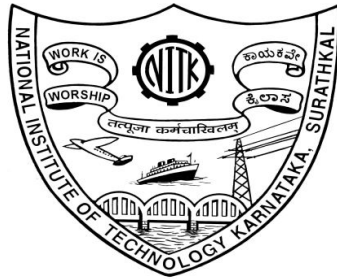


ECONOMICS MINI PROJECT REPORT

**Calculating the Quality of Life Index and Analyzing its Relation w.r.t NHDCP
For the State of Meghalaya**



**Department Of Information Technology
National Institute Of Technology, Karnataka**

**COURSE TITLE:
Engineering Economics (HU300)**

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INTRODUCTION

Meghalaya is a state in northeastern part of India. Despite possessing a fairly rich resource base, which could provide a platform for adequate economic growth, Meghalaya is still backward in terms of the presence of industries in the state. When it comes to the standard of living of the people as reflected by the Per Capita Income of the state which stands at Rs.30204/= (Advanced Estimates) at current prices during 2007-08 as against a national Per Capita income of Rs.33131/= (Advanced Estimates) during the same period. It shows that the level of income of the people is still far below that of the national level.

Meghalaya also witnessed high level of uneconomic and unscientific exploitation of natural and mineral resources by using age-old technique and exporting them to other states in the primary form has not only resulted in loss of forward and backward linkage benefits, value addition benefits and extra earning of tax and no tax revenue, but also has serious environmental consequences. It is very essential, therefore, to evolve an appropriate strategy and approach for tapping the resources scientifically and economically with efforts to be made for processing the resources within the state and export them as finished goods. This along with the improvement of various skills required for meeting the demands and challenges of the changing economic scenario will help improve the economy of the state and open up new employment opportunities for the people.

There are various economic indicators to measure the progress and development of the state over the different periods. The estimates of the State Domestic Product (SDP) of the 'State Income' as commonly understood in common parlance along with Per Capita Income (PCI) are considered as the best Statistical devices for assessing the growth of the economy as well as the living standard of the people.

The concept of Gross State Domestic Product (GSDP) and Net State Domestic Product(NSDP) are more widely used in the analytical studies.

I] Growth and Sectoral Distribution of Net State Domestic Product (NSDP)

i) Growth of NSDP

The NSDP of the state at current prices has been estimated at Rs.3211.30 crore during 1999-2000. It increased to Rs.4722.58 crore in 2003-04 and increased further to Rs.6707.03 crore in 2007-08 (Adv). The average annual increase during the two periods between 1999-2000 and 2007-08 ranges from 6.23 p.c. to 12.90 p.c. The NSDP at constant (1999-2000) prices was Rs.3211.30 crore during 1999-2000 and went up to Rs.3993.01 crore during 2003-04. It went up further to Rs.5059.59 crore during 2007-08(Adv), thereby registering growths between 2.96 p.c. and 6.94 p.c. during the periods from 1999-2000 to 2007-08(Adv.).

Table 1: ESTIMATES OF NSDP AT FACTOR COST

Sl. No.	Year	NSDP at Current Prices (Crore)	NSDP at Constant (1999-2000) Prices (Crore)
1	2	3	4
1	1999-2000	3211.30	3211.30
2	2000-01	3593.25 (11.89)	3421.73 (6.55)
3	2001-02	4056.91 (12.90)	3651.31 (6.71)
4	2002-03	4309.78 (6.23)	3759.38 (2.96)
5	2003-04	4722.58 (9.58)	3993.01 (6.21)
6	2004-05	5137.90 (8.79)	4270.24 (6.94)
7	2005-06	5616.99 (9.32)	4547.56 (6.49)
8	2006-07(Q)	6161.90 (9.70)	4799.75 (5.55)
9	2007-08(Adv.)	6707.03 (8.85)	5059.59 (5.41)

Directorate of Economics & Statistics, Meghalaya (Figures within brackets are percentage increase/growth over previous year)

ii) Sector-wise distribution NSDP

The economy of the state has been divided into three broad sectors, viz. Agriculture and Allied Activities which include Agriculture proper, Livestock, fishing activities and forestry & logging; Industrial sector which includes Manufacturing, Mining and Quarrying, Construction; and Services sector. On analyzing the three sectors, though Meghalaya is primarily an agriculture economy with agricultural activities engaging nearly 63 per cent of the total work force, yet the contribution of this sector towards the economy of the state during 1999-2000 to 2007-08 is between 18.70 p.c. and 23.96 p.c. according to NSDP estimates at current prices. The share of the Industrial sector being in the range of 21.09 p.c. to 26.42 p.c.. On the other hand, the share of Service sector in terms of percentage contribution during the same periods, have been between 53.21 p.c. at the lowest and 54.95 p.c. at the highest.

iii) Sectoral Composition of NSDP

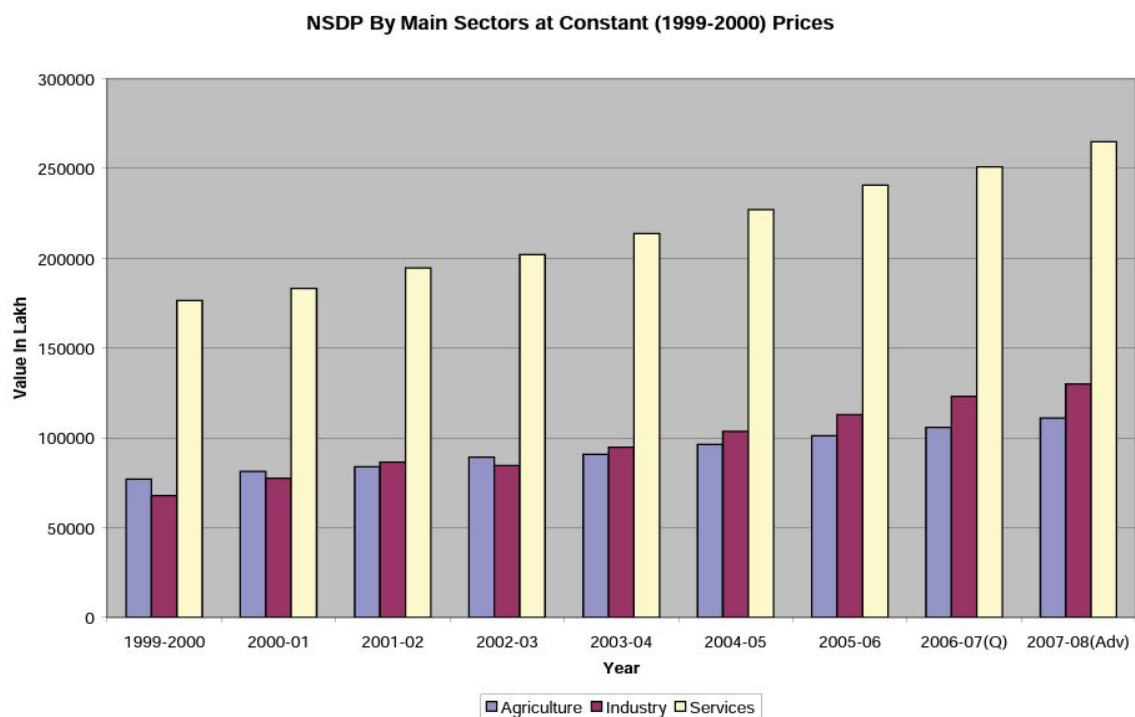
As evident from the table below, the service sector continues to dominate the economy of the state by way of contributing the maximum share. Though its share in terms of percentage contribution marginally declined from 54.95 p.c. in 1999-2000 to 53.54 p.c. in 2003-04 it further declined to 52.37 p.c. in 2007-08(Adv.). The Industrial sector shows an increasing trend in terms of percentage contribution from 21.09 p.c. in 1999-2000. It went up to 23.73 p.c. in 2003-04 and rose further to 25.70 p.c. in 2007-08. On the other hand, the share of the Agriculture sector in the economy of the state shows a declining trend. The percentage contribution has come down from 23.96 p.c. in 1999-2000 to 22.74 p.c. in 2003-04 and went down further to 21.94 p.c. in 2007-08(Adv.). But this trend in terms of percentage contribution does not necessarily mean that the performance of Agriculture as an individual sector is going down. It only means that the Agriculture sector cannot compete with the other two sectors of the economy. On the whole, the pattern of growth observed in the three main sectors of the economy viz-a-viz their percentage contribution presents a healthy picture of the economy of the state which is in the stage of developing.

Table 2: NSDP By Main Sectors at Constant (1999-2000) Prices

NSDP (Rs. In Crore)

Sl. No.	Year	Agriculture & Allied Activities (Primary)	Industry (Secondary)	Services (Tertiary)	Total
1	2	3	4	5	6
1	1999-2000	769.28 (23.96)	677.36 (21.09)	1764.66 (54.95)	3211.30 (100.00)
2	2000-01	813.33 (23.77)	775.87 (22.67)	1832.53 (53.56)	3421.73 (100.00)
3	2001-02	839.40 (22.99)	865.18 (23.70)	1946.73 (53.32)	3651.31 (100.00)
4	2002-03	892.63 (23.74)	845.67 (22.49)	2021.08 (53.76)	3759.38 (100.00)
5	2003-04	907.85 (22.74)	947.38 (23.73)	2137.78 (53.54)	3993.01 (100.00)
6	2004-05	964.33 (22.58)	1035.09 (24.24)	2270.82 (53.18)	4270.24 (100.00)
7	2005-06	1011.16 (22.24)	1129.17 (24.83)	2407.23 (52.93)	4547.56 (100.00)
8	2006-07	1059.35 (22.07)	1229.94 (25.63)	2510.46 (52.30)	4799.75 (100.00)
9	2007-08	1109.83 (21.94)	1300.09 (25.70)	2649.67 (52.37)	5059.59 (100.00)

*Directorate of Economics & Statistics, Meghalaya**(Figures within brackets are percentage contribution to the Total)*



II] The concept of Quality of Life Index

Quality of life (QOL) is the general well-being of individuals and societies, outlining negative and positive features of life. It observes life satisfaction, including everything from physical health, family, education, employment, wealth, religious beliefs, finance and the environment. QOL has a wide range of contexts, including the fields of international development, healthcare, politics and employment. It is important not to mix up the concept of QOL with a more recent growing area of health related QOL(HRQOL). An assessment of HRQOL is effectively an evaluation of QOL and its relationship with health.

Quality of life should not be confused with the concept of standard of living, which is based primarily on income.

Standard indicators of the quality of life include not only wealth and employment but also the built environment, physical and mental health, education, recreation and leisure time, and social belonging. According to the World Health Organization (WHO), quality of life is defined as “the individual’s perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals.” In comparison to WHO’s definitions, the Wang-Baker Faces scale defines quality of life as “life quality (in this case, physical pain) at a precise moment in time.”

According to ecological economist Robert Costanza:

“While Quality of Life (QOL) has long been an explicit or implicit policy goal, adequate definition and measurement have been elusive. Diverse "objective" and "subjective" indicators across a range of disciplines and scales, and recent work on subjective well-being (SWB) surveys and the psychology of happiness have spurred renewed interest.”

One approach, called engaged theory, outlined in the journal of Applied Research in the Quality of Life, posits four domains in assessing quality of life: ecology, economics, politics and culture. In the domain of culture, for example, it includes the following subdomains of quality of life:

- Identity and engagement
- Creativity and recreation
- Memory and projection
- Belief and ideas
- Gender and generations
- Enquiry and learning
- Wellbeing and health

Also frequently related are concepts such as freedom, human rights, and happiness. However, since happiness is subjective and difficult to measure, other measures are generally given

priority. It has also been shown that happiness, as much as it can be measured, does not necessarily increase correspondingly with the comfort that results from increasing income. As a result, standard of living should not be taken to be a measure of happiness. Also sometimes considered related is the concept of human security, though the latter may be considered at a more basic level and for all people.

- Quantitative measurement

Unlike *per capita* GDP or standard of living, both of which can be measured in financial terms, it is harder to make objective or long-term measurements of the quality of life experienced by nations or other groups of people. Researchers have begun in recent times to distinguish two aspects of personal well-being: *Emotional well-being*, in which respondents are asked about the quality of their everyday emotional experiences—the frequency and intensity of their experiences of, for example, joy, stress, sadness, anger, and affection— and *life evaluation*, in which respondents are asked to think about their life in general and evaluate it against a scale. Such and other systems and scales of measurement have been in use for some time. Research has attempted to examine the relationship between quality of life and productivity. There are many different methods of measuring quality of life in terms of health care, wealth and materialistic goods. However, it is much more difficult to measure meaningful expression of one's desires. One way to do so is to evaluate the scope of how individuals have fulfilled their own ideals. Quality of life can simply mean happiness, the subjective state of mind. By using that mentality, citizens of a developing country appreciate more since they are content with the basic necessities of health care, education and child protection.

i) Human Development Index:

Perhaps the most commonly used international measure of development is the Human Development Index (HDI), which combines measures of life expectancy, education, and standard

of living, in an attempt to quantify the options available to individuals within a given society. The HDI is used by the United Nations Development Programme in their Human Development Report.

ii)World Happiness Report:

The World Happiness Report is a landmark survey on the state of global happiness. It ranks 156 countries by their happiness levels, reflecting growing global interest in using happiness and substantial well-being as an indicator of the quality of human development. Its growing purpose has allowed governments, communities and organizations to use appropriate data to record happiness in order to enable policies to provide better lives. The reports review the state of happiness in the world today and show how the science of happiness explains personal and national variations in happiness. Also developed by the United Nations and published recently along with the HDI, this report combines both objective and subjective measures to rank countries by happiness, which is deemed as the ultimate outcome of a high quality of life. It uses surveys from Gallup, real GDP per capita, healthy life expectancy, having someone to count on, perceived freedom to make life choices, freedom from corruption, and generosity to derive the final score. Happiness is already recognised as an important concept in global public policy. The World Happiness Report indicates that some regions have in recent years have been experiencing progressive inequality of happiness. Without life, there is no happiness to be realised.

iii)Other measures:

The Physical Quality of Life Index (PQLI) is a measure developed by sociologist Morris David Morris in the 1970s, based on basic literacy, infant mortality, and life expectancy. Although not as complex as other measures, and now essentially replaced by the Human Development Index, the PQLI is notable for Morris's attempt to show a "less fatalistic pessimistic picture" by focusing on three areas where global quality of life was generally improving at the time, and ignoring gross national product and other possible indicators that were not improving.

The Happy Planet Index, introduced in 2006, is unique among quality of life measures in that, in addition to standard determinants of well-being, it uses each country's ecological footprint as an indicator. As a result, European and North American nations do not dominate this measure. The 2012 list is instead topped by Costa Rica, Vietnam and Colombia.

Gallup researchers trying to find the world's happiest countries found Denmark to be at the top of the list. uSwitch publishes an annual quality of life index for European countries. France has topped the list for the last three years.

A 2010 study by two Princeton University professors looked at 1,000 randomly selected U.S. residents over an extended period. It concludes that their *life evaluations* – that is, their considered evaluations of their life against a stated scale of one to ten – rise steadily with income. On the other hand, their reported quality of *emotional daily experiences* (their reported experiences of joy, affection, stress, sadness, or anger) levels off after a certain income level (approximately \$75,000 per year); income above \$75,000 does not lead to more experiences of happiness nor to further relief of unhappiness or stress. Below this income level, respondents reported decreasing happiness and increasing sadness and stress, implying the pain of life's misfortunes, including disease, divorce, and being alone, is exacerbated by poverty.

Gross national happiness and other subjective measures of happiness are being used by the governments of Bhutan and the United Kingdom. The World Happiness report, issued by Columbia University is a meta-analysis of happiness globally and provides an overview of countries and grassroots activists using GNH. The OECD issued a guide for the use of subjective well-being metrics in 2013. In the U.S., cities and communities are using a GNH metric at a grassroots level.

The Social Progress Index measures the extent to which countries provide for the social and environmental needs of their citizens. Fifty-two indicators in the areas of basic human needs, foundations of wellbeing, and opportunity show the relative performance of nations. The index uses outcome measures when there is sufficient data available or the closest possible proxies.

Day-Reconstruction Method was another way of measuring happiness, in which researchers asked their subjects to recall various things they did on the previous day and describe their mood

during each activity. Being simple and approachable, this method required memory and the experiments have confirmed that the answers that people give are similar to those who repeatedly recalled each subject. The method eventually declined as it called for more effort and thoughtful responses, which often included interpretations and outcomes that do not occur to people who are asked to record every action in their daily lives.

iv)Livability:

The term *quality of life* is also used by politicians and economists to measure the livability of a given city or nation. Two widely known measures of livability are the Economist Intelligence Unit's Where-to-be-born Index and Mercer's Quality of Living Reports. These two measures calculate the livability of countries and cities around the world, respectively, through a combination of subjective life-satisfaction surveys and objective determinants of quality of life such as divorce rates, safety, and infrastructure. Such measures relate more broadly to the population of a city, state, or country, not to individual quality of life. Livability has a long history and tradition in urban design, and neighborhoods design standards such as LEED-ND are often used in an attempt to influence livability.

v)Crimes:

Some crimes against property (e.g., graffiti and vandalism) and some "victimless crimes" have been referred to as "quality-of-life crimes." American sociologist James Q. Wilson encapsulated this argument as the Broken Window Theory, which asserts that relatively minor problems left unattended (such as litter, graffiti, or public urination by homeless individuals) send a subliminal message that disorder in general is being tolerated, and as a result, more serious crimes will end up being committed (the analogy being that a broken window left broken shows an image of general dilapidation).

Wilson's theories have been used to justify the implementation of zero tolerance policies by many prominent American mayors, most notably Oscar Goodman in Las Vegas, Richard Riordan in Los Angeles, Rudolph Giuliani in New York City and Gavin Newsom in San Francisco. Such policies refuse to tolerate even minor crimes; proponents argue that this will

improve the quality of life of local residents. However, critics of zero tolerance policies believe that such policies neglect investigation on a case-by-case basis and may lead to unreasonably harsh penalties for crimes.

vi) Popsicle Index:

The Popsicle Index is a quality of life measurement coined by Catherine Austin Fitts as the percentage of people - in a community who believe that a child in their community can safely leave their home, walk to the nearest possible location to buy a popsicle, and walk back home.

APPROACH

Quality of Life is calculated using the Human Development Index Formula.

The factors affecting QoL are the following:

1. Education
2. Environmental
3. Health
4. Social

Each of these factors have indicators which determine the QoL. The indicators chosen are:

1. Education: Number of Educational Institutes and Number of Enrollments in College
2. Environment: Air Quality Data (measured in SPM) and Water Quality
3. Health: Birth Rate, Death Rate and the number of Public Health Centers.
4. Social: Number of commercial banks, number of police stations and number of crimes by major heads.

All this data for the state of Meghalaya was collected from the official site for Meghalaya maintained by the Government: <http://megplanning.gov.in/>

This was collected for 7 consecutive years, ranging from 2000 to 2006.

Every indicator value for each year was then normalized using the formula:
 $(\text{value} - \text{min}) / (\text{max} - \text{min})$

where

max = Maximum indicator value amongst all years

min = Minimum indicator value amongst all years

value = Indicator value for the considered year

After normalization, the category index for each factor was calculated, using the normalized values of its respective indicators.

Category Index = Arithmetic Mean of Normalized Values of respective Indicator values

Category Index for all 4 factors was obtained.

The Quality of Life is then calculated (using the HDI formula) and it is given by:

QoL = Geometric Mean of Category Indices of all the factors

Then analysis of Quality of Life with respect to the National State Domestic Product(NSDP), which is also obtained from the official site for Meghalaya.

This is done by obtaining a best fit using Linear Regression Algorithm where the X axis is NSDP and Y axis is QoL calculated.

The equation of this line (best fit) decides the extent to which the QoL of life is affected by NSDP. Hence, this helps us to decide whether or not the model is practically implementable.

RESULTS AND FINDINGS

1] Social factors in Meghalaya

Social Factors in Meghalaya							
	2000	2001	2002	2003	2004	2005	2006
No. of commercial banks	179	179	180	179	182	186	186
Normalized Values	0	0	0.143	0	0.428	1	1
No. of Police Stations	26	28	30	34	34	36	36
Normalized Values	0	0.2	0.4	0.8	0.8	1	1
No. of crimes by major heads	1509	1656	1615	1658	1757	1880	1935
Normalized Values	0	0.345	0.248	0.349	0.582	0.871	1
Category Index	0	0.182	0.263	0.383	0.603	0.957	1

For the calculation of Categorical Index of Social Indicators of Meghalaya, the following factors have been chosen-

- No. of commercial banks
- No. of police stations
- No. of Crimes by major heads

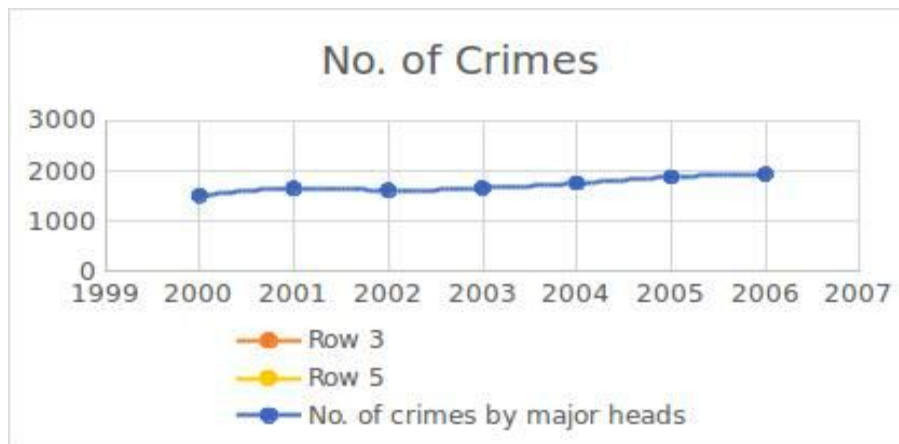
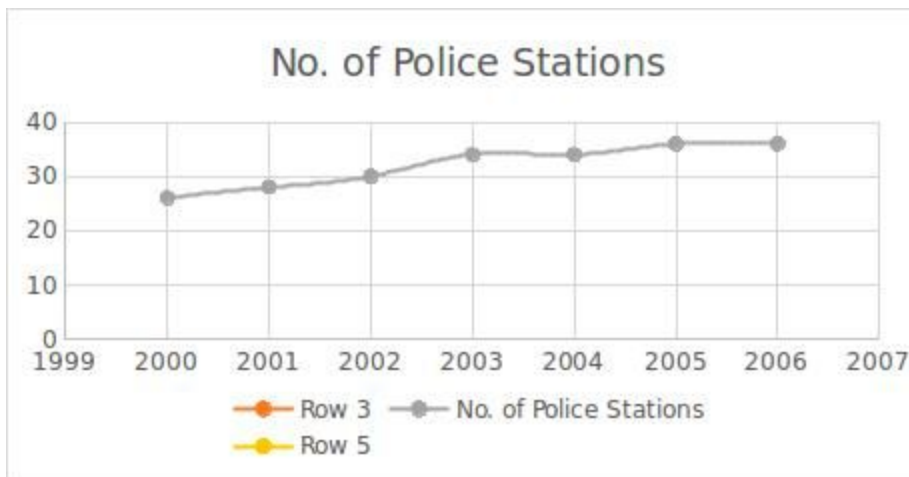
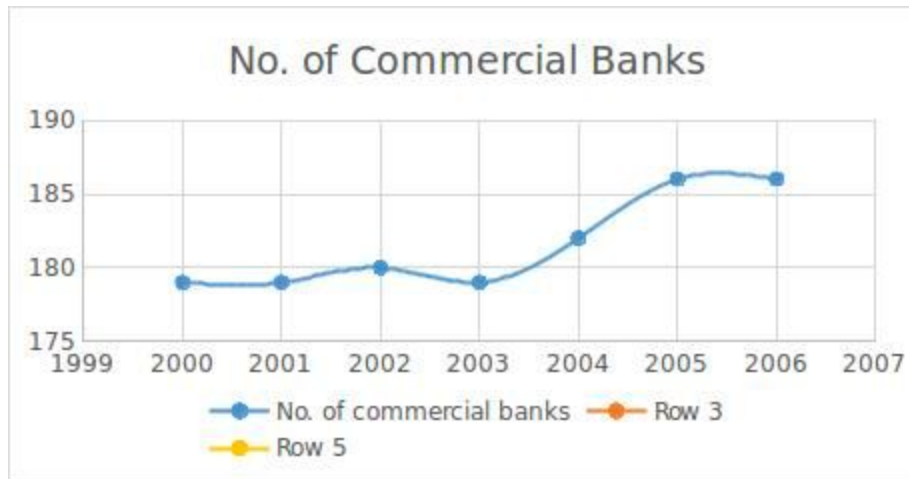
It is observed that the No. of Police Stations contributes the most to the Categorical Index in general.

The maximum growth for number of commercial banks is during the years 2004 to 2005.

The maximum growth for the number of police stations is during the years 2002 to 2004.

The maximum growth for the number of crimes is during the years 2000 to 2001.

The number of commercial banks, police stations and crimes has increased over the time period 2000-2006.



2] Educational Factors in Meghalaya

Educational Factors in Meghalaya							
	2000	2001	2002	2003	2004	2005	2006
Number of Educational Institutes	6843	7268	7595	7872	8386	8337	9457
Normalized Values	0	0.1625	0.2876	0.3936	0.5902	0.5715	1
Enrollment in College	32650	35494	38007	40765	41315	43986	52434
Normalized Values	0	0.1438	0.2708	0.4101	0.438	0.573	1
Category Index	0	0.0094	0.2792	0.4018	0.5141	0.5722	1

The North Eastern Region of India, comprising eight states has a high literacy level and is rich in ethnic cultural heritage with linguistic diversity(Manorama Yearbook,2010). Despite this, the region lacks infrastructure and facilities in educational institutions across sectors and there is a need to improve the quality of education imparted. The present system of education in Meghalaya and other North Eastern States of India started in the early years of the nineteenth century, due largely to the efforts of the Christian missionaries who came as traders. In the beginning there was little controversy among the western countries about the system of education in India. However, after independence, education pattern and system became uniform in the country. The Indian Government's decision to make education a basic right for each child has been widely welcomed by people in the North-East.

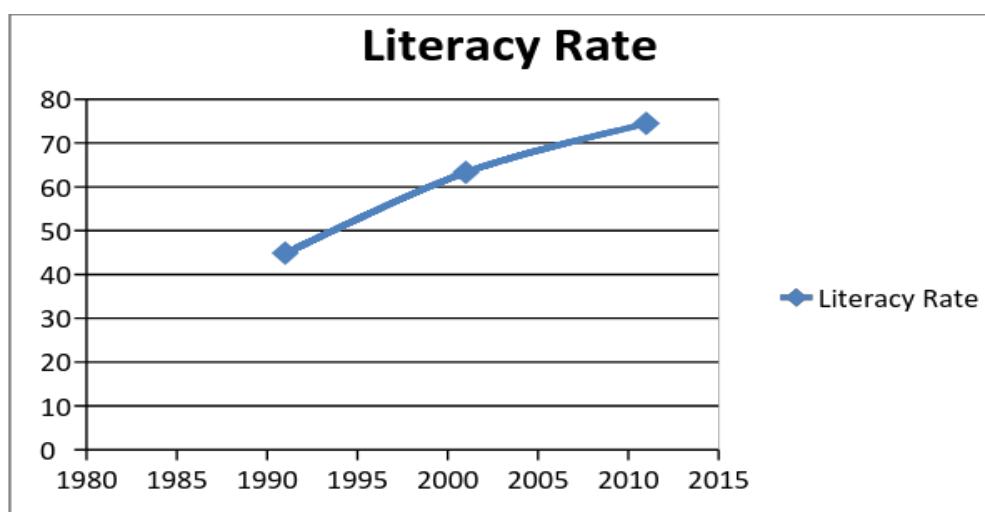
Over the years, due to increasing demand for good schools, especially with English medium, there have been a spurt of educational institutions, without adequate and improper infrastructures or proper maintenance, and poor governance that there has been complaints of poor quality of education. This was true for both government and privately operated schools, and called for urgent action (Nongsiang 2010).Therefore, as part of a doctoral thesis, the author carried out a

descriptive epidemiological study on a representative random sample of schools in East Khasi Hills District of Meghalaya state during 2010.

Meghalaya has a literacy rate of 75.48% as per Census 2011 out of which 17% for males and 73.78% for females. Over the years the literacy rate has shown an overall improvement escalating from 29.49% in the year 1961 to around 63.31% in the year 2001.

Growth in the percentage of literacy in Meghalaya 1971-2001

Particulars	Years			
	1971	1981	1991	2001
<i>I</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>
Rural	23.40	27.45	41.05	57.00
Urban	65.22	64.12	81.74	87.19
Total	29.49	34.08	49.10	63.31
Male	34.12	37.89	53.12	66.14
Female	24.56	30.08	44.85	60.41



Meghalaya is also the first state to introduce the concept of “communitization”. This model has been applied at the elementary level of education. In this model of education, the committees or the governing body of government aided or government schools have prominent citizens heading these committees.

The Education Department in Meghalaya strives hard to live up to probable challenges that may arise in the Human Resource Development sector of the state. It is also promoting the concept of Right to Free and Compulsory Education in the state.

The state government has also introduced midday meals in schools in June 2011. It has been observed that following the introduction of the midday meal plan, the percentage of non attending students which was earlier 25% has slashed to 16%, showing a marked improvement by 9%.

- Primary and Secondary Education

Most of the schools had a varied number of students and teachers, depending on whether they had the primary, secondary, and higher secondary school divisions . Compulsory and free education is offered to students until the age of 14. Generally, the sections in the schools were fairly large, children. 27 % of the schools had 500 or more children. Four schools all of them Catholic had 1000 or more secondary school students.

The number of teachers varied from less than 20 to 100 or more, indicating that many institutions were conscious of a proper Teacher: Pupil ratio.

A vast majority of the institutions (33 out of 36) had their own land, of fairly good size, and 3 had leased suitable land. Only 3 institutions had their own school buses; however, another 11 institutions had transport vehicles for the administration. Almost all Catholic operated Institutions have canteen facilities but only about half of the other institutions operated by

different organizations and privately owned.: Almost all institutions have a school uniform, but only half are provided by the institution.

One of the hallmarks of a good institution might be the provision of all the required textbooks, and insist that the students buy them. Only about a quarter of the Institutions are rated as Excellent, another quarter as good, and half as Poor. The interview with the officials of the institutions pointed out many deficiencies and lacunae in governance, and provided a number of valuable suggestions for improvement. They felt that the Governing Board was generally supportive in solving their problems, but they could be more helpful, with, more qualified and committed members, and a more sympathetic consideration of the problems of teachers and students. They felt that with better governance, the school effectiveness would significantly increase.

- Problems in the Education System

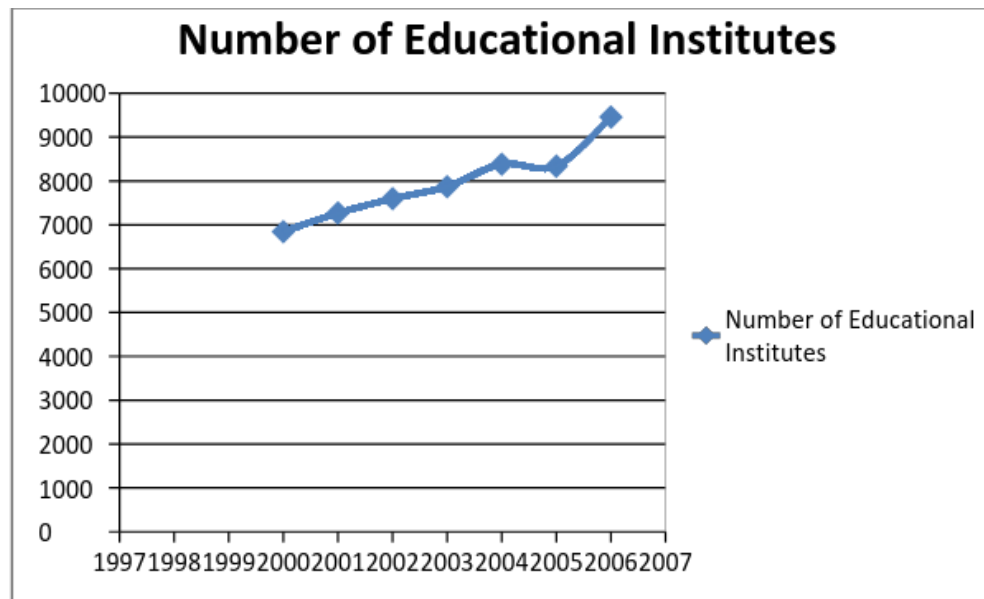
There are a couple of pitfalls in the education sector, especially when the question of schooling facilities is cited. For instance, it has been observed (as per Annual Status of Education Report), that around 7% of children aged between 6 and 14 do not go to school.

Children between 3 and 6 do not attend any pre-primary or preparatory school in the state. The area that is affected the most as far as elementary education in the state is concerned is Jaintia Hills.

The report also cited the probable reasons for such a scenario at the school level. One of the prominent reasons is low salary of teachers. Surprisingly, until few years back, a teacher in the rural area was paid not more than rupees 1800.

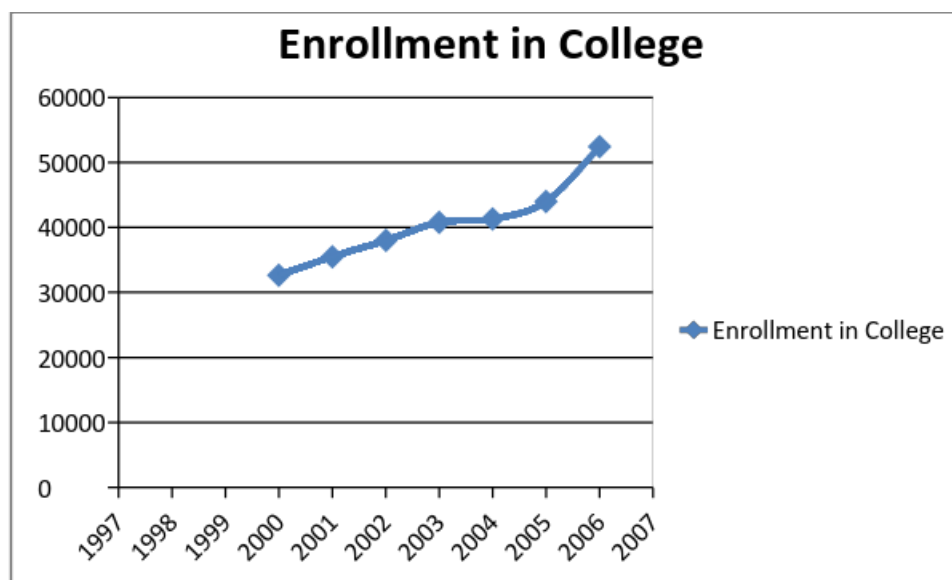
- Educational Institutes in Meghalaya

	2000	2001	2002	2003	2004	2005	2006
Number of Educational Institutes	6843	7268	7595	7872	8386	8337	9457



The number of Educational Institutes in Meghalaya has been continuously increasing over the years. The state has colleges that offer academic courses in Arts, Science, and Commerce. Meghalaya has many professional colleges. These include engineering, medical, law, and management colleges as a result the enrollment into colleges shows a gradual increase. Meghalaya also boasts of having one of the IIMs in the country. IIM Shillong is the 7th IIM of the country.

	2000	2001	2002	2003	2004	2005	2006
Enrollment in College	32650	35494	38007	40765	41315	43986	52434

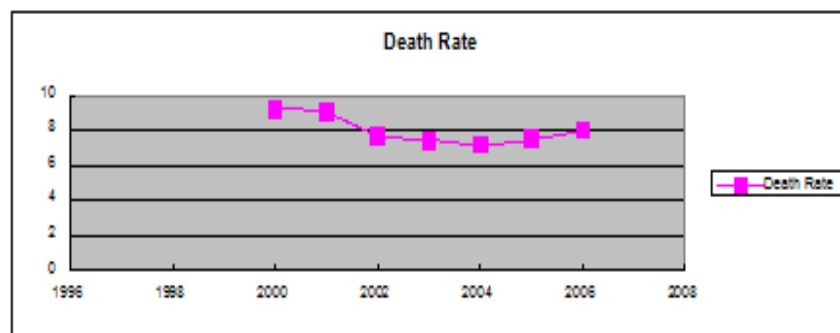
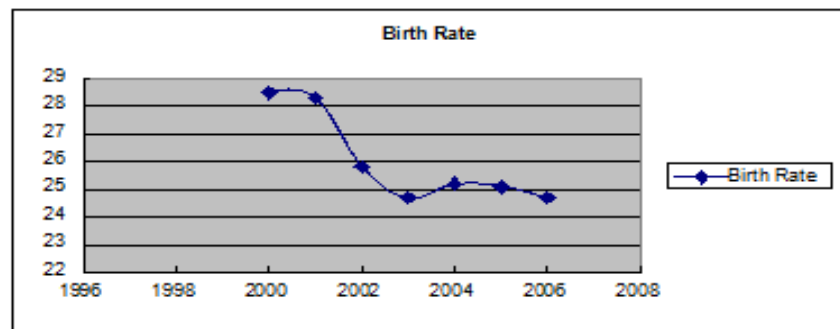


3] Health Factors in Meghalaya

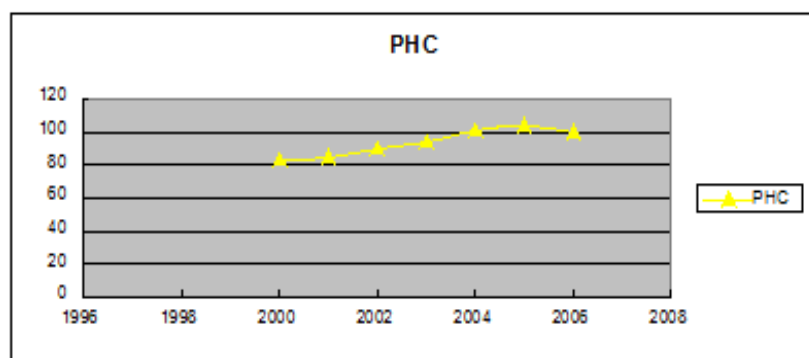
Health Factors in Meghalaya							
	2000	2001	2002	2003	2004	2005	2006
Birth Rate	28.5	28.3	25.8	24.7	25.2	25.1	24.7
Normalized Values	1	0.947	0.289	0	0.132	0.105	0
Death Rate	9.2	9	7.7	7.4	7.2	7.5	8
Normalized Values	1	0.9	0.25	0.1	0	0.15	0.4
PHC	83	85	90	94	101	104	100
Normalized Values	0	0.695	0.333	0.524	0.857	1	0.81
Category Index	0.667	0.648	0.291	0.208	0.33	0.418	0.403

Significant change and development has taken place in all the disciplines both in rural and urban sector. An attempt is being made to modernize the district head quarter hospitals both in terms of human resources as well as advanced technologies. To achieve the goal of "Health For All" by 2010 launched by the Government of India, the health department of Meghalaya started rapid expansion and extension of health services network during the last three decades. The object of

modernizing the health institutions is to enable the people to get better treatment and care.



The growth rate of population in Meghalaya in recent time is highest due to the higher birth rates compared to other states. As per Sample Registration System Bulletin, 2011, the estimated birth rate of Meghalaya is 24.1. The reason for high birth rate. is due to non-implementation of National Family Welfare Programme (Family Planning Programme), which is a National Priority Programme. There has been steady decline in death rate. Though there is decline in the death rate, improvement in life expectancy and an increase in health infrastructure, about 42.3% of the state's population is still uncovered by health care.



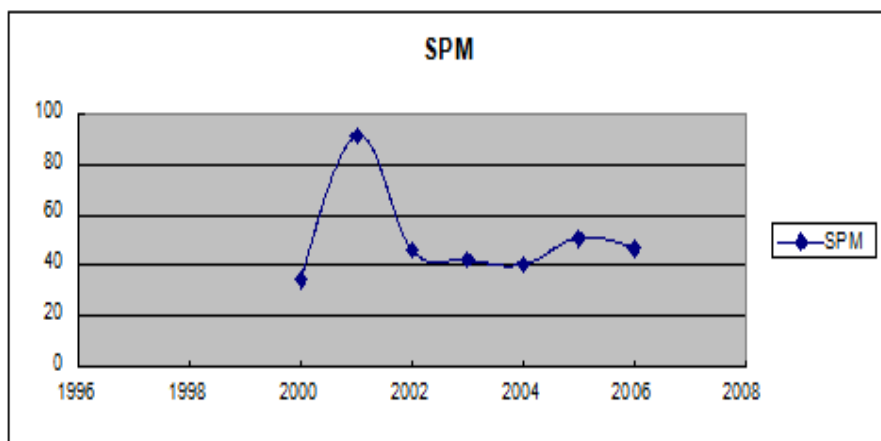
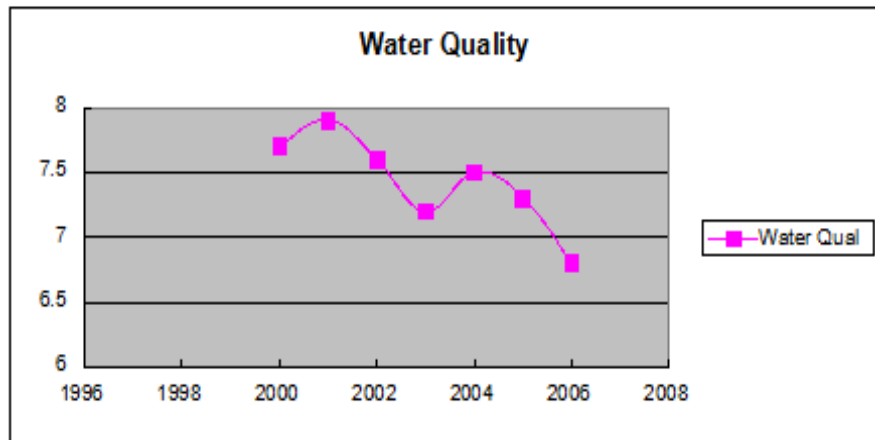
Though healthcare is a basic need and right of the people yet people of the state of Meghalaya do not receive adequate health care. The formal health care in Meghalaya has not reached every household. It is essential to reexamine the primary health care system in its context. Changes need to start at the policy level; there also needs to be an integration of traditional medicine into the formal health care system. To reiterate the point of this study, the sub centre's role should be enhanced and strengthened so that the people can gain access to adequate, affordable and efficient health care.

4]Environment Factors in Meghalaya

	2000	2001	2002	2003	2004	2005	2006
SPM	34.3	91.1	46.2	42.3	40.3	50.5	46.8
Normalized Values	0	1	0.21	0.141	0.106	0.285	0.22
Water Quality	7.7	7.9	7.6	7.2	7.5	7.3	6.8
Normalized Values	0.818	1	0.727	0.364	0.636	0.455	0
Category Index	0.409	1	0.468	0.252	0.371	0.37	0.11

The overall air quality in Meghalaya is "good" except for those areas in industrial estates and where vehicular movement is at its peak according to the Meghalaya State Pollution Control

Board. The main polluting agents as far as Meghalaya is concerned are only those emitted by vehicles as there are still very less industries in the state.



The only drawback in controlling pollution from vehicles is the absence of pollution testing stations set up for diesel-powered heavy vehicles such as trucks and buses and as such they are running without any pollution check, an official of the state transport department said.

According to the State Pollution Control Board of Meghalaya over the last few decades or so,

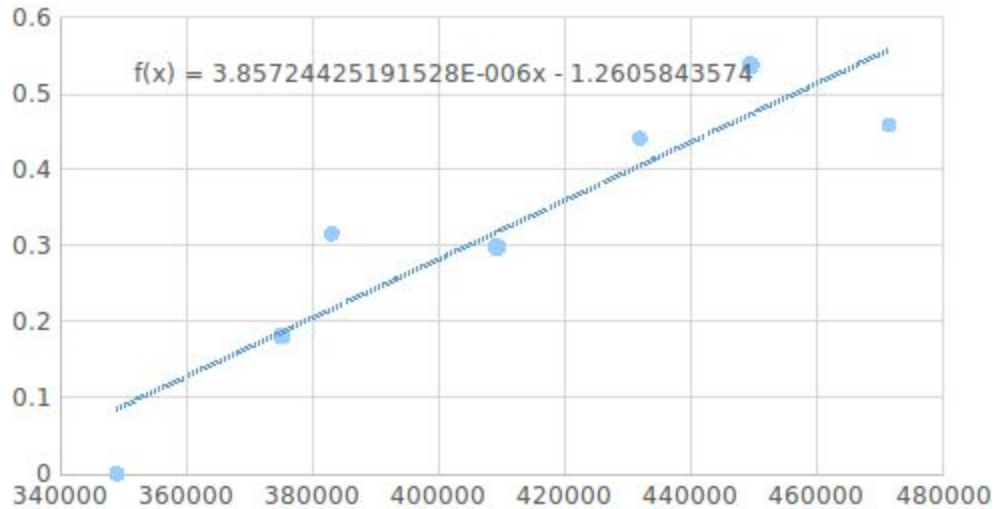
Meghalaya has started facing 'serious problems' of surface and groundwater pollution due to indiscriminate discharge of untreated municipal effluents, industries and agricultural runoff. The Meghalaya State Pollution Control Board (MSPCB) in its 2012 report blamed acid effluents from coal mines as the major probable causes of water pollution in the area. At least two rivers in eastern Meghalaya have turned blue again apparently due to "high acid content", resulting in death of scores of fishes.

It is high time that the State Government intervenes and begins to comprehensively investigate the change of colour of the two rivers. The State government should also direct the cement companies to treat all the wastage before dumping it into the rivers. The State Government should direct the coal owners to undertake reclamation and sustainable closure of erstwhile coal mines and pits so as to restore the land either via backfilling, plantations or social forestry.

5] Quality of Life(Calculated) vs NSDP at constant prices(1999-2000) in Lakhs of Meghalaya

Quality of Life and NSDP of Meghalaya							
	2000	2001	2002	2003	2004	2005	2006
Quality of Life	0	0.1825	0.3162	0.2997	0.4414	0.5394	0.4588
National State Domestic Product	348846	374882	382908	408975	431755	449175	471333

NSDP	QOL	Expected values
348846	0	0.134784
374882	0.1825	0.238928
382908	0.3162	0.271032
408975	0.2997	0.3753
431755	0.4414	0.46642
449175	0.5394	0.5361
471333	0.4588	0.624732



$$\text{VARIANCE} = 0.0307286574$$

CONCLUSION

The slope of the best fit is observed to be 4E-06, using linear regression in the graph of QoL against NSDP. This value is very small, which means that even though NSDP increases by a large value, the QoL does not improve much. Hence, the government must change the government schemes for the betterment of the residents of Meghalaya. Thus this model is not implementable.

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