is higher in lower than higher income households is accepted.

5.4: Household Expenditure Pattern by Gender

The household expenditure pattern has revealed that when female controls household income, the proportion of expenditure towards HDrIs (food with 34%, education - 26%, medicine - 5% and sanitation - 6%) is higher than that of male and jointly controls households by 9% and 4% respectively.

The impacts of household additional income on expenditure in various items when it is control by male, female and jointly are summarised below.

(i) In general, the impact of additional income on HDrIs is highest when female control household expenditure with 66%, followed by JCH and MCH with 65.6% and 65.4% respectively. It is also higher in food, medicine and sanitation than male and jointly controls household. In *food*, it is higher than male and jointly controls households by 3.6% and 12.8% respectively; on *medicine*, it is higher by 1.75% and 3.17% respectively and in *sanitation*, it is higher by 0.07% and 2.3% respectively.

(ii) When male controls household income, the impact of additional income on *education* is higher than that of MCH and FCH by 1% and 6% respectively.

(iii) Whereas, when the household income is control jointly by male and female, the impact of additional income is higher than that of male and female alone by 0.5% and 0.01% respectively.

Thus, it is obvious that when female controls household income, the impact of additional household income towards HDIs is higher than male and jointly controls households.

Hence, it is observed (in Chain-A) that there is positive linkage from economic growth towards enhancement in human development in Nagaland.

CHAIN-B

MACRO LEVEL

5.5: Education and PCI

(i) *Literacy Rate (LR) and PCI*: The analysis has shown that 1% increase in LR (adult) increases PCI by 8.37%, which is statistically significant at 1% level. Hence, the higher the level of literacy rate, the higher is the level of per capita income.

(ii) *Enrolment in Higher Education (EnHE) and PCI*: It is empirically evident that 1% increase in higher education lead to an increase in PCI by 11.9%. The impact is statistically significant at 5% level. Hence, the higher the level of education, the higher is the level of PCI.

Hence, although both literacy rate and higher education have positive impact on PCI, the impact of higher education on PCI is higher than that of literacy rate by 3.53%.

5.6: Health and PCI

The study found that the relationship between improvement in health condition increases PCI in Nagaland. It is estimated that 1% reduction in IMR lead to an increase in PCI by 7.57%, but it is statistically not significant.

Hence, at macro-level analysis, the impact of education on LR is greater when compared to that of health on PCI in Nagaland.

MICRO LEVEL

5.7: Education and Income

Study showed that individual who have never attended formal schooling have earned an average income of Rs. 1,823, while for those who have primary, middle, secondary, higher secondary and graduate & above levels of education receive an average income of Rs. 2,041, Rs. 4,448, Rs. 6,571, Rs. 8,944 and Rs. 9,854 respectively. Hence, there is positive relationship between level of education and income.

The study at micro-level showed that an additional year of schooling lead to an increase the level of income by 12.8% in Nagaland, which is statistically significant at 1% level. Hence, additional year of schooling is positively associated with higher level of income.

Further, the impact is higher in relatively lesser developed district Tuensang than that of the relatively more developed districts Mokokchung and Phek by 7.61% and 5.7% respectively. Hence, an inference can be drawn that in less developed district, educated persons are relatively fewer. Therefore, when one obtains higher level of education, they have relatively higher earning opportunities.

5.8: Education and Agriculture

(i) *Level of Education and Uses of Improved Method:* The uses of improved method in agriculture is found to be highest with those who have attended primary and middle levels of education. The analysis has shown that additional year of schooling would increase the uses of improved methods by 3.17% in Nagaland, but it is statistically not significant. Thus, the higher the level of education, the higher is the use of improved methods may not be applicable in the State.

Further, it is found that the highest uses of improved method in cultivation among the sample districts was Phek, followed by Mokokchung and Tuensang. It is estimated that the impact is also highest in Phek with 8.96%, followed by Mokokchung and Tuensang with 4.70% and 2.10% respectively. The impact in Phek district is statistically significant at 5% level, but in Mokokchung and Tuensang, it is statistically not significant, though positive.

This may be due to the fact that shifting cultivation is the dominant agricultural system in Nagaland particularly in Mokokchung and Tuensang, where the scope for application of modern technology and inputs are limited. On the other hand, Phek district practices terrace cultivation where uses of modern tools and inputs is relatively convenient than shifting cultivation. Hence, it may be concluded that adoption of improve methods in cultivation is predetermined by agricultural system in practice rather than the levels of education in Nagaland.

(ii) *Level of Education and Productivity:* The analysis has shown that additional year of schooling lead to an increase in the level of productivity by 2.84%, which is statistically significant at 1% level.

Among the sample districts, the impact is highest in relatively most developed district Mokokchung with 3.65%, followed by Phek and Tuensang with 2.06% and 1.83% respectively. The impacts in Mokokchung and Phek are statistically significant at 1% level and the same for Tuensang is significant at 5% level. Hence, the level of education of farmer is positively associated with the productivity in agriculture.

Thus, it is obvious that there exists a strong inducement from Human Development to Economic Growth (chain-B) in Nagaland.

Hence, there is two-way positive linkages between EG and HD in Nagaland. Therefore, the hypothesis which states that there is two-way positive linkage between Economic Growth and Human Development is accepted.

5.6: Female Education and Human Development

Followings are some of the effects of female education on human development.

(i) *Female Literacy Rate and PCI*: It is estimated that 1% increase in female LR has positive impact on PCI by 7.25%, which is statistically significant at 1% level.

(ii) *Female Literacy Rate and IMR*: The study has found that the correlation between female LR and IMR is negative. Further, it is estimated that 1% increase in female LR lead to a reduction in IMR by -8.95%, which is statistically significant at 5% level.

(iii) *Female Years of Schooling and Family Size*: The correlation between female LR and family size is found to be negatively correlated. Further, the regression analysis has confirmed that additional year of schooling of mother reduces family size by -14.1%, which is statistically significant at 1% level.

Among the sample districts, the impact is highest in Phek with 18.6%, followed by Mokokchung and Tuensang with 8.24% and 1.08%. The impacts in Phek and Mokokchung are statistically significant at 1% level and at 5% level in Tuensang. Hence, additional year of schooling of mothers is associated with the lower family size in Nagaland.

Thus, female education has positive impact on human development particularly in income, health and population growth in Nagaland. Hence, the hypothesis which states that the female education has positive impact on human development is accepted.

6: CONCLUSION AND POLICY IMPLICATIONS

The State is predominantly inhabited by rural population (71.03%), whereby its economy is mainly based on agrarian culture. It may be pointed out that more than two-thirds (68.03%) of the working population engaged in agriculture and allied activities, where the income generation is comparatively lower in this sector. Consequently, the PCI of Nagaland is low, as it is only 70.57% of all India's average. The living condition of the people in the State is poor as major portion (44.14%) of the population lives in kutch house, while only 18.97% of total villages are fully covered with potable safe drinking water supply. The infrastructural facilities like banking, power, road condition, education, health, potable drinking water supply and sanitation need to be improved. This will enable to enhance the standard of living and improve the quality of life.

It is empirically shown that the overall development (among 28 selected indicators) of the State has increased by 1.30% per annum during 1991-2006. However, it is also observed that there was no uniformity in the growth rates among the districts, whereby Dimapur has the highest overall growth rate with 3.08% per annum during the same period. On the other hand, Wokha and Phek have witnessed negative growth rates with -0.33% and -0.47% per annum respectively. In economic indicators such as agriculture, industry and infrastructure, Dimapur has the highest growth rates with 3.18%, 18.15% and 1.1% per annum respectively during the afore mentioned period. In human development indicator, particularly in education, despite low in ODI rankings, the relatively lesser developed districts Mon and Tuensang have exhibited the highest growth rates with 1.96% and 1.77% per annum respectively during the same period.

It is empirically evident from the study that there has been spatial imbalanced development among the districts in different sectors in the State. Among the districts, Dimapur is the most developed district, which ranks the top (first) among the district in ODI throughout the period under study (1991-2006). On the other hand, the relatively less developed districts are Mon and Tuensang, which remained at rank 7 (seventh) and 8 (eighth) respectively during the same period. Hence, the relatively lesser developed districts such as Mon and Tuensang are unable to advance in their ranks over the time.

The study has revealed that inter-district disparity in the State does not only persists but it has been increasing significantly over the period that the disparity in Overall Development Index has widened by 0.42% per annum during 1991-2006. In economic indicators such as industrial (3.92% per annum) and agricultural sectors (0.84% per annum), the disparity have widened during the same period. Also, the disparity in income has widened by 4.65 per annum during the last decade (2001-2009/10). On the other hand, there has been significance convergence in sectors such as education (-1.88% per annum) and health (-0.75% per annum) during 1991-2006. This is due to the fact that the relatively less developed districts especially Mon and Tuensang, which are unable to catch up in terms of economic development could made significant improvements in human development indicators.

It is also found that the government spending stimulates the growth of the economy in the State significantly. The impact of State expenditure on NSDP is found to be 0.996 in Nagaland. Among the sectors, the impact is highest on social services (0.989) such as education and health, followed by secondary sector (0.973), infrastructure (0.950) and agriculture (0.878). On the other hand, it is empirically found that increased in plan outlay has increased inter-district disparity with an elasticity of 0.096. However, among the sectors, public spending reduces disparities in education

(-17.8%), health (-0.54%) and infrastructure (-15.5%), while there has been positive impact on agriculture (11.1%) and industry (33.1%).

In the State's economy, it has been observed that the growth of NSDP and PCI were 15.84% and 11.13% respectively during 1981-2006. Further, it is observed that the tertiary sector remained the leading sector with 51.20% in 2006, followed by primary sector, while the contribution of secondary sector has remained low, which was only 13.94% in the same period. It is observed that there was no major change in the structure of the State's economy.

Empirically, it is evident that there is gender disparity in socio-economic aspects. In human development indicators such as education and health, although the gender disparities persist, it has been declining over the observed period. But in economic indicator (workforce participation), it has been diverged by 0.12% per annum during 1981-2001. Further, in decision making at household level like the household expenditure, only 20.57% households have made its decision by female alone. Moreover, women engaged more time in economic as well as domestic activities, while men generally spend more time outside the household and enjoy leisure 3.61 times higher than female. Thus, there are clear indications that there is gender disparity in Nagaland. It may be purported that male folks occupy the headship of the household, but render less service for the household is in fact a matter of concern.

It is also evident that there exist two-way positive linkages between EG and HD in Nagaland. Improvement in EG by way of increase in the level of income, increase in public and household expenditure towards HD inputs raises education and health significantly. On the other hand, improvement in HD in the form of attainment of higher education and improvement in health condition significantly enhances the level of income and productivity in the State. An interesting finding is that the impact of literacy rate on PCI is higher than the impact of PCI on literacy rate by 6.61%. Further, the impact of higher education on PCI is greater than that of the reverse by 2.14%. Similarly, the impact of improvement in health condition (reduction in IMR) on income is higher than that of PCI and PEHS by 1.70% and 1.30% respectively. Also, study at household level shows that additional year of schooling increases the level of income and productivity (by 12.8% and 2.84% respectively) significantly. Hence, although, there exists two-way positive linkages between EG and HD, the impact of HD on EG is greater than that of the reverse in Nagaland.

There is also an evident that female education plays an important role in augmenting human development in the State. The study has revealed that female education enhance the level of income, improves health condition and reduces population growth. It is empirically found that 1% increase in female literacy rate increases PCI by 7.25% and reduces IMR by -8.95%, while additional year of schooling of female (mother) reduces family size by -14.1%. Thus, female education has significant

impact on improvement in human development in Nagaland. Hence, it can be concluded that human development acts as a *means* as well as an *ends* in themselves.

Basing on the findings, following *policy suggestions* are put forward.

1. Agriculture development need to be given priority as it is the backbone of the economy

(i) It is obvious that the economy of Nagaland is an agrarian as more than two-thirds of its labour force engaged mainly in agriculture. Moreover, agriculture alone contributes about one-third (31.28%) of the State's NSDP in 2006. Hence, agricultural sector that needs to be strengthened is self explanatory. It is further observed that the impact of public spending on the level of output is not only high, but also highly significant with an elasticity of 0.878. Therefore, it is vital to enhance public spending in agriculture especially in its infrastructure like irrigations, credits, marketing facilities, storage facilities and develop modern technique that is appropriate for hilly area, which will augment agricultural produce in the State. Also there are needs to increase land use intensity by increasing double cropped area and adopt integrated farming (livestock and fisheries production) shifting from subsistence to commercial farming by introducing cash crops suitable to the climatic condition of each districts. Development of Horticulture and Floriculture needs to be encouraged as it has market potentiality which enhances the level of income of the people. Activities like bee keeping, poultry etc. should be encouraged as it will generate additional income in the rural areas. Besides, Research and Development activities needs to intensify to develop improve methods of farming suited to the upland rain fed agriculture so as to increase productivity. This will ensure not only food sufficiency but it will also increase surplus produce, which in turn will enhance the level of income of farmers. Agricultural growth also contributes to urban economy by lowering food prices and providing food security.

(ii) Further, the study has shown that the disparity in agricultural sector was as high as 49.18% in 2006, with Dimapur (182.39) as relatively the most developed district, while Mon (47.72) and Tuensang (53.47) are the least developed districts as indicated in ADI value. Moreover, the inter-district disparity in agricultural development has been increasing over the period (it has increased by 0.84% per annum). It is also found that the impact of plan expenditure on disparity in agricultural sector is not only positive, but also significant. Therefore, fiscal allocation needs to be reviewed that increase in public spending should target not only to raise production, but also to ensure equitable development among the districts.

2. The secondary sector needs a strong base in order to boost up the economy

(i) Secondary sector which have both backward and forward effects, linking with primary and tertiary sectors, has the lowest contribution in the State's NSDP over the time (only about 13% in 2006). Thus, secondary sector like agro-based industry needs to be established in rural areas so as

to encourage and absorb the agricultural product. Moreover, a strong base of secondary sector will enable to support in sustaining primary and tertiary sectors in the long-run of an economy. The small scale and cottage industry like traditional handloom and handicrafts, which is an integral part of the culture, need to be strengthened with modern technology and required infrastructure as it will enable to equip with contemporary fashion and taste. This will create employment and earning opportunity; also it will boost up rural economy.

(ii) The study has revealed that the inter-district disparity in industrial development was as high as 66.27% in 2006, where Dimapur (IDI value - 36.05) was relatively the most developed and Tuensang (IDI value - 5.75) is the lowest as indicated in IDI value. It is empirically shown that the state's spending in secondary sector was positively associated with its share contribution to NSDP. At the same time, it is observed that in the past years, the impact of plan outlay in industrial sector was also positively associated with the level of disparity. This shows that increase in the share contribution of secondary sector to NSDP due to increase in public spending has accompanied by increasing inter-district disparity. Therefore, there is a need to re-look into the State's investment planning, giving more emphasis to less developed districts.

3. Infrastructure need to be strengthened as it plays a key role for overall development

(i) In order to accelerate an overall economic development as well as human development in the State, it is important to strengthen infrastructural sector as it is the basic input factor for all-round developmental activities of the economy. It is found that the level of development in infrastructural sector was very low (4.98 in 2006 as indicated by InDI). Moreover, the inter-district variation has remained highly significant (CV is 53.68% in 2006). Among the districts, Dimapur remained as the most developed (InDI - 6.94 in 2006), while Tuensang (2.56) and Mon (2.77) remained the least developed districts. A remarkable finding of current study is that the impact of States expenditure on the level of share contribution to NSDP like transport and communication is highly significant (elasticity is 0.950). Also, it is empirically shown that the impact of increase in its plan outlay in infrastructural sector reduces its inter-district disparity (elasticity is 0.155). Therefore, it is convinced that public spending in infrastructural sector should be increased in the State. However, if we look at the proportion of budget allocation, there has been a declining trend in recent years. Hence, fiscal allocation needs to be reviewed, giving higher importance in less developed districts. This will improve overall socio-economic development of the State. Moreover, this will enhance the level of development as well as it will enable to reduce inter-district disparity.

(ii) In Nagaland, the total road length per 100 Sq Km is only 2.16 in 2006, while telephone (landline) per 1,000 population and post office per lakh population were only 4.68 and 16.53 respectively during the same period. Therefore, infrastructure like upgradation in the quantity and

the quality of transport and communication facilities like all weather roads and constant telecommunication facilities need to be improved. Further, strengthening and improvement of agri-link roads, air connectivity and railroads should be emphasised on priority basis. This will improve not only connectivity of rural people and mobility of goods with urban and advanced areas, but also it will accelerate the functioning of the entire economy. Such improvement will equip people with up-to-date knowledge and information, which in turn will improve standard of living and enlarge people's choices.

(iii) Power is one of basic needs for all round activities of the States. Therefore, electricity should be provided to individual household as well as industrial units in order to accelerate economic activities. In spite of irregular power supply, household survey has revealed that only 92.38% households have electricity connectivity in 2009-10, which was even lower than that of 93.75% in 2003 in Nagaland. Hence, electricity facility should be extended to entire household with regular power supply as it is one of the most important factors for individual as well as industry to boost up the economy in the state.

(iv) The study also found that Banks per lakh population is very low (only 4.69 in 2008) in Nagaland. Besides, the existing banks are mostly located in commercial hub Dimapur and State capital Kohima. Therefore, banking facilities need to be extended to rural areas as it is essential for facilitating financial assistance to the rural farmers, which in turn will enhance rural economy.

4. Investment in Education and Knowledge need to be prioritised as it stimulates growth

(i) The level of development in education in the State is most consistent among the sectors under consideration; though at a slow pace (1.01% per annum during 1991-2006). Also, the inter-district disparity in educational development has declined over the observed period. However, in area like schools per 100 Sq. Km, there is wide inter-district disparity as its CV value was 54.49% in 2006 with the highest in Dimapur (36.78) and the lowest in Tuensang (10.27). Thus, institutional infrastructure, both in quantity and quality needs to be developed, especially in the lesser developed districts like Mon and Tuensang.

(ii) It is also found that increase in public expenditure in educational sector in the form of improvement in infrastructure like buildings, teaching aids, providing meals in the schools attracts more children to school which raises literacy rate in the State. The impact of public spending in education on literacy rate (2.5%) is not only positive but also significant and the impact of budgetary allocation on the level of share contribution of service sector to NSDP is highest among the sectors with an elasticity of 0.989 during 1986-2006. Further, it is confirmed that the State plan expenditure on education reduces its inter-district disparity significantly (elasticity is 0.178). Hence, it is very clear that fiscal allocation for educational development need to be intensified in the State as it plays

crucial roles like increases in educational attainment (literacy rate), enhances the level of output in NSDP and reduces inter-district disparity.

(iii) Also, there is enough evidence from the study that higher education, both at macro and micro levels, has positive impact on level of per capita income significantly. Therefore, establishment of institutions for higher education, especially professional education is extensively required in the State, as it will reduce the economic constraints of parents for sending children outside the state to attain such education and also enhance the level of income, which in turn will enlarge people's capabilities and choices. Also, Industrial Training Institutes need to be promoted with up-to-date courses and curriculums in imparting vocational courses so as to increase employable personnel in the State. Moreover, the level of education of farmers enhances the uses of improved methods and also increases productivity in agriculture. Therefore, investment in training and educational institutions and support to the farmers needs to be increasingly emphasised. This will enable to boost economic development, at the same time it will enable to enhance the overall well-being of individual and the society.

5. Investment in Health related services need higher priority, as it raises people capabilities

(i) The study showed that the level and trend of health related development in the State has been declining over the period 1991-2006 by -1.34% per annum. This is a major concern that needs to be seriously addressed. On the other hand, it is found that the inter-district variation in health sector has declined by -0.75% per annum during the same period. It is also empirically found that the State's plan outlay reduces the inter-district variation significantly by -0.54%. More so, the study showed that increase in plan expenditure in health sector lowers IMR by -1.30%. Further, there exist negative correlation between PCI and IMR in Nagaland. Therefore, public expenditure plays important role not only in reducing inequalities, but also improves health condition, which in turn will enable to raise the level of income of the individual.

(ii) Study has revealed that better health care facilities in rural areas need to be improved as it is found that there was only 1 (one) medical personnel for 5,859 population and 1 (one) doctor for 14,648 population. Thus, proper health and medical facilities need to be widely extended in rural areas in terms of both material as well as medical personnel. Upgradation of health care facilities by investing in advanced medical equipments in urban areas. Also, the ongoing National Rural Health Mission (NRHM) needs to be strengthened. It will save time, money and health of the people, and hence, improve well being of the people.

(iii) According to NSHDR 2004, 94.77% and 74.3% of the households have access to safe drinking water and proper sanitation facilities. But, household survey (2009-10) has revealed that only 70.84% households have access to safe drinking water supply and 85% households have proper

sanitation facility. Hence, providing safe drinking water supply and proper sanitary facility need to be emphasised especially in rural areas. The ongoing Total Sanitation Campaign (TSC) need to be strengthened by giving more awareness about its importance through rural base workshops and public information system. This will enable to improve health status, which is the basic minimum necessity for enabling all round activity of human being.

6. Overall Development need to be accelerated, with the target to reduce inequality

(i) The study showed that increased in public spending has significantly increased the level of NSDP during the observed period (elasticity is 0.996). Also, the level of overall development in the State has increased by 1.30% per annum during 1991-2006. However, it is observed that the overall inter-district disparity has widened by 0.42% per annum, whereas the State plan expenditure has positive impact on overall disparities (with an elasticity of 0.096). The districts like Mon and Tuensang continued to remain at the lowest spectrum in overall development among the districts throughout the period. Hence, while improvement in the level of development is worth mentioning, increasing disparity in the State is a matter of concern.

Therefore, it may be suggested that since public spending stimulates growth, the state expenditure need to be enhanced so as to increase the level of output. But at the same time, there is a need to reallocate the state expenditure targeting to improve the less developed districts so as to ensure equitable development as it has positive impact on increasing inter-district disparity in past years. The present government effort to raise the backward areas through budgetary allocation and employment opportunities need to be strengthened. Also, it may be suggested that special economic zone specifically for Mon and Tuensang (including Longleng and Kiphire) be established so as to reduce the development deficits in those regions.

(ii) It is also evident that there was no uniformity in the growth rates among the districts as well as in various sectors within the district. For instance, despite, the highest growth rate in economic indicators, Dimapur has highest declining rate in health care development (HeDI) and therefore has been witnessing the highest increase in death rate. Wokha and Phek districts, although higher in the level of agricultural development (ADI), they have witnessed negative growth rates in this sector. Districts such as Tuensang, Phek, Zunheboto, Wokha and Mon witnessed negative growth rates in infrastructural sector over the observed period. Hence, it is imperative for policy planners to address the issues in those poor sectors of lesser developed districts. For instance, Dimapur in health care, Kohima and Mokokchung in agriculture and Tuensang, Phek, Zunheboto, Wokha and Mon in infrastructure.

7. Female education need to be intensified, as it is vital for fuller realisation of human development

(i) It is empirically evident that female education plays an important role in advancing human development. For instance, female education contributes significantly to socio-economic development of the State by raising PCI (by 7.25%), improves health condition by reducing IMR (by -8.95%) and reduces family size (by -14.1%). However, it is observed that women are more deprived in receiving education as compared to men as the proportion of illiterate female (23.31% in 2011) is higher than that of male (16.31%). Therefore, female education needs to be given importance, starting from primary education to providing skills and vocational trainings that can create employment avenues (other than household chores). This will improve standard of living, better health and stabilize population growth, which in turn will enable to enlarge capabilities and choices. Short term training courses and awareness programme for women especially on sanitation, child care, nutrition, health etc. should be given regularly covering the entire State even the remotest rural villages.

(ii) Nagaland has witnessed a continuous decline in GDI value since 1981, which implies that the gender disparity has been continuously widened. It is found that male workforce participation (macro-level) is higher than female over the period in the State for which the gender disparity has been increased by 0.12% per annum during 1981-2001. Similarly, at micro level, study showed that women renders almost equal time (relatively higher) with men in agriculture and allied activities, yet, domestic chores are almost done by women, while male enjoy leisure much higher than female (CV is 93.52%). This constraint female for attending productive programmes that can equip her with knowledge and information that can lead to avail opportunities like earning income, well-being of herself, family and society. Thus, time allocation of male and female needs to be reconsidered so as to reduce not only imbalances between the two, but also to enhance economic as well as human development aspects in the State.

(iii) The study reveals that in decision makings, women participation is still very low in Nagaland as men has almost full control (about 80%) over household decisions especially in its expenditure. The study further reveals that when female control over household income and expenditure, the impact of additional income on expenditure in HDrIs is higher than male and jointly control households. Therefore, it is convinced that female participation in decision especially in expenditure is important as this will enable to steer up their political will power; also it will enable to maximise the fuller objective of human well-being.

Thus, it is important to address gender inequality with disaggregated data and that the policy intervention needs to be gender sensitive, which will promote gender equality in all aspects. Further,

both men and women should be given equal opportunity in policy formulation. This will enable to reduce gender disparity at the same time; it will enhance all round development of the society.

8. Income generating opportunities need to be enhanced as it enlarges people's choices

It is observed that the growth rate of PCI during 2001-2006 has been 9.36% per annum in Nagaland. Also, inequality in PCI has increased by 44.65% per annum during 2001 to 2009-10. This shows that the increased in PCI has accompanied by increased in its inequality. Further, it is estimated that income inequality in Nagaland as measured by Gini Coefficient is 0.401, where 29.9% of the lowest income households receive only 8.19% of total income. The situation is worse in rural than in urban areas as the estimated Gini coefficient value for the same are 0.392 and 0.309 respectively. Therefore, income earning opportunities need to be extended to rural areas as the incomes of the rural areas are lower than that of urban areas. The ongoing scheme NREGA which is providing supplementary income opportunities to rural people irrespective of skilled or unskilled need to be strengthened. This is one way to increase the level of income and reduce income inequality in rural areas. It is also evident that when income increases in poorer households, the impact of additional income on human development related items is higher than that of richer households. Therefore, income and job-oriented skill development programmes which are suitable for poorer and illiterate people need to be intensified specially in rural area. Subsidiary income generating activities such as bee keeping, animal husbandry, poultry, mushroom cultivation etc. should be promoted especially in rural areas by giving training on technical skill, marketing information and credit facilities. The benefits of ongoing government programmes like bamboo mission, medical herbs cultivation etc. must reach the rural artisans and farmers. Further, strengthen the Self Help Groups by giving technical, marketing and credits supports will boost up the rural economy.

9. Human Development need to prioritise as it has larger impact on growth

There is empirical evidence that increase in the level of income and increase in government and household expenditures raise the level of education and health condition, on one hand, while increase in the level of education and improve health condition raises the level of income and productivity significantly, on the other. Study at macro-level shows that the impact of LR on PCI is higher than that of PCI on LR (by 6.71%). Also, the impact of higher education on PCI is greater than that of the reverse (by 2.14%). Similarly, study at household level shows that additional year of schooling increases the level of income and productivity (by 12.8% and 2.84% respectively). Further, the impact of improvement in health condition (reduction in IMR) on income is higher than that of PCI and PEHS by 1.70% and 1.30% respectively. Hence, it is obvious that although there exist two-way positive linkages between EG and HD, the inducement of HD on EG is higher than

that of the reverse in Nagaland. Therefore, while balanced approach to economic growth and human development has to be emphasised, it is imperative to emphasize on human development from the very outset, so as to ensure optimum sustainable growth of the State.

10. Village Councils and Village Development Boards need to be strengthened to accelerate development progress at the grassroots level

VCs and VDBs play key role in all round development of the community especially in administering justice and implementing developmental programmes. However, bottlenecks like lack of adequate infrastructural facilities, poor resources base and dearth of technical know-how have handicapped the VDBs in the developmental progress. Hence, there are needs to provide an alternative means to the rural people to avail credits and loans as this can generate income required for the rural economy. Moreover, VCs and VDBs need to be strengthened by giving up-to-date information and knowledge through workshops, seminars and educative exposures. This will enhance not only the administrative capacity of the members but it will also enable to accelerate the development progress at the grassroots (villages) in the State.

To conclude, there are lots to be done especially in development of infrastructural sector like roads and communication, both in quantity and quality. The potential rural base small scale and cottage industries need to be accelerated so as to boost up the economy. Also, establishment of institutions for higher and professional education, health centres and provide medical facilities and personnel need to be addressed with utmost concern in the State. Nevertheless, the economic and human development is the major objective in planning; there is a need to establish a strong policy framework for overall development, which would be adequate for to reduce the disparities in the State. Also, the village based institution “VDB” need to be strengthened as it plays a key role in developmental activities at the grassroots. As public spending stimulates growth, there is a need to enhance the level of investment both public and private, targeting to reduce the present regional imbalances in growth and development of the State. It is an undeniable fact that the female contribution to society has been immense in terms of socio-economic aspects, hence, female participation needs to be encouraged in these respect. In quest, whether human development or economic development need to be prioritised, it is important that balanced development approach needs to be emphasised, yet, it is imperative to prioritise human development approach, as the same has greater impact on economic growth. Moreover, human development is the *means* as well as an *ends* in themselves.

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