State Intervention in the Health Sector: A Case Study of Assam

A Dissertation

Submitted to Gauhati University for the Degree of Master of Philosophy in Economics in the Faculty of Arts

Submitted By

AFSHANA PARVEEN

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DEPARTMENT OF ECONOMICS
GAUHATI UNIVERSITY

USHALAYA
House No:32
1st Floor
Lalmati Road
Gandhibasti Tinali
Guwahati-3, Assam
Cell No: 9864034527
email:nissar12@gmail.com
nissar12@gauhati.ac.in

Dr. Nissar A. Barua
Professor

This is to certify that the dissertation entitled "State Intervention in the Health Sector: A Case Study of Assam" submitted by Afshana Parveen in fulfillment of the award of the degree of Master of Philosophy in the Faculty of Arts (Economics) of the University of Gauhati, is a record of the bonafide research work carried out by her under my supervision.

She has fulfilled all the requirements of M.Phil regulations and no part of this thesis has been submitted to any other university/ institution for any research degree.

(Nissar A. Barua)

Date: 19/08/2019

Place Guwahati

DECLARATION BY THE SCHOLAR

I hereby declare that the M.Phil. Dissertation entitled "**State Intervention in the Health Sector: A Case Study of Assam**" submitted by me in fulfillment of the requirement for the award of degree of Master of Philosophy, is my original research work carried out under the supervision of Dr. Nissar A Barua, Department of Economics, Gauhati University. Neither this thesis nor any part of it has been submitted before for degree or diploma in Gauhati University or any other university/institution.

Date: 19·8·19

Place: Guwahati

Afshana Parveen

Afshana Parveen

I

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ACRONYMS

AAA	Atal Amrit Abhiyan
AAN	Assam Arogya Nidhi
AB PM-JAY	Ayushman Bharat- Pradhan Mantri Jan Arogya Yojana
ANC	Antenatal Care
ANM	Auxiliary Nurse Midwife
AIDS	Acquired Immune Deficiency Syndrome
APL	Above the Poverty Line
Approx.	Approximately
ASHA	Accredited Social Health Activist
BMI	Body Mass Unit
BMS	Basic Minimum Services Programme
BP	Blood Pressure
BPL	Below the Poverty Line
CAG	Comptroller and Auditor General
CHCs	Community Health Centres
CT scan	Computed Tomography scan
DH	District Hospital
FRUs	First Referral Units
F.W	Family Welfare
GDP	Gross Domestic Product
GNM	General Nursing and Midwifery
GOI	Government of India
GSDP	Gross State Domestic Product
GSHISs	Government Sponsored Health Insurance Schemes
HB meter	Haemoglobin Meter
HDI	Human Development Index

JSY	Janani Suraksha Yojana
JSSK	Janani Sishu Suraksha Karyakram
JNNURM	Jawaharlal Nehru National Urban Renewal Mission
ICDS	Integrated Child Development Services
ICU	Intensive Care Unit
IHSDP	Integrated Housing and Slum Development Programme
IMR	Infant Mortality Rate
IUCD	Intrauterine Contraceptive Device
Kamrup M	Kamrup Metro
Kamrup R	Kamrup Rural
LHV	Lady Health Worker
MGNREGA	Mahatma Gandhi National Rural Employment Guarantee Act
MHU	Mobile Health Units
MMR	Maternal Mortality Rate
MNP	Minimum Needs Programme
MoU	Memorandum of Understanding
M/O	Ministry Of
MPW (M)	Multi-Purpose Worker (Male)
NCDs	Non Communicable Diseases
NFHS	National Family Health Survey
NHM	National Health Mission
NHRR	National Health Resource Repository
NPCDCS	National Programme for Prevention and Control of Diabetes, Cardiovascular Diseases and Stroke
NPPCD	National program for prevention and control of deafness
NRHM	National Rural Health Mission
NPHCE	National Programme for Health Care of the Elderly
NUHM	National Urban Health Mission

OT	Operation Theatre
PHC	Primary Health Centre
PMJJY	Pradhan Mantri Jeevan Jyoti Yojana
PMSBY	Pradhan Mantri Suraksha Bima Yojana
PPP	Public-Private Partnership
RBI	Reserve Bank of India
RBSK	Rashtriya Bal Swasthya Karyakram
RCH	Reproductive and Child Health
RHS	Rural Health Statistics
RKSK	Rashtriya Kishore Swasthya Karyakram
RSBY	Rashtriya Swasthya Bima Yojana
SC	Sub-Centre
SDH	Sub-Divisional Hospital
SDCHs	Sub-divisional civil hospital
UNDP	United Nations Development Programme
U5MR	Under 5 Mortality Rate
WHO	World Health Organization
X-ray	X-Radiation

CHAPTER 1
INTRODUCTION

1.1. Introduction

World Health Organization (WHO) defined health as “a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity”, which helps a person to lead a socio-economically active and productive life. However, this definition by WHO is too broad and challenging to use it for any meaningful economic analysis. So from the point of view of economics, health status can be evaluated in terms of crude birth rate, crude death rate, life expectancy at birth, infant mortality rate, maternal mortality rate, etc.

To promote, restore and maintain the health of its people through a multitude of proper healthcare as well as medical care services, every country has a health sector or healthcare system. Healthcare sector is an important part of the social sector and is very important for a nation’s economy. No nation can progress without a strong health sector base and investing in this area is as essential as sound macroeconomic policies in achieving the desired economic boom. Health sector development is highly correlated with the level of human development of a region. Health sector development is an important criterion for the development of the efficiency of the human resource of a country. As the health sector develops, the quality of life improves, leading to better quality human capital and higher total factor productivity, which translates into higher economic growth. In fact, there is a strong nexus between economic growth and human development. Achievement in the economic font is closely dependent and related to that in the social sector. In spite of the primacy of health sector in augmenting the development process, access to basic health services has continued to remain poor in developing countries like India.

1.1.1. Health Sector of India

India had experienced rapid economic growth over the years and has been overtaking other countries in the progress of its real income. However, India's perch on top as the world's fastest-growing major economy is a paradox given its performance on social indicators. On social front, India's performance is quite poor as compared to the other countries of the world and it is probably behind most of the important developing economies. India ranked 130 out of 189 countries in terms of Human Development Indicators (UNDP Report, 2018). Particularly, in the health care sector, this lacuna is significant over the years. In India, despite considerable investment in health infrastructure, both access to and use of services remain suboptimal and varies considerably across states and regions. Especially in terms of Infant Mortality Rate and Maternal Mortality Rate the country is lagging far behind. The Sustainable Development Goal Report 2019 targeted to reduce the Infant Mortality Ratio and Maternal Mortality Ratio to 25 per 1000 and less than 70 per 100,000 live birth by 2030. However, in reality, both IMR and MMR are still way above the target. As per the HDI report 2018, India's maternal mortality ratio of 174 deaths (per 100,000 live births) in 2017 was high compared to 12 in Kazakhstan, 25 in Iran, 30 in Sri Lanka, 68 in Maldives, 40 in Malaysia, 50 in Iraq, 58 in Jordan, 89 Jamaica, 126 in Indonesia, 162 in Cambodia, 148 in Bhutan etc. In a similar way, the Infant mortality rate (per 1,000 live births) in 2016 for India was 34.6, lagging Sri Lanka (8), Maldives (7.1), Iran (13), Iraq (25.9), Bhutan (26.8), Nepal (28.4) and Bangladesh (28.2), etc. Several indicators of health status show that India is still lagging behind the global standard (Table 1.1). It has been argued that the lackluster performance of the health sector of India is mainly because of poor health facilities, especially at the primary level. While India does have some topnotch treatment facilities, they are way out of reach of the common people. In fact, the basic health care facilities available to the common mass, especially in the countryside, are in a mess. (Majumder et al, 2011). Given this scenario, it is imperative that the status of the sector is explored in detail. In this research paper, we seek to run that exercise for Assam.

1.1.2. Health Sector of Assam

Assam has thirty-three districts with a population of about 3.12 crore as per Census 2011. The state ranks 30th among the country's major states and union territories in terms of Human Development Index (HDI,2018). And ranked 19 among 21 states of the country in terms of health as reported by the India Today State of the States Survey 2018. There are 4644 Sub-Centres, 946 Primary Health Centres, 172 Community Health Centres, 14 Sub-divisional Hospitals, and 25 District Hospitals across Assam. It has been observed that the health infrastructure, as well as the health status of the people of Assam, has improved satisfactorily over the years. Yet, the achievements are not at par with the national level which is reflected from different health-related indicators (Table 1.1). Moreover, the Maternal Mortality Rate is the highest for the State as compared to any other state of the country. There also exists an infrastructural gap as well as a shortage of manpower to run the healthcare institutions.

Table 1.1: Health Indicators- A comparative profile

Indicators	Assam	India
Infant Mortality Rate (IMR) (per 1000 live births)	48	41
Under 5 Mortality Rate (U5MR) (per 1000 live births)	56	50
Full Vaccination Coverage	47.1%	62.0%
Children's Nutritional status (children age below 5 years who are underweight)	29.8%	35.8%
Anemia among children (children age 6-59 months who are anemic)	35.7%	58.6%
Underweight women with BMI below normal	25.7%	22.9
Maternal Mortality Rate (MMR) (per 1 lakh live births)	237	130
Life expectancy at birth	63.6(men) 64.8(women)	67.3(men) 69.6(women)

Source: NFHS-IV, 2014-16, M/O Health & F.W., GOI

These anomalies in the health sector have been recognized and taken in charge by the government. Since independence, both central and state government has been dissipating a large number of resources on the Health Sector of the country and over the years India has also been making progress on the health indicators but there still exist certain gaps in the sector that needs to be addressed. The most recent summary data put out by the 4th National Family Health Survey shows that while the state has succeeded in improving its health indicators, the current situation leaves a lot more room for improvement. The government needs to strengthen its existing health infrastructure, especially rural health care to be able to achieve significant improvement in the status of its women and children. Such strengthening of services will require a focused intervention by the government through substantial investment, in terms of both financial and human capital. Moreover, this intervention must be complemented by effective health programmes, policies, and schemes.

1.2. Rationale Of The Study

In recent years the importance of health and health care expenditure has come to be increasingly recognized as the primary instrument for human resource development. Over the years the government has been adopting a focused intervention in the health sector in order to improve the health infrastructure and health services. Yet, there exist gaps in the healthcare system. Hence most of the people of the state resort to the private health care by bearing some extra costs. Also, the health indicators are not at par with the national average. Given the circumstances, it is felt that a strong rationale exists for research in this area for analyzing the existing schemes and programmes of the government, for identifying the lacuna that exists in the government interventions and for offering recommendations. The present study, therefore, is examining the existing healthcare structure of Assam. Besides, the study is trying to analyze the various schemes and programmes of the state government. The possibility of more focused intervention in the health care sector of Assam by the government has also been analyzed in the present study.

1.3. Review of Literature

1.3.1. Government Intervention in the Social Sector

Social sector refers to all those sectors that are essential for improving the quality of life of the people. It includes health and medical care, education, water supply, sanitation, housing conditions, and nutrition, etc. In a nutshell, the social sector is concerned with the provision of merit goods which are socially valuable.

The social sector is an important sector for a country's economy. No nation can progress without a strong social sector base. The level of development of the social sector directly affects the level of human development of a region, thereby, influencing the rate of economic growth. In fact, there is a strong nexus between economic growth and human development. As the social sector develops, the quality of life improves, leading to better quality human capital that leads to higher total factor productivity thereby resulting in higher economic growth. Thus, investing in this area is as essential as sound macroeconomic policies in achieving the desired economic boom.

The Government, both central and state has been allocating a major amount of its expenditure on social sector, i.e., on education, health and family welfare, water supply, sanitation, housing, rural development, nutrition, minimum basic services and social welfare since the planning period.

Various studies have been conducted on the role of Government in the social sector, the trend of expenditure on social sector, etc. Based on the studies found so far, this literature review is classified into the two parts, expenditure on the social sector in pre and post-reform period and the distributional impact of social sector expenditure.

1.3.1.a. Expenditure on Social Sector in pre-reform and Post-reform period

The trend, dimension, and composition of social sector expenditures were analyzed using data from the last six union budgets i.e. from 1991to 1996 i.e. mainly in the reform era **(Guhan, 1995)**. This study gave special attention to the benefits received by the poor from the social sector expenditure and in this regard discussed various important programmes in the central budget which are in salience for the poor. The study further explored the available options for making such expenditure more cost-effective and purposeful. It came to the conclusion that more funds need to be allocated to the Centre and the state for stepping up social sector expenditure and there is an obvious need for better utilization of the allocated money. In a similar study, the trend of social sector expenditure was analyzed for the reform period 1990-2001 through budget analysis **(Mooij and Dev, 2002)** which focused on the priorities that the social sector has received by the government. The study focused on both central and state budget, unlike the earlier study which focused only on the central budget. The study found that initially, the main emphasis was on income and employment but from 1996 onwards, the emphasis shifted to other human development aspects such as health, education, housing, and rural roads. However, from 1996 onwards, out of total social sector expenditure, the share for rural development dropped. This shift in expenditure pattern corresponded with a shift in prioritization in the budget speeches. The study found that in the reform period the Centre-state combined expenditure as well as the central expenditure on health and education slightly improved but state expenditure on both health and education declined. The study finally suggests that to reduce the existing poverty, anti-poverty schemes should be implemented and for this there should be changes in the budget-making process. Continuing in the same vein, **Shariff, Ghosh, and Mondal (2002)** focused on the trends on public expenditure on social sector and poverty alleviation sectors from 1990-91 i.e. in the reform era. The study just like the study conducted by Mooij and Dev (2002), analyzed the trends in state expenditure, central government expenditure and expenditure by Centre and state combined. The study found that the central government's expenditure on education is somewhat steady but that on health is increasing. On the other hand state expenditure as well as Centre-state adjusted expenditure declined in the education sector but

increased in the health sector which contradicts the findings of Mooij and Dev (2002) which found that central expenditure on both education and health improved and that of state expenditure on both the fronts declined. Additionally, this study found that there are a large amount of the funds that were allocated to the employment generation programmes were subsequently diverted to the rural road construction programme. The study also concludes that the central government is performing much better than the state government in terms of social sector expenditure. In another similar study, the pattern of expenditure in the social sector was analyzed in the reform period for both the central and State government **(Dev and Mooij, 2004).** This study focused on the study of social and economic expenditures. According to the study the objective of expanding social opportunities and improving the social indicators of education, health and nutritional standards of the general population, achieving rural development and also alleviating poverty can be met by social and economic expenditures. It also undertook a comparative study of the social sector expenditure in India and other countries. It further tried to access the effectiveness of the social sector expenditure-utilization of funds and quality of expenditure. Finally the study tried to suggest policies for improving effectiveness in Social Sector Policy expenditure. The study found that the overall anti-poverty and social development expenditure increased in reform era in terms of per capita expenditure. Just like Shariff, Ghosh, and Mondal (2002), the study found that the Centre has done much better than the states. However, contrast to the increasing expenditure on anti-poverty and social development, the expenditure on a major head like education declined as percentage of GDP. The study concludes that there is an urgent need for stepping up social sector expenditure and there should be better utilization of the allocated money which is similar to the conclusion by Guhan, 1995. In a similar study, **Jain and Paul (2014)** also analyzed the social sector expenditure but unlike earlier studies which focused only on the reform era, it focused both in the pre-reform and post-reform period. Also, it not only analyzed the trend of social expenditure but also analyzed how the social sector expenditure as a percentage of total expenditure has been affected in the pre-reform and post-reform period and also tried to study the impact of economic reforms on the public health expenditures in the post-reform period. The study finds that economic reforms have mostly focused on the economic sectors and have neglected the social sectors and also couldn't bring any effective change in the health sector of India. The health condition of vast majority of the population remains worse even after a decade of reforms. This conclusion is in contrast with the

conclusion of the study made by Dev and Mooij (2004) which says that the social sector expenditure except for education has improved in the reform period. The study suggests that there should be integration of social planning with economic planning and the government should take necessary steps to tackle the rising challenge of life taking diseases which rose during the reform period. Moreover, the funds allocated to the social sector should be spent properly and the schemes meant to address such problems should be designed and implemented with consultation with the local community. In another study, **Makela, et.al (2013)** analyzed public expenditure on social sector which is quite different from the earlier studies. This study mainly focused on the impact of Social Sector Expenditure on Child Mortality in India. To access the relationship of overall social sector expenditure and its major components like education, health, etc. with child mortality, mixed-effects regression models were used. The study revealed that an increase in per capita social sector expenditure was slightly higher in less developed than in more developed states. Also, an increase in public expenditure on health was not significantly associated with mortality reduction in infants, but there was a 3.6% mortality reduction due to a 10% increase in health-related public expenditure. The study concluded if policymakers give high priority to the social sector then it would help in a further reduction in child mortality in India.

1.3.1.b. Distributional Impact of Social Sector Expenditure

The distributional impact of social sector expenditure mainly on health and education was analyzed for the period 1974 to 1989 **(Jeffrey et al, 1995)**. A case study of Malaysia was undertaken using household-level data on the use of public services. The study discussed related improvements in health status and educational attainment. The study found that both in the health and education sectors, the targeting performance of government expenditures improved over the period of the "new economic policy" i.e. 1970-90. However, except for higher education, the social service expenditures were progressive and became more after 1974. The study found that the poor captured the largest share of benefits from social expenditures. For education, primary level enrollment became virtually universal and expansion of the educational system came as a result of an ethnically based targeting policy that reached lower and lower-income groups. In contrast, improved targeting of health care mainly focused on the richer

income groups as they opted out of the public system to use private practitioners. In a similar study on the distributional impact of public social spending on health care and education in several African countries (**Castro-Leal et al, 1999)** found that the programmes of social sector spending didn't favor the poor, but favors those who are better-off. This conclusion is contradictory to the findings in the case of Malaysia. The study concluded by suggesting that this targeting problem cannot be solved simply by adjusting the subsidy program and the constraints that prevent the poor from taking advantage of these services must also be addressed if the public subsidies are to be effective. Another similar study on the distributional impact of progressing social sector expenditure on healthcare and education in eight sub-Saharan African countries (**Sahin and Younger, 2016)** found results contradictory to that of Castro-Leal et al, 1999 but in line with that of Jeffrey et al, 1995)**.** The study found that primary education tends to be the most progressive and university education (higher education) is the least progressive. The benefits associated with hospital care are also less progressive than other health facilities. The study found that there exists expenditure inequality across the eight countries, but only in one case i.e. primary school in South Africa, where due to a publicly subsidized service the benefits disproportionately fall on the poor in absolute terms.

1.3.2. Government Intervention in the Health Sector

Health and socio-economic developments are very closely related to each other. Healthcare expenditure is a very important social expenditure for any country. Government's role is of the utmost importance in developing good health infrastructure and ensuring good health for all people from different sections of the society. However in India, the government's role in the health sector has not been very vibrant in the past years. Since independence, though the government of India has created massive personnel and public health infrastructures like equipment and buildings, due to stagnant budgetary provisions and various management constraints the quality of health care facilities suffered substantially resulting in inequalities in terms of access and utilization thereby resulting in inequality in health outcomes across the states in India.

Several studies have been conducted to examine the role of government in the healthcare sector, to analyze the trend of government expenditure on the healthcare sector, to access the effectiveness of the Government schemes and programmes, etc. Based on the studies found so far, this section is classified into the three parts, expenditure on health sector in pre and post-reform period, the role of the Government in the Healthcare sector through various policies and schemes and review on individual schemes, policies, and programmes by the Government.

1.3.2.a. Expenditure on Health Sector in the pre-reform and Post-reform period

A study on the priorities received by the social sector by both the central and the state government was made for the period 1990-2001 (Mooij and Dev,2002) which found that in the reform period the Centre-state combined expenditure, as well as the central expenditure on health, slightly improved but that of state expenditure declined. In a similar study on trends on public expenditure on social sector and poverty alleviation sectors from 1990-91 i.e. in the reform era (**Shariff et al, 2002)** it was found that the central government's expenditure, as well as Centre-state, adjusted expenditure on health is increasing, which is similar to what Mooij and Dev, (2000) concluded. However, this study concluded that the state expenditure increased in the health sector which is contradictory to that of Mooij and Dev, (2000). A similar study on social sector expenditure in the pre-reform and post-reform period with special reference to the health sector was undertaken **(Jain and Paul, 2014)**. The study tried to study the impact of economic reforms on public health expenditures in the post-reform period. The study finds that economic reforms have mostly focused on the economic sectors and have neglected the social sectors and also couldn't bring any effective change in the health sector of India. The health condition of the vast majority of the population remains worse even after a decade of reforms. This conclusion is in contrast with the conclusion of the study made by Dev and Mooij (2002) which says that the social sector expenditure except for education has improved in the reform period. The study suggests that there should be an integration of social planning with economic planning and the government should take necessary steps to tackle the rising challenge of life taking diseases which rose during the reform period. Moreover, the funds allocated to the social sector should be

spent properly and the schemes meant to address such problems should be designed and implemented with a consultation with the local community.

1.3.2.b. Role of the Government in the health sector through policies and programmes

A study on the role of government in the public health sector in India was undertaken which also focused on the existing government policies and programmes for public health along with the success, limitations and future scope of those programmes. (**Lakshminarayanan,2011).** The study also discussed the various challenges met by the health sector and suggested that the government and the community should collectively rise to the occasion and face these challenges simultaneously, inclusively and sustainably. The study concluded that the social determinants of health and economic issues must be dealt with a consensus on ethical principles of universalism, justice, dignity, security and human rights. In a similar study, **Chauhan (2018)** made a study on government intervention in the public health care system. Unlike the earlier study which focused on the role of the government on the public health sector as a whole, this study focused on the intervention by the government in ensuring rural health. In this context the study discusses the various policies and programmes undertaken by the government and tried to access their effectiveness. The paper made a study on the sub-centres; the Primary Health Centre (PHC), Community Health Centres (CHCs) and First Referral Units (FRUs) established by the government for rural health and also discuss its challenges and opportunities. The study also discussed the role of Ayushman Bharat Programme for promoting rural health. The author concludes that the effectiveness of these programmes and policies are questionable due to gaps in the implementation and unavailability of quality healthcare personnel. It suggests that only when both public and private sector will come together to fill these gaps and ensure that medical personnel is deployed in adequate numbers in rural India, the real change will come. Another similar study on health services in rural, focused mainly on the rural health infrastructure which wasn't discussed in the previous studies but like the earlier studies this study also focused on the opportunities of the rural health care i.e. how the rural healthcare can be strengthened. (**Lahariya, 2018).** The conclusion of the study is somewhat similar to the earlier study that the rural healthcare system can be strengthened by ensuring appropriate input-mix such as facilities,

supplies and human resources. In this context the study mentions the Ayushman Bharat Programme and the National Health Resource Repository (NHRR) initiatives of the Government of India to meet the challenges of the rural healthcare system in India. However, it didn't discuss the programmes as done by Lahariya (2018). In an almost similar study, **Pramanik (2014)** studied the health care facilities in rural India. This study is almost similar in the sense that it emphasizes on health facilities which are similar to health infrastructure. The study discusses the role of Integrated Child Development Services(ICDS) in strengthening maternal and child development in India, as they are the major indicator for assessing the condition of rural health. The study also discusses hygiene in rural India which wasn't discussed in the earlier two studies. The study also emphasizes the role of the government in the conclusion by saying that the problem of rural health needs to be addressed both at the macro-level (national and state) and micro-level (district and regional) in a holistic way with an objective to bring the poorest of the population to the centre of health policies. Another similar study by **Pandey and Sharma (2016)** made an attempt to study rural health in India. However unlike the study by Pramanik (2014) who focused indirectly on maternal and child health through the ICDS, this study focused directly on maternal and child health. The study discussed briefly the achievements made in the field of maternal and child health across rural parts of India in the last ten years. The study also identified the areas of challenges and also discussed a few initiatives launched by the government such as Beti Bachao Beti Padhao, Family Planning Campaign, Social franchising Scheme, New Health protection Scheme, Mission Indradhanush, etc. The basis of this discussion was the comparison between the results of the 3rd and 4th round of National Family Health Survey (NFHS). The study found that both maternal, as well as child health, have shown remarkable improvements. The conclusion of this study also emphasis government intervention to accomplish its goals. The government must look beyond the health sector and should address the social determinants of maternal and child health most importantly women education. In addition to maternal and child health, the government should ensure health assurance, not just health insurance. Another study focusing on Infant Mortality Rate and Maternal Mortality Rate was attempted by **Sharma (2017)** who also made a study on rural health. However unlike the earlier studies, this study didn't focus directly on Government's intervention in promoting rural health rather it focused on Government intervention in boosting Health Expenditure in Rural India which will ultimately result in an improvement in rural health. For this, the study made a

budgetary analysis. It examined the total outlay on health and family welfare from 2014-15 by the central government. The study found that over the period of time, budgetary provision for the health sector in India has gone up in absolute terms but there has been no significant change in the expenditure as a proportion of GDP as it remained stagnant at less than 1.5% during 2009-10 to 2016-17. The performance of the country in improving the health outcomes through has improved during the past, but there has been scope for further improvement particularly in Infant Mortality rate and maternal mortality rate. In terms of the achievement in health outcomes, the country is seen to lag behind many other developed countries as well as some small developing countries in the achievements. The study emphasized the urgent need for government spending on medical, public health, family welfare and sanitation to address the health needs of the socio-economically deprived population and rural and backward regions of the country.

1.3.2.c. Evaluation of Government Programme, Policies and schemes

A study on government intervention in the health sector through NRHM and the programmes under it was undertaken. **(Choudhury, 2018)**. The study also took a case study of Assam and made an attempt is made to analyze the performance and effectiveness of the role played by the mission to meet its goals and to change the health scenario of the state. Relying on the available secondary data, the study shows the improved health indicators and the health system during the period of NRHM. Also, an attempt is made to focus on the existing lacuna of the mission or its performance. The study found that at the time of introduction of NRHM, the health status of Assam was worse and so the state was embraced as the high focus state and thus was given special attention. The mission has taken the initiatives to have a dramatic change in the health status also in Assam along with the other states of the country. It is able to improve the health infrastructure in rural Assam. Though the health centers in the state (except PHC) were comparatively overburdened the mission has increased the availability of hospitals and ensured quality health care in the state. Among the northeastern states, the density of rural health center as a whole is best in the state. The population coverage per rural health care institute is less in the state as compared to other northeastern states. The fund allocated under the mission to the state is

increasing significantly. Thus there is overall a positive impact of the initiatives of the mission on the health status of the state and in due course of time. Another study on the key component of the NRHM i.e. ASHA was made by **Keshavamurthy (2013)** focused on the role of ASHA for health care delivery in rural India. The study is unique compared to earlier studies. The study finds that ASHA who is an integral part of the National Rural Health Mission perform the role of facilitation, activism, and community-level care. The study found that till date more than 8.85 lakh ASHA workers have been selected, trained and deployed across the country. ASHAs are effective in reaching about 70 percent of the population with their services. The study suggests that to improve the efficiency of the ASHAs the study pointed out the need to improve the payment of compensation to ASHA facilitators and setting up ASHA grievance mechanism. In a similar study **Kumar, Kaushik and Kansal (2012)** focused on the factors affecting the performance of the ASHA workers rather than discussing the role played by the ASHA workers. For this purpose the study took a cross-sectional study from eastern Uttar Pradesh. The study found that less knowledge of the content of job responsibility, caste, incentive oriented practices and delayed and inadequate payment of incentives for ASHAs influences their work performance. The conclusion is somewhat similar to the suggestions made by Keshavamurthy (2013). Unlike all the previously reviewed studies which focused on rural health **Goli et al, (2011)** also made a study on the Government's role in the health sector. However, this study is completely different from the earlier studies because unlike all the earlier studies that focused on rural health and programmes and policies for ensuring rural health, this study focused on the urban health and also discussed the role of the National Urban Health Mission in this context. The prime aim of this study is to assist the policymakers to strategize and achieve the goal of healthy cities in India by providing critical insights into the health and living conditions in selected major cities in India, such as Delhi, Mumbai, Kolkata, Chennai, Hyderabad, Meerut, Indore and Nagpur with special emphasis on slums and urban poor. The study found that Indian cities are at different levels of socioeconomic and demographic progress due to their histogenesis, geographic location, and industrial development. This analysis provides valuable insights into urban regional comparison and critical guidelines for prioritizing action in urban areas not covered by India's National Urban Health Mission. The results presented in this study demonstrate that the socio-economic, demographic and health conditions of the selected cities lag far behind the expected levels of achievement for urban India. Many Indian cities are way

behind the goals set by the National Population Policy (2000) and the National Health Policy (2002). A substantial number of poorest and poorer wealth quintiles live in slum dwellings. The urban population in India is still devoid of many basic needs such as shelter, safe drinking water, electricity, cooking gas and improved sanitation facilities, and slum dwellers suffer the most. The urban slums of India continue to display poor health conditions in terms of infant mortality rate, child immunization, antenatal care, and institutional delivery. The utilization of government healthcare facilities is also low in most of the Indian cities because of the poor quality of services and difficulty of accessibility. However, the Jawaharlal Nehru National Urban Renewal Mission (JNNURM) and the Integrated Housing and Slum Development Programme (IHSDP) have helped in improving the slum condition in a big way in recent years

1.3.3. The literature on Health Sector of Assam

The efficiency of the health care sector of Assam at the sub-state level using district-level data for the years 2010-11 and 2011-12 was explored **(Purohit, 2015).** A panel data set of 23 districts were used and a stochastic frontier model was utilized in the study to analyze the healthcare system of the state. The study mainly focused on the existing infrastructure of the different districts of the state and tried to access district wise efficiency of the health care system. The study found that better availability of medical manpower including doctors, nurses and midwives has led to optimum utilization of existing medical institutions and beds. Based on the efficiency of the healthcare sector, districts like Dhemaji, Kamrup, and Barpeta are three top-ranking districts whereas Darrang, Dhubri, and Kokrajhar have not been able to utilize existing medical potentiality. The study suggested overall improvement in the district level health system to bring down Infant Mortality Rate in the lower performing districts. **Buragohain (2015)** also focused on the status of health infrastructure of Assam. However, this study focused mainly on the rural health infrastructure of the state. Unlike the study by Purohit (2015), this study didn't try to access the health care efficiency of the districts of Assam rather it focused on the existing infrastructure of the districts and the gap thereof. The study also tried to observe the district wise health outcomes and the existing reproductive health care facilities in the districts. The study

concluded that the state of health among the rural population of Assam is not at all pleasing. The study suggested that appropriate measure in the form of quality health care services, food security, pure water, housing, toilet, etc. must be taken to improve the health status of the people**.** Another study on health infrastructure of Assam focused on the trend of SCs, PHCs and CHCs from 1950 to 2002, district wise variations of health infrastructures in Assam, the trend of health status in Assam in relation to India's trend of birth rate, death rate and Infant Mortality Rate in Assam and India. **(Basumatary, 2016).**

Research Gap

From the above literature survey, it appears that many studies have been conducted to analyze the role of Government in the social sector, particularly in the health sector. Most of the studies unanimously agreed that Government has a key role to play in improving the health care system of a country. However, there is a dearth of literature on the role of various government policies, schemes, and programmes in Assam. Moreover, there are no studies on Assam with regards to the role of state-sponsored schemes and policies in improving the healthcare system in the state. Therefore this M.Phil. Research is a humble attempt to analyze state government intervention in the health sector with special reference to Assam.

1.4. Conceptual Framework

Physical health infrastructure is very important for providing effective health care to the people. Since the first five year plan, India has laid emphasis on the improvement of the health of its people by launching various schemes and programmes, especially in rural areas. The rural healthcare sector of India is a three-tier system consisting of the Sub Centre, Public Health Centres, and Community Health Centre.

The ***Sub-Centre*** (SC) is the first contact point between the primary healthcare system and the community. Each sub-centre is supposed to be manned by one male Multi-purpose Worker

[MPW (M)] and one Auxiliary Nurse Midwife (ANM). A Lady Health Worker (LHV) is in charge of six sub-centres each. These Sub-centres provide basic drugs for minor ailments and also provide services in relation to maternal and child health, family welfare, nutrition, immunization, diarrhea control, and control of communicable diseases. Sub-centres also helps to bring behavioral change in reproductive and hygiene practices through various mediums of interpersonal communication in order to. The sub-centres are required for taking care of basic health, needs of men, women and children. Again, ***Primary Health Centres*** (PHCs) comprise the second tier in rural healthcare structure. They are envisaged to provide curative and preventive healthcare to the rural population. The PHCs are established and maintained by the State governments under the Minimum Needs Programme (MNP) or the Basic Minimum Services (BMS) Programme. A PHC is required to be manned by a medical officer who will be supported by 14 paramedical staffs and other staff. There is a provision for two additional staff nurses at PHCs on contract basis under NRHM. The PHC acts as a referral unit for 6 Sub Centres and has four to six beds for patients. Then finally, the ***Community Health Centres*** (CHC) forming the uppermost tier are established and maintained by the State Government under the MNP/BMS programme. As per minimum norms (Table 1.2), just like SC and PHC, a CHC is required to be manned by a surgeon, physician, gynecologist and pediatrician who will be supported by 21 paramedical staffs and other staff. It has thirty in-door beds with one labor room, OT, X-ray, and laboratory facilities. A CHC also provides facilities for obstetric care and specialist consultations. It serves as a referral centre for 4 PHCs.

The data furnished in Table 1.2. has been used to identify if the population served by each of the SC, PHC and the CHC is adequate or not. These concepts are very important in the context of the present study as by using data on SCs, PHCs, and CHCs along with Sub-Divisional hospitals and District Hospitals, we shall get a clear picture of the current health infrastructure of the state.

Table 1.2. Population Covered by Each SC, PHC and CHC

Centre	Population Norms *	
	Plain Area	**Hilly/Tribal/Difficult Area**
Sub-Centre	5000	3000
Primary Health Centre	30,000	20,000
Community Health Centre	1,20,000	80,000

Source: RHS Bulletin, March 2018, M/O Health & F.W., GOI& Rural Health Care System in India, 2018

**Number of persons covered under the services of a particular Facility (SC, PHC & CHC)*

Also using these datum, availability, and accessibility of health centres has been calculated. ***Availability*** and ***Accessibility*** of health centres in the context of our study implies health centres per 100 square kilometers and per 1000 population respectively. Similarly, the accessibility of manpower has also been identified. These concepts are basically used to rank the districts of Assam to access their current health status of the state. The districts have also been ranked based on their health outcomes. Two important health outcomes that have been used throughout the study are Maternal Mortality Rate and Infant Mortality Rate. ***Maternal Mortality Rate*** (MMR) is the total number of female deaths per 100,000 live births and ***Infant Mortality Rate*** (IMR) is the total number of deaths of children below age one per 1000 live births. Again, to access the budgetary intervention in the health sector, the concept of ***Revenue expenditure*** and ***Capital expenditure*** has been used. Revenue Expenditure of the state government relates to the expenditure incurred for the normal functioning of the government. Such expenditures are recurring in nature and do not affect its assets-liability position. On the other hand, capital expenditure of the government refers to that expenditure which leads to the creation of physical assets or reduction in financial liabilities.

1.5. Objectives of the Study:

- To construct a health index to assess the current status of the health sector of Assam.
- To examine budgetary intervention by the state government in the health sector of Assam.
- To explore the Health sector schemes with reference to allocation, utilization, and outcomes.

1.6. Methodology

1.6.1. *Coverage:* The present research work will be undertaken using the entire state as the study.

1.6.2. *Data Collection:* The study will be based on both secondary data. The secondary data source will include the state budgets, various authentic budget documents of the Government of Assam, CAG reports, RBI reports, Rural Health Statistics, etc.

1.6.3. *Data Analysis:*

- For the fulfillment of the first objective i.e. to access the current status of the health sector of Assam, district wise data on health infrastructure, manpower required to run those institutions will be collected and the infrastructural gap in the health infrastructure will be examined thereof through the construction of an index.

- For the analysis of the second objective i.e. to examine the budgetary intervention of the state in the health sector, secondary data on the revenue and capital expenditures on various major and minor heads will be analyzed.
- For the third objective i.e. to explore the Health sector schemes with reference to allocation, utilization and outcomes involve a budgetary study on various health schemes and programmes of the state government. Allocation of funds under different schemes and programmes has also been analyzed accordingly, to identify leakages and discrepancy in the utilization of funds in the schemes and programmes.

1.7. Hypothesis/Research Question

- What is the current health status of the different districts of Assam?
- What is the quantum of expenditure in the health sector by the state government?
- What are the various schemes undertaken by the state government for the improvement of the health outcomes of the people?
- Are the funds allocated under various health schemes and programmes utilized to their full capacity?

1.8. Importance of the Study

The present study would help to discover the actual anomalies that have been occurring so far in the health sector. Besides, the loopholes in the government intervention will be brought to light. Suggestions and policy measures that will be provided by the study would help the government to address the issues in hand in a more focused way. Moreover, it might prove helpful in

implementing the schemes and programmes in a better way serving more of the population thereby improving the health outcomes of the people of the state.

1.9. Chapterization Plan

CHAPTER 1: INTRODUCTION

The first chapter introduces the research. This includes the review of literature, conceptual framework, objectives of the study, research questions, research methodology and the importance of the study.

CHAPTER 2: CONTEMPORARY HEALTH STATUS OF ASSAM

This chapter analyses the current status of the health care sector of different districts of Assam by looking into the health care infrastructure, health manpower and health outcomes of the districts of the state.

CHAPTER 3: BUDGETARY INTERVENTIONS IN THE HEALTH SECTOR OF ASSAM: AN ANALYSIS OF BUDGET

An effort is made to analyze the budgetary interventions in Assam's health sector in the third chapter. Budgetary interventions in terms of revenue, as well as capital expenditure on various minor and major heads, their trend, growth, quantum, etc, have been analyzed here.

CHAPTER 4: HEALTH INSURANCE IN ASSAM- AN ANALYSIS OF STATE SPONSORED SCHEMES

In this chapter, the various schemes and programmes on the undertaken and implemented by the state government have been discussed. Allocation and utilization of the funds and in those schemes have also been analyzed in this chapter.

CHAPTER 5: SUMMARY OF FINDINGS AND CONCLUSIONS

This chapter discusses the summary of findings, provides a conclusion and offers policy prescription and provides the concluding remark for improved government intervention in the healthcare sector of Assam.

CHAPTER 2
CONTEMPORARY HEALTH STATUS OF ASSAM

2.1. Introduction

The health scenario of a country or a state depends to a great extent on the availability of health-related infrastructure, which along with health care centres, dispensaries and hospitals, includes the manpower required for the smooth functioning of those institutions. It also depends upon the various health indicators like Infant Mortality Rate (IMR), Maternal Mortality Rate(MMR) etc. It has been observed that the health infrastructure, as well as the health status of the people of Assam, improved satisfactorily over the years. Yet, the achievements are not at par with the national level which is reflected from different health-related indicators. Thus, in this chapter, an attempt has been made to provide an idea about the current health scenario of the different districts of the state. The objective of accessing the current health scenario of the districts is two-fold: First, to get a firsthand account of the health status of all the districts of Assam and second, to rank the districts as per their health status in order to bring out the disparity that exists among them.

This chapter has four sections. Section 2.1 lays the introduction to the chapter, section 2.2 discusses the available physical health infrastructure and health manpower of the 27 districts of Assam as well as district wise health outcome of the state. Section 2.3 also brings out the district level disparity by ranking them as per their health status through the construction of an index and finally, section 2.4 is the concludes the chapter.

2.2. Health Infrastructure, Health Resources and Health Outcomes in Assam: A District-wise Examination

2.2.1. Physical Infrastructure

The health status of the people of a region is largely governed by the availability of the health infrastructural facilities. Though over the years the number of physical health infrastructure in Assam has been increasing, however, in relation to population growth and advancement in health-related technology the picture has not been satisfactory. Table 2.1 shows the available and active physical health infrastructure across the districts of Assam as on 7th May 2019. Again Table 2.1(a) provides an idea about the population served by the SCs, PHCs, and CHCs and thereby identifies the gap in the population coverage.

Table 2.1. District- Wise Availability of Healthcare Centres of Assam as on 7th May 2019

Sl.no	Districts	Total Facility						Active Facility					
		SC	PHC	CHC	SDH	DH	Total	SC	PHC	CHC	SDH	DH	Total
1	Baksa	204	41	8	0	1	254	157	38	6	0	1	202
2	Barpeta	295	55	12	1	3	366	271	50	11	1	2	335
3	Bongaigaon	217	61	6	0	1	285	108	33	4	0	1	146
4	Cachar	291	36	6	0	2	335	274	32	6	0	2	314
5	Chirang	110	26	3	0	1	140	90	25	3	0	1	119
6	Darrang	177	38	7	0	1	223	159	33	7	0	1	200
7	Dhemaji	113	28	4	0	2	147	100	26	4	0	1	131
8	Dhubri	263	51	7	2	1	324	249	49	6	2	1	307

9	**Dibrugarh**	274	35	9	0	1	319	262	30	9	0	1	302
10	**Dima Hasao**	85	15	2	0	1	103	74	12	2	0	1	89
11	**Goalpara**	156	45	6	0	1	208	155	38	6	0	1	200
12	**Golaghat**	192	44	4	1	1	242	153	44	4	1	1	203
13	**Hailakandi**	123	16	3	0	1	143	112	14	3	0	1	130
14	**Jorhat**	188	53	6	3	1	251	180	44	6	2	1	233
15	**Kamrup M**	60	66	3	0	6	135	51	45	3	0	4	103
16	**Kamrup R**	325	75	14	1	1	416	324	67	13	1	1	406
17	**Karbi Anglong**	188	47	8	1	1	245	163	41	8	1	1	214
18	**Karimganj**	238	36	8	0	1	283	225	30	7	0	1	263
19	**Kokrajhar**	187	49	2	2	1	241	178	48	2	1	1	230
20	**Lakhimpur**	185	38	9	1	1	234	156	28	8	1	1	194
21	**Marigaon**	153	39	5	0	1	198	130	36	5	0	1	172
22	**Nagaon**	438	84	17	0	1	540	362	78	17	0	1	458
23	**Nalbari**	163	49	11	0	1	224	157	46	11	0	1	215
24	**Sibsagar**	255	49	5	2	1	312	221	48	4	2	1	276
25	**Sonitpur**	356	80	9	2	2	449	284	60	9	2	2	357
26	**Tinsukia**	187	28	9	0	1	225	173	25	8	0	1	207
27	**Udalguri**	161	30	7	0	1	199	146	24	6	0	1	177
28	**ASSAM**	5584	1214	190	16	37	7041	4914	1044	178	14	33	6183

Source: NRHM, Standard Reports, 2019-20

From the table, it is observed that there is an inequality in the distribution of physical health infrastructure throughout the state. In terms of the distribution of the total number of hospitals

and health centers, the highest concentration is in Nagaon (458) while Dima Hasao (89) occupies the bottommost position. Again, the table shows that 7041 healthcare centers are available in Assam out of which 6183 are functioning in Assam as on 7th May 2019 thereby marking the presence of a total of 858 inactive health care centers in the state. Considering the number of inactive health centers Bongaigaon tops the list with 139 inactive health centers.

As mentioned in the earlier chapter, according to the population norms, the average number of population to be served by an SC is 5000 (plain areas) and 2000 (hilly areas) and that of CHC is 80,000 population in the hills to 1,20,000 in the plains and following the criterion, it is observed that the number of population served by each district are higher than the norm laid (Table 1.2). However, the picture is not so perfect in case of PHC where the population norms (30000 populations in the plain and 20000 in hilly areas) have been fulfilled by only one or two districts which mean that the basic rural infrastructure in terms of PHC is not adequate. This also further reveals the heavy dependence either on the district hospitals or sub-divisional hospitals. But the number of SDH and DH is almost nil in most of the districts. In fact, today, due to insufficient health care provisions everyone has to rely on the health care services rendered by the private hospital incurring an out-of-pocket expenditure.

Table 2.1(a). Population served by SC, PHC, and CHC in Assam

Sl.no	Districts	SC	Population served*	PHC	Population served*	CHC	Population served*
1	**Baksa**	157	6051	38	25002	6	158346
2	**Barpeta**	271	6250	50	33872	11	153966
3	**Bongaigaon**	108	6841	33	22388	4	184701
4	**Cachar**	274	6338	32	54269	6	289436
5	**Chirang**	90	5357	25	19286	3	160721
6	**Darrang**	159	5840	33	28136	7	132643

7	**Dhubri**	249	7828	49	39781	6	324876
8	**Dhemaji**	100	6861	26	26390	4	171533
9	**Dibrugarh**	262	5062	30	44211	9	147371
10	**Dima Hasao**	74	2893	12	17842	2	107051
11	**Goalpara**	155	6504	38	26531	6	168031
12	**Golaghat**	153	6973	44	24247	4	266722
13	**Hailakandi**	112	5887	14	47093	3	219765
14	**Jorhat**	180	6068	44	24824	6	182043
15	**Kamrup M**	51	24587	45	27865	3	417979
16	**Kamrup R**	324	4684	67	22650	13	116734
17	**Karbi Anglong**	163	5867	41	23325	8	119539
18	**Karimganj**	225	5461	30	40956	7	175527
19	**Kokrajhar**	178	4984	48	18482	2	443571
20	**Lakhimpur**	156	6680	28	37219	8	130267
21	**Marigaon**	130	7365	36	26595	5	191485
22	**Nagaon**	362	7800	78	36202	17	166104
23	**Nalbari**	157	4915	46	16775	11	70149
24	**Sibsagar**	221	5208	48	23980	4	287763
25	**Sonitpur**	284	6775	60	32069	9	213790
26	**Tinsukia**	173	7676	25	53117	8	165991
27	**Udalguri**	146	5696	24	34653	6	138611
28	**ASSAM**	4914	6350	1044	29890	178	175312

Source: NRHM, Standard Reports, 2019-20 * Calculated

2.2.2. Health Care Professionals

The health infrastructure consists of not only physical health infrastructure but also health care professionals. Health care professionals play an active role in shaping the health of a region or a state. World Health Organization (2006), which defined the health workforce as 'all people engaged in actions whose primary intent is to enhance health', is at the heart of the healthcare system. (Barman and Saikia 2015). According to the World Health Report 2000, human resources are 'the most important of the health system's inputs. The performance of healthcare systems depends ultimately on the knowledge, skills, and motivation of persons responsible for delivering services'. Further emphasizing the importance of the health workforce in promoting the health and well-being of the people, WHO (2014) asserts that there is 'no health without a workforce'. Therefore, the numerical adequacy, appropriate skill mix and geographical spread of the health workforce are all crucial for the effective functioning of the healthcare system. Table 2.1(b) shows the existing numbers of Doctors, Nurses and Para Medical Staffs in all the districts of Assam as on 12th May 2019. The table shows that Nagaon has the highest number of doctors, nurses and Paramedical staffs while Dima Hasao has the lowest numbers of doctors and nurses. However, in terms of Paramedical staffs, Chirang bottoms the chart. It is interesting to observe that Kamrup Metro is the most developed region of the state; it doesn't hit the list in terms of both health centers and health care professionals.

Table 2.1(b): Manpower in the Health Sector of Assam as on 12th May 2019

Sl.no	Districts	Doctors	Nurses	Paramedical Staffs
1	**Baksa**	160	490	166
2	**Barpeta**	253	850	275
3	**Bongaigaon**	128	350	163
4	**Cachar**	175	915	178
5	**Chirang**	104	284	80
6	**Darrang**	158	584	157
7	**Dhemaji**	119	425	123
8	**Dhubri**	212	849	282
9	**Dibrugarh**	192	742	192
10	**Dima Hasao**	72	246	92
11	**Goalpara**	188	549	183
12	**Golaghat**	168	649	173
13	**Hailakandi**	82	366	104
14	**Jorhat**	199	651	222
15	**Kamrup Metro**	258	876	198
16	**Kamrup Rural**	316	947	333
17	**Karbi Anglong**	207	574	206
18	**Karimganj**	157	594	149
19	**Kokrajhar**	154	543	159
20	**Lakhimpur**	167	690	159
21	**Morigaon**	123	491	126
22	**Nagaon**	354	1094	367
23	**Nalbari**	213	578	234
24	**Sivasagar**	186	852	197
25	**Sonitpur**	260	1028	233
26	**Tinsukia**	150	574	166
27	**Udalguri**	139	416	115
28	**Assam**	4894	17207	5032

Source: Integrated MIS GIS System, National Health Mission, Assam

2.2.3. Health Outcome Indicators

A very important indicator of the health status of the people of any region, apart from the health infrastructure and health care professionals, is its health outcome indicators. There are several health outcome indicators like crude birth rate, crude death rate, infant mortality rate, etc. The current health indicators of Assam, according to the Ministry of Health and Welfare, Government of Assam, are Infant Mortality Rate, Under 5 Mortality Rate, Full Vaccination

Coverage, Children's Nutritional status (children age below 5 years who are underweight), Anemia among children (children age 6-59 months who are anemic), Underweight women with BMI below normal, Maternal Mortality Rate (MMR) (per 1 lakh live births) and Life expectancy at birth. However, it is generally accepted that a state's or a region's health can be accessed from its child and maternal health. In fact, among all the indicators IMR and MMR are considered to be the most important one for the socio-economic development of a country or region (Barman and Talukdar, 2014). Also, at present National Health Mission, one of the largest health schemes of the central government also focused mainly on the reduction of IMR, MMR and also on creating a disease-free nation. So this study mainly concentrates its analysis on IMR, MMR, and Full Vaccination coverage. Table 2.1(c) shows the absolute number of Child and maternal deaths and the total number of the population fully covered by vaccination by the districts of Assam as on 12th May 2019. The table shows that in terms of highest child deaths, Cachar (81) and Kamrup Metro (81) tops the list followed by Hailakandi (71) and Barpeta (57) whereas in terms of maternal deaths, the top rank is occupied by Kamrup Metro (9), while the 2nd rank is bagged by Cachar (6) and Sonitpur (6) and 3rd by Nagaon (5) and Dibrugarh (5). Again in case of full vaccination coverage, Nagaon (4383) covers the maximum number of the population while Dima Hasao (230) covers the minimum.

Table 2.1(c). District Wise Health Outcomes of Assam as on 12th May 2019

Sl.No	Districts	Number of Infant Deaths	Number of Maternal deaths	Full Vaccination coverage
1	**Baksa**	12	0	1128
2	**Barpeta**	57	2	1529
3	**Bongaigaon**	21	1	880
4	**Cachar**	81	6	612
5	**Chirang**	4	1	372
6	**Darrang**	12	3	1031
7	**Dhemaji**	24	1	446
8	**Dhubri**	47	3	2159
9	**Dibrugarh**	26	5	738
10	**Dima Hasao**	3	0	230
11	**Goalpara**	39	2	1516
12	**Golaghat**	19	2	324
13	**Hailakandi**	18	1	760
14	**Jorhat**	29	1	1281

15	**Kamrup Metro**	81	9	325
16	**Kamrup Rural**	8	2	2241
17	**Karbi Anglong**	12	2	1319
18	**Karimganj**	71	4	1861
19	**Kokrajhar**	37	1	679
20	**Lakhimpur**	18	0	1287
21	**Morigaon**	11	0	1486
22	**Nagaon**	32	5	4383
23	**Nalbari**	25	0	953
24	**Sivasagar**	10	0	976
25	**Sonitpur**	30	6	2003
26	**Tinsukia**	5	0	1444
27	**Udalguri**	13	1	733
28	**Assam**	745	58	32696

Source: Standard Reports, National Health Mission, Assam

One interesting fact that can be observed from the data is that Kamrup Metro, though is the most developed region of the state, accounts the highest number of child as well as maternal deaths. The underlying reason behind this is the fact that Kamrup Metro being the central hub of the entire state in terms of all the facilities, be it education or health, people from all over the state visit this region for availing various medical facilities including institutional deliveries. So unlike other districts which take into account the child and maternal deaths of its own population only, Kamrup Metro along with its own population considers all the people from all over the state who visits the region, thereby resulting in the maximum number of child and maternal deaths.

2.3. Health Index of Assam: An Inter-District Comparison of Health Attainment

Assessment of the health attainment of the various districts of Assam and an inter-district comparison can be very revealing. This section basically deals with the ranking and comparative analysis of the districts of Assam according to their health status. For that purpose, a score Index has been developed using the UNDP method. Data has been drawn mainly from secondary

sources for each indicator. A score index for each dimension has been constructed to track the performance of each district in each dimension and then the score index of each dimension is clubbed to form a composite health index. The methodology that is being used can be described as follows:

1) ***Construction of Score index***: First of all, each district is given a score based on the individual indicator. The score index ($S_{indicator}$) is given by the following formulae:

For a positively increasing indicator, Sindicator = 1- ((max-I)/(max-min))	**For a negatively increasing (declining) indicator, Sindicator = 1- ((I-min)/(max-min))**

Where "max" is the maximum value of a given indicator across all districts in the sample set; "min" is the minimum value of that indicator in the set of districts, and 'I' is the actual data value of an individual district on that indicator. A score of zero implies that the particular district is the poorest performing in the sample; while a score of one indicates that the particular district is the best performing in the sample. This has been used to demonstrate an inter-district ranking based on the score index.

2) ***Dimension score***: Next, by averaging across the indicator scores of each district a dimension score is arrived at for each dimension. For instance, dimension 2 i.e. health manpower has 3 indicators; all the score indices ($S_{indicator}$) of all the 3 indicators would be averaged so as to provide equal weight to all the indicators within that dimension into a single Dimension score.

3) ***Composite index score***: Finally, by averaging all the Dimension scores the composite index is arrived, based on which the final ranking of the districts has been done.

4) ***Map and colour coding***: The final ranking of the districts done on the basis of the composite index scores is represented in the form of a map with different color grading

representing four different categories of performance, namely, very poor, poor, comparatively better and satisfactory districts and the range for each of these four categories is based on breaking up the composite index values into four equal quartiles. The map shows inter-district inequities based on the performance of the districts on the identified 8 indicators of 3 dimensions. Moreover, in the district disaggregated graphs of all the indicator, the bar for Assam has been colored red and all the districts of the state have been colored blue.

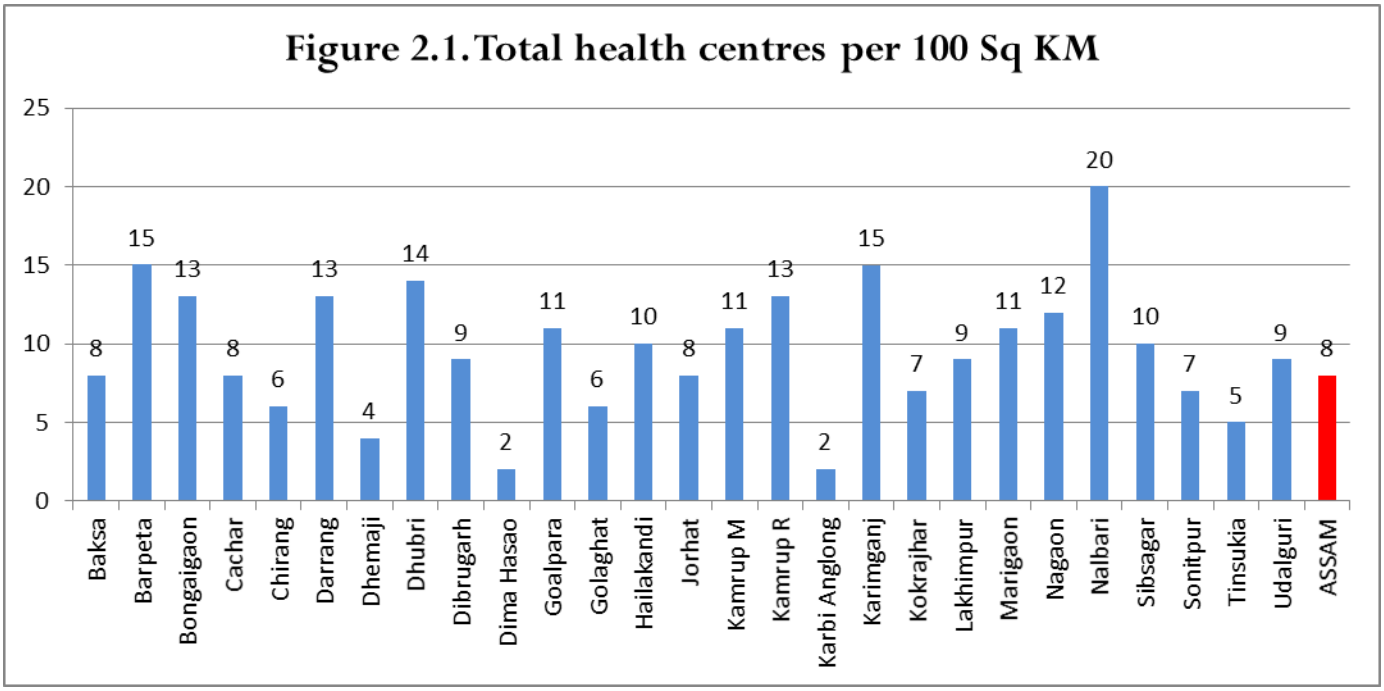
The indicators that are being used for the construction of the index have three dimensions, namely, Health infrastructure, Health Manpower, and Health Outcome. The dimension of Health infrastructure is based on the availability and accessibility of health centers whereas the dimension of health manpower covers the availability aspect only. The dimension of health outcome includes Maternal Mortality Rate, Infant Mortality Rate, and Vaccination Coverage. All these indicators that are used for ranking the districts are shown in table 2.2. For each dimension, a SCORE Index will be constructed and then we shall construct a composite index to get the overall ranking of the districts.

Table 2.2. List of Indicators used for district ranking

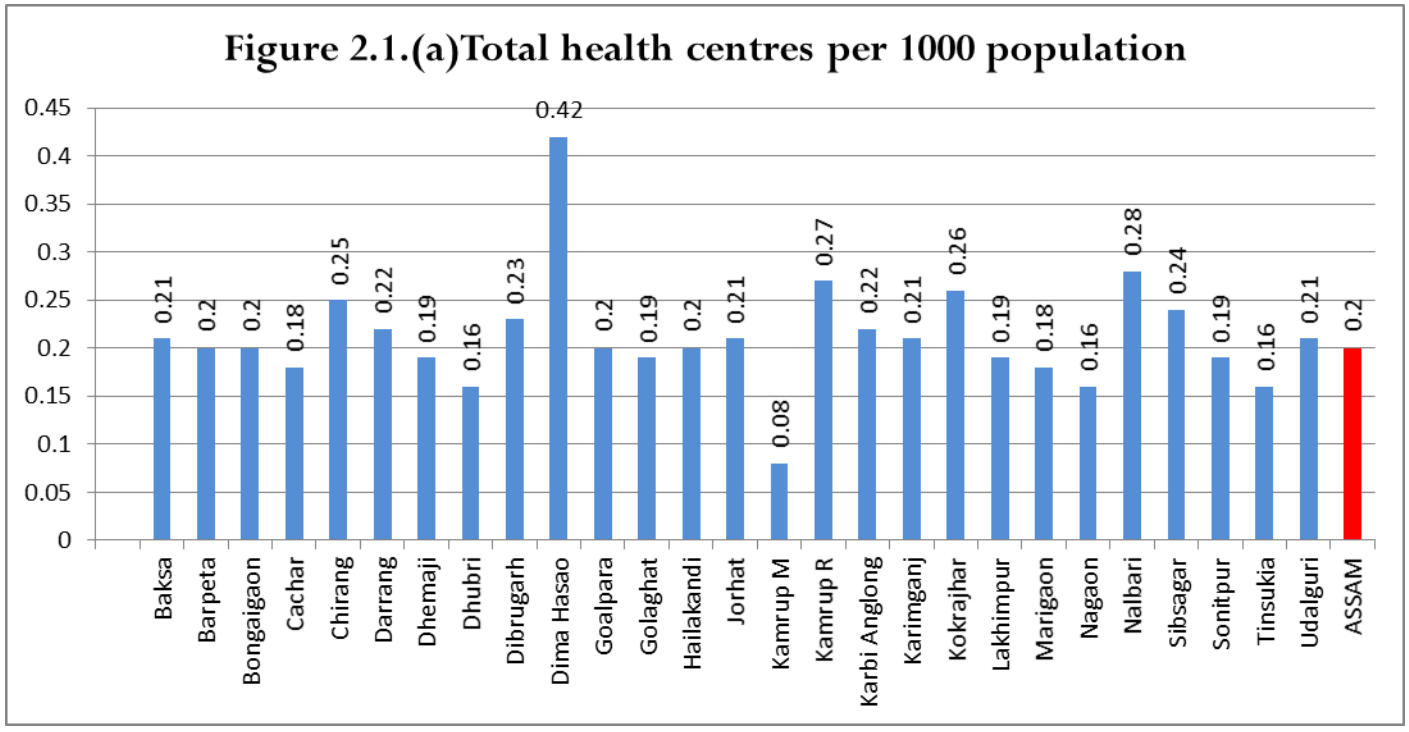
Health Infrastructure	Health Manpower	Health Outcome
Total Health Centres per 1000 population	**Doctors per 1000 population**	**Infant Mortality Rate**
Total Health centers per 100 square Km	**Nurses per 1000 population**	**Maternal Mortality Rate**
	Para Medicals per 1000 population	**Vaccination Coverage**

2.3.1. Dimension 1: Health Infrastructure

Figure 2.1 and figure 2.1(a) shows the district wise availability (per 100 square km) and accessibility (per 1000 population) of health infrastructural facilities respectively. As evident from figure 2.1, the availability of health centers in each district seems to be positive and the availability of health centers in around 16 districts is higher than that of Assam as a whole. However, the availability of CHCs, DHs, and SDHs, that constitute the most important tier of the health sector, is almost nil. Similarly, the accessibility of the health centers i.e. health centers per 1000 population hovers on zero as shown in figure 2.1(a). This is not a very encouraging image of the health sector of the state. Combining the individual scores of each district on the availability and accessibility of health centers, a Score index has been constructed, based on which all the districts of the state are ranked. [Table.2.2(a)]. Districts are color-coded as red, yellow, green and pink to categorize them into very poorly performing, poorly performing, comparatively better and satisfactorily performing districts.



Source: Calculated from Table 2.1



Source: Calculated from Table 2.1

Table 2.2(a) shows that 21 districts out of 27 are categorized as very poorly and poorly performing districts. Tinsukia is the worst performing district with a score of only 0.20 and Nalbari is the only district in a sole "satisfactory" position with 0.79 scores.

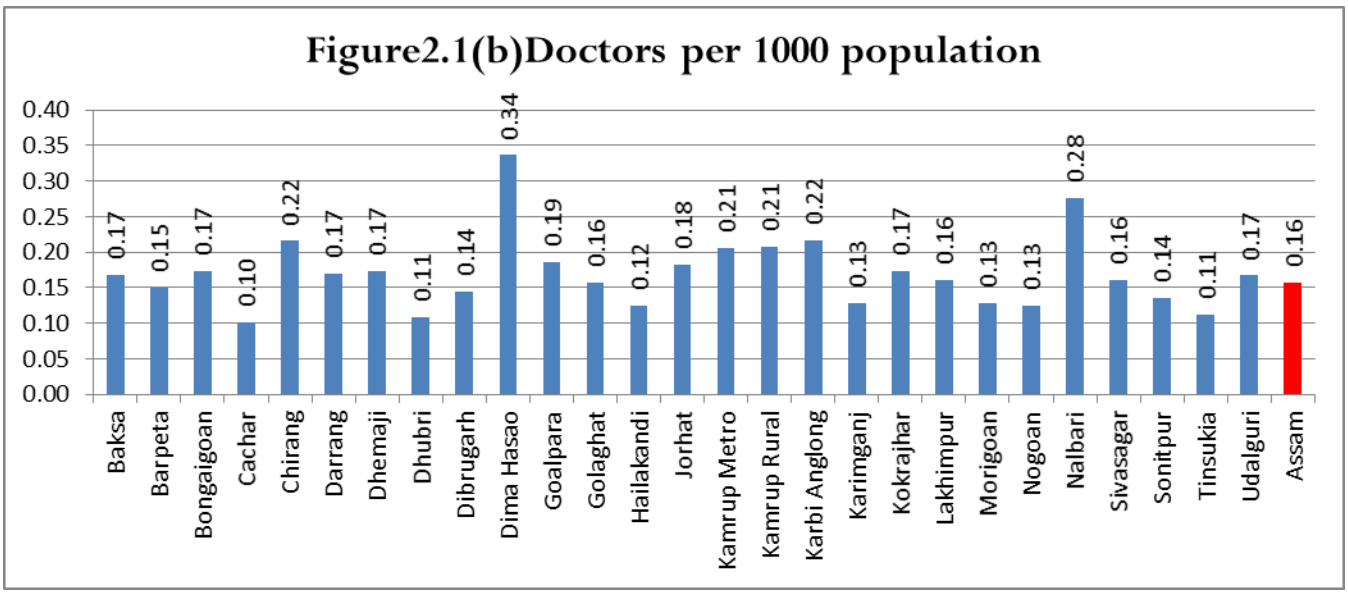
Table 2.2(a). Ranking of the Districts based on Dimension 1

Sl.No	Districts	Score Index
1	Tinsukia	0.20
2	Karbi Anglong	0.21
3	Dhemaji	0.22
4	Kamrup Metro	0.25
5	Golaghat	0.27
6	Sonitpur	0.30
7	Cachar	0.31
8	Lakhimpur	0.36
9	Jorhat	0.36
10	Chirang	0.36
11	Baksa	0.36
12	Udalguri	0.39
13	Hailakandi	0.40
14	Nagaon	0.40
15	Kokrajhar	0.40
16	Marigaon	0.40
17	Dibrugarh	0.42
18	Goalpara	0.43
19	Dhubri	0.45
20	Sibsagar	0.46
21	Bongaigaon	0.48
22	Dima Hasao	0.50
23	Darrang	0.51
24	Barpeta	0.54
25	Karimganj	0.55
26	Kamrup Rural	0.58
27	Nalbari	0.79

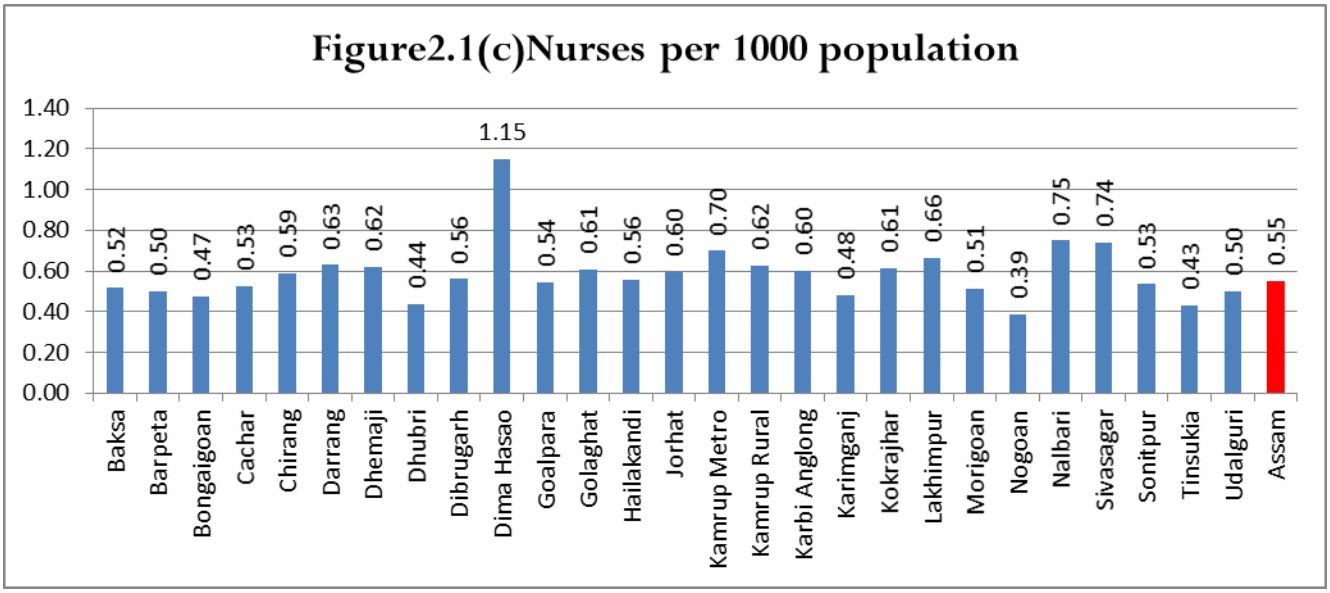
Very Poor	0.20-0.34
Poor	0.35-0.49
Comparatively better	0.50-0.64
Satisfactory	0.65-0.79

2.3.2. Dimension 2: Health Manpower

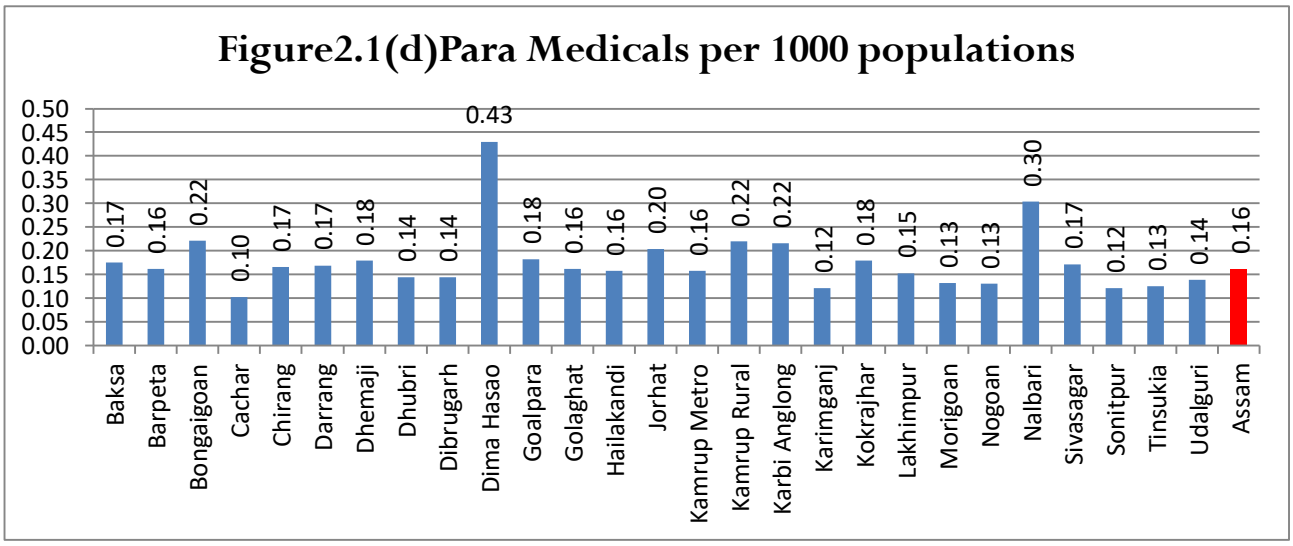
Figure 2.1(b), 2.1(c) and 2.1(d) show the district wise accessibility (per 1000 population) of doctors, nurses and Para medicals respectively. Just like health infrastructure, the accessibility of the health manpower i.e. health manpower per 1000 population is negligible. Just for the namesake Dima Hasao has the highest accessibility of doctors (0.34), nurses (1.15) and paramedical staffs (0.43) as shown in figure 2.1(b), 2.1(c) and 2.1(d) respectively. And that is obvious because Dima Hasao has a very less population density. Thus, even in case of health manpower, the state has failed to advance positively. Combining the individual scores of each district on the accessibility of doctors, nurses and paramedical staffs, a Score index has been constructed, based on which all the districts of the state are ranked. [Table.2.2(b)]. Here too districts are color-coded as red, yellow, green and pink to categorize them into very poorly performing, poorly performing, comparatively better and satisfactorily performing districts respectively.



Source: calculated from table 2.1(b)



Source: calculated from table 2.1(b)



Source: calculated from table 2.1(b)

Table 2.2(b): Ranking of Districts based on Dimension 2

Sl.no	Districts	Score Index
1	Cachar	0.06
2	Nagaon	0.06
3	Tinsukia	0.06
4	Dhubri	0.08
5	Karimganj	0.10
6	Sonitpur	0.13
7	Morigaon	0.13
8	Hailakandi	0.16
9	Dibrugarh	0.18
10	Udalguri	0.18
11	Barpeta	0.18
12	Baksa	0.23
13	Golaghat	0.24
14	Bongaigaon	0.26
15	Lakhimpur	0.26
16	Darrang	0.27
17	Goalpara	0.27
18	Dhemaji	0.28
19	Kokrajhar	0.28
20	Chirang	0.31
21	Jorhat	0.31
22	Sibsagar	0.31
23	Kamrup Metro	0.34
24	Kamrup Rural	0.37
25	Karbi Anglong	0.37
26	Nalbari	0.61
27	Dima Hasao	0.99

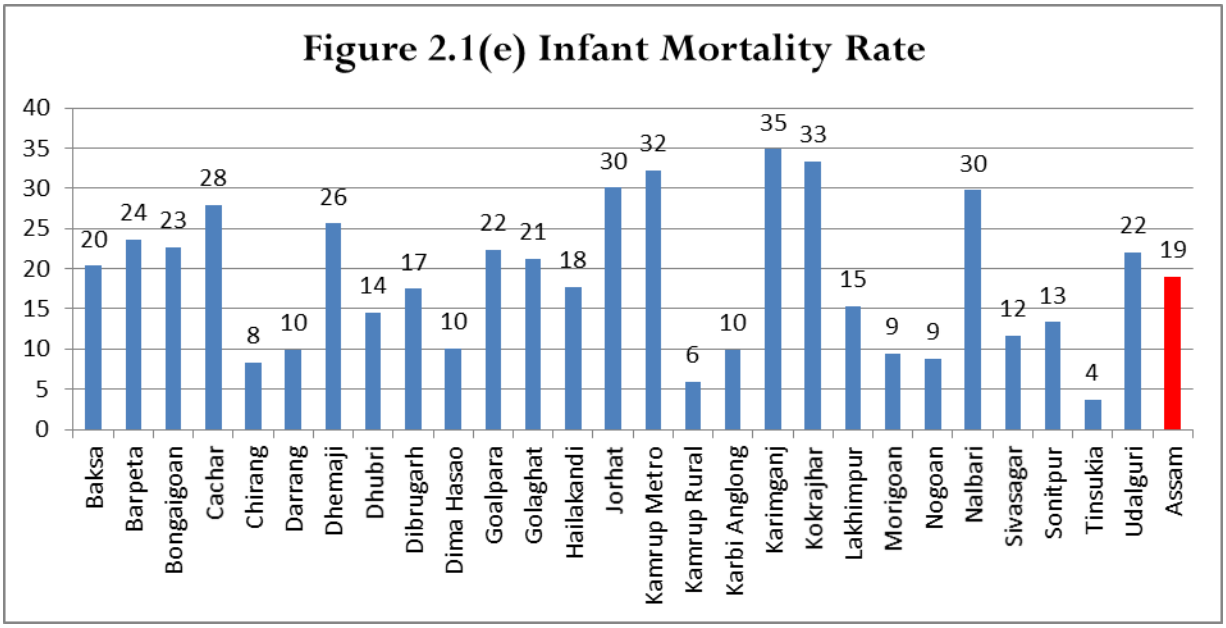
Table 2.2(b) summarizes the comparative picture for the districts in terms of the health manpower. In terms of health manpower, the performance of the districts is very poor. Out of 27 districts, 19 are categorized into very poorly performing districts while 6 districts into poorly performing ones. There is only one comparatively better and one satisfactorily performing district. Thus this dimension needs to be focused upon in particular.

Very Poor	0.06-0.29
Poor	0.30-0.53
Comparatively Better	0.54-0.77
Satisfactory	0.77 and above

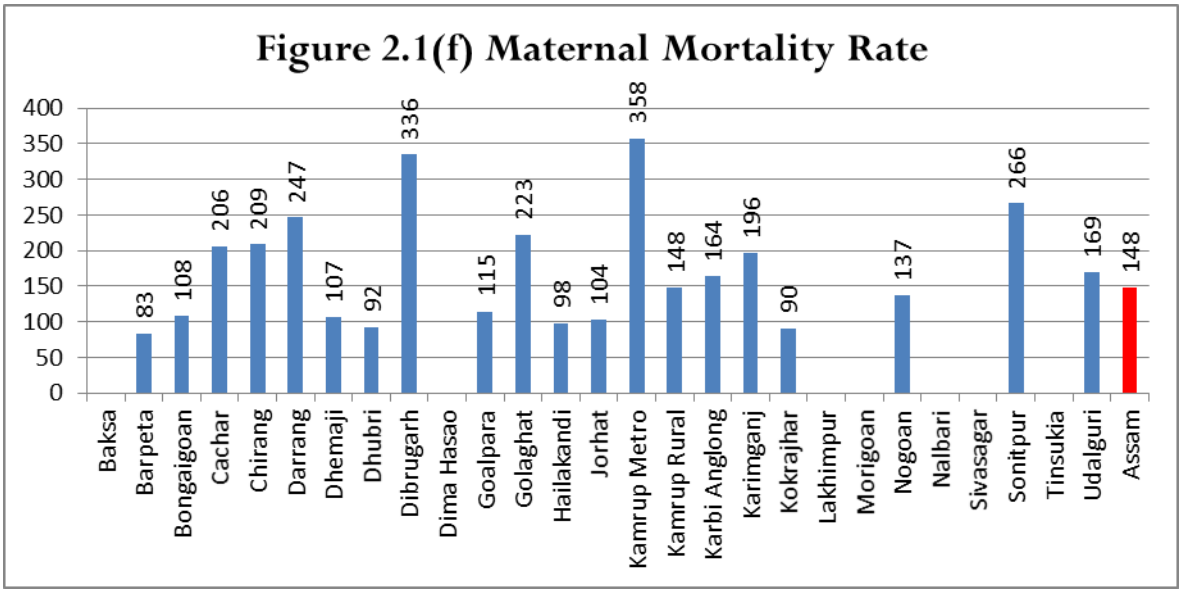
2.3.3. Dimension 3: Health Outcome

Figure 2.1(e), 2.1(f) and 2.1(g) show the district wise Infant Mortality Rae, Maternal Mortality Rate and Vaccination Coverage. The data presented in these figures reveal that most of the districts expect a few are lagging behind Assam as a whole with respect to maternal and child health. Again, in terms of vaccination coverage, all the districts are behind Assam. As shown in

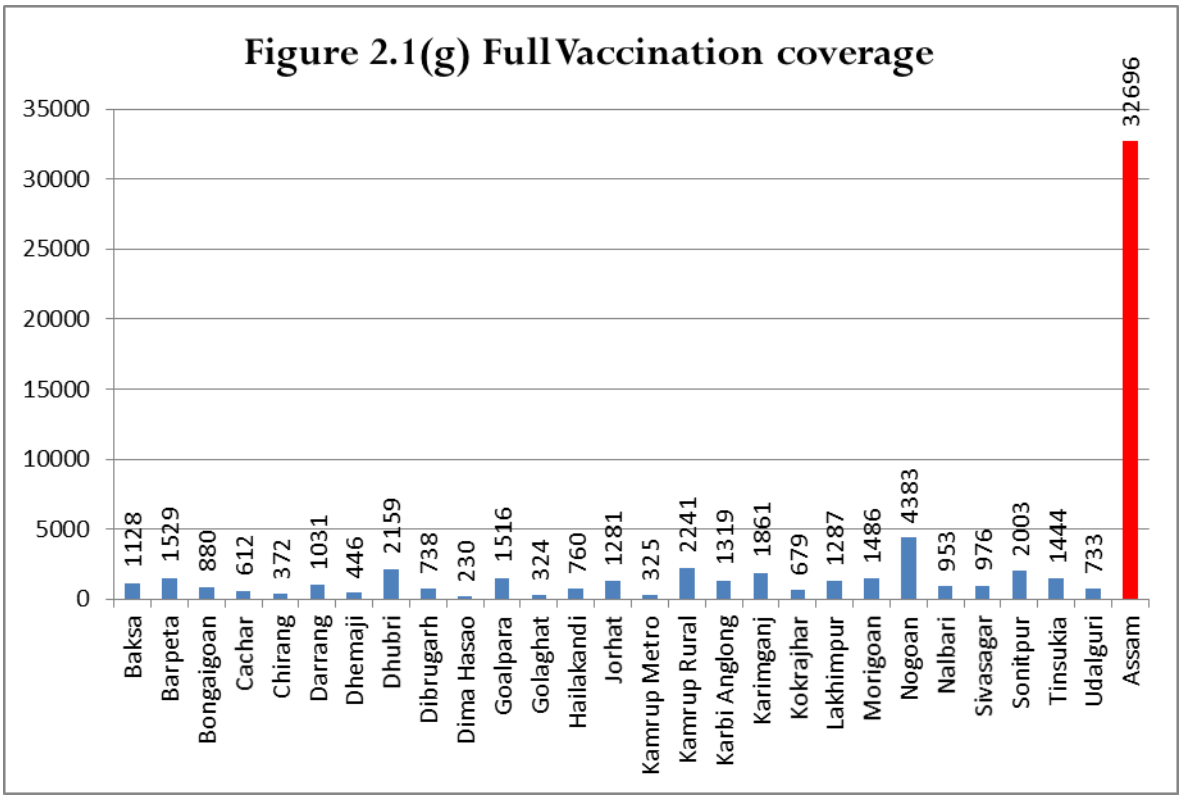
figure 2.1(e) the Infant Mortality Rate for Assam for April 2018- April 2019 is only 19 which is reasonably decent. Karimganj (35) accounts the highest Infant Mortality Rate while Tinsukia (4) the lowest though Tinsukia is a very poorly performing district in terms of both accessibility and availability of health centers and accessibility of health manpower. Karimganj, however, performs comparatively better in terms of health centers but is a very poorly performing district in terms of health manpower. Again, even in terms of Maternal Mortality Rate Tinsukia along with Baksa, Dima Hasao, Morigaon, Lakhimpur, Nalbari and Sibsagar accounts zero Maternal Mortality Rate which is quite commendable while Kamrup Metro records the highest Maternal Mortality Rate in the state. The reason behind Kamrup Metro's poor performance has already been discussed in section 2.2. The reason behind Tinsukia performing so well in terms of health outcome indicators despite being a poorly performing district in terms of Dimension 1 and Dimension 2 might be attributed to some implicit factors other than health manpower and health centers. In terms of Vaccination coverage, Dima Hasao (230) covers the lowest population and Nagaon (4383) the highest.



Source: calculated from table 2.1(c)



Source: calculated from table 2.1(c)



Source: Standard Reports, National Health Mission, Assam

Table.2.2 (c) Rankings of the districts based on Dimension 3

Sl.no	Districts	Score Index
1	Kamrup Metro	0.04
2	Cachar	0.25
3	Dibrugarh	0.25
4	Golaghat	0.28
5	Karimganj	0.28
6	Kokrajhar	0.30
7	Dhemaji	0.35
8	Udalguri	0.36
9	Jorhat	0.37
10	Bongaigaon	0.42
11	Chirang	0.44
12	Darrang	0.44
13	Nalbari	0.45
14	Sonitpur	0.46
15	Goalpara	0.47
16	Hailakandi	0.47
17	Barpeta	0.48
18	Karbi Anglong	0.54
19	Baksa	0.56
20	Dima Hasao	0.60
21	Dhubri	0.62
22	Lakhimpur	0.63
23	Sibsagar	0.64
24	Kamrup Rural	0.67
25	Morigaon	0.71
26	Tinsukia	0.77
27	Nagaon	0.82

Table 2.2(c), however, indicates a somewhat better picture as compared to Dimension 1 and Dimension 2 as in dimension 3 only Kamrup Metro has been ranked as the worst-performing district. And we have 14 better performing districts coded green and pink.

Very poor	**0.04-0.24**
Poor	**0.25- 0.45**
Comparatively Better	**0.46-0.66**
Satisfactory	**0.67 and above**

2.3.4. Composite Index and Overall Ranking

Individual indicators do not provide a complete picture of how districts are faring on all three Dimensions. To obtain the overall picture, a composite index is constructed as already described, which takes into account all the three Dimensions namely, Health infrastructure, Health Manpower, and Health Outcome, which were so far presented individually. This section presents an overall ranking of all the districts of Assam based on the Composite Index.

Table 2.2(d). Overall ranking of the districts of Assam based on composite Index

Sl.no	Districts	Composite Index
1	Kamrup Metro	0.21
2	Cachar	0.21
3	Golaghat	0.26
4	Dhemaji	0.28
5	Dibrugarh	0.28
6	Sonitpur	0.3
7	Udalguri	0.31
8	Karimganj	0.31
9	Kokrajhar	0.33
10	Hailakandi	0.34
11	Tinsukia	0.34
12	Jorhat	0.35
13	Chirang	0.37
14	Karbi Anglong	0.37
15	Baksa	0.38
16	Dhubri	0.38
17	Goalpara	0.39
18	Bongaigaon	0.39
19	Barpeta	0.4
20	Darrang	0.41
21	Morigaon	0.41
22	Lakhimpur	0.42
23	Nagaon	0.43
24	Sibsagar	0.47
25	Kamrup Rural	0.54
26	Nalbari	0.62
27	Dima Hasao	0.7

Very Poor	**0.21-0.33**
Poor	**0.34-0.46**
Comparatively Better	**0.47-0.59**
Satisfactory	**0.60 and above**

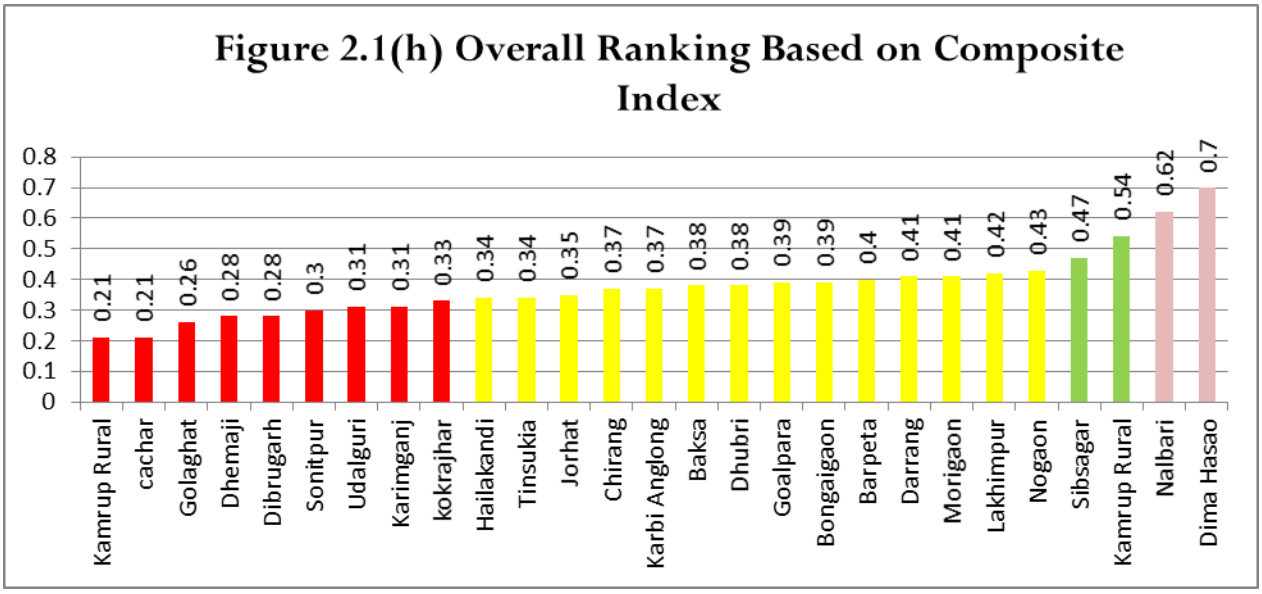


Table 2.2(d) and Figure 2.1(h) show the overall inter-district position. It is observed that 23 out of 27 districts of Assam have been ranked as the poorest performing and poorly performing districts (color-coded in red and yellow) which provides a very gloomy picture of the health sector of the state. There are only 4 better-performing districts including, Nalbari and Dima Hasao. Kamrup Rural and Sibsagar, ranked 3rd and 4th respectively are color-coded as green(comparatively better performance) and Dima Hasao and Nalbari ranked 1st and 2nd respectively are color-coded as pink(satisfactory performance).

The results appear quite bizarre especially for the laymen because Kamrup Metro is believed to be the most developed district of the state even in terms of medical facilities. In fact, people from all over the state visit Kamrup Metro for medical assistance. Contrast to that, as per the composite index, Kamrup Metro stands as the worst performer in terms of the health status. The possible reason behind this could be that though there are a large number of health centers and health professionals in the district, at the same time it is very highly populous with a very high population density. So the per 1000 accessibility and 100 square km availability are almost negligible, making it a worst-performing district. Similar could be the possible reason behind Dima Hasao being the best performing district. Dima Hasao has the least number of doctors and nurses. Also, the number of health centers isn't very high but being a less populous district with very less population density, the accessibility and availability are quite positive.

The questions that arise in our mind at this instant are like; if Kamrup Metro is the worst performing district then why is there a great demand for medical facilities in the district? Why people from all over the state still flocking to this metro hub for any kind of medical treatment? Well, a single word is enough to answer all these questions, i.e. Privatization. If we consider the number of private hospitals along with the government and the health care professionals engaged there, then it definitely makes Kamrup Metro a best-performing one. However, in our analysis, we are considering only the initiatives taken by the Government. Thus, this observation clearly signifies the huge facilities that the State Government has failed to provide which is at present being obtained by the population from the Private health care sector by incurring an out-of-pocket expenditure.

Finally, Table 2.2(e) shows the Dimension-wise picture for all the districts in a single table enabling the entire Dimension-wise disaggregated information for all the districts to be viewed together. This table allows an examination of those indicators where a particular district needs more focused attention. Table 2.2(e) also shows that in almost all the three dimensions a large number of districts of Assam are faring poorly (red and yellow color). Therefore efforts to improve performance on these dimensions is necessary, with Health Manpower requiring priority attention.

Table 2.2(e) Comparative performance of the districts of Assam on the three dimensions

Sl.no	Districts	Health Infrastructure	Health Manpower	Health Outcome
1	**Baksa**			
2	**Barpeta**			
3	**Bongaigaon**			
4	**Cachar**			
5	**Chirang**			
6	**Darrang**			
7	**Dhemaji**			
8	**Dhubri**			

9	**Dibrugarh**			
10	**Dima Hasao**			
11	**Goalpara**			
12	**Golaghat**			
13	**Hailakandi**			
14	**Jorhat**			
15	**Kamrup Metro**			
16	**Kamrup Rural**			
17	**Karbi Anglong**			
18	**Karimganj**			
19	**Kokrajhar**			
20	**Lakhimpur**			
21	**Morigaon**			
22	**Nagaon**			
23	**Nalbari**			
24	**Sivasagar**			
25	**Sonitpur**			
26	**Tinsukia**			
27	**Udalguri**			

2.4. Conclusions

The analysis made in this chapter attempts to present a picture of the current status of health of the state by considerable information and insights in the district wise health sector performance in the state. In this chapter**,** it has been observed that there is an inequality in the distribution of physical health infrastructure throughout the state. There are a number of inactive health care centers in the state. The population coverage by each PHC is not so perfect revealing the heavy dependence either on the district hospitals or sub-divisional hospitals. However, the number of SDH and DH is very almost nil in most of the districts. This also justifies the excessive

dependence of the population on private hospitals incurring a high out-of-pocket expenditure. In terms of availability of manpower professionals too, the performance of the districts is worst calling for priority attention. The availability of health centers in each district seems to be positive but the accessibility of the health centers hovers on zero. Just like health infrastructure, the accessibility of health manpower is negligible. Thus, even in case of health manpower, the state has failed to advance positively. Based on the Health Infrastructural index, 21 districts out of 27 are categorized as very poorly and poorly performing districts. Health manpower index, the performance of the districts is very poor. Out of 27 districts, 19 are categorized into very poorly performing districts while 6 districts into poorly performing ones. In terms of Health Outcome too, most of the districts expect a few are lagging behind Assam as a whole with respect to maternal and child health. Again, in terms of vaccination coverage, all the districts are behind Assam. Infant Mortality Rate for Assam for April 2018- April 2019 is only 19 which is reasonably decent. The districts indicate a somewhat better picture in terms of third Dimensional index i.e. Health outcome compared to Dimension 1 and Dimension 2 as in Dimension 3 only Kamrup Metro has been ranked as the worst-performing district. And we have 14 better-performing districts. However, in terms of the Composite Index, it has been observed that 23 out of 27 districts of Assam have been ranked as the poorest performing and poorly performing districts which provides a very gloomy picture of the health sector of the state. Thus, in almost all the three dimensions a large number of districts of Assam are faring poorly which is not a very encouraging image of the health sector of the state. Therefore efforts to improve performance on these dimensions is necessary, with Health Manpower requiring priority attention. The chapter tries to enable better and more focused policy intervention especially in those districts where performance is falling behind. Moreover, the government should provide health care facilities according to the total population and population density of a district.

CHAPTER- 3
BUDGETARY INTERVENTIONS IN THE HEALTH SECTOR OF ASSAM: AN ANALYSIS OF BUDGET

3.1. Introduction

Healthcare Sector is an important part of the social sector and is very important for a nation's economy. It plays a crucial role in the overall upliftment of a society. However, as evident from chapter 2, the health scenario of Assam is not very positive. The health indicators of the state are not at par with the national average. In fact, Assam accounts the highest MMR (**237)** among all states of the country. The IMR is also very high in the state (**48**). Moreover, there exists a shortage of healthcare personals and also infrastructural scarcity in the health sector of Assam. So it is very imperative to scrutinize the Health care expenditure by the State government of Assam, as the Indian Constitution has made health care services largely a responsibility of the state governments. This chapter discusses the extent, growth, trend, and pattern of state expenditure in the health sector. Also, state expenditure on maternal and child health has been analyzed in this chapter. For this purpose, analysis of state budget has been done for the period 2001-02 to 2016-17. We have relied on Finance Accounts (Volume II) compiled by the Comptroller and Auditor General of India (CAG) as data source.

The chief category for public health expenditure is Health and Family Welfare, which further includes two sub-heads, namely, Medical and Public Health and Family Welfare. However, we shall be taking state government's expenditure on only Medical and Public Health for our analysis. The major heads under Medical and Public Health include Urban Health Services, Rural Health Services, Medical Education, Training and Research, Public Health and others. Both revenue expenditure and capital expenditure on each of these heads constitute the total health expenditure of the State. Revenue expenditure of the state governments relates to the expenditure incurred for the normal functioning of the government. Such expenditures are

recurring in nature and do not the government's assets-liability position. On the other hand, capital expenditure of the government refers to that expenditure which leads to the creation of physical assets or reduction in financial liabilities. The Revenue Account on Medical and Public Health is coded as 2210 and that of Capital Account is coded as 4210 in the Finance Accounts of the CAG.

Besides the introduction in section 3.1, the present chapter is divided into six sections where Section 3.2, looks into the extent of State government expenditure on Medical and Public Health, section 3.3, discusses the growth and trend of State Government Expenditure on Medical and Public Health for the period 2001-02 to 2016-17, section 3.4 showcases the pattern of revenue and capital expenditure of the State Government on Medical and Public Health for the same period, section 3.5 makes an attempt to look into the aspect of maternal and child health, and finally, section 3.6 is the concludes the chapter.

3.2. Extent of State Government Expenditure on Medical and Public Health

In this section, medical and public health expenditure as a percentage of GSDP, total health care expenditure and total social expenditure of the state government has been analyzed (Table 3.1). Study of healthcare expenditure as a percentage of Gross State Domestic Product (GSDP) is very important because it determines the overall development of a state or a nation. "As the ratio of health expenditure to GDP increases, economic and industrial development of a country is also enhanced" (Devi, 2016).

While in most developed regions of the world healthcare expenditure accounts for around 5 percent of GDP, in Assam, on an average only 1.1 percent is spent on health. Low-slung healthcare expenditure as a proportion of GSDP is a reflection of low public health spending in Assam. Moreover, as shown in Table 3.1, healthcare expenditure as a percentage of GSDP declined from 2001-02 to 2003- 04 from 1.7 percent to 1.4 percent. It increased in 2004-05 to 1.5 percent but immediately fell in the next year to 1.3 percent. However, from 2005-06 onwards till

2009-10, the spending increased continually. Especially, from 2007-08, a positive increase could be noticed in the health expenditure as a proportion of GSDP of the state. This probably could be due to the implementation of the National Rural Health Mission (NRHM), a centrally sponsored umbrella scheme, in 2005. However, after 2009-10, health spending as a proportion of GSDP continued to fall again.

Health expenditure as a percentage of total expenditure as well as social expenditure showed a declining trend. As a proportion of total health expenditure, it declined from 2.2 percent in 2001-02 to 1.6 percent in 2005-06. Similarly, as a percentage of total social expenditure of the state, it declined from 8.8 percent to 7.1 percent for the same period. However, a slight improvement was observed in the health expenditure as a proportion of both total expenditure and total social expenditure from 2006-07 onwards. The spending of the state government as a proportion of GSDP is shown using a bar diagram in figure 3.1 where time is taken along the X-axis and GSDP and State expenditure on medical and public health along the Y-axis. The figure vividly illustrations that the share of State health expenditure in GSDP is negligible.

3.3. Growth and Trend of State Government Expenditure on Medical and Public Health

In order to know the nature of change taking place in the health sector of the state, it is very important to analyze the pattern, trend, and growth of revenue and capital expenditure in health by the government. Both revenue expenditure and capital expenditure on each of these heads constitute the total health expenditure of the State. Revenue Expenditure, as already defined, is the expenditure incurred for the normal functioning of the government and which do not alter its assets-liability position and capital expenditure, on the other hand, refers to that expenditure which leads to the creation of physical assets or reduces financial liabilities. Table 3.2 shows the revenue expenditure, capital expenditure and total expenditure in medical and public health by the state government from the period 2001-02 to 2016-17. Also, revenue and capital expenditure as a proportion of total expenditure has been shown in figure 3.2.

The proportion of revenue expenditure in total expenditure has always been higher as compared to that of capital expenditure for the entire period under consideration. The revenue expenditure ranged from 88 to 55 percent of the total expenditure while the capital expenditure varied between only 45 to 12 percent. The percentage of revenue expenditure was 55 percent of the total expenditure in 2001-02 which came down to 54 percent in 2005-06. Thereafter, however, it increased continuously up to 88 percent in 2016-17.

The capital expenditure has been paid little importance by the state government. It experienced a sharp decline from a high 45 percent in 2001-02 to only 12 percent in 2016-17. However, a little improvement in capital expenditure was observed during the period 2001-02 to 2005-06. It is surprising to see that, though the National Rural Health Mission (NRHM), implemented in 2005, laid special emphasis on the development of health infrastructure, there has been no sign of an increase in capital expenditure of the state government till date. Rather it has fallen from 46 percent in 2005-06 to 12 percent in 2016-17. This is possibly because the expenditure incurred under NRHM for strengthening the health infrastructure comes from the NHM flexipool under the state programme implementation plan and is not reflected under the budgetary heads. NHM flexipool implies expenditure on construction of health infrastructure, up-gradation of existing facilities, mobile medical units, and ambulance services. Fig 3.2 . also shows how the pattern of capital expenditure has been gradually declining over the years. Another viable cause of fall in capital expenditure is the presence of central funds which led the state government to spend less on infrastructural development and channelize their own resources to revenue expenditure.

Table.3.1. State Government Expenditure on Medical and Public Health of Assam as a percentage of Total Expenditure and Total Social Expenditure for the period 2001-02 to 2016-17

In lakhs

Year	Total Expenditure on Medical and Public Health	Total Expenditure	Social sector expenditure	GSDP	As a Percentage of Total Expenditure	As a Percentage of Total Social Expenditure	As a Percentage of Total GSDP
2001-02	50793	1340984	336208	3033643	2.2	8.8	1.7
2002-03	49898	1417400	358042	3436981	1.9	7.6	1.5
2003-04	54142	1562776	408337	3745594	2.0	7.6	1.4
2004-05	60864	1958764	503170	4159582	1.8	7.1	1.5
2005-06	60484	2098014	480146	4625949	1.6	7.1	1.3
2006-07	77185	2436603	463261	5039403	2.0	10.7	1.5
2007-08	84866	2632907	619185	5536703	2.1	9.1	1.5
2008-09	105385	3020124	757645	6315488	2.5	10.1	1.7
2009-10	158092	3981948	1072753	7476241	3.3	12.1	2.1
2010-11	162420	4353999	1251931	8778183	2.8	9.7	1.9
2011-12	172845	4962273	1398813	14317491	2.6	9.3	1.2
2012-13	180086	5484838	1531605	15686424	2.5	8.8	1.1
2013-14	200196	6089059	1774334	17774522	2.5	8.6	1.1

2014-15	204245	7189114	2154981	19572315	2.4	7.9	1
2015-16	298366	7251531	2179850	22795883	3.6	12.1	1.3
2016-17	329051	9036868	2827388	25434079	3.3	10.4	1.3
Source: Finance Accounts, Volume 2, Annual Reports, Government of Assam RBI, Handbook of Statistics on Indian States							

Figure.3.1. State Government Expenditure on Medical and Public Health of Assam as a proportion of GSDP for the period 2001-02 to 2016-17

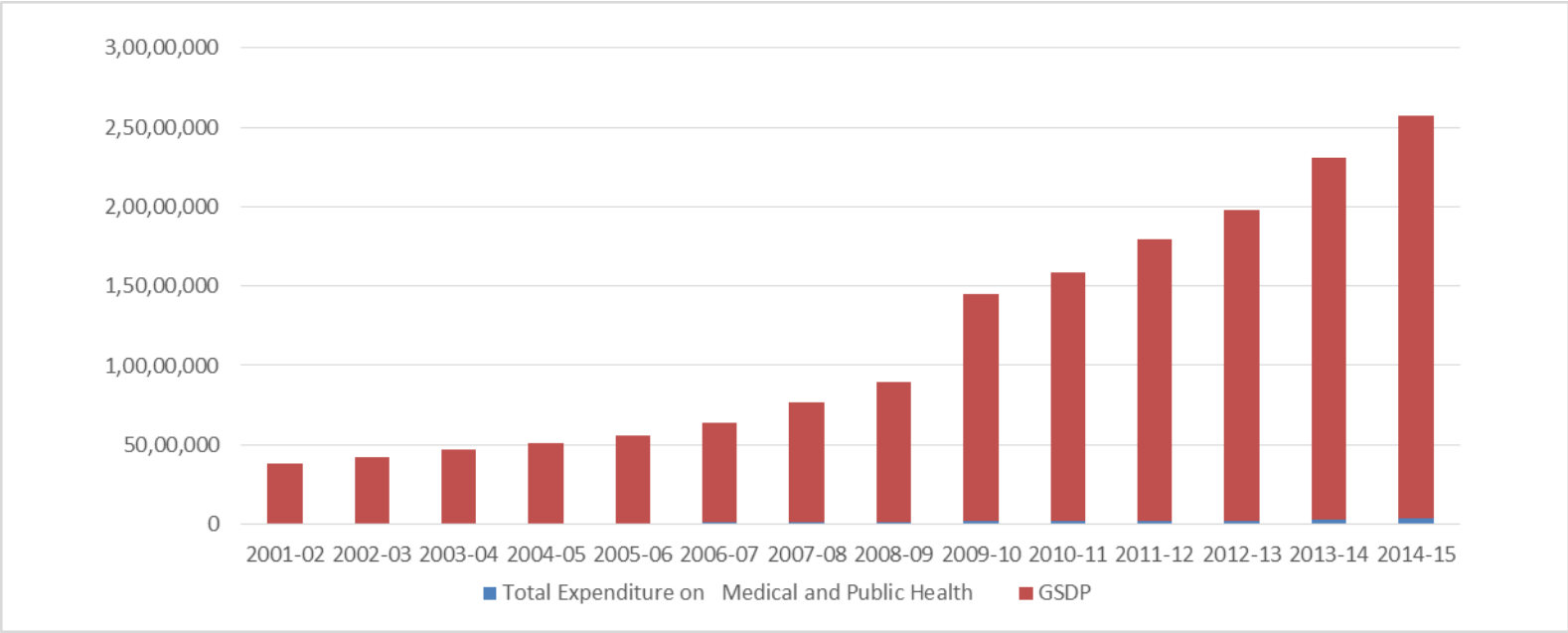


Table.3.2. State Government Expenditure on Medical and Public Health of Assam for the period 2001-02 to 2016-17

In lakhs

Year	Revenue Expenditure	Capital Expenditure	Total Expenditure
2001-02	28,089	22704	50,793
2002-03	26,580	23318	49,898
2003-04	28777	25365	54,142
2004-05	34,262	26602	60,864
2005-06	32,700	27784	60,484
2006-07	49,036	28149	77,185
2007-08	55,918	28948	84,866
2008-09	76,608	28777	105,385
2009-10	128858	29234	158,092
2010-11	133550	29776	162,420
2011-12	142084	30761	172,845
2012-13	148108	31978	180,086
2013-14	166966	33230	200,196
2014-15	169702	34543	204,245
2015-16	263192	35174	298,366
2016-17	290433	38618	329,051

Source: Finance Accounts, Volume 2, Annual Reports, Government of Assam

Figure.3.2 Share of capital and revenue expenditure of the state government of Assam on Medical and Public Health for the period 2001-02 to 2016-17

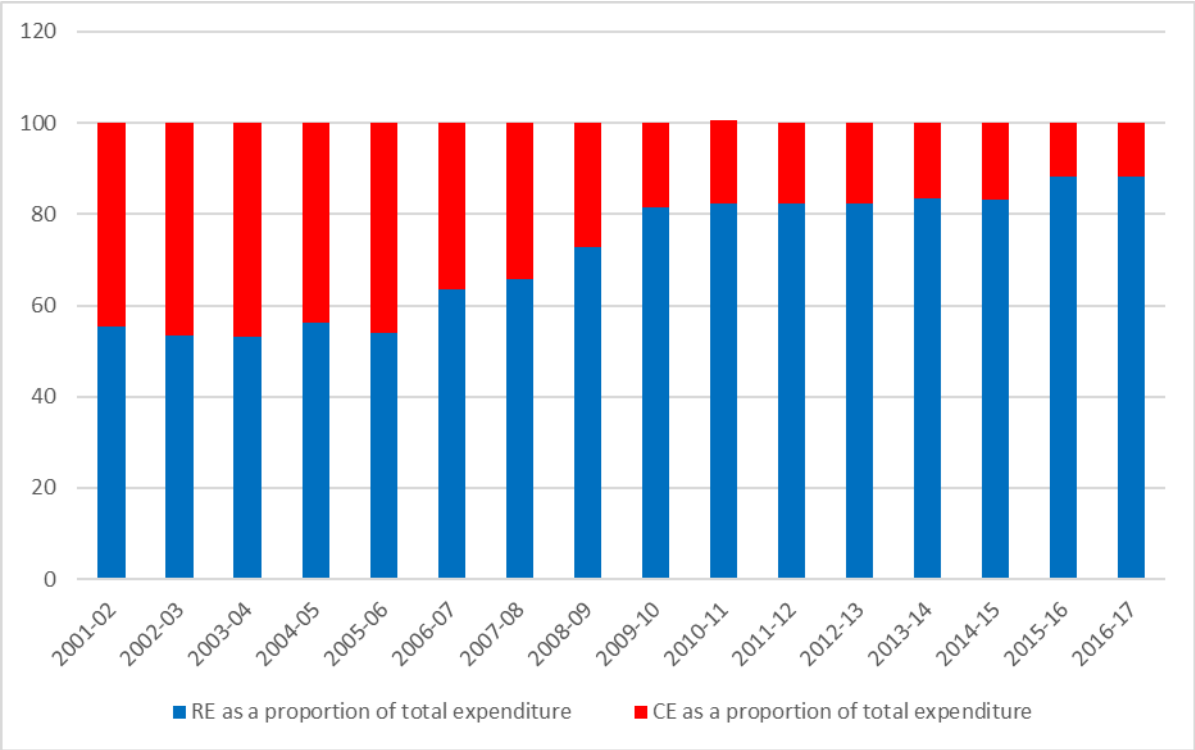
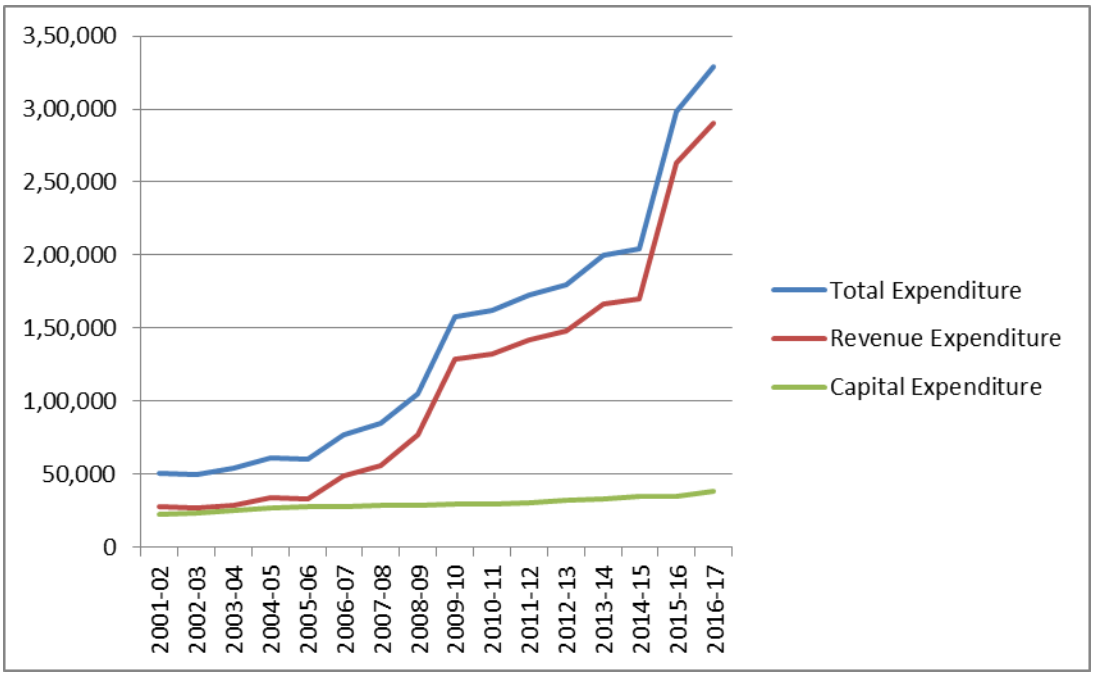


Figure 3.2 also depicts clearly how capital expenditure has been gradually declining over the years.

The trend of revenue expenditure, capital expenditure and total expenditure of the state government has also been depicted in figure 3.3 using line chart which clearly shows that revenue expenditure of the state expenditure has been increasing over time but the capital expenditure has remained almost unwavering at a very low level. From this analysis, it is apparent that there has been no systematic allocation of expenditure on strengthening the health infrastructure, which is one of the palpable cause of poor health outcomes of the state.

Figure.3.3. State Government Expenditure on Medical and Public Health of Assam for the period 2001-02 to 2016-17



On the basis of observation of figure 3.3, though, it can be inferred that the total expenditure on health has been increasing over the years but in order to get a better and clearer picture of the trend of state government expenditure on Medical and Public Health, we shall compute the annual compound growth rate of the total expenditure using the following model and estimation method.

Annual Compound Growth Rate:

In case of continuous-time, the formula for computing the annual compound growth rate is,

$$Y_t = Y_o e^{bt}$$

where b is the exponential growth.

$$\log Y = \log Y_o + bt$$

log Y= a+bt ----------(1)

We know, $Y_t = Y_o(1+r)^t$

where r is the annual compound growth rate

$$\text{Log } Y_t = \log Y_o + t\log(1+r)$$

$$\log Y = a + bt \quad \text{---------- (2)}$$

where, b=ln (1+r)

Since equation (1) and (2) are same so even in case of equation (1) we can use

$$b = \ln(1+r)$$

$$e^b = 1 + r$$

$$r = e^b - 1$$

$$\hat{r} = e^{\hat{b}} - 1 \quad \text{---------- (3)}$$

Now regressing log Y on t we get the value of the coefficients as shown in Table 3.1(b),

Table 3.3 Results of regression of total expenditure on t

Model	Unstandardized Coefficients		Standardized coefficients	t	sig
	b	Standard Error	Beta		
Constant	10.531	.064		164.642	.000
t	.133	.007	.983	20.145	.000

Note: Dependent Variable: ln Y (total expenditure)

From Table 3.3, we find that the value of the coefficient of t i.e. b is .133. So by inserting the value of b in equation (3), we can estimate the annual compound growth rate.

Equation (3) implies,

$$\hat{r} = e^{\hat{b}} - 1$$

$$\hat{r} = e^{.133} - 1$$

$$\hat{r} = 1.142249998 - 1$$

$$\hat{r} = 0.142249998$$

$$\hat{r} = 14.2\%$$

Therefore the Annual Compound Growth rate of government expenditure on medical and public health is 14.2 percent. Using the same formula, the annual compound growth rate of Revenue and Capital expenditure has also been computed. The b value obtained after regressing logY (revenue expenditure) on t is shown in Table 3.3(a).

Table 3.3(a) Results of regression of revenue expenditure on t

Model	Unstandardized Coefficients		Standardized coefficients	t	sig
	b	Standard Error	Beta		
Constant	9.841	.094		105.024	.000
t	.173	.010	.979	17.854	.000

Note: Dependent Variable: ln Y (revenue expenditure)

The value of b as is evident from Table 3.3(a) is .173. So by inserting the value of b in equation (3), we can estimate the annual compound growth rate.

Equation (3) implies,

$$\hat{r} = e^{\hat{b}} - 1$$

$$\hat{r} = e^{.173} - 1$$

$$\hat{r} = 1.188866105 - 1$$

$$\hat{r} = 0.188866105$$

$$\hat{r} = 18.9\%$$

Therefore the Annual Compound Growth rate of revenue expenditure of the state government on medical and public health is 18.9 percent. Similarly, in case of capital expenditure, the b value obtained is shown in table 3.3(b).

Table 3.3(b) Results of regression of capital expenditure on t

Model	Unstandardized Coefficients		Standardized coefficients	t	sig
	b	Standard Error	Beta		
Constant	10.036	.016		611.297	.000
t	.030	.002	.978	17.531	.000

Note: Dependent Variable: ln Y (capital expenditure)

The value of b as is evident from Table 3.3(b) is .030. So by inserting the value of b in equation (3), we can estimate the annual compound growth rate.

Equation (3) implies,

$$\hat{r} = e^{\hat{b}} - 1$$

$$\hat{r} = e^{.030} - 1$$

$$\hat{r} = 1.030454534 - 1$$

$$\hat{r} = 0.030454534$$

$$\hat{r} = 3.04\%$$

Therefore the Annual Compound Growth rate of government expenditure on medical and public health is only 3.04 percent.

Therefore, it is evident that over the last 16 years i.e. from 2001-2002 to 2016-2017 there has been 14.2 percent annual compound growth in the total expenditure of the state government on

medical and public health, which is not very impressive looking at the critical status of health of the people in the state. Also, it has been seen that while the annual compound growth rate of revenue expenditure was 18.9 percent, the growth of government's capital expenditure was only 3 percent (approx.). Thus, we can see that the state government over the years didn't pay much importance towards the development of the health infrastructure.

Thus, it can be well observed that although by smaller margins, the total government expenditure in the health sector including both revenue and capital has been increasing over the years. However, along with the annual compound growth rate, another thing which is very crucial to check is the trend of state government expenditure which can be done by checking whether there is acceleration or deceleration in the government expenditure. This definitely would give us a better picture of government spending in the health sector.

Acceleration and Deceleration:

In order to find the acceleration and deceleration, the model to be used is,

$$\log Y = a + bt + ct^2$$

Then regressing log Y on t and t^2 we get the value of the coefficients i.e. b and c.

If the value of the coefficient c is significant and positive then there is said to be an acceleration in the growth rate and if c is significant and negative then there is said to be a deceleration in the growth rate. But if c is insignificant there will be neither acceleration nor deceleration. So, to check that let us first form a hypothesis.

H_0 : c is insignificant

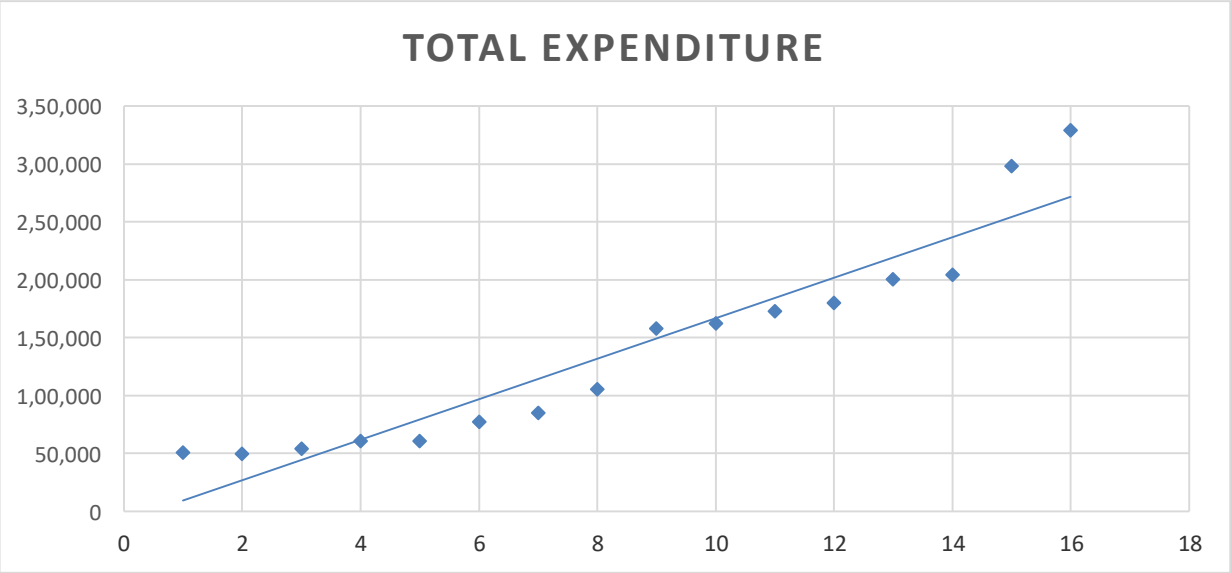
So, first of all, we shall consider the total expenditure of the government and check its acceleration and deceleration using the given model. Now, regressing log Y on t and t^2 , we get the coefficient values of b and c as shown in table 3.3(c)

Table 3.3(c) Results of regression of total expenditure on t and t^2

Model	Unstandardized Coefficients		Standardized coefficients	t	sig
	b	Standard Error	Beta		
Constant	10.577	.107		98.877	.000
t	.118	.029	.871	4.074	.001
t^2	.001	.002	.116	.542	.597

From the above table, we can see that the value of c is positive but insignificant. So we accept the null hypothesis and hence conclude that there is neither acceleration nor deceleration in the growth rate of total expenditure in the health sector. This is also reflected in the scatter plot diagram as shown in figure 3.3(a) where time is taken along the X-axis and total expenditure of the government is taken along the Y-axis. After plotting the data it can be observed that the points are not scattered linearly along the trend line indicating the absence of either acceleration or deceleration in the total expenditure of the government.

Figure 3.3(a) Trend of total expenditure of the state government of Assam from 2001-02 to 2016-17



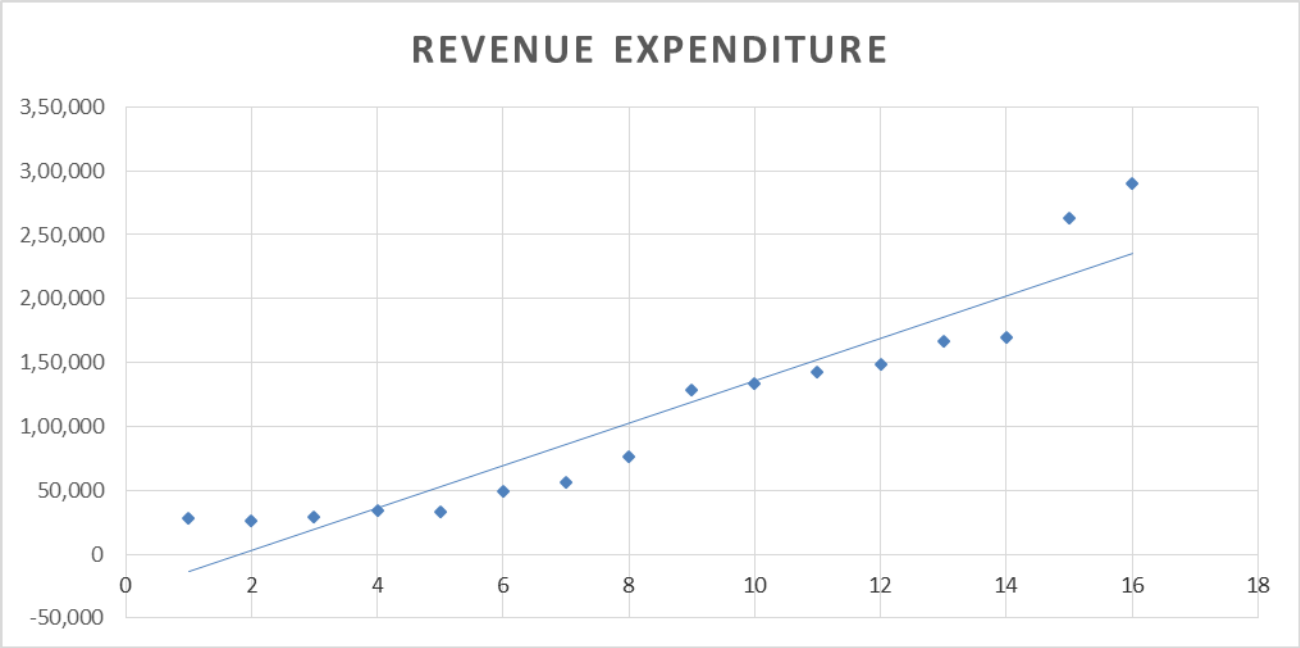
Now, for revenue expenditure of the government, we shall check the acceleration and deceleration using the given model. Now, regressing log Y on t and t^2 , we get the coefficient values of b and c as shown in table 3.3(d) where we can see that the value of c is positive but insignificant. So we accept the null hypothesis and hence conclude that there is neither acceleration nor deceleration in the growth of revenue expenditure of the state government in the health sector. This again is also reflected in the scatter plot diagram as shown in figure 3.3(b). Here too, after plotting the data it can be observed that the points are not scattered linearly along the trend line indicating the absence of either acceleration or deceleration in the total revenue expenditure of the government.

Table 3.3(d) Results of regression of revenue expenditure on t and t^2

Model	Unstandardized Coefficients		Standardized coefficients	t	sig
	b	Standard Error	Beta		
Constant	9.816	.158		62.037	.000
t	.181	.043	1.025	4.230	.001
t^2	.000	.002	-.048	-.197	.847

Note: Dependent Variable: ln Y (revenue expenditure)

Figure 3.3(b) Trend of revenue expenditure of the state government of Assam from 2001-02 to 2016-17



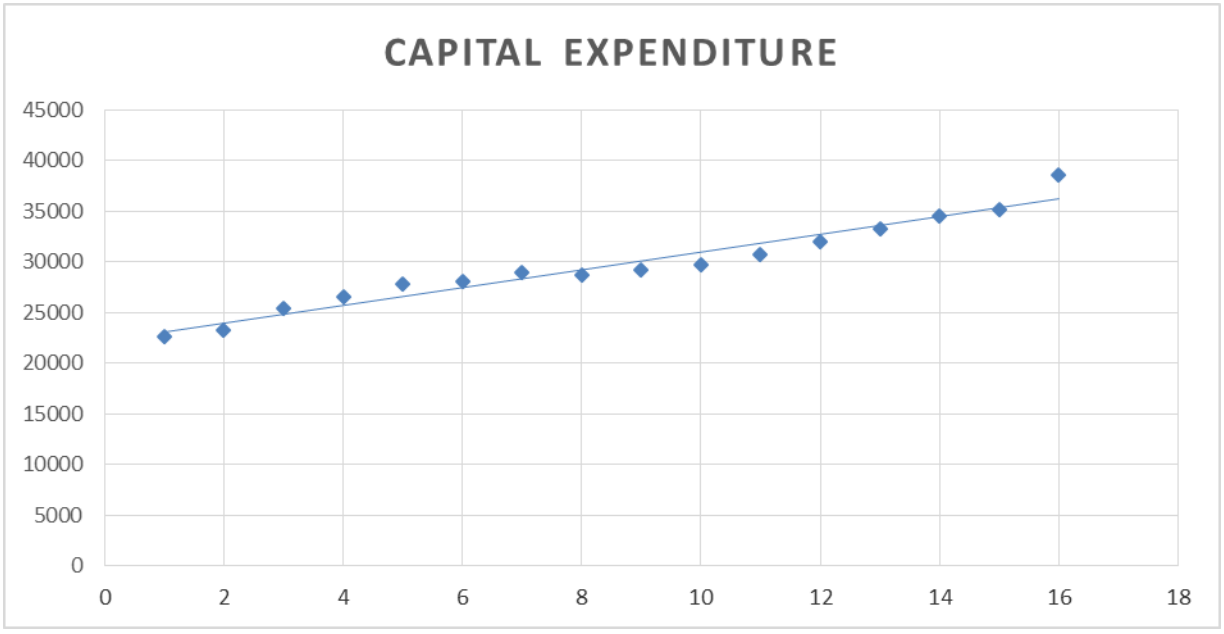
Similarly, for capital expenditure of the government, we get the value of the coefficient of t and t^2 i.e. values of b and c as shown in Table 3.3(e) and just like revenue and capital expenditure of the state government, the capital expenditure of the government also exhibited neither acceleration nor deceleration as is evident from the value of c which is negative but insignificant. This is also supported by a scatter plot diagram as shown in figure 3.3(c) where the points are not scattered linearly along the trend line indicating neither acceleration nor deceleration in the capital expenditure of the government.

Table 3.3(e) Results of regression of capital expenditure on t and t^2

Model	Unstandardized Coefficients		Standardized coefficients	t	sig
	b	Standard Error	Beta		
Constant	10.034	.028		361.464	.000
t	.030	.008	.993	4.021	.001
t^2	-2.712E-005	.000	-.016	-.063	.951

Note: Dependent Variable: ln Y (capital expenditure)

Figure 3.3(c) Trend of capital expenditure of the state government of Assam from 2001-02 to 2016-17



Thus, it is evident that the capital expenditure in the health sector is lagging behind and is causing a major hindrance in the improvement of the health outcomes of the people and in the overall development of the health sector of Assam. The government needs to take immediate steps to gear up its capital expenditure. If the present trend of government expenditure continues, it would take us ages to reach the national average and also lower the negative health outcome like IMR, MMR, etc. to the minimum level.

The last and the final thing that we would check is the presence of a structural break in the state government expenditure. This would give us a deeper outlook into the change of trend government expenditure on Medical and Public Health and why? In order to find out structural break, the following model and estimation procedure has been opted.

Structural Break:

To find the structural break we need to use the following regression,

$$\log Y = a + bt + c(dt)$$

where, D=0, up to the suspected structural break
and D=1, after the point of structural break.

Now regressing log Y on t and dt we get the value of the coefficients i.e. b and c. If the value of the coefficient c is significant then there is said to be a structural break in the assumed year and if c is insignificant then there is said to be no structural break in the assumed year.

First of all, we shall try to find the structural break in case of total expenditure, then total revenue expenditure and finally total capital expenditure of the state government.

Case I: Total Expenditure

After going through a trial and error process we found that there are structural breaks in the years 2006-07, 2007-08 and 2008-2009.

This can be shown as follows,

- ***2006-07***

Let, H_0 : The year 2006-07 has no structural break

So we take, D=0, up to 2006-07
and D=1, after 2006-07

After the regression, we get the following values of the coefficients b and c.

Table 3.3(f) Results of regression of total expenditure on t and dt for 2006-07

Model	Unstandardized Coefficients		Standardized coefficients	t	sig
	b	Standard Error	Beta		
Constant	10.657	.083		128.628	.000
t	.088	.022	.650	3.950	.002
dt	.036	.017	.346	2.104	.055

Note: Dependent Variable: ln Y

From the above table, we find that the value of the coefficient c is significant at 10 percent (.055<.10). So we reject the null hypothesis and hence can conclude that there is a structural break in the year 2006-07.

- ***2007-08***

Let, H_0 : The year 2007-08 has no structural break

So we take, D=0, up to 2007-08
and D=1, after 2007-08

Table 3.3(g) Results of regression of total expenditure on t and dt for 2007-08

Model	Unstandardized Coefficients		Standardized coefficients	t	sig
	b	Standard Error	Beta		
Constant	10.684	.073		145.736	.000
t	.087	.017	.638	5.133	.000
dt	.036	.012	.364	2.925	.012

Note: Dependent Variable: ln Y

After the regression, we get the value of the coefficient c which is significant at 5 percent (.012<.05). So we reject the null hypothesis and hence can conclude that there is a structural break in the year 2007-08.

- ***2008-09***

Let, H_0 : The year 2008-09 has no structural break

So we take, D=0, up to 2008-09
and D=1, after 2008-09

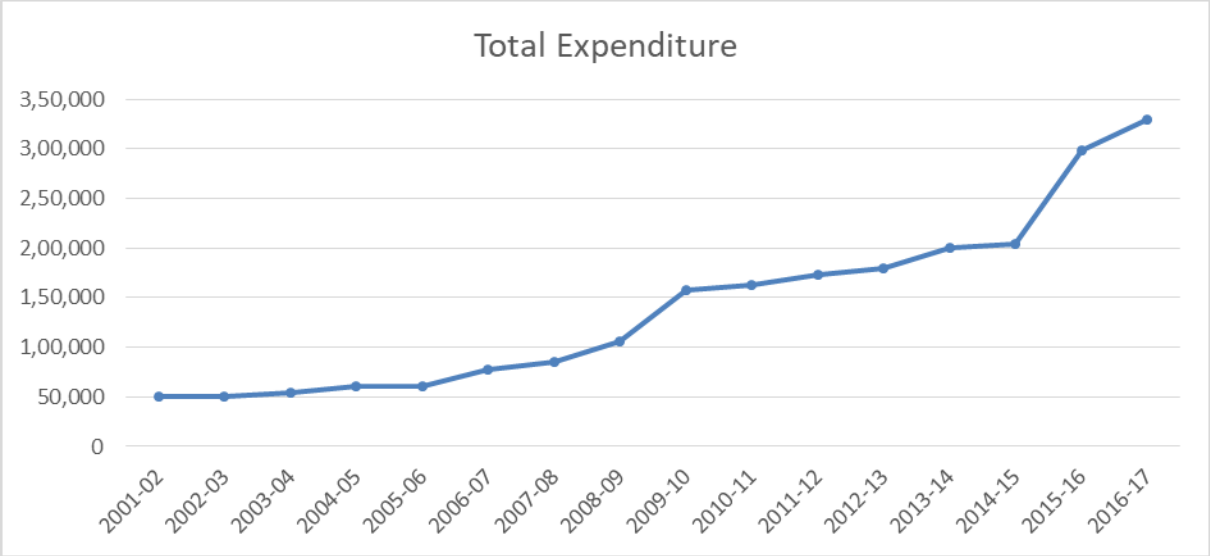
Table 3.3(h) Results of regression of total expenditure on t and dt for 2008-09

Model	Unstandardized Coefficients		Standardized coefficients	t	sig
	b	Standard Error	Beta		
Constant	10.663	.075		142.462	.000
t	.098	.015	.720	6.483	.000
dt	.027	.011	.283	2.549	.024

Note: Dependent Variable: ln Y

In table 3.3(h) value of the coefficient, c is significant at 5 percent (.024<.05). So we reject the null hypothesis and hence can conclude that there is a structural break in the year 2008-09.

Figure 3.3(d) Structural break in total expenditure of the state government of Assam from 2001-02 to 2016-17



The red data points in Figure 3.3(d), represent the structural breaks in the total expenditure of the state government.

Case II: Revenue Expenditure

After going through a trial and error process we found that there are structural breaks in the years 2005-06, 2006-07, 2007-08 and 2008-09.

This can be shown as below,

- ***2005-06***

Let, H_0 : The year 2005-06 has no structural break

So we take, D=0, up to 2005-06
and D=1, after 2005-06

Table 3.3(i) Results of regression of revenue expenditure on t and dt for 2005-06

Model	Unstandardized Coefficients		Standardized coefficients	t	sig
	b	Standard Error	Beta		
Constant	10.052	.114		88.106	.000
t	.080	.037	.450	2.141	.052
dt	.077	.030	.542	2.576	.023

Note: Dependent Variable: ln Y

From the above table, we find that the value of the coefficient c is significant at 5 percent (.023<.05). So we reject the null hypothesis and hence can conclude that there is a structural break in the year 2005-06.

- ***2006-07***

Let, H_0 : The year 2006-07 has no structural break

So we take, D=0, up to 2006-07
and D=1, after 2006-07

Table 3.3(j) Results of regression of revenue expenditure on t and dt for 2006-07

Model	Unstandardized Coefficients		Standardized coefficients	t	sig
	b	Standard Error	Beta		
Constant	10.049	.116		86.930	.000
t	.098	.031	.556	3.160	.008
dt	.059	.024	.439	2.493	.027

Note: Dependent Variable: ln Y

The value of the coefficient c is significant at 5 percent (.027<.05). So we reject the null hypothesis and hence can conclude that there is a structural break in the year 2006-07.

- ***2007-08***

Let, H_0 : The year 2006-07 has no structural break

So we take, D=0, up to 2007-08
and D=1, after 2007-08

Table 3.3(k) Results of regression of revenue expenditure on t and dt for 2007-08

Model	Unstandardized Coefficients		Standardized coefficients	t	sig
	b	Standard Error	Beta		
Constant	10.060	.109		92.528	.000
t	.106	.025	.599	4.234	.001
dt	.052	.018	.401	2.833	.014

Note: Dependent Variable: ln Y

Here, c is significant at 5 percent (.014<.05). So we reject the null hypothesis and hence can conclude that there is a structural break in the year 2007-08.

- ***2008-09***

Let, H_0 : The year 2008-09 has no structural break

So we take, D=0, up to 2008-09
and D=1, after 2008-09

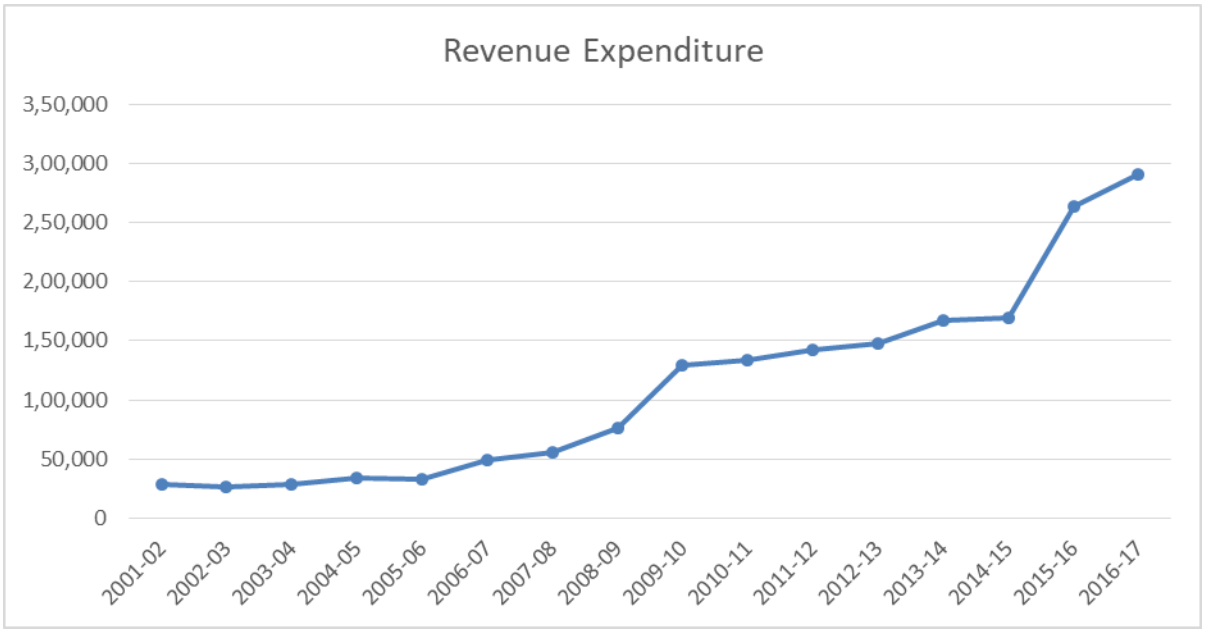
Table 3.3(l) Results of regression of revenue expenditure on t and dt for 2008-09

Model	Unstandardized Coefficients		Standardized coefficients	t	sig
	b	Standard Error	Beta		
Constant	10.002	.118		85.024	.000
t	.129	.024	.732	5.467	.000
dt	.034	.017	.266	1.984	.069

Note: Dependent Variable: ln Y

From the above table, we find that the value of the coefficient c is significant at 10 percent (.069<.10). So we reject the null hypothesis and hence can conclude that there is a structural break in the year 2008-09.

Figure 3.3(e) Structural break in revenue expenditure of the state government of Assam from 2001-02 to 2016-17



Case II: Capital Expenditure

After going through a trial and error process we found that there are structural breaks in the years 2002-03, 2005-06, 2006-07, 2007-08 2008-2009 and 2015-16.

This can be shown as below,

- ***2002-03***

Let, H_0 : The year 2002-03 has no structural break

So we take, D=0, up to 2002-03
and D=1, after 2002-03

Table 3.3(m) Results of regression of capital expenditure on t and dt for 2006-07

Model	Unstandardized Coefficients		Standardized coefficients	t	sig
	b	Standard Error	Beta		
Constant	10.060	.018		558.612	.000
t	-.007	.016	-.234	-.434	.671
dt	.035	.015	1.217	2.260	.042

Note: Dependent Variable: ln Y

From the above table, we find that the value of the coefficient c is significant at 5 percent (.042<.05). So we reject the null hypothesis and hence can conclude that there is a structural break in the year 2002-03.

- ***2005-06***

Let, H_0 : The year 2005-06 has no structural break

So we take, D=0, up to 2005-06
and D=1, after 2005-06

Table 3.3(n) Results of regression of capital expenditure on t and dt for 2005-06

Model	Unstandardized Coefficients		Standardized coefficients	t	sig
	b	Standard Error	Beta		
Constant	10.002	.021		479.798	.000
t	.045	.007	1.467	6.575	.000
dt	-.012	.005	-.502	-2.248	.043

Note: Dependent Variable: ln Y

Here, c is significant at 5 percent (.043<.05). So we reject the null hypothesis and hence can conclude that there is a structural break in the year 2005-06.

- ***2006-07***

Let, H_0 : The year 2006-07 has no structural break

So we take, D=0, up to 2006-07
and D=1, after 2006-07

Table 3.3(o) Results of regression of capital expenditure on t and dt for 2006-07

Model	Unstandardized Coefficients		Standardized coefficients	t	sig
	b	Standard Error	Beta		
Constant	9.993	.018		544.433	.000
t	.045	.005	1.482	9.135	.001
dt	-.012	.004	-.523	-3.224	.007

Note: Dependent Variable: ln Y

From table 3.3(o) we find that the value of the coefficient c is significant at 1 percent (.007<.01). So we reject the null hypothesis and hence can conclude that there is a structural break in the year 2006-07

- ***2007-08***

Let, H_0 : The year 2007-08 has no structural break

So we take, D=0, up to 2007-08
and D=1, after 2007-08

Table 3.3(p) Results of regression of capital expenditure on t and dt for 2007-08

Model	Unstandardized Coefficients		Standardized coefficients	t	sig
	b	Standard Error	Beta		
Constant	9.988	.016		633.722	.000
t	.044	.004	1.453	12.207	.000
dt	-.011	.003	-.501	-4.209	.001

Note: Dependent Variable: ln Y

Here, the value of the coefficient c is significant at 1 percent (.001<.01). So we reject the null hypothesis and hence can conclude that there is a structural break in the year 2007-08.

- ***2008-09***

Let, H_0 : The year 2008-09 has no structural break

So we take, D=0, up to 2008-09
and D=1, after 2008-09

Table 3.3(q) Results of regression of capital expenditure on t and dt for 2008-09

Model	Unstandardized Coefficients		Standardized coefficients	t	sig
	b	Standard Error	Beta		
Constant	10.002	.109		522.187	.000
t	.039	.004	1.280	10.109	.000
dt	-.007	.003	-.326	-2.571	.023

Note: Dependent Variable: ln Y

From the above table, we find that the value of the coefficient c is significant at 5 percent (.023<.05). So we reject the null hypothesis and hence can conclude that there is a structural break in the year 2008-09.

- ***20015-16***

Let, H_0 : The year 2015-16 has no structural break

So we take, D=0, up to 2015-16
and D=1, after 2015-16

Table 3.3(r) Results of regression of capital expenditure on t and dt for 2015-16

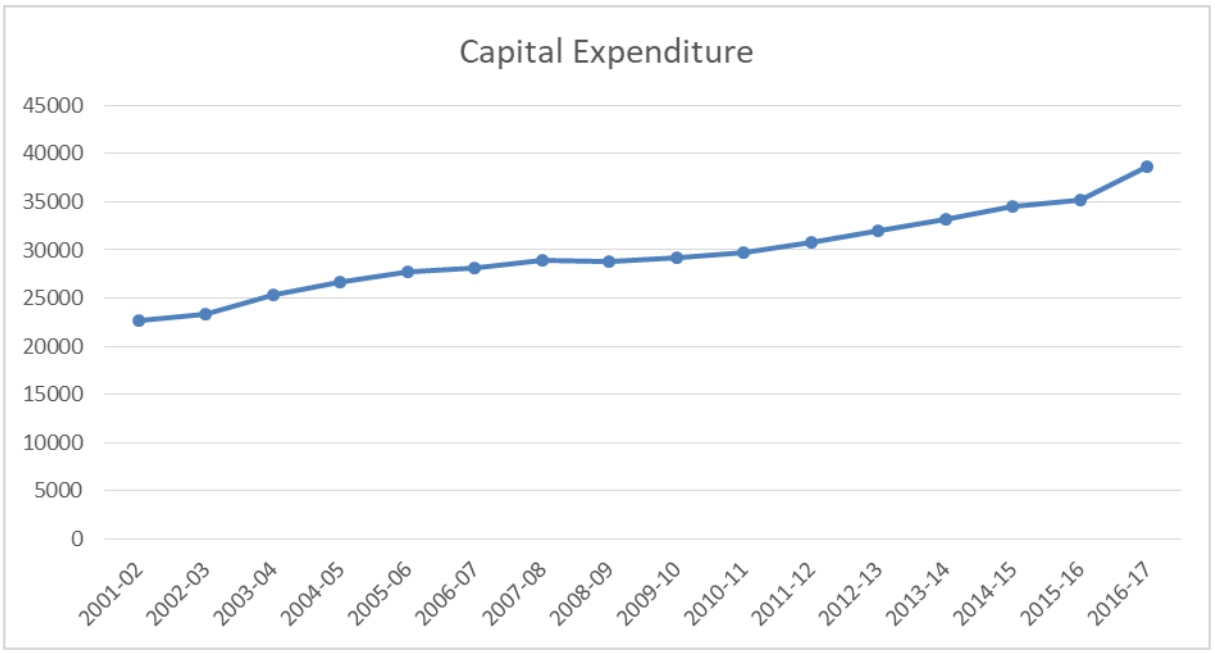
Model	Unstandardized Coefficients		Standardized coefficients	t	sig
	b	Standard Error	Beta		
Constant	10.015	.017		589.951	.000
t	.028	.002	.931	16.669	.000
dt	.004	.002	.111	1.987	.068

Note: Dependent Variable: ln Y

From the above table, we find that the value of the coefficient c is significant at 10 percent (.023<.10). So we reject the null hypothesis and hence can conclude that there is a structural break in the year 2008-09.

Thus, we can see that both revenue and capital expenditure has structural breaks in years 2006-07, 2007-08 and 2008-09. In addition to these years, capital expenditure also has breaks in 2002-03 and 2015-16. The easiest perception about these breaks could be the implementation of the National Rural Health Mission in 2005. However, there could be other plausible causes behind these breaks too. The reason behind the structural break in capital expenditure in 2015-16 could be the reduction in the central share for a host of programmes including National Health Mission (NHM). With the reduction of the central funds, the state has to boost its spending from its own funds to support the ongoing programmes leading to the increase in capital expenditure from 2015-16.

Figure 3.3(f) Structural break in capital expenditure of the state government of Assam from 2001-02 to 2016-17



3.4. Pattern of State Government Expenditure on Medical and Public Health

As already mentioned the major heads under Medical and Public Health includes Urban Health Services, Rural Health Services, Medical Education, Training and Research, Public Health and others. Both revenue expenditure and capital expenditure on each of these heads constitute the total health expenditure of the State. For revenue expenditure, there are two sub-heads namely Allopathy and other Systems of Medicine (Ayurveda and other systems) under Urban Health Services and Rural Health Services each. While for capital expenditure, under urban health services we have Direction and Administration (headquarters establishment, up-gradation, and strengthening of existing Training Institute of ANM and GNM, etc.), various construction works, medical stores depot and; hospitals and dispensaries. Again under rural health services we have health sub centres, subsidiary health centres, Primary health centres, community health centres, hospitals and dispensaries, other expenditures, etc. However for simplicity we will consider only urban and rural health services as a whole. In this section, we will observe the pattern of the revenue and capital expenditure of the state under these important heads, namely, Urban Health Services, Rural Health Services, Medical Education, Training and Research, Public Health and others for the period 2001-02 to 2016-17.

Table.3.4. Revenue Expenditure on minor heads of Medical and Public Health for the period 2001-02 to 2016-17

In Rs lakhs

Year	Revenue Expenditure					
	Urban Health Services	**Rural Health Services**	**Medical Education, training and Research**	**Public Health**	**Others**	**Total**
2001-02	6282	10941	6014	4574	278	28,089
2002-03	5987	9245	6121	4824	403	26,580
2003-04	7460	9417	5902	5264	732	28,777

2004-05	9931	10985	7530	4927	889	34262
2005-06	8255	9575	9690	4732	449	32,700
2006-07	8122	11668	18325	5891	5029	49,036
2007-08	10186	18806	16787	5282	4857	55,918
2008-09	12352	27744	31392	5176	3321	76,608
2009-10	30675	37293	52573	7519	7130	128,858
2010-11	24034	49451	41423	17736	906	132644
2011-12	22703	66965	39381	12198	838	142084
2012-13	25185	69654	37200	15090	978	148108
2013-14	27355	74728	47136	16617	1129	166966
2014-15	27289	79681	42300	19181	1251	169702
2015-16	28868	172411	41056	18008	2849	263192
2016-17	31566	157589	82320	17703	1255	290433

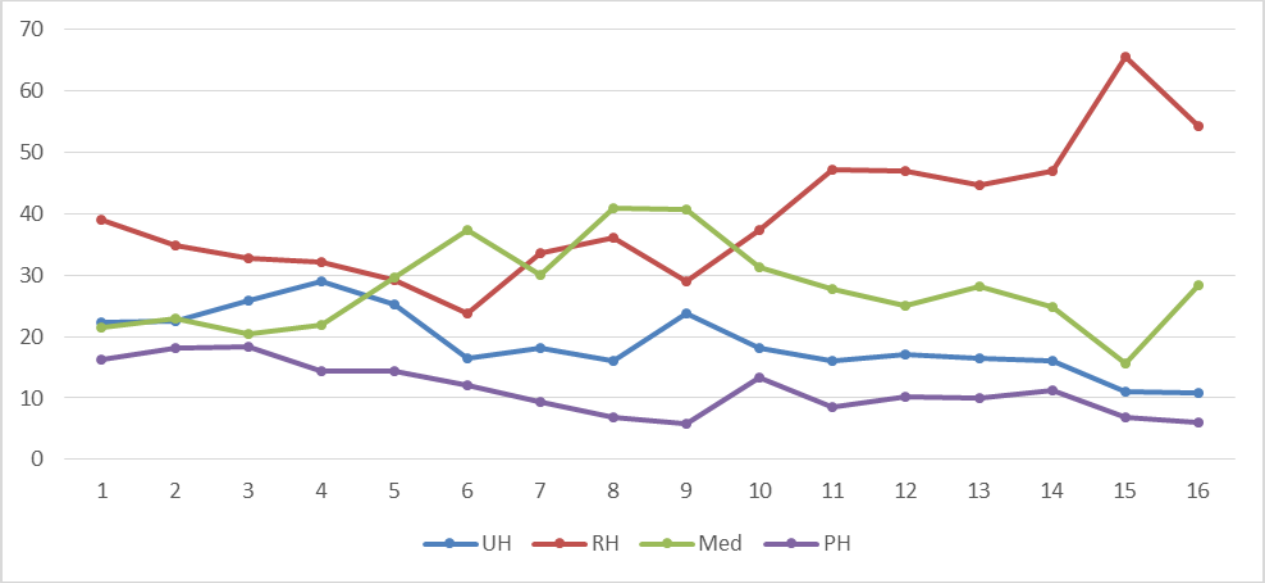
Source: Finance Accounts, Volume 2, Annual Reports, Government of Assam

Table 3.4 shows the pattern of revenue expenditure of the state government on the already mentioned five heads of medical and public health. From the table, it can be observed that over the last 16 years, revenue expenditure in all of its minor heads has increased. However, noteworthy variations are seen in the expenditure as a proportion to total revenue expenditure of the state government. The share of rural health services is the highest in total revenue expenditure followed by medical education, training and research, urban health services, public health, and others. In case of capital expenditure too, rural health services take the lions share, however, here, it is followed not by medical education, research and training but by urban health services. Though from the table, the expenditure on urban health services seems to be rising but the proportion of urban health services in total revenue expenditure has declined over the years from 22 percent in 2001-02 to 11 percent in 2016-17 i.e. by 5 percent. Similarly, the share of public health has also decreased by 6 percent. However, the share of rural health services by 2 percent. Investment in Medical education, research and training is very important because the primary health care sector depends on this source for trained health manpower. Though the expenditure in this head has increased over the years but it's only by a meager amount of 2 percent. The portion of revenue expenditure on its minor heads has been shown in figure3.4.

Similarly, table 3.4(a) shows the pattern of capital expenditure on minor heads. It is evident from the table that the expenditure in the urban health services, rural health services and also medical

education, training and research at a negligible rate. Till 2010-11 the capital expenditure in urban health services grew at less than 1 percent with capital expenditure remaining constant for 2006-07 and 2007-08. After 2008 the expenditure grew at 3.1 percent but again started increasing at a diminishing rate. Similarly, the rate of growth of capital expenditure in rural health services kept on fluctuating and mostly grew at a decreasing rate. However, capital expenditure on medical education, training and research was comparatively better than that of urban and rural health services. Also, public health expenditure and other expenditure remained almost stagnant over the last 16 years which is quite strange.

Figure.3.4. Trend of proportion of revenue expenditure on minor heads of Medical and Public Health for the period 2001-02 to 2016-17



Though the share of rural health services in capital expenditure is greater than that of the other minor heads, over the years, the share of rural health services has in fact reduced by 0.2 percent. The others heads, namely, urban health services and public health services have also experienced a fall in its proportion by 2 percent (approx.) and 3.5 percent respectively. Only, the proportion of medical education and research has increased by 7 percent. The trend of the proportion of the capital expenditure on the different minor heads has been shown in figure 3.4(a)

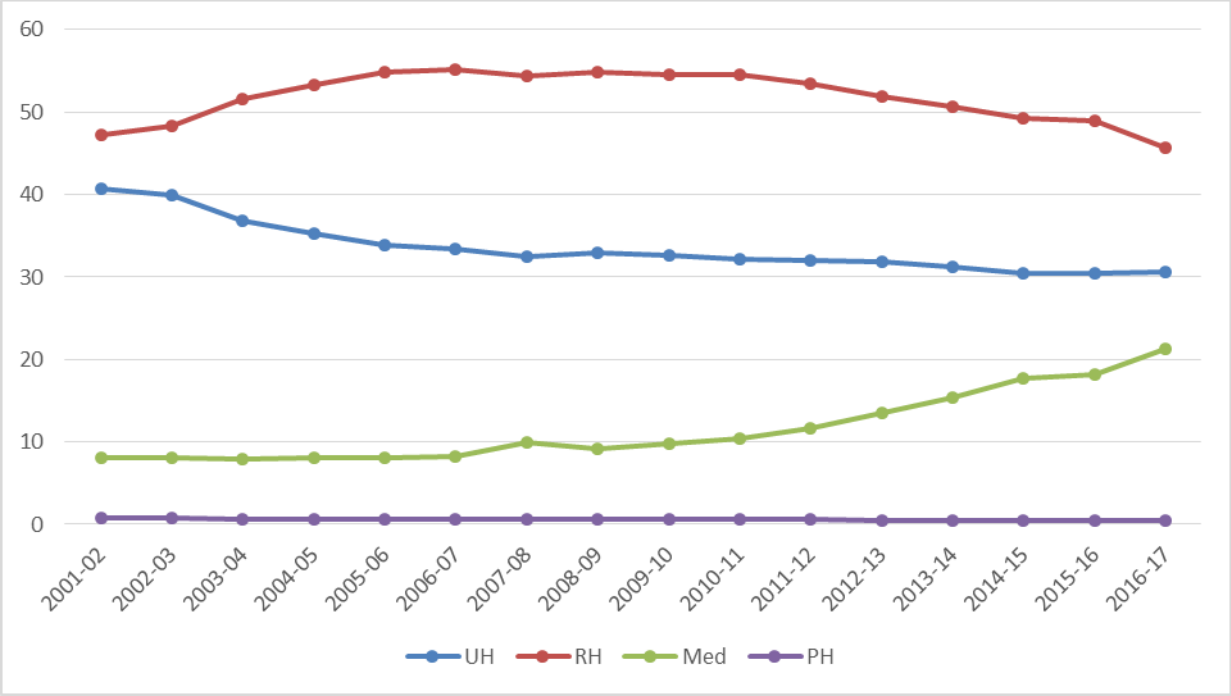
Table.3.4 (a). Capital Expenditure on minor heads of Medical and Public Health for the period 2001-02 to 2016-17

In Rs lakhs

Year	Capital Expenditure					
	Urban Health Services	Rural Health Services	Medical Education, training and Research	Public Health	Others	Total
2001-02	9232	10738	1846	166	722	22704
2002-03	9296	11267	1866	166	722	23318
2003-04	9348	13103	2025	166	722	25365
2004-05	9379	14173	2162	166	722	26602
2005-06	9410	15261	2224	166	722	27784
2006-07	9409	15544	2308	166	722	28149
2007-08	9409	15752	2898	166	722	28948
2008-09	9496	15776	2617	166	722	28777
2009-10	9532	15939	2874	166	722	29234
2010-11	9557	16223	3107	166	722	29776
2011-12	9850	16461	3561	166	722	30761
2012-13	10163	16609	4318	166	722	31978
2013-14	10387	16820	5135	166	722	33230
2014-15	10499	17027	6128	166	722	34543
2015-16	10689	17196	6400	166	722	35174
2016-17	11829	17673	8227	166	722	38618

Source: Finance Accounts, Volume 2, Annual Reports, Government of Assam

Figure.3.4.(a) Trend of expenditures on minor heads of Medical and Public Health as a proportion of total capital expenditure for the period 2001-02 to 2016-17



3.5. Maternity and Child Health

The health status of any region or nation is reflected by its maternal and child health. Maternal and Child health is one of the most crucial aspects of the health sector of Assam given the fact that Assam encounters the highest Maternal Mortality Rate (237) as compared to any other state of the country. Also the Infant Mortality Rate (48) is higher than the national average (41). Though over the years the state government of Assam has been incurring a huge amount of expenditures on health and family welfare, the MMR and IMR continue to be high compared to the national average. The Government's expenditure on maternity and child health comes under

the department of Family Welfare which is coded as 2211 in the finance accounts of the state government. Only revenue expenditure is incurred in case of child and maternal health and under revenue account maternal and child health is coded as is 103. Analysis of the government's expenditure on maternal and child health is critically important for the development of the health care sector of the state as a whole.

In this section, an attempt has been made to analyze the trend of government expenditure on maternal and child health. Also expenditure on maternal and child health as a percentage of total expenditure on family welfare and that of health and family welfare has been analyzed. Just like in case of revenue and capital expenditure of the state government, in case of maternal and child health expenditure too, the annual compound growth rate has been estimated followed by the detection of the trend of the expenditure i.e. whether the expenditure on maternal and child health exhibits acceleration or deceleration or neither of the two. And finally, the presence of a structural break in the expenditures has been investigated.

Table.3.5 shows the expenditure incurred on maternal and child health, on family welfare and on health and family welfare by the state government and also shows the expenditure on maternal and child health as a percentage of family welfare and on health and family welfare. From table 3.5, it can be observed that the expenditure on maternal and child has declined from 2001-02 to 2004-05. However, from 2005-06 till 2009-10 captured the highest government expenditure on maternal and child health. This increase is obviously, as always, might be due to the implementation of NRHM in 2005. However, as per the finance reports 2009-10 of the state government, this increase is mainly due to increase in expenditure under district family welfare services, rural family welfare sub-centre, health and family welfare training centre and up-gradation of Standard of Administration. Since then the expenditure on maternal and child health continually declined till 2014-15 and again increased to Rs. 1965.15 lakhs. However, from 2001-02 to 20016-17, maternal and child health expenditure tapped an annual compound growth rate of 11 percent (approx.). The expenditure on maternal and child health as a percentage of total expenditure on family welfare showed a similar trend. On an average, only 9.8 percent of total expenditure on family welfare is incurred on maternal and child health and that of only 1.2 percent on an average is spent as a percentage of total expenditure on health and family welfare

as a whole. Moreover, over the last 16 years i.e. from 2001-02 to 2016-17, expenditure on maternal and child health as a percentage of expenditure on family welfare increased by only 1 percent (approx.) and as a percentage of total expenditure on health and family welfare, it rather declined by 4 percent (approx.) over the years, which is not a very promising picture bearing in mind the seriousness of the status of maternal and child health in the state. The trend of expenditure on Maternal and child health has been depicted in figure 3.5. And the expenditure on maternal and child health as a proportion of total expenditure on family welfare is displayed in figure 3.5(a)

Table 3.5. Expenditure on Maternal and Child Health as a percentage of total expenditure on Family welfare and Health and Family Welfare

In Rs lakhs

Year	Expenditure on family welfare	Expenditure on Health and Family Welfare	Expenditure on child and Maternal Health	As a percentage of total expenditure on family welfare	As a percentage of total expenditure on health and family welfare
2001-02	64,03.23	3,44,92.24	412.57	6.4	1.2
2002-03	58,15.26	3,23,95.31	368.89	6.3	1.1
2003-04	61,78.19	3,49,54.84	319.76	5.2	0.9
2004-05	66,80.41	4,09,42.84	3,99.06	6.0	1.0
2005-06	72,18.85	3,99,18.45	6,08.78	8.4	1.5
2006-07	78,05.06	5,68,40.89	7,15.36	9.2	1.3
2007-08	94,08.82	6,53,26.43	17,33.90	18.4	2.7
2008-09	1,09,85.15	9,09,70.52	21,80.40	19.8	2.4
2009-10	1,44,51.84	14,96,42.21	36,17.06	25.0	2.4
2010-11	1,44,18.85	147968.98	7,80.44	5.4	0.5
2011-12	1,82,30.12	16,03,13.96	21,23.00	11.6	1.3
2012-13	1,98,73.47	16,79,81.21	19,03.14	9.6	1.1
2013-14	1,96,25.22	18,65,90.82	11,05.95	5.6	0.6
2014-15	21229.52	190931.75	1170.90	5.5	0.6
2015-16	22387.22	285579.12	1360.34	6.1	0.5
2016-17	2,58,01.61	31,62,34.14	19,65.15	7.6	0.6

Source: Finance Accounts, Volume 2, Annual Reports, Government of Assam

Figure 3.5. The trend of expenditure on Maternal and child health

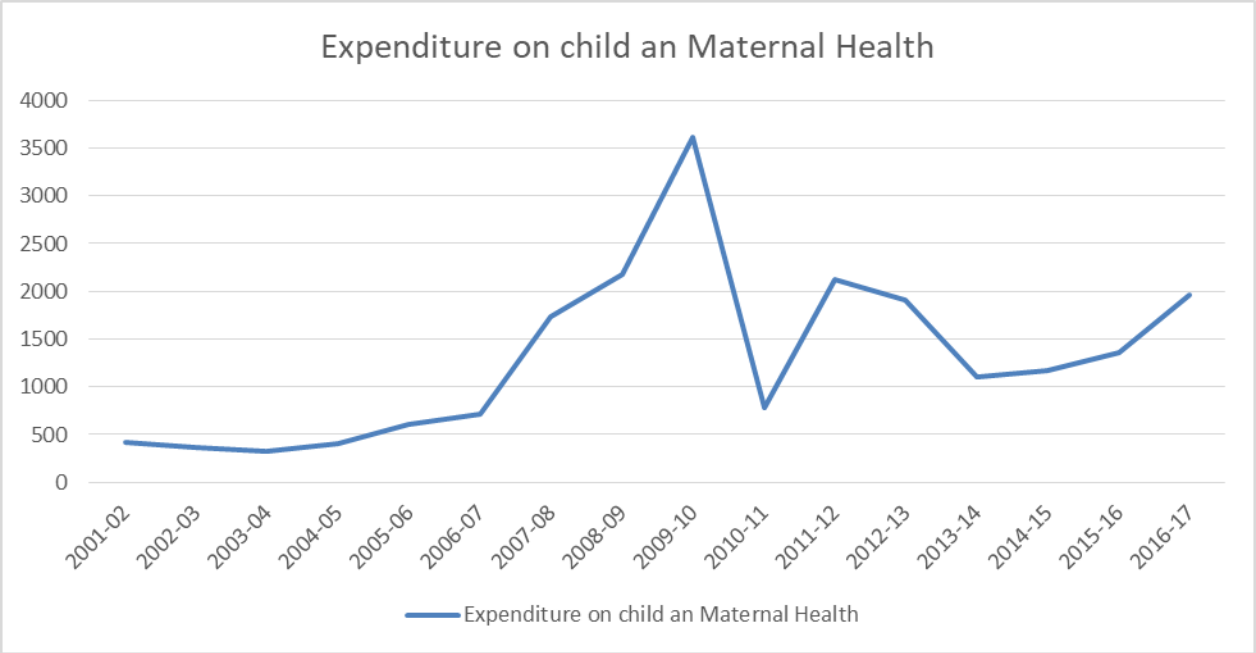
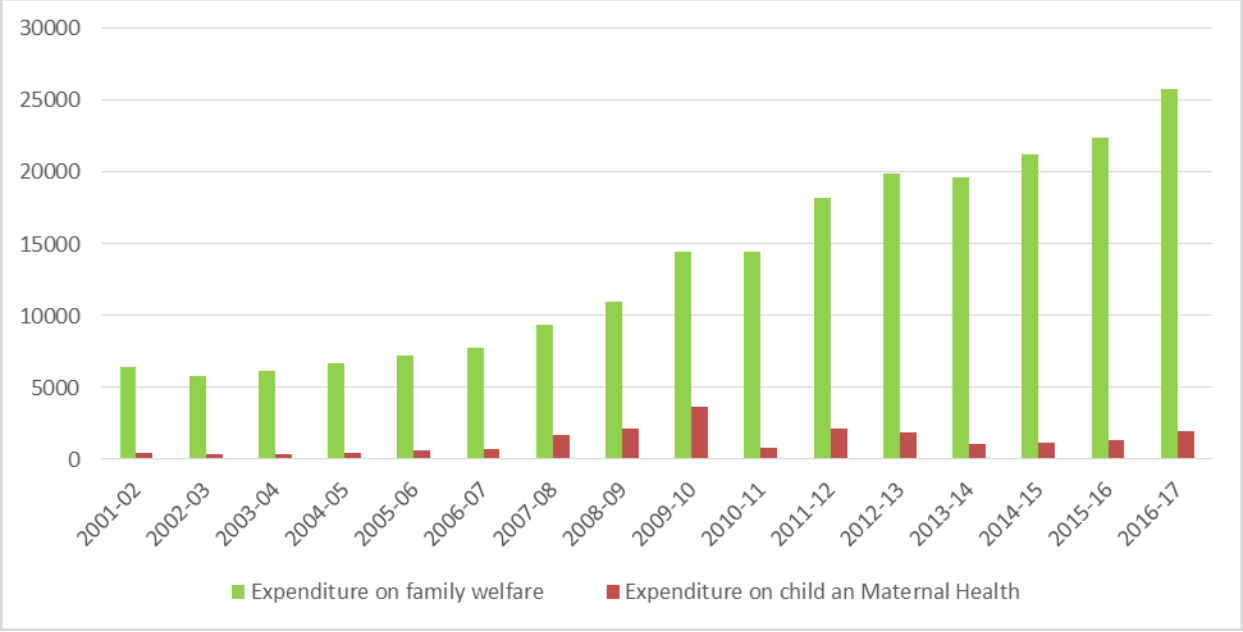


Figure 3.5(a) the expenditure on maternal and child health as a proportion of total expenditure on family welfare



Though maternal and child health has witnessed an annual compound growth rate of approx. 11 percent but on the basis of observation of figure 3.5, it can be inferred that the total expenditure on maternal and child health has neither acceleration nor deceleration but we shall try to check it statistically by using the following model and estimation method. This definitely would give us a better picture of the trend of government spending on maternal and child health.

Acceleration and Deceleration:

In order to find the acceleration and deceleration, the model to be used is,

$$\log Y = a + bt + ct^2$$

Then regressing log Y on t and t^2 we get the value of the coefficients i.e. b and c.

If the value of the coefficient c is significant and positive then there is said to be an acceleration in the growth rate and if c is significant and negative then there is said to be a deceleration in the growth rate. But if c is insignificant there will be neither acceleration nor deceleration. So, to check that let us first form a hypothesis.

H_0 : c is insignificant

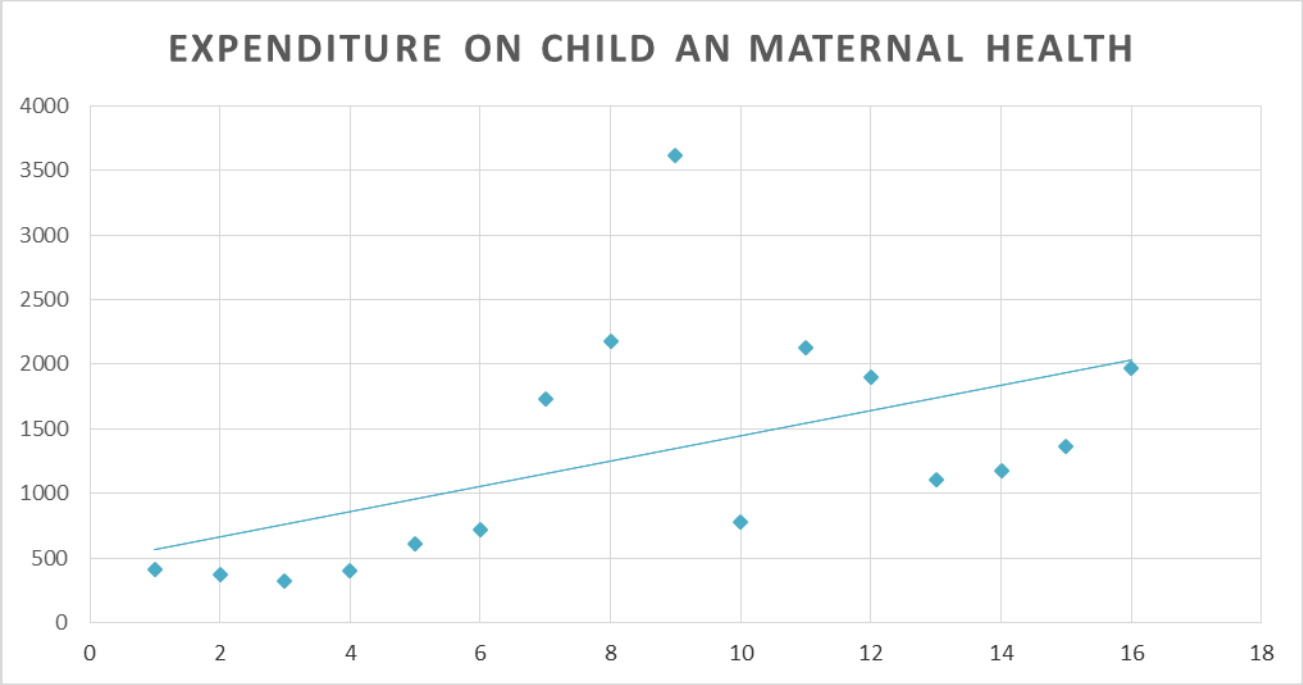
Now, regressing log Y on t and t^2 , we get the coefficient values of b and c as shown in table 3.5(a)

From table 3.5(a) we can see that the value of c is negative and significant at 5 percent. So we reject the null hypothesis and hence conclude that there is deceleration in the growth rate of total expenditure on maternal and child health, which is a very depressing sight of government's intervention in maternal and child health despite the prevalence of high MMR and IMR in the state. This is also reflected in the scatter plot diagram as shown in figure 3.5(b) where time is taken along the X-axis and total expenditure of the government on maternal and child health is taken along the Y-axis. After plotting the data it can be observed that the points are not scattered linearly along the trend line indicating a deceleration in the total expenditure of the government.

Table 3.5(a) Results of regression of total expenditure on maternal and child health on t and t^2

Model	Unstandardized Coefficients		Standardized coefficients	t	sig
	b	Standard Error	Beta		
Constant	5.208	.409		12.723	.000
t	.368	.111	2.334	3.325	.005
t^2	-.015	.006	-1.679	-2.391	.033

Figure 3.5(b) Trend of total expenditure of the state government of Assam from 2001-02 to 2016-17



Now we would check if there is a presence of any structural break in the state government expenditure on maternal and child health. This would give us a deeper outlook into the change of trend government expenditure on maternal and child health and why? Though from figure 3.5. it can be observed that there that seems to be the presence of structural breaks in the years 2006-07, 2008-09, 2009-10 and 2010-11, but we shall try to find it statistically for perfect results using the following model and estimation procedure.

Structural Break:

To find the structural break we need to use the following regression,

$$\log Y = a + bt + c(dt)$$

where, D=0, up to the suspected structural break
and D=1, after the point of structural break.

Now regressing log Y on t and dt we get the value of the coefficients i.e. b and c. If the value of the coefficient c is significant then there is said to be a structural break in the assumed year and if c is insignificant then there is said to be no structural break in the assumed year.

After going through a trial and error process we found that there are structural breaks in the years 2004-05,2005-06, 2009-10, 2010-11, 2011-12 and 2012-13.

This can be shown as follows,

- ***2004-05***

Let, H_0 : The year 2004-05 has no structural break

So we take, D=0, up to 2004-05
and D=1, after 2004-05

After the regression, we get the following values of the coefficients b and c in Table 3.5(b) where we find that the value of the coefficient c is significant at 10 percent (.055<.10). So we reject the null hypothesis and hence can conclude that there is a structural break in the year 2004-05.

Table 3.5(b) Results of regression of total expenditure on maternal and child health on t and dt for 2004-05

Model	Unstandardized Coefficients		Standardized coefficients	t	sig
	b	Standard Error	Beta		
Constant	6.522	.366		17.812	.000
t	-.204	.152	-1.293	-1.342	.203
dt	.271	.129	2.027	2.104	.055

- ***2005-06***

Let, H_0 : The year 2005-06 has no structural break

So we take, D=0, up to 2005-06
and D=1, after 2005-06

After the regression, we get the following values of the coefficients b and c in Table 3.5(c) where we find that the value of the coefficient c is significant at 10 percent (.098<.10). So we reject the null hypothesis and hence can conclude that there is a structural break in the year 2005-06.

Table 3.5(c) Results of regression of total expenditure on maternal and child health on t and dt for 2005-06

Model	Unstandardized Coefficients		Standardized coefficients	t	sig
	b	Standard Error	Beta		
Constant	6.481	.389		16.641	.000
t	-.110	.127	-.698	-.868	.401
dt	.182	.102	1.435	1.785	.098

- ***2009-10***

Let, H_0 : The year 2009-10 has no structural break

So we take, D=0, up to 2009-10
and D=1, after 2009-10

After the regression, we get the following values of the coefficients b and c in table 3.5(d) where we find that the value of the coefficient c is significant at 5 percent (.002<.05). So we reject the null hypothesis and hence can conclude that there is a structural break in the year 2009-10.

Table 3.5(d) Results of regression of total expenditure on maternal and child health on t and dt for 2009-10

Model	Unstandardized Coefficients		Standardized coefficients	t	sig
	b	Standard Error	Beta		
Constant	5.283	.273		19.370	.000
t	.282	.049	1.786	5.765	.000
dt	-.133	.034	-1.203	-3.882	.002

- ***2010-11***

Let, H_0 : The year 2010-11 has no structural break

So we take, D=0, up to 2010-11
and D=1, after 2010-11

After the regression, we get the following values of the coefficients b and c in table 3.5(e) where we find that the value of the coefficient c is significant at 10 percent (.074<.10). So we reject the null hypothesis and hence can conclude that there is a structural break in the year 2010-11.

Table 3.5(e) Results of regression of total expenditure on maternal and child health on t and dt for 2010-11

Model	Unstandardized Coefficients		Standardized coefficients	t	sig
	b	Standard Error	Beta		
Constant	5.572	.338		16.481	.000
t	.203	.055	1.287	3.709	.003
dt	-.074	.038	-.675	-1.947	.074

- ***2011-12***

Let, H_0 : The year 2011-12 has no structural break

So we take, D=0, up to 2011-12
and D=1, after 2011-12

After the regression, we get the following values of the coefficients b and c in table 3.5(f) where we find that the value of the coefficient c is significant at 5 percent (.022<.05). So we reject the null hypothesis and hence can conclude that there is a structural break in the year 2011-12.

Table 3.5(f) Results of regression of total expenditure on maternal and child health on t and dt for 2011-12

Model	Unstandardized Coefficients		Standardized coefficients	t	sig
	b	Standard Error	Beta		
Constant	5.537	.299		18.538	.000
t	.204	.044	1.296	4.633	.000
dt	-.081	.031	-.724	-2.590	.022

- ***2012-13***

Let, H_0 : The year 2012-13 has no structural break

So we take, D=0, up to 2012-13
and D=1, after 2012-13

After the regression, we get the following values of the coefficients b and c in table 3.5(g) where we find that the value of the coefficient c is significant at 5 percent (.014<.05). So we reject the null hypothesis and hence can conclude that there is a structural break in the year 2012-13.

Table 3.5(g) Results of regression of total expenditure on maternal and child health on t and dt for 2012-13

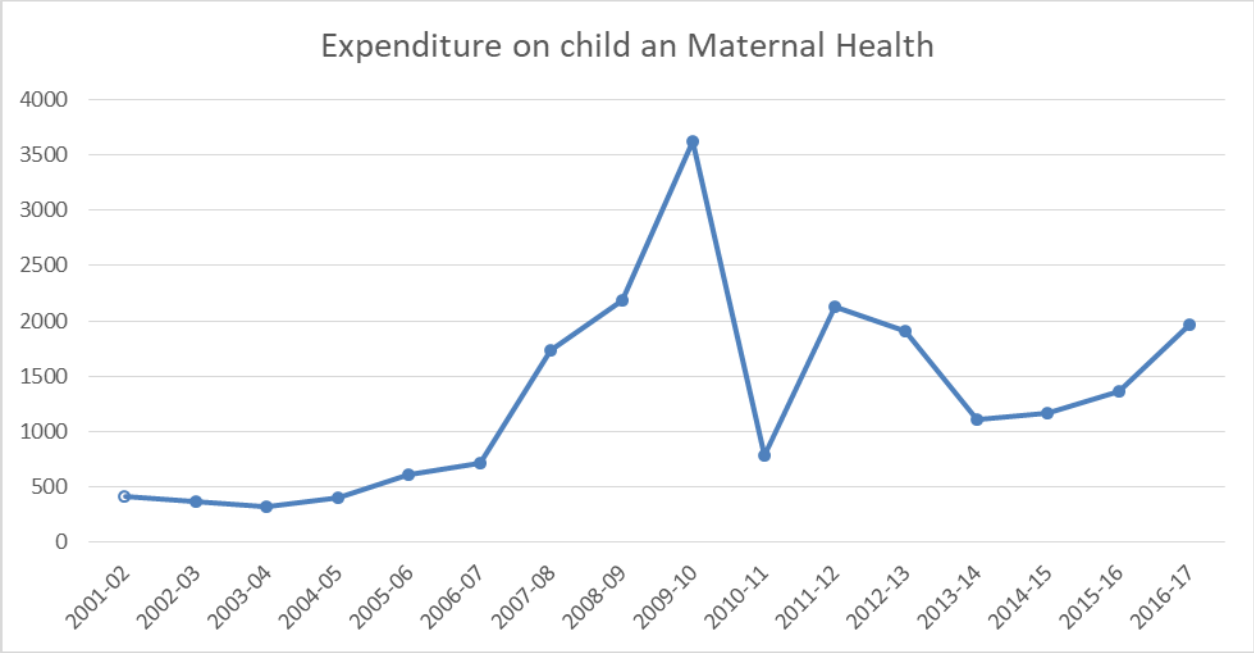
Model	Unstandardized Coefficients		Standardized coefficients	t	sig
	b	Standard Error	Beta		
Constant	5.574	.277		20.142	.000
t	.192	.038	1.216	5.098	.000
dt	-.078	.028	-.676	-2.836	.014

Thus, we can see that expenditure on maternal and child health has structural breaks in years 2004-05, 2005-06, 2009-10, 2010-11, 2011-12 and 2012-13. The easiest perception about the reason behind the structural break in 2005-06 could be the implementation of National Rural Health Mission in 2005. In 2011-12, in order to reduce MMR, the state government proposed to provide mobile phones to the ASHA workers and for this Rs. 95 crore was allocated under Assam Vikash Yojana for the implementation of these projects, which might have caused the structural break in 2011-12. Again, in 2012-13 a major initiative under the banner of Janani Sishu Suraksha Karyasuchi (JSSK) has been launched in the state which provides free health care to all pregnant women required for delivery or surgery which might have boosted the

expenditure on maternal health resulting in a structural break in 2012-13. However the reason behind the structural break in 2010-11 is not known.

The red data points in Figure 3.5(c), represent the structural breaks in the total expenditure of the state government.

Figure 3.5(c) Structural break in expenditure of the state government of Assam on maternal and child health from 2001-02 to 2016-17



3.6. Conclusion

The analysis of government expenditure done in this chapter sheds some light on the loopholes that exist in the system of spending in the health sector. From our analysis, it was found that in Assam, on an average only 1.1 percent is spent on health. Low-slung healthcare expenditure as a proportion of Gross State Domestic Product (GSDP) is a reflection of low public health spending in Assam. Also, health expenditure as a percentage of total expenditure as well as social expenditure was found to have a declining trend. It was found that revenue expenditure as a

proportion of total expenditure has always been higher as compared to that of capital expenditure for the entire period under consideration. Revenue expenditure of the state expenditure has been increasing over time but the capital expenditure has remained almost unwavering at a very low level. The capital expenditure has been paid little importance by the state government. Though the National Rural Health Mission (NRHM), implemented in 2005, laid special emphasis on the development of health infrastructure, there has been no sign of an increase in capital expenditure of the state government. This is also evident from the low growth rate of capital expenditure over the last 16 years which stood at only 3 percent (approx.). Also both, revenue and capital expenditure on medical and public health it is found that there is neither acceleration nor deceleration in the growth of government expenditure. Considering the pattern of revenue expenditure of the state government it was observed that over the last 16 years, revenue expenditure in all of its minor heads has increased. But, capital expenditure on minor heads increased at a negligible rate. Also that there has been no systematic allocation of expenditure on strengthening the health infrastructure, which is one of the palpable cause of poor health outcomes of the state. The chapter also revealed that despite capturing an annual compound growth rate of 11 percent, statistically, government spending in the maternal and child health showed a decelerating trend, which is a very depressing sight of government's intervention in maternal and child health despite the prevalence of high MMR and IMR in the state which is a matter of serious concern for the state.

Chapter-4

Health Insurance in Assam- an Analysis of State-Sponsored Schemes

4.1. Introduction

Health care is a merit good and its universal access is critically important not only from the point of view of social and economic equity but more from a moral perspective. Article 21 of the Indian Constitution also ratifies that the highest achievable standard of health is a fundamental right of every human being. Over the years, different countries have adopted different policy measures to make health care services universal to its people. Health schemes and programmes are one option of making healthcare services universal to the people. The health sector of India, though, is one of the fastest and largest growing sector the country, yet it continues to be characterized by high out of pocket expenditure, less financial security and low insurance coverage amongst both rural and urban population. According to World Bank, only 15% of the Indian population is insured and 94% of the health expenditure is paid by individuals out of the pocket. The individuals, besides using their income and savings, also borrow money or sell their assets to meet their healthcare needs, resulting in health shocks that potentially drive these families and individuals into perennial debt traps. It is against this backdrop, that India too, have come up with a variety of health insurance schemes and programme and this wave of new government-sponsored health insurance schemes (GSHISs) represents an alternative way of mobilizing and allocating resources to health care. "The GSHISs have developed a new set of arrangements to govern, allocate and manage the use of public resources for health, including an explicit (and delivered) package of services, greater accountability for results, and a 'built-in' bottom-up design to reach universal coverage by first covering the poor." (World Bank, 2012).

The health sector of Assam too has been one of the core points of focuses for the state government over the years. Despite the fact that the health sector of the state has been improving over the years, Assam continues to witness the largest MMR in the country, high infant mortality

rate and low vaccination coverage. Also, Assam has a humble state of availability and accessibility of health infrastructural facilities. As per the Rural Health Statistics (RHS) bulletin, as on 31st March 2018, Assam bump into a shortfall of 21 percent sub-centres, 1 percent primary health centres and 28 percent community health centres. Not only this, Assam also witnessed a shortfall of 163 surgeons at CHCs, 80 obstetricians and gynecologists at CHCs, etc. as on 31st March 2018. This humble state of the public health sector left the people with no choice than to resort to the private health sector for quality health care services resulting in a high out of the pocket expenditure. In order to provide quality health care services universal to its people, besides intervening in the health sector through incurring healthcare expenditure to strengthen the health infrastructural facilities, as already seen in chapter 3, the state governments also undertook and implemented several schemes and programmes addressing the major healthcare needs of the people, for the improvement of the health outcomes and also to reduce the high out of pocket expenditure of the people.

In this chapter, an examination of the intervention of the state government in the health sector in terms of the various health insurance schemes has been done. The present chapter is divided into six sections where Section 4.1, looks into the various schemes undertaken by the government of Assam solely and also those schemes getting implemented in Assam by the State government in the health sector of Assam. In Section 4.2, analysis of the budget speech of the government has been done from the year 2001-02 to 2019-20 to observe which scheme received priority by the government in its budget speech, section 4.3 showcases the allocation and utilization of funds in the schemes and finally, section 4.3 is the concludes the chapter.

4.2. Health sector schemes in Assam and their Outcomes

The state governments have been undertaking and implementing a number of schemes and programmes from time to time. These schemes could be either Central, State or a joint collaboration between the Centre and the States. There are a number of schemes undertaken by the state government. A detailed study of all those schemes is beyond the scope of this chapter.

However, based on the data furnished by the Department of Health and Family Welfare, Government of Assam and Department of Planning and Development, Government of Assam, it has been found that the main target areas of the health department of Assam are mental health of the people, heart disease, kidney transplant, health care for elderly, diabetes patients, cancer, deafness, blindness, mother and child health, cleft lips, trauma care, population below the poverty line, tea tribes, etc. The scheme targeting Women and Child is Janani Suraksha Yojana, Janani Sishu Suraksha, Majoni Scheme under Assam Bikash Yojana, Mamata, Mamoni Scheme under Assam Bikash Yojana, and Sneha Sparsh. Targeting BPL population the state undertook Assam Arogya Nidhi, Atal Amrit Abhiyan, Rashtriya Swasthya Bima Yojana and Morom under Assam Bikash Yojana, for children and young adult with untreated cleft lips or cleft palates, the Operation Smile initiative, for trauma care, Assistance to State Capacity building in Trauma Care, for people with Psychiatric disorder, the National Mental Health Programme, for Kidney transplant, the Susrusha scheme, for heart disease, Free Operations for Children having Congenital heart disease, for diabetes patients, the National Programme for Prevention and Control of Diabetes, Cardiovascular Diseases and Stroke (NPCDCS), for deafness, the National program for prevention and control of deafness (NPPCD), for blindness, the National Program for control of Blindness, for cancer, the Cancer Control Programme, for senior citizens, the Health Care for the Elderly , for tea tribes, PPP with Charitable Hospital, PPP with Tea Garden Hospitals and Chah Bagicha Jeevan Suraksha Yojana and for health facility, the Sanjeevni, Samarth and Chief Minister's Free Diagnostic Services, besides having the Flagship Scheme of National Rural Health Mission and National Urban Health Mission clubbed together as the National Health Mission. Among all these schemes Majoni, Mamoni, Morom, Sneha Sparsha, Sanjeevni, Susrusha, Atal Amrit Abhiyan, PPP with Charitable Hospital, PPP with Tea Garden Hospitals, Chief Minister's Free Diagnostic Services and Free Operations for Children having congenital heart disease are state-sponsored schemes, Assam Arogya Nidhi, Rashtriya Swasthya Bima Yojana (RSBY), and Operation Smile is a joint scheme and the rest are centrally sponsored schemes.

The various ongoing schemes of the state government can be discussed as follows:

1) ***Mamoni under Assam Bikash Yojana:*** The launch of Mamoni, a state-sponsored scheme, was announced by the state government in the budget speech of 2009-10. Under this scheme, during the first registration, the pregnant women are given a book on antenatal, natal and postnatal care which is called the Mamoni. During the second and third stage of antenatal care (ANC), the pregnant women are given an account payee cheque of Rs. 1000 in two equal installments as nutritional support. All would-be mothers are eligible for availing the scheme. Under the scheme, at first the ANM will make a list of a pregnant woman registered for 1st ANC under her Sub Centre and will send it to the PHC Accountant. Subsequently, the PHC Accountant will issue the cheque and deliver it to the Sub Centre as per the list submitted by the ANM. The amount will be given only in A/C Payee cheque making it is mandatory for all the pregnant women to open a bank account, immediately after first registration.

2) ***Majoni under Assam Bikash Yojana:*** Along with Mamoni, the state government in its budget speech of 2009-10 also introduced Majoni, is a state-sponsored scheme. Under this scheme, a newborn girl –child, called 'Majoni' will be given a fixed deposit worth Rs. 5000 which will be issued in the name of the Girl Child and the date of maturity will be the eighteenth birthday of the girl while the mother will get Rs. 1000 in cash. For availing the benefits of the scheme the birth must be Institutional; families conforming to the government policy of two children, '*Hum Do Humare Do*' only, will be eligible the birth will have to be registered.

3) ***Morom under Assam Bikash Yojana:*** Followed by Majoni and Mamoni, the state government in its budget speech of 2010-11 introduced another state-sponsored scheme called Morom. The main aim of the scheme is to compensate wage loss during the period of hospitalization for the wage earners and for meeting the diet requirement and post-hospitalization care of the patient. Financial assistance of Rs. 75 per day for a maximum

of 7 days will be provided to all the patients admitted in the general ward of the Medical Colleges, Rs. 50 per day for a maximum of 5 days to all the patients admitted in the general ward of District Hospitals, Rs. 30/- per day for a maximum of 5 days to all the patients admitted in the general ward of the Sub-divisional civil hospital (SDCHs) or community health centres (CHCs) or Primary health centres (PHCs). Only the inpatients of the government hospitals are eligible for the scheme. The payment of the benefit would be made by the Accounts Manager of the concerned Health Institution after verification of the Admission and Discharge Record of the patient. However, in an exceptional case, if the patient is very poor the Accounts Manager may make payment before the time of discharge. All such payments will be made only on Day-to-Day basis and shall not, under any circumstances, exceed the amount that is due for the days for which the patient has already been in hospital.

4) ***Mamata:*** The state government in its budget speech of 2009-10, proposed to start a new scheme called Mamata, which mainly seeks to reduce IMR and MMR in the state. This scheme insists post-delivery hospital stay of 48 hours of the mother and the new-born. On discharge from the hospital, the mother receives the 'Mamata' kit, a gift hamper containing some basic amenities like towels, blankets, dresses, mosquito nets, baby powder, baby oil, for the baby born in government hospitals. In the budget speech of 2015-16 the government stressed the continuation of Mamata programme

5) Sneha Sparsha: Sneha Sparsh, literally meaning the 'touch of love', is a state-sponsored scheme launched on 15th April 2013, the first day of Assamese New Year the year by the state government. This scheme is a unique health care initiative which aims to extend financial assistance for specialized treatment to children below 12 years of age from families with annual income less than Rs. 2.50 lakh and those belonging to BPL families, with serious ailments such as Thalassemia requiring Bone Marrow Transplant (financial assistance up to Rs. 10 Lakh per case and Rs. 1.00 Lakh will be provided to children suffering from Thalassemia, who are not fit for Bone Marrow Transplant but require specialized treatment), Kidney Transplant (Rs. 3.00 Lakh per case to BPL beneficiaries and Rs. 2.00 Lakh per case to APL beneficiaries), Liver Transplant (Rs. 16.00 Lakh per

case to BPL beneficiaries and Rs. 10.00 Lakh per case to APL beneficiaries), Cochlear Implant (Rs. 5.35 Lakh per case to BPL beneficiaries and Rs. 3.00 Lakh per case to APL beneficiaries), neurological anomaly (to Rs. 50 Thousand), limb deformities requiring artificial and motorized limb (Rs. 1.00 Lakh for Cosmetic Limb and up to Rs. 2.50 Lakh if Motorized Artificial Limb), specialized eye surgery (Rs 15 Thousand), blood cancer requiring chemo therapy (to Rs. 1.00 Lakh per case), and various solid tumors (Rs. 25 thousand and Rs. 50 Thousand for children in need of cancer related surgery). Under this scheme, treatment of some of the treatments such as Blood Cancer, Tumour, Neurological Anomalies, Specialized Eye Surgery, and Thalassemia may be done in the Medical College Hospitals and other Hospitals inside the state, whereas treatment of some of the diseases such Bone Marrow Transplant, Cochlear Implant, Liver Transplant, Kidney transplant and Artificial Limb as may require referral to suitable Health Institutions outside the state. In the budget speech of 2014-15, the government announced this a new healthcare initiative.

6) ***Sanjeevni:*** Sanjeevni is a state-sponsored scheme launched in the year 2010-11 by the Assam government. It is basically a scheme for the up-gradation of health facility in the rural areas. It tries to expand the coverage the health services in the village areas of Assam by providing screening of communicable, non-communicable and lifestyle diseases and laboratory investigation to the remotest corner of the State covering 2 villages & a population of 3000 each day on an average & 48 villages in a monthly cycle of 24 days. This programme was introduced in the entire State with 80 Mobile Health Units (MHU) with each MHU manned by a Registration & Measurement Officer, ANM, Laboratory Technician, Pharmacist, Paramedic and Driver and equipped with a laptop loaded with the VHOP application software, biometric scanner, basic diagnostic equipment (HB meters, Gluco-meters, Manometers, Digital BP) to spot test random blood sugar, Urine albumin, etc. and medicines. The paramedics with Sanjeevani team will focus on lifestyle and insidious diseases such as hypertension, diabetes, epilepsy, asthma, etc. In the budget speech of 2011-12, the government stressed that the Sanjeevani Programme will be expanded to cover 8000 villages in the state.

7) ***Susrusha:*** Susrusha is a state-sponsored scheme launched by the state government in August 2010. The scheme aims to provide financial assistance up to Rs. 1 lakh for the patients who have been recommended kidney transplant or who have undergone a kidney transplant. However, Government servants, public sector employees, and employees who are entitled to medical reimbursement from their employer and individuals with income more than Rs 3 lakh per year shall not be entitled to the benefit under this scheme.

Table 4.1. Physical achievement under Susrusha from 2009-10 to 2016-17

Sl. No	Year	Physical Achievement
1	2009-10	-
2	2010-11	44
3	2011-12	73
4	2012-13	61
5	2013-14	47
6	2014-15	46
7	2015-16	56
8	2016-17	59
	Total	386

Source: Government of Assam, Health and Family Welfare

8) ***Assam Arogya Nidhi (AAN)***: In the budget speech of 2011-12, the Assam government stated that the Assam Arogya Nidhi will be crated with an initial corpus of Rs 6 crore for poor patients. The AAN was then, launched by the state government in 2012-13. The ANN is an Assam government initiative with 50% of the assistance from the central government. This scheme aims to provide financial assistance up to Rs. 150000 for general and specialized treatment of life-threatening diseases such as heart diseases and heart surgery, cancer, kidney and urinary diseases, orthopedic, thalassemia, bone marrow transplant, AIDS, and chronic mental illness with surgical treatment, of injuries caused by natural and manmade disasters, such as industrial/farm/road/rail accidents, bomb blasts etc. BPL families and families having a monthly income of less than Rs. 10,000 are eligible for the scheme and the beneficiaries are selected by a Selection Committee that has been notified by the Government of Assam. Apart from all

Government hospitals and health institutions, the AAN include 37 the impanelled private referral hospitals with 30 hospitals outside the state and 7 hospitals in the state. So far, 822patients have availed the benefits of AAN. However as per the NRHM as on date 3175 patients have benefited from the AAN.

Table 4.2 Physical achievement under AAN from 2012-13 to 2018-19

Sl. No	Year	Physical Achievement
1	2012-13	5
2	2013-14	442
3	2014-15	497
4	2015-16	86
5	2016-17	2124
6	2017-18	0
7	2018-19	21
	Total	3175

Source: Government of Assam, Health and Family Welfare, Assam, NRHM

9) ***Rashtriya Swasthya Bima Yojana (RSBY):*** It is a joint initiative taken by the centre and the state and was launched in the year 2009. This scheme mainly targets to reduce the out of pocket expenditure of the BPL population and Mahatma Gandhi National Rural Livelihood Mission Society (MGNREGA) workers (maximum of 5 members of the family) from major health shocks that require hospitalization. The Scheme provides financial assistance of Rs. 30,000 per family. It covers all pre-existing diseases, 1 day pre and 5 day post-hospitalization expenses, 1020 surgical packages, including maternity & newborn care. The rates have been pre-defined. Also a transportation cost (Rs.100 per visit) with an overall limit of Rs.1000 is paid to the beneficiary. RSBY is a Smart Card based cashless Health Insurance Program. In the budget speech of 2011-12 the state government said that the Rashtriya Bima Yojana scheme will be extended to 6 districts.

10) ***Operation Smile:*** The Operation Smile Scheme was jointly initiated by the Department of Health & Family Welfare, Government of Assam, NHM and Operation Smile as a special drive for Cleft lip and Cleft Palate patients in the year 2009. This scheme mainly

targets to provide free reconstructive surgery for children and young adults who suffer from cleft lips, cleft palates, burns, and other facial deformities. A critical element towards fulfilling the vision of a 'Cleft Free Assam' is the establishment of a Comprehensive Cleft and Child Care Centre which was set up at the Mahendra Mohan Choudhury Hospital, Guwahati for providing year-round surgical care to patients with cleft deformities. This centre is conceived to be a state-of-the-art cleft care centre matching global standards to provide comprehensive care to patients of Assam having the capability of running 6 operating tables simultaneously. In the budget speech of 2011-12, the government highlighted that under Operation Smile, 1000 patients will be operated in the newly developed facilities in MMC Hospital in Guwahati.

11) ***Atal Amrit Abhiyan*****:** In the budget speech of 2016-17, the state government introduced an all-new scheme named the **Atal Amrit Abhiyan (**AAA) which is basically a state-sponsored health insurance scheme. The scheme covers individuals in both BPL and APL families with annual income up to Rs 5 lakhs which includes 90% of our population. The scheme incorporates high cost, critical care procedures in six disease groups, namely, cardiovascular diseases, Neurological conditions, Cancer Kidney diseases, Burns and Neonatal diseases. Per person per year will be assured a sum of Rs. 200000. The beneficiaries will be charged Rs. 100 per member per year so that as enrolment increases, this scheme becomes self-sustainable in terms of budgetary requirement. For the year 2016-17, the government allocated 45 crores for this scheme. In the budget speech of 2017-18, formation of a dedicated society to implement the scheme was declared by the government and finally the budget speech on the health and family welfare category of 2018-19 opened up with the announcement of this scheme being launched on the 25th of December 2016. The government also said to have allocated Rs 100 crore to the Atal Amrit Abhiyan in this budget. Again in the budget speech of 2019-20, the coverage of the Atal Amrit Abhiyan scheme was proposed to be expanded to include ICU packages, trauma, critical care pediatrics and pediatric Surgery. The government named this expanded AAA as the Vistarita Atal Amrit Abhiyan an announced an allocation of Rs. 200 crores in this budget year. Till March 2017, the AAA has proved beneficial to a total of 3236 numbers of patients in the first round of reimbursement and a total of 6093

patients in the second round were benefited. A total amount of Rs. 312498148 financial assistance is distributed among these 6093 beneficiaries.

12) ***PPP with Charitable Hospital:*** For the improvement of maternal and child health, under this scheme, NHM, Assam has signed MoU with the Private hospital or trust hospitals. It is a state initiative under which the charitable hospitals mutually agreed upon providing health care services to a large number of urban poor population within in district especially in municipal wards, outreach areas and BPL families, The Maternal and child health services in the selected wards or slum of the respective districts, vaccination of the children, routine antenatal care to all women., Basic laboratory services like Blood, Urine & Stool examination for expected mothers, Delivery of the pregnant mothers in the hospital for these wards at pre-prescribed rates, family planning services like, Condom, IUCD insertion and permanent sterilization for female etc. and creating awareness on population stabilization by using family planning methods. For rendering these services an amount of Rs.1500000 lakh per annum is being provided to the Hospital Management Committee. At present there are 10 charitable hospitals under this scheme.

13) **PPP with Tea Garden Hospitals:** In order to bring down the MMR and IMR figures which is the highest among the tea garden workers as per the surveys, the government in its budget speech, 2016-17, proposed to launch a Tea Garden Sub Plan to ensure implementation of comprehensive primary health care with major focus on Mother and Child Health. So to address the health care facilities of the tea garden workers who are one of the marginalized and deprived classes of the society, NHM Assam has signed an MoU with tea garden hospitals in the year 2007-08 to make available healthcare facilities available to the all the employees of the tea gardens and its adjoining areas. Central assistance of Rs.7.5 lakh was allocated to each tea garden hospital under PPP. Besides providing maternal and child health care, the scheme is envisaged to provide emergency services, referral services, take care of communicable and non-communicable diseases and also develop the existing infrastructure in the tea garden hospitals. A detailed survey

of all Tea gardens of the State will be carried out and critical gaps in terms of health infrastructure, manpower, services, etc. identified for each tea garden. To minimize those gaps the government proposed to deploy 40 new Mobile Medical Units exclusively for Tea Garden areas. In the budget speech of 2017-18, the government announced having analyzed the tea gardens and reported that only 57% of the tea gardens had functional hospitals. The government also proclaimed to increase the number of Mobile Medical Units from 40 to 80. At present 150 tea garden hospitals are covered under PPP of which 15 number belongs to Cachar, 37 in Dibrugarh, 12 in Golaghat, 9 in Jorhat, 8 in Lakhimpur, 1 in Marigaon, 7 in Nagaon, 16 in Sibsagar, 21 in Sonitpur, 17 in Tinsukia and 7 in Udalgiri.

14) ***Samarth:*** Addressing the issue of high IMR in the budget speech of 2017-18 too, the government said, "We have 45 lakhs children between 0 to 6 years, out of a total population of about 3.12 crores. Assam has the dubious distinction of having one of the highest infant mortality rates in India, at 47 per 1000 live births. A significant proportion of our infant deaths are due to serious birth defects which need urgent medical and surgical attention. Besides these, there is a large child population suffering from serious, often life-threatening illnesses. Untreated and incompletely treated childhood disorders and birth defects lead to permanent disability and premature deaths."(Budget Speech of Finance Minister, 2017-18). To address this issue the state government proposed the scheme named **Samarth Assam** which would ensure screening procedures for detection of birth defects, the establishment of a robust database with Birth Defects Registry, proper treatment and follow-ups. For this a Children's Hospital was committed to be established In Guwahati.

15) ***National Rural Health Mission:*** In the budget speech of 2006-07, the state government announced the implementation of the flagship programme of the government of India called the National Rural Health Mission (NRHM) in Assam, under which aimed at providing quality health care services to the rural people. This Flagship programme includes various disease control programme such as Malaria control, cataract blindness, tuberculosis (National Tuberculosis Control Programme), leprosy, Goiter, etc. Besides

such disease control programmes, the flagship programme incorporates the Reproductive and Child Health Programme (RCH-II) and Janani Suraksha Yojana (JSY). For the initial year, an amount of Rs513 crore was budgeted. Routine Immunization was also emphasized under NRHM. This flagship mission is implemented and undertaken by the joint collaboration of a State Health Mission.

16) ***National Urban Health Mission:*** The National Urban Health Mission (NUHM), a sub-mission of National Health Mission (NHM) was approved by the Cabinet on 1st May 2013. The main aim of the scheme is to address the health concerns of the people living in slums of urban areas such as homeless, rag-pickers, street children, rickshaw pullers, construction and brick workers, sex workers and other temporary migrants. It also lays focus on the supply of safe drinking water, sanitation, school education, etc. which contributes to quality health. The programme also addresses the peculiarities of urban health needs which constitutes non-communicable diseases (NCDs) as a major portion of the burden of diseases. The NUHM, in Assam, so far has covered fourteen urban areas namely, Kamrup Metro, Cachar, Dibrugarh, Nagaon, Bongaigaon, Dhubri, Goalpara, Jorhat, Karimganj, Lakhimpur, Sibsagar, Sonitpur, Tinsukia and Karbi Anglong. All these districts have headquarters and a population of above fifty thousand. At present, the National Rural Health Mission and the National Urban Health Mission has been clubbed together and comes to be known as the National Health Mission.

17) ***National Programme for Prevention and Control of Diabetes, Cardiovascular Diseases and Stroke (NPCDCS):*** In the budget speech of 2011-12, the state government focused mainly on the implementation of this programme for Prevention and Control of Cardiovascular Disease, Diabetes and Stroke. An initial amount of Rs 5 crore has been provided for the purpose. It is a centrally sponsored scheme launched in the year 2010. Its main objective is to prevent and control common Non-Communicable diseases (NCD)s through behavior and lifestyle changes, to provide early diagnosis and management of common NCDs and to build capacity at various levels of health care for the prevention and also diagnosis and treatment of common NCDs.

18) ***Health Care for the Elderly:*** To provide separate and specialized comprehensive healthcare to the senior citizens (above 60 years) in terms of preventive, curative and rehabilitative services at various level of State healthcare delivery system including outreach services, the central government launched this programme in 2010. This scheme was also highlighted in the budget speech of 2011-12. Before this scheme, another old age health care support was launched in the year 2003-04, which was mentioned in the budget speech of 2004-05.

19) Janani Suraksha Yojana (JSY): It is a centrally sponsored safe motherhood intervention under the National Rural Health Mission (NRHM) launched on 12th April 2005. Its main aim is to reduce maternal and neonatal mortality by promoting institutional delivery among the poor pregnant women. The scheme also provides financial assistance of Rs. 1400 to all mothers from rural areas irrespective of age, birth order, or income group (BPL & APL) if delivered at Public Health Facility or Accredited Private Hospital. And financial assistance of Rs 500 is provided to all mothers per birth up to two live births to the pregnant women who have attained 19 years of age and belong to the below poverty line (BPL). We also have the Janani Sishu Suraksha Karyakram which aims at reducing the out of pocket expenditure by promoting free delivery, diagnostics, drugs, diet, etc. Under the JSSK, the Assam government has Adarani scheme which provides free conveyance of both mother and the child from the hospital after delivery. Till March 2016, total of 235 Adarani vehicles had been operating in the state.

20) ***Assistance to State for Capacity Building in Trauma care:*** It is also a centrally sponsored Scheme launched during the 11th plan period. Up-gradation of trauma care facilities of 140 identified state Government hospitals to benefit the admitted trauma patients in the designated centres is the main objective of the scheme.

21) ***Cancer Control Programmes:*** In order to help the cancer patients and to decrease the negative impact of cancer on individuals and communities through primary prevention of cancers by health education specially regarding hazards of tobacco consumption and necessity of genital hygiene for prevention of cervical cancer and through secondary prevention i.e. early detection and diagnosis of cancers, for example, cancer of cervix, breast and of the oropharyngeal cancer by screening methods, this centrally sponsored scheme was launched in 1975.

22) ***National Mental Health Programme:*** In order to help people with psychiatric disorder, to ensure availability and accessibility of minimum mental health care for all in the foreseeable future, particularly to the most vulnerable and underprivileged sections of population, to encourage application of mental health knowledge in general health care and in social development and to promote community participation in the mental health services development and to stimulate efforts towards self-help in the community, the central government launched this scheme in 1982. In Assam, this scheme is in operation in the district hospital of Goalpara, Nagaon, Darrang, Morigaon, Tinsukia, Dhubri, Karbi Anglong, and Hailakandi. However, the major problem faced by this scheme is the lack of regular doctors and psychologists. Many patients are operated by contractual doctors due to unavailability of health manpower.

23) ***Free Operations for Children having congenital heart disease:*** This state initiative taken by the state government that came into effect from 1st July 2010 aims to bear the expenses of surgery i.e. to provide free surgery at Narayana Hrudayalaya, Bangalore, Kolkata & Guwahati to children between the age 0-14 years born to permanent residents of Assam who have been recommended surgery for congenital heart disease by the government doctors. For availing the benefits of the scheme the guardian's annual income should not exceed Rs. 6 lakh.

Table 4.3 Physical achievement under Free Operations for Children having congenital heart disease from 2009-10 to 2016-17

Sl. No	Year	Physical Achievement
1	2009-10	-
2	2010-11	364
3	2011-12	436
4	2012-13	381
5	2013-14	776
6	2014-15	779
7	2015-16	745
8	2016-17	691
	Total	4172

Source: Government of Assam, Health and Family Welfare

24) ***Janani Shishu Suraksha Karyakram (JSSK):*** The JSSK was launched by the government of India on 1st June 2011. In 2012-13 budget speech, the state government announced the launch of this major initiative in the state under the banner of Janani Sishu Suraksha Karyasuchi (JSSK) which enables all pregnant women for free health care required for delivery or surgery, including Caesarean section, free drugs, diagnostics, blood and diet, besides free transport from home to institution etc. only if the woman is delivering in public health institutions. Under this scheme, free treatment to all sick newborns accessing public health institutions up to 1 year after birth is also provided.

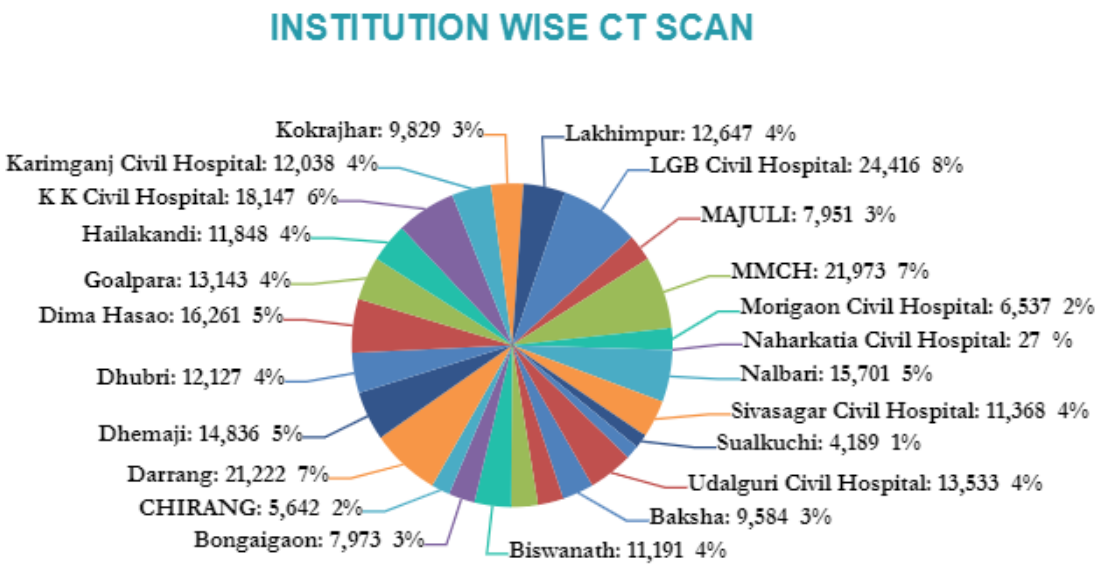
25) ***National program for prevention and control of deafness (NPPCD):*** Implemented in 9 districts of Assam namely, Sivasagar, Jorhat, Nagaon, Goalpara, Darrang, Lakhimpur, Kamrup, Sonitpur and Nalbari, this centrally sponsored scheme aims to prevent the avoidable hearing loss on account of disease or injury The scheme involves early

identification, diagnosis and treatment of ear problems responsible for hearing loss, to medically rehabilitate persons of all age groups suffering from diseases, to strengthen the existing inter-sectoral linkages for continuity for rehabilitation programmes for person with deafness and to develop institutional capacity for ear care services by providing support for equipment and material and training personnel.

26) ***National Program for Control of Blindness:*** It is a centrally sponsored scheme launched in 1976 which aims to control of preventable blindness. This scheme involves Cataract surgery - congenital or senile or acquired, organizes a camp in school for ruling ophthalmic problems and promotes eye donation and corneal transplantation.

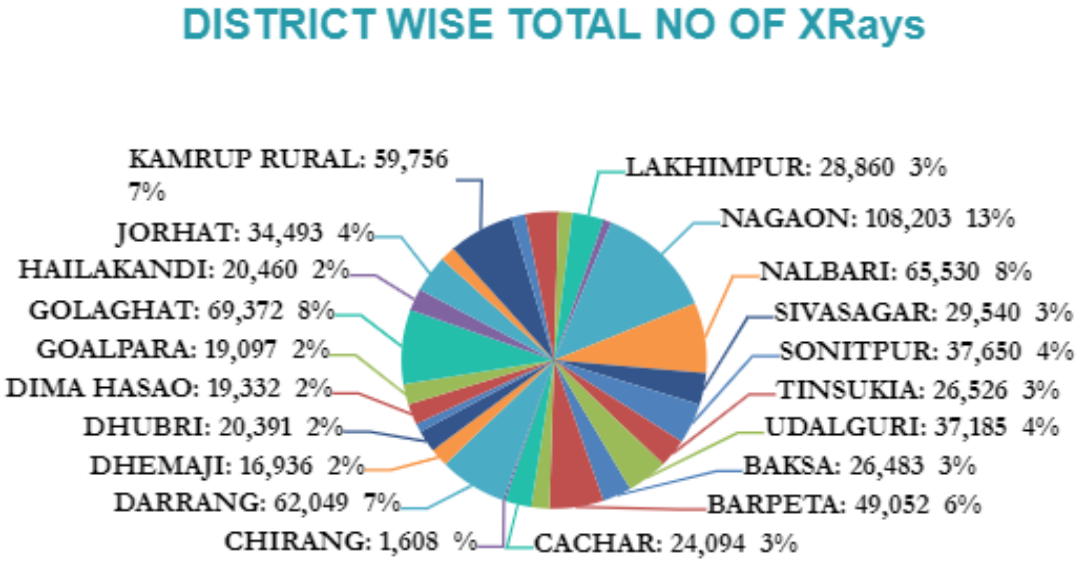
27) ***Chief Minister's Free Diagnostic Services***: The government, in its budget speech, 2016-17, also proposed an initiative called the Chief Minister's Free Diagnostic Scheme or the Mukhyamatri's Free Diagnostic Scheme to address the issue of quality diagnosis which is vital for medical practitioners to make effective decisions about treatment, to make accessibility and availability of quality radiology services and also to reduce the high out of pocket expenditure of the patients on diagnostic which forms the second major segment of such expenditure after medicine. The scheme had been proposed to be implemented from 1st January 2017. However, it wasn't implemented as on the proposed date, in fact, only a blueprint of the scheme was presented in the budget speech 2017-18. Finally, Assam Chief Minister Sarbananda Sonowal, on May 2017, launched the 'Chief Minister's Free Diagnostics Services' which envisages ensuring availability of minimum set of diagnostics services at health institutions with CT Scan, X-ray and Laboratory services provided free of cost to all irrespective of Above the Poverty Line (APL) or Below the Poverty Line (BPL) status citizens. So, basically is universal health insurance service. As on date, total 1122436 X-rays were done by 857186 patients and 302210 CT scans were done by 302201 patients. Figure. 4.1 and 4.2 show the image of the total number of institution wise CT scan and X-rays conducted in each district of Assam respectively.

Figure 4.1. Institution wise CT scan in each district of Assam



Source: Department of Health and Family Welfare, Assam, NRHM

Figure 4.2. District wise total number of X-rays in Assam



Source: Department of Health and Family Welfare, Assam, NRHM

From figure 4.1 and 4.1(a) it can be observed that in Naharkatia Civil Hospital has the maximum while Sualkuchi had the lowest number of Citi scan under the Chief Ministers Free Diagnostic Services. Again considering the number of X-rays, Nagaon tops the list.

28) ***Chah Bagicha Jeevan Suraksha Yojana***: In the budget speech of 2018-19, as a part of Digital India Programme and as a process of financial inclusion, in Assam, the State Government announced that Rs.5000 will be credited to the bank accounts of each Tea the Tea Garden employees who had opened their Bank Accounts immediately post-demonetization. All these bank accounts that are active for six months are enrolled under the Pradhan Mantri Jeevan Jyoti Yojana (PMJJY), a Life Insurance coverage plan, and the Pradhan Mantri Suraksha Bima Yojana (PMSBY), an accident insurance scheme which has a maximum sum assured of Rs.2 Lakhs.

Apart from all these schemes that are discussed so far, there might be several other schemes as well undertaken by the Assam government such as Rashtriya Bal Swasthya Karyakram (RBSK), Rashtriya Kishore Swasthya Karyakram (RKSK), Ayushman Bharat- Pradhan Mantri Jan Arogya Yojana (AB PM-JAY), Reproductive maternal and child health plus Adolescents etc. However, since the chapter focuses mainly on the state-sponsored schemes, so the vital focus is laid on such schemes only. Among all the ongoing schemes undertaken by the State government, there are a total of thirteen state-sponsored schemes, among which Sneha Sparsha, Morom, Free Operations for Children having congenital heart disease, Susrusha and Atal Amrit Abhiyan are the state-sponsored 'health insurance schemes', all targeting tertiary health care services. There are only three schemes namely, Majoni, Mamata and Mamoni that are tailored for reducing the IMR and MMR of the state, which is the need of the situation. However, according to government officials, these schemes are on the verge of closing down due to lack of funds. Sanjeevni, Samarth and chief Ministers Free Diagnostic Services are state-sponsored

schemes targeting health facility among which Samarth targets the issue of IMR and MMR. Apart from these schemes, for addressing the issues of IMR and MMR, the state has been intensely undertaking the central schemes under NHM such as Janani Suraksha Karyakram and Janani Sishu Suraksha Karyakram. Under JSSK, the state launched the Adarani Scheme as already mentioned. However, these schemes are also not performing to their full capacity. It has been reported that from 2011-2016, 13 out of 26 health centres in the state did not have the Adarani Service and 8745 mothers who delivered babies in the government hospitals were not benefitted from the scheme. Moreover, in some health centres, the Adarani service was available but still the 61,951 (45 percent) out of 137711 new mothers were not provided the facilities of free conveyance from 2011 to 2016. The reason cited by the officials was in availability of vehicles which is very shocking and lame too. Also the field report of CAG says that in most the health centres there was shortage of medicines, insufficiency of transportation facility, lack of functional equipment, diagnostic services, etc. As per the Audit survey, patients had to spend Rs 950 to Rs 8100 out of their pocket for having these services. Due to all these setbacks, the government's aim of improving maternal and infant health, reducing the out of pocket expenditure and providing cashless service has become infeasible. Targeting IMR and MMR, the state also had signed MoU with some of the tea gardens hospitals under PPP to provide basic health services. However, from the overall discussion on the state-sponsored schemes and based on the latest schemes introduced by the government, it could easily be inferred that the state government stressed more on health insurance against major health issues requiring tertiary attention rather than focusing on primary health services, given the pitiable condition of the state in terms of high MMR and IMR.

4.3. Analysis of Budgetary Allocations and Utilization of funds in schemes

After having discussed the various schemes undertaken by the state government, in this section the amount of funds allocated under various schemes and their utilization has been discussed. For the purpose, a detailed study of the Detailed Appropriation Accounts, CAG reports, has been done from the year 2001-02 to 2016-17. From the study it has been found that only the following schemes are being mentioned on the accounts of the government. The schemes in the detailed

appropriation Account include Majoni, Mamoni, Morom, Mamata, Susrusha, Sanjeevni, Atal Amrit Scheme, Operation Smile, Chief Minister's Special Package, Rashtriya Swasthya Bima Yojana, etc. Many other schemes are not mentioned in the account, the reason behind which is not very clear. In table 4.2 the total funds allocated and utilized in each of these schemes have been highlighted. Besides all these schemes, expenditure on immunization of infants and children against diseases has also been examined in table 4.2.

From Table 4.2 it can be observed that an interesting phenomenon of expenditure is the underutilization of the allocated resources in almost all the schemes in almost all the years. From the table it can be observed that under immunization of infants and children, the allocation of funds has been increasing over time, which is a positive sign. but, the underutilization of funds is also directly related to the allocation of funds. From 2001-02 to 20016-17, on an average, Rs107946250 was allocated under immunization, from which 77. 69 percent funds were utilized resulting in a deficit of Rs. 24078613. The picture, however, is not so bright in case of the state-sponsored schemes Majoni, Morom, and Mamoni under which over the years the allocation of funds has been declining sharply proving the fact that they are almost at their shut down point. The utilization of the funds under these schemes also showed a changing pattern. Also, the Majoni and Mamoni scheme was launch in 2009-10 followed by Morom in 2010-11. However, funds have been allocated in these schemes since 2007-08. In these schemes out of the allocated funds only 51 percent funds were utilized which raises the question on the administration of the flow of funds.

Table 4.3(a). Allocation and expenditure of funds under different schemes

Schemes	Year	Allocated	Expenditure	Excess(+)/Deficit(-)
Immunization of Infants and Children against diseases	2001-02	46718000	40068304	-6649696
	2002-03	37746000	34507114	-3238886
	2003-04	41961000	31225399	-10735601
	2004-05	43900000	38553031	-5346969
	2005-06	43900000	38553031	-5346969
	2006-07	44225000	43603126	-621874
	2007-08	61118000	65571247	+4453247
	2008-09	55370000	48164593	-7205407
	2009-10	65332000	53160854	-12171146
	2010-11	105906000	75717440	-30188560
	2011-12	239950000	208727590	-31222410

	2012-13	242303000	184300980	-58002020
	2013-14	255054000	105797859	-149256141
	2014-15	132601000	112678481	-19922519
	2015-16	155678000	129519356	-26158644
	2016-17	155378000	131733793	-23644207
State Share of centrally sponsored scheme(NHM)	2008-09	1315863000	1209300000	-106563000
	2009-10	900000000	1903759900	+1003759900
	2010-11	1140000000	295000000	-845000000
	2011-12	1920000000	1430000000	-490000000
	2012-13	1440000000	1440000000	+
	2013-14	1600002000	1570000000	-30002000
	2014-15	1000000000	1000000000	+
	2015-16	1967500000	1558750000	-408750000
	2016-17	1253200000	281611000	-971589000
Assam Vikash Yojana (Mamoni,Majoni,Morom)	2007-08	600000000	600000000	+
	2009-10	1170000000		-1170000000
	2010-11	900000000	900000000	+
	2015-16	660000000	150000000	-510000000
	2016-17	135000000	135000000	+
NPHCE & NPCDCS	2012-13	50000000	26000000	-24000000
	2013-14	20000000	20000000	+
Chief Minister's Special Package	2012-13	1095000000	1030000000	-65000000
	2013-14	1030000000	1090000000	60000000
	2014-15	1050000000	50000000	-1000000000
Susrusha	2012-13	60000000	60000000	+
	2013-14	60000000	60000000	+
	2014-15	60000000		-60000000
	2015-16	287000000	257000000	-30000000
	2016-17	70000000	50000000	-20000000
Sanjeevani	2012-13	80000000	80000000	+
	2013-14	60000000	40000000	-20000000
	2014-15	30000000		-30000000
	2015-16	180000000	147400000	-32600000
	2016-17	75000000	33233000	-41767000
Assam Arogya Nidhi	2012-13	15000000	15000000	+
	2013-14	20000000		-20000000
	2014-15	20000000		-20000000
	2015-16	205000000	37000000	168000000
	2016-17	70000000	50000000	-20000000
Operation Smile	2011-12	30000000	33000000	+3000000
	2012-13	9500000	9500000	+
	2013-14	9500000	9500000	+
	2014-15	9500000	9500000	+
	2015-16	9500000		-9500000

	2016-17	4000000	6903490000	+6899490000
Rastriya Swasthya Bima Yojana	2015-16	72,06,00,000	247393706	-473206294
	2016-17	20000000		-20000000
Mamata	2015-16	14,75,00,000	7000000	-140500000
Free Operations for Children having congenital heart disease	2009-10	15000000	-	-15000000
	2010-11	20000000	22353000	2353000
	2011-12	80000000	60374000	-19626000
	2012-13	50000000	53473000	3473000
	2013-14	50000000	67273000	17273000
	2014-15	30000000	94000000	64000000
	2015-16	257000000	16600000	-240400000
	2016-17	70000000	83246000	13246000
Atal Amrit Abhiyan	2016-17	45,00,00,000	450000000	+
	2017-18	100,0000000		
Source: Detailed Appropriation Accounts, 2001-02 to 2016-17 Department of Health and Family Welfare, Government of Assam				

Again, in the Susrusha scheme, according to the Department of Health and Family Welfare, the budget provision for each year, from 2009-10 to 2016-17, was Rs 100 lakhs out of which funds received was Rs 400 lakhs and funds utilized is Rs 386 lakhs. But, as per the Detailed Appropriation Accounts of the Government, the figures are quite unalike, once again, raising question about the validity of the figures. In case of the state's share of the centrally sponsored funds, though there was an average deficit of Rs 264020586 but around 85 percent of the funds were utilized over the years. In the Assam Arogya Nidhi, the allocation of funds remained stable for a few years, rose to its peak in year 2015-16 and again fell drastically afterward. The utilization of the funds also remained very low over the year with average utilization of 31 percent of the total funds. The Sanjeevni scheme showed a similar trend of fund allocation as the Arogya Nidhi. The allocation of funds fell initially, rose to its peak in year 2015-16 and once again fell drastically. However the fund utilization rate is better than that of Arogya Nidhi with an average 71 percent (approx.) utilization of funds. Again in operation Smile Scheme, the allocation of funds though gradually fell but is comparatively higher. Also the utilization rate was quite high. In fact, in the year 2016-17, Rs 6899490000 was spent more than the allocated funds, which looks distorting. If this amount was actually spent on the scheme Operation Smile, then definitely these funds were diverted from other sources to this scheme? The total deficit in

all the schemes in the year 2016-17 was Rs. 105411207, which is still much lesser than the excess funds spend on Operation Smile. For the Mamata scheme, funds allocated and utilized are shown for a single year only, although the scheme has been in place since 2009-10. Were funds not allocated for the rest of the years? If yes, why is it then not highlighted in the Appropriation Accounts? Or are the funds allocated under Mamata has been highlighted under other schemes? Similarly for RSBY, fund allocation for only two years have been shown which again raises the same set of question. Again for NPHCE & NPCDCS, the allocation for only two years was shown, thigh these schemes are considered to be some of the ongoing schemes of the government. In these two schemes, in the initial year only 50 percent of the funds were utilized while the second year shows 100 percent utilization of the funds. A very important scheme of the Assam government 'Free Operations for Children having congenital heart disease', was not mentioned in the detailed appropriation account. Data furnished in table 4.2 has been abstracted from the Department of Health and Family Welfare, Assam Government. So, it is not very clear, if expenditure in this insurance scheme was off-budget or willingly dropped off the appropriation account. Again, a scheme named Chief Minister's Special Package was mentioned in the appropriation account where funds were allocated from 2012-13 to 2014-15. Though once in the budget speech of 2013-14, the government announced that a special Chief Minister's programme will be launched for bringing down the IMR and the MMR of the state. But there wasn't any mention of the scheme in the later budget speeches. Also, from the study on the various ongoing schemes and programmes of the state government there wasn't any scheme found named Chief Minister's Special Package. However, there is a scheme called the Chief Minister's Free Diagnostic Services. But this scheme was launched during 2016-17. So, Chief Ministers Special Package and Chief Ministers Free Diagnostic Services can't be the same scheme. Here again, the question of doubt arises regarding the authenticity of this scheme.

4.4. CONCLUSION

The chapter basically examines the intervention of the state government in the health sector in terms of the various health insurance schemes. A first-hand account of the various ongoing government schemes and programmes, followed by the examination of the quantum of funds allocated and utilized under these schemes. From the overall discussion on the health sector schemes with special reference to state-sponsored schemes and based on the latest schemes introduced by the government, it could easily be inferred that the state government stressed more on health insurance against major health issues requiring tertiary attention rather than focusing on primary health services, given the pitiable condition of the state in terms of high MMR and IMR. There has been a lot of discrepancies in the government spending due to which setbacks, government's aim of improving maternal and infant health, reducing the out of pocket expenditure and providing cashless service has become infeasible.

CHAPTER 5
SUMMARY OF FINDINGS, CONCLUSIONS AND POLICY IMPLICATIONS

5.1. Introduction

The present treatise on "State Intervention in the Health Sector: A Case Study of Assam" mulls over the magnitude of intervention in the health sector by the state government in terms of not only strategic investment but also through various schemes and programmes. Regardless of the various intrusion by the State government in the health sector over the years, the sector continues to be characterized by high out-of-pocket expenditure, infrastructural gap, manpower shortage and also poor health outcome of the state especially in terms of high MMR and IMR. It is with this backdrop that the study seeks to identify the lacuna that exists in government interventions. As a part of this study, an attempt has been made to rank all the districts of the state according to a composite health index which encompasses three sub-index, namely, heath infrastructure index, health manpower index and a health outcome index. The objective behind this is to examine the current health scenario of the state. In an endeavor to peek into the root of the poor infrastructural facilities in the state, a critical analysis of government intervention in terms of both revenue and capital expenditure of the government has been made. Along with incurring a substantial amount of investment in the health sector, the state government over the years has also undertaken a host of health schemes and programmes both centrally sponsored, state-sponsored as well as joint sponsored. An assessment and evaluation of the various ongoing schemes and programmes have been conducted. With an objective to seek the effectiveness of all these schemes and programmes, allocation and utilization of funds in those schemes have also been scrutinized.

In all, the exposition, based on secondary data, basically seeks an answer to the following questions:

- *What is the current health status of the state? Is the current health status promising?*
- *What has been the extent, pattern, and trend of revenue and capital expenditure of the state government over the years? Is it progressive?*
- *What are the schemes and programmes undertaken by the state government for the upliftment of the health status of the state? What are the main target areas of the government? Has the government undertaken any initiative of its own for the improvement of the health outcome of the state with special emphasis on the glaring MMR and IMR prevalent in the state? What is the extent and trend of funds allocated in those schemes? Are the funds utilized to their full capacity?*

In this chapter, an attempt has been made to set forth the findings generated from the study which might be able to throw light on the various aspects of government intervention in terms of expenditure as well as the performance of the health schemes and programmes. Based on these findings, conclusions and recommendations have been drawn that might be helpful for the government to intervene in the health sector in a better or in a more focused way. Also, it might act as a guide for decision making for the policymakers while designing any set of policies for the health sector of the state. The chapter, therefore, consists of two appended sections beside the introduction in section 5.1. Section 5.2 adduces the findings of the study based on which the conclusion and policy prescription are drawn in section 5.3 of the chapter.

5.2. Summary of Findings

Objective 1: Construction of an index to rank the districts

The health scenario of a country or a state depends to a great extent on the availability of health-related infrastructure which along with health care centres, dispensaries and hospitals, includes

the manpower required for the smooth functioning of those institutions and also depends upon various health indicators like Infant Mortality Rate (IMR), Maternal Mortality Rate(MMR) etc. It has been observed that the health infrastructure, as well as the health status of the people of Assam, improved satisfactorily over the years. Yet, the achievements are not at par with the national level which is reflected from different health-related indicators. So, in the first objective of the dissertation an attempt has been made to provide an idea about the current health scenario of the different districts of the state. For addressing the first objective, initially, a firsthand account of the health status of all the districts of Assam was presented in terms of health infrastructure, health manpower, and health outcome. Based on these data, three indices were constructed, namely, health infrastructural index including parameters SC, PHC, CHC, SDH and DH; health manpower index comprising of doctors, nurses and paramedical staffs as its parameters and health outcome index involving MMR, IMR and Vaccination coverage as its parameters; and districts are ranked accordingly. Then a composite index has been constructed based on all these three sub-indices and then once again the districts are ranked to bring out the disparity that exists among them and to get an overall picture of the district-wise current status of health in the state.

The findings of the first objective are:

1. It has been observed that there is an inequality in the distribution of physical health infrastructure throughout the state. In terms of the distribution of the total number of hospitals and health centers, the highest concentration is in Nagaon (458) while Dima Hasao (89) occupies the bottommost position. A total of 7041 healthcare centers are available in Assam out of which 6183 are functioning in Assam as on 7th May 2019, thereby marking the presence of a total of 858 inactive health care centers in the state. Considering the number of inactive health centers Bongaigaon tops the list with 139 inactive health centers.

2. The number of the population served by each SC and CHC in each district is higher than the population norms (the average number of population to be served by an SC is 5000 in plain areas and 2000 in hilly areas and that of CHC is 80,000 population in the hills to

1,20,000 in the plains). However, the picture is not so perfect in case of PHC where the population norms (30000 populations in the plain and 20000 in hilly areas) have been fulfilled by only one or two districts.

3. Inadequacy of PHC reveals the heavy dependence either on the district hospitals or sub-divisional hospitals. But, to add to the misery, the number of SDH and DH is very almost nil in most of the districts. In fact, today, due to insufficient health care provisions everyone has to rely on the health care services rendered by the private hospital incurring an out-of-pocket expenditure.

4. In terms of availability of manpower professionals, Nagaon has the highest number of doctors, nurses and Paramedical staffs while Dima Hasao has the lowest numbers of doctors and nurses. However, in terms of Paramedical staffs, Chirang bottoms the chart. It is interesting to observe that though Kamrup Metro is the most developed region of the state; it doesn't hit the list in terms of both health centers and health care professionals.

5. In terms of absolute number of child deaths, Cachar (81) and Kamrup Metro (81) tops the list followed by Hailakandi (71) and Barpeta (57) whereas in terms of maternal deaths, the top rank is occupied by Kamrup Metro (9), while the 2nd rank is bagged by Cachar (6) and Sonitpur (6) and 3rd by Nagaon (5) and Dibrugarh (5). Again in case of full vaccination coverage, Nagaon (4383) covers the maximum number of the population while Dima Hasao (230) covers the minimum.

6. The availability of health centers in each district seems to be positive and in around 16 districts the availability of health centers is higher than that of Assam as a whole. However, the availability of CHCs, DHs, and SDHs, that constitute the most important tier of the health sector, is almost nil. Similarly, the accessibility of the health centers i.e. health centers per 1000 population hovers on zero. This is not a very encouraging image of the health sector of the state.

7. Based on the first Dimensional index i.e. Health Infrastructural index, 21 districts out of 27 are categorized as very poorly and poorly performing districts. Tinsukia is the worst

performing district with a score of only 0.20 and Nalbari is the only district in a sole "satisfactory" position with 0.79 scores.

8. Just like health infrastructure, the accessibility of the health manpower i.e. health manpower per 1000 population is negligible. Just for the namesake Dima Hasao has the highest accessibility of doctors (0.34), nurses (1.15) and paramedical staffs (0.43). And that is obvious because Dima Hasao has a very less population density. Thus, even in case of health manpower, the state has failed to advance positively.

9. In Health manpower index, the performance of the districts is very poor. Out of 27 districts, 19 are categorized into very poorly performing districts while 6 districts into poorly performing ones. There is only one comparatively better and one satisfactorily performing district. Thus this dimension needs to be focused upon in particular.

10. In terms of Health Outcome, most of the districts expect a few are lagging behind Assam as a whole with respect to maternal and child health. Again, in terms of vaccination coverage, all the districts are behind Assam. Infant Mortality Rate for Assam for April 2018- April 2019 is only 19 which is reasonably decent. Karimganj (35) accounts the highest Infant Mortality Rate while Tinsukia (4) the lowest though Tinsukia is a very poorly performing district in terms of both accessibility and availability of health centers and accessibility of health manpower. Karimganj, however, performs comparatively better in terms of health centers but is a very poorly performing district in terms of health manpower. Again, even in terms of Maternal Mortality Rate, Tinsukia along with Baksa, Dima Hasao, Morigaon, Lakhimpur, Nalbari and Sibsagar accounts zero Maternal Mortality Rate which is quite commendable while Kamrup Metro records the highest Maternal Mortality Rate in the state. In terms of Vaccination coverage, Dima Hasao (230) covers the lowest population and Nagaon (4383) the highest.

11. The districts indicate a somewhat better picture in terms of third Dimensional index i.e. Health outcome compared to Dimension 1 and Dimension 2 as in Dimension 3 only

Kamrup Metro has been ranked as the worst-performing district. And we have 14 better-performing districts.

12. In terms of the Composite Index and Overall Ranking, it has been observed that 23 out of 27 districts of Assam have been ranked as the poorest performing and poorly performing districts which provides a very gloomy picture of the health sector of the state. There are only 4 better-performing districts including, Nalbari and Dima Hasao. Kamrup Rural and Sibsagar, ranked 3rd and 4th respectively are comparatively better performance and Dima Hasao and Nalbari ranked 1st and 2nd respectively are found to provide satisfactory performance.

13. In almost all the three dimensions a large number of districts of Assam are faring poorly. Therefore efforts to improve performance on these dimensions is necessary, with Health Manpower requiring priority attention.

The results might appear quite bizarre especially for the laymen because Kamrup Metro is believed to be the most developed district of the state even in terms of medical facilities. In fact, people from all over the state visit Kamrup Metro for medical assistance. Contrast to that, as per the composite index, Kamrup Metro stands as the worst performer in terms of the health status. The possible reason behind this could be that though there are a large number of health centers and health professionals in the district, at the same time it is very highly populous with a very high population density. So the per 1000 accessibility and 100 square km availability are almost negligible, making it a worst-performing district. Similar could be the possible reason behind Dima Hasao being the best performing district. Dima Hasao has the least number of doctors and nurses. Also, the number of health centers isn't very high but being a less populous district with very less population density, the accessibility and availability are quite positive.

The reason behind Tinsukia performing so well in terms of health outcome indicators despite being a poorly performing district in terms of Dimension 1 and Dimension 2 might be attributed to some implicit factors other than health manpower and health centers.

Another interesting fact that has been observed from the data is that Kamrup Metro, though is the most developed region of the state accounts the highest number of the child as well as maternal

deaths. The underlying reason behind this is the fact that Kamrup Metro being the central hub of the entire state in terms of all the facilities, be it education or health, people from all over the state visit this region for availing various medical facilities including institutional deliveries. So unlike other districts which take into account the child and maternal deaths of its own population only, Kamrup Metro along with its own population considers all the people from all over the state who visits the region, thereby resulting in the maximum number of child and maternal deaths.

The questions that arise in our mind at this instant are like; if Kamrup Metro is the worst performing district then why is there a great demand for medical facilities in the district? Why people from all over the state still flocking to this metro hub for any kind of medical treatment? Well, a single word is enough to answer all these questions, i.e. Privatization. If we consider the number of private hospitals along with the government and the health care professionals engaged there, then it definitely makes Kamrup Metro a best-performing one. However, in our analysis, we are considering only the initiatives taken by the Government i.e. the public sector. Thus, this observation clearly signifies the huge facilities that the State Government has failed to provide which is at present being obtained by the population from the Private health care sector by incurring an out-of-pocket expenditure.

Objective 2: To examine the budgetary intervention by the state government in the health sector of Assam

Healthcare Sector is an important part of social sector and is very important for a nation's economy. It plays a crucial role in the overall upliftment of society. However, as evident from the results of the first objective, the health scenario of Assam is not very positive. The health indicators are not at par with the national average. In fact Assam accounts the highest MMR (**237)** among all states of the country. The IMR is also very high in the state (**48**). Moreover, there exists a shortage of healthcare personals and also infrastructural scarcity in the health sector of Assam. So it is very imperative to scrutinize the Heath care expenditure by the State government of Assam, as the Indian Constitution has made health care services largely a responsibility of the state governments. And this is the second objective of the dissertation. For the fulfillment of the second objective, an attempt has been made to analyze the extent, growth,

trend, and pattern of both revenue and capital expenditure on medical and public health by the state government in the health sector. Expenditure on medical and public health as a percentage of GSDP, as a percentage of total health care expenditure and total social expenditure of the state government has been analyzed, to know the extent of financial intervention in the health sector. The growth and trend of government expenditure on medical and public health have been analyzed using econometrical models taking into account revenue and capital expenditure on Urban Health Services, Rural Health Services, Medical Education, Training and Research, Public Health and others, which constitutes important heads of Medical and Public health. Along with the growth and trend structural break in both revenue and capital expenditure has been found out using econometrical model.

Despite the fact that the state government over the years has been incurring a huge amount of expenditures on health and family welfare, the MMR and IMR continue to be high compared to the national average. So, an attempt has been made to analyze the trend of government expenditure on maternal and child health. Also expenditure on maternal and child health as a percentage of total expenditure on family welfare and that of health and family welfare has been analyzed. Just like in case of revenue and capital expenditure of the state government, in case of maternal and child health expenditure too, the annual compound growth rate has been estimated followed by the detection of the trend of the expenditure i.e. whether the expenditure on maternal and child health exhibits acceleration or deceleration or neither of the two. And finally, the presence of a structural break in the expenditures has been investigated.

The findings of the second objective are:

1. In Assam, on an average only 1.1 percent is spent on health while in most developed regions of the world healthcare expenditure accounts for around 5 percent of GDP. Low-slung healthcare expenditure as a proportion of Gross State Domestic Product (GSDP) is a reflection of low public health spending in Assam. Healthcare expenditure as a percentage of GSDP declined from 2001-02 to 2003- 04 from 1.7 percent to 1.4 percent. It increased in 2004-05 to 1.5 percent but immediately fall in the next year to 1.3 percent. However, from 2005-06 onwards till 2009-10 the spending increased continually.

Especially, from 2007-08, a positive increase could be noticed in health expenditure as a proportion of GSDP of the state. This probably could be due to the implementation of the National Rural Health Mission (NRHM), a centrally sponsored umbrella scheme, in 2005. However, after 2009-10, the health spending as a proportion of GSDP continued to fall again.

2. Health expenditure as a percentage of total expenditure as well as social expenditure showed a declining trend. As a proportion of total health expenditure, it declined from 2.2 percent in 2001-02 to 1.6 percent in 2005-06. Similarly, as a percentage of total social expenditure of the state, it declined from 8.8 percent to 7.1 percent for the same period. However, a slight improvement was observed in the health expenditure since 2006-07.

3. Revenue expenditure as a proportion of total expenditure has always been higher as compared to that of capital expenditure for the entire period under consideration. The revenue expenditure ranged from 88 to 97 percent of the total expenditure while the capital expenditure varied between only 3 to 47 percent. The percentage of revenue expenditure was 97 percent of the total expenditure in 2001-02 which came down to 54 percent in 2005-06. Thereafter, however, it increased continuously up to 88 percent in 2016-17. The capital expenditure has been paid little importance by the state government. It experienced a sharp decline from a high 45 percent in 2001-02 to only 12 percent in 2016-17. However, a little improvement in capital expenditure was observed during the period 2001-02 to 2005-06. Though the National Rural Health Mission (NRHM), implemented in 2005, laid special emphasis on the development of health infrastructure, there has been no sign of an increase in capital expenditure of the state government. Rather it has fallen from 46 percent in 2005-06 to 12 percent in 2016-17.

4. Revenue expenditure of the state expenditure has been increasing over time but the capital expenditure has remained almost unwavering at a very low level.

5. The Annual Compound Growth rate of total government expenditure on medical and public health over the last 16 years i.e. from 2001-2002 to 2016-2017 is 14.2 percent

which is not very impressive looking at the critical status of health of the people in the state. And that of revenue and capital expenditure 18.9 percent and 3.04 percent respectively. Thus, we can see that the state government over the years didn't pay much importance towards the development of the health infrastructure as is evident from the growth of capital expenditure over the last 16 years.

6. Considering the trend of revenue and capital expenditure on medical and public health it is found that there is neither acceleration nor deceleration in the growth of government expenditure.

7. Considering the presence of a structural break in the state government expenditure, it has been found that both revenue and capital expenditure has structural breaks in years 2006-07, 2007-08 and 2008-09. In addition to these years, capital expenditure also has breaks in 2002-03 and 2015-16. The easiest perception about these breaks could be the implementation of the National Rural Health Mission in 2005. However, there could be other plausible causes behind these breaks too. The reason behind the structural break in capital expenditure in 2015-16 could be the reduction in the central share for a host of programmes including National Health Mission (NHM). With the reduction of the central funds, the state has to boost its spending from its own funds to support the ongoing programmes leading to the increase in capital expenditure from 2015-16.

8. Considering the pattern of revenue expenditure of the state government it has been observed that over the last 16 years, revenue expenditure in all of its minor heads has increased. However, noteworthy variations are seen in the expenditure as a proportion to total revenue expenditure of the state government. The share of rural health services is the highest in total revenue expenditure followed by medical education, training and research, urban health services, public health, and others. In case of capital expenditure too, rural health services take the lions share, however, here, it is followed not by medical education, research and training but by urban health services. Though the expenditure on urban health services seems to be rising but the proportion of urban health services in total revenue expenditure has declined over the years from 22 percent in 2001-02 to 11 percent in 2016-17 i.e. by 5 percent. Similarly, share of public health has also decreased

by 6 percent. However, the share of rural health services and medical education, research and training increased by a meager amount of 2 percent.

9. Similarly, considering the pattern of capital expenditure on minor heads, it is evident from the table that the expenditure in the urban health services, rural health services and also medical education, training and research at a negligible rate. Till 2010-11 the capital expenditure in urban health services grew at less than 1 percent with capital expenditure remaining constant for 2006-07 and 2007-08. After 2008 the expenditure grew at 3.1 percent but again started increasing at a diminishing rate. Similarly, the rate of growth of capital expenditure in rural health services kept on fluctuating and mostly grew at a decreasing rate. However, capital expenditure on medical education, training and research was comparatively better than that of urban and rural health services. Also, public health expenditure and other expenditure remained almost stagnant over the last 16 years which is quite strange.

10. Though the share of rural health services in capital expenditure is greater than that of the other minor heads, over the years, the share of rural health services has in fact reduced by 0.2 percent. The others heads, namely, urban health services and public health services have also experienced a fall in its proportion by 2 percent (approx.) and 3.5 percent respectively. Only the proportion of medical education and research has increased by 7 percent.

11. Expenditure on maternal and child has declined from 2001-02 to 2004-05. However, from 2005-06 till 2009-10 which captured the highest government expenditure on maternal and child health. This increase is obviously, as always, might be due to the implementation of NRHM in 2005. However, as per the finance reports 2009-10 of the state government, this increase is mainly due to increase in expenditure under district family welfare services, rural family welfare sub-centre, health and family welfare training centre and up-gradation of Standard of Administration. Since then the expenditure on maternal and child health continually declined till 2014-15 and again

increased to Rs. 1965.15 lakhs. However, from 2001-02 to 20016-17, maternal and child health expenditure tapped an annual compound growth rate of 11 percent (approx.).

12. The expenditure on maternal and child health as a percentage of total expenditure on Family Welfare showed a similar trend. On an average, only 9.8 percent of total expenditure on family welfare is incurred on maternal and child health and that of only 1.2 percent on an average is spent as a percentage of total expenditure on Health and Family Welfare as a whole.

13. Moreover, over the last 16 years i.e. from 2001-02 to 2016-17, expenditure on maternal and child health as a percentage of expenditure on Family Welfare increased by only 1 percent (approx.) and as a percentage of total expenditure on Health and Family welfare, it rather declined by 4 percent (approx.) over the years, which is not a very promising picture bearing in mind the seriousness of the status of maternal and child health in the state.

14. Expenditure on maternal and child health has witnessed an annual compound growth rate of approx. 11 percent over the last 16 years.

15. Despite capturing an annual compound growth rate of 11 percent, statistically, government spending in the maternal and child health showed a decelerating trend, which is a very depressing sight of government's intervention in maternal and child health despite the prevalence of high MMR and IMR in the state.

16. Expenditure on maternal and child health has structural breaks in years 2004-05, 2005-06, 2009-10, 2010-11, 2011-12 and 2012-13. The easiest perception about the reason behind the structural break in 2005-06 could be the implementation of National Rural Health Mission in 2005. In 2011-12, in order to reduce MMR, the state government proposed to provide mobile phones to the ASHA workers and for this Rs. 95 crore was allocated under Assam Vikash Yojana for the implementation of these projects, which might have caused the structural break in 2011-12. Again, in 2012-13 a major initiative under the banner of Janani Sishu Suraksha Karyasuchi (JSSK) has been launched in the

state which provides free health care to all pregnant women required for delivery or surgery which might have boosted the expenditure on maternal health resulting in a structural break in 2012-13. Again, in 2009-10, three schemes targeting maternal and child health were launched by the state government, namely, Majoni, Mamoni, and Mamata. This could be a possible reason behind the structural break in 2010-11.

Thus, it can be seen that though the National Rural Health Mission (NRHM), laid special emphasis on the development of health infrastructure, there has been no sign of an increase in capital expenditure of the state government. Rather it has fallen from 46 percent in 2005-06 to 12 percent in 2016-17. This is possibly because the expenditure incurred under NRHM for strengthening the health infrastructure comes from the NHM flexipool under the state programgramme implementation plan and is not reflected under the budgetary heads. Another viable cause of fall in capital expenditure is the presence of central funds which led the state government to spend less on infrastructural development and channelize their own resources to revenue expenditure. From this analysis, it is apparent that the state government over the years didn't pay much importance towards the development of the health infrastructure as is evident from the growth of capital expenditure over the last 16 years which stands at only 3 percent (approx.) and also that there has been no systematic allocation of expenditure on strengthening the health infrastructure, which is one of the palpable cause of poor health outcomes of the state. Also, the expenditure on maternal and child health has a decelerating trend which is a matter of serious concern.

- *Objective 3: Exploring the Health sector schemes with reference to allocation, utilization, and outcomes.*

Health care is a merit good and its universal access is critically important not only from the point of view of social and economic equity but more from a moral perspective. Article 21 of the Indian Constitution also endorses that the highest attainable standard of health is a fundamental right of every human being. Over the years, different countries have adopted different policy measures to make health care services universal to its people. Health schemes and programmes are one option of making healthcare services universal to the people. The health sector of India, though, is one of the fastest and largest growing sector the country, yet it

continues to be characterized by high out of pocket expenditure, less financial security and low insurance coverage amongst both rural and urban population. According to World Bank, only 15% of the Indian population is insured and 94% of the health expenditure is paid by individuals out of the pocket. The individuals, besides using their income and savings, also borrow money or sell their assets to meet their healthcare needs, resulting in health shocks that potentially drive these families and individuals into perennial debt traps. It is against this backdrop, that India too, have come up with a variety of health insurance schemes and programme and this wave of new government-sponsored health insurance schemes (GSHISs) represents an alternative way of mobilizing and allocating resources to health care.

The health sector of Assam too has been one of the core points of focuses for the state government over the years. Despite the fact that the health sector of the state has been improving over the years, Assam continues to witness the largest MMR in the country, high infant mortality rate and low vaccination coverage. Also, Assam has a humble state of availability and accessibility of health infrastructural facilities. As per the Rural Health Statistics (RHS) bulletin, as on 31st March 2018, Assam bump into a shortfall of 21 percent sub-centres, 1 percent primary health centres and 28 percent community health centres. Not only this, Assam also witnessed a shortfall of 163 surgeons at CHCs, 80 obstetricians and gynecologists at CHCs, etc. as on 31st March 2018. This humble state of the public health sector left the people with no choice than to resort to the private health sector for quality health care services resulting in a high out of the pocket expenditure. In order to provide quality health care services universal to its people, besides intervening in the health sector through incurring healthcare expenditure to strengthen the health infrastructural facilities, the state governments also undertook and implemented several schemes and programmes from time to time. Addressing the major healthcare needs of the people, for the improvement of the health outcomes and also to reduce the high out of pocket expenditure of the people. These schemes could be either Central, State or a joint collaboration between the Centre and the States. The third objective of this dissertation is, therefore, to examine the intervention of the state government in the health sector in terms of the various health insurance schemes. For the fulfillment of this objective, a first-hand account of the various ongoing schemes and programmes of the state government has been provided followed by the examination of the quantum of funds allocated and utilized under these schemes.

The findings of the third objective are:

1. It has been found that the main target areas of the health department of Assam are mental health of the people, heart disease, kidney transplant, health care for elderly, diabetes patients, cancer, deafness, blindness, mother and child health, cleft lips, trauma care, population below the poverty line, tea tribes, etc.

2. The scheme targeting Women and Child is Janani Suraksha Yojana, Janani Sishu Suraksha, Majoni Scheme under Assam Bikash Yojana, Mamata, Mamoni Scheme under Assam Bikash Yojana, and Sneha Sparsh. Targeting BPL population the state undertook Assam Arogya Nidhi, Atal Amrit Abhiyan, Rashtriya Swasthya Bima Yojana and Morom under Assam Bikash Yojana, for children and young adult with untreated cleft lips or cleft palates, the Operation Smile initiative, for trauma care, Assistance to State Capacity building in Trauma Care, for people with Psychiatric disorder, the National Mental Health Programme, for Kidney transplant, the Susrusha scheme, for heart disease, Free Operations for Children having Congenital heart disease, for diabetes patients, the National Programme for Prevention and Control of Diabetes, Cardiovascular Diseases and Stroke (NPCDCS), for deafness, the National program for prevention and control of deafness (NPPCD), for blindness, the National Program for control of Blindness, for cancer, the Cancer Control Programme, for senior citizens, the Health Care for the Elderly , for tea tribes, PPP with Charitable Hospital, PPP with Tea Garden Hospitals and Chah Bagicha Jeevan Suraksha Yojana and for health facility, the Sanjeevni, Samarth and Chief Minister's Free Diagnostic Services, besides having the Flagship Scheme of National Rural Health Mission and National Urban Health Mission clubbed together as the National Health Mission.

3. Among all these schemes Majoni, Mamoni, Morom, Sneha Sparsha, Sanjeevni, Susrusha, Atal Amrit Abhiyan, PPP with Charitable Hospital, PPP with Tea Garden Hospitals, Chief Minister's Free Diagnostic Services and Free Operations for Children having congenital heart disease are state-sponsored schemes, Assam Arogya Nidhi, Rashtriya

Swasthya Bima Yojana (RSBY), and Operation Smile is a joint scheme and the rest are centrally sponsored schemes.

4. Among all the ongoing schemes undertaken by the State government, there are a total of ten state-sponsored schemes, among which Sneha Sparsha, Morom, Free Operations for Children having congenital heart disease, Susrusha and Atal Amrit Abhiyan are the state-sponsored 'health insurance schemes', all targeting tertiary health care services.

5. There are only three schemes namely, Majoni, Mamata and Mamoni that are tailored for reducing the IMR and MMR of the state, which is the need of the situation. However, according to government officials, these schemes are on the verge of closing down due to lack of funds.

6. Sanjeevni, Samarth and chief Ministers Free Diagnostic Services are state-sponsored schemes targeting health facility among which Samarth targets the issue of IMR and MMR.

7. Targeting IMR and MMR, the state also had signed MoU with some of the tea gardens hospitals under PPP to provide basic health services.

8. Apart from these schemes, for addressing the issues of IMR and MMR, the state has been intensely undertaking the central schemes under NHM such as Janani Suraksha Karyakram and Janani Sishu Suraksha Karyakram.

9. Under JSSK, the state launched the Adarani Scheme as already mentioned. However, these schemes are also not performing to their full capacity. It has been reported that from 2011-2016, 13 out of 26 health centres in the state did not have the Adarani Service and 8745 mothers who delivered babies in the government hospitals were not benefitted from the scheme. Moreover, in some health centres, the Adarani service was available but still the 61,951 (45 percent) out of 137711 new mothers were not provided the facilities of free conveyance from 2011 to 2016. Also the field report of CAG says that in most the health centres there was a shortage of medicines, insufficiency of transportation facility,

lack of functional equipment, diagnostic services, etc. As per the Audit survey, patients had to spend Rs 950 to Rs 8100 out of their pocket for having these services.

10. Considering the utilization of funds allocated under these schemes an interesting phenomenon of expenditure can be observed. It is the underutilization of the allocated resources in almost all the schemes, in almost all the years.

11. Under the immunization of infants and children, the allocation of funds has been increasing over time, which is a positive sign. But, the underutilization of funds is also directly related to the allocation of funds. From 2001-02 to 20016-17, on an average, Rs107946250 was allocated under immunization, from which 77. 69 percent funds were utilized resulting in a deficit of Rs. 24078613.

12. The picture, however, is not so bright in case of the state-sponsored schemes Majoni, Morom, and Mamoni under which over the years the allocation of funds has been declining sharply proving the fact that they are almost at their shut down point. The utilization of the funds under these schemes also showed changing pattern. Also, the Majoni and Mamoni scheme was launch in 2009-10 followed by Morom in 2010-11. However, funds have been allocated in these schemes since 2007-08. In these schemes out of the allocated funds only 51 percent funds were utilized which raises a question on the administration of the flow of funds.

13. in the Susrusha scheme, according to the Department of Health and Family Welfare, the budget provision for each year, from 2009-10 to 2016-17, was Rs 100 lakhs out of which funds received was Rs 400 lakhs and funds utilized is Rs 386 lakhs. But, as per the Detailed Appropriation Accounts of the Government, the figures are quite unalike, once again, raising the question about the validity of the figures.

14. In case of the state's share of the centrally sponsored funds, though there was an average deficit of Rs 264020586 but around 85 percent of the funds were utilized over the years.

15. In the Assam Arogya Nidhi, the allocation of funds remained stable for a few years, rose to its peak in the year 2015-16 and again fell drastically afterward. The utilization of the funds also remained very low over the year with average utilization of 31 percent of the total funds.

16. The Sanjeevni scheme showed a similar trend of fund allocation as the Arogya Nidhi. The allocation of funds fell initially, rose to its peak in the year 2015-16 and once again fell drastically. However the fund utilization rate is better than that of Arogya Nidhi with an average 71 percent (approx.) utilization of funds.

17. In operation Smile Scheme, the allocation of funds though gradually fell but is comparatively higher. Also, the utilization rate was quite high. In fact, in the year 2016-17, Rs 6899490000 was spent more than the allocated funds, which looks distorting. If this amount was actually spent on the scheme Operation Smile, then definitely these funds were diverted from other sources to this scheme? The total deficit in all the schemes in the year 2016-17 was Rs. 105411207, which is still much lesser than the excess funds spend on Operation Smile.

18. For the Mamata scheme, funds allocated and utilized are shown for a single year only, although the scheme has been in place since 2009-10.

19. Similarly, for RSBY, fund allocation for only two years have been shown which again raises the same set of question.

20. Again for NPHCE & NPCCDS, the allocation for only two years were shown, thigh these schemes are considered to be some of the ongoing schemes of the government. In these two schemes, in the initial year only 50 percent of the funds were utilized while the second year shows 100 percent utilization of the funds.

21. A very important scheme of the Assam government ‘Free Operations for Children having congenital heart disease’, was not mentioned in the detailed appropriation account.

22. A very important scheme of the Assam government 'Free Operations for Children having congenital heart disease', was not mentioned in the detailed appropriation account. Data furnished in table 4.2 has been abstracted from the Department of Health and Family Welfare, Assam Government. So, it is not very clear, if expenditure in this insurance scheme was off-budget or willingly dropped off the appropriation account.

23. Again, a scheme named Chief Minister's Special Package was mentioned in the appropriation account where funds were allocated from 2012-13 to 2014-15. Though once in the budget speech of 2013-14, the government announced that a special Chief Minister's programme will be launched for bringing down the IMR and the MMR of the state. But there wasn't any mention of the scheme in the later budget speeches. Also, from the study on the various ongoing schemes and programmes of the state government, there wasn't any scheme found named Chief Minister's Special Package. However, there is a scheme called the Chief Minister's Free Diagnostic Services. But this scheme was launched during 2016-17. So, Chief Ministers Special Package and Chief Ministers Free Diagnostic Services can't be the same scheme. Here again the question of doubt arises regarding the authenticity of this scheme.

From the overall discussion on the state-sponsored schemes and based on the latest schemes introduced by the government, it could easily be inferred that the state government stressed more on health insurance against major health issues requiring tertiary attention rather than focusing on primary health services, given the pitiable condition of the state in terms of high MMR and IMR. There has been a lot of discrepancies in the government spending due to which setbacks, government's aim of improving maternal and infant health, reducing the out of pocket expenditure and providing cashless service has become infeasible.

5.3. Conclusion and Policy Implication

The treatise, "State Intervention in the Health Sector: A case study of Assam" mulls together the various aspects of state government intervention in the health sector of Assam. The dissertation based on three main objectives brings out various important findings as already discussed in Section 5.2. Based on those findings, some important and constructive conclusions can be drawn.

Conclusion and Policy Implication of the first objective:

The first objective which was the construction of an index to rank the districts brings us to the conclusion that the health status of each of the districts of the state is at a very critical position. Be it be the health infrastructure or the health manpower, nothing seems to be in a positive state. Moreover, the status of availability and accessibility of the health infrastructure as well as health manpower is another important bottleneck in the path of advancement of the health sector of the state. The accessibility of health centres in each of the districts of the state hovers on zero. Also, though the overall availability of health centres seems to be somewhat positive, the availability of sub-divisional hospitals and district hospitals is quite meager. Similarly, the state of accessibility of manpower in the state could be life-threatening.

From the study of the budget speeches of the state government, and from a detailed analysis of the finance accounts as well as the detailed appropriation account of the state government, it has been perceived that, over the years the state has laid much emphasis on the construction of medical college and hospitals in the district of Assam. Still, the catastrophe of inadequate accessibility of health care centres continue.

Some important policy implication that can be derived from these conclusions are such as,

a) *Infrastructural bottleneck:*

Along with the creation of medical colleges and hospitals, the government should focus on the demand side of health services as well i.e. it should try to provide health centres according to the size of the population. Higher the size of the population higher should be the number of health centres.

b) Manpower bottleneck:

Though the government has been spending on Medical education, training and research, it should focus on the recruitment process of the doctors. The salary package of the doctors should be boosted so that they don't get decoyed by the private sector shimmers. The government should make it mandatory for all doctors to work in government health centres.

Strengthening the existing status of availability and accessibility of health centres as well as health manpower would not only restore the issue of poor health outcomes of the people of the state but also act as a panacea of all the teething troubles in the health sector of Assam.

Conclusion and Policy Implication of the second objective:

The second objective which was the examination of the budgetary intervention by the state government in the health sector of Assam reveals that the budgetary allocation for the health sector of Assam has been grossly inadequate. Only 1.1 percent of GSDP has been spent on Medical and Public health by the government. Though in its budget speeches, the government accords high priority to its health sector but over the years, government spending on medical and public health as a percentage of total expenditure and total social expenditure has been declining. Moreover, neither revenue nor capital expenditure has depicted an accelerating growth rate over the last sixteen years. Though the revenue expenditure has shown an upward rising trend, the capital expenditure, which is very crucial given the poor infrastructural facilities in the state, has maintained a stable pace over the years, which is a very depressing sight.

We know that in Assam accounts the highest Maternal Mortality Rate among all the states of the country and its Infant Mortality Rate is also higher than the national average but the state Government's intervention in the health sector in terms of expenditure on maternal and health has been very disappointing. As a percentage of total expenditure on Family Welfare, total expenditure on maternal and child health increased by only 1 percent and as a percentage of total expenditure on Health and Family welfare, it rather declined by 4 percent over the last sixteen

years, which is not a very promising picture bearing in mind the seriousness of the status of maternal and child health in the state.

Given such a scenario, a few policy implications can be derived for the government, such as.

a) The State government should focus more on increasing capital expenditure than on revenue expenditure.
b) The government should allocate funds for maternal and child health not for the namesake but must intervene in this head a very serious way.

Without a proper and adequate amount of capital expenditure in the health sector, the underprivileged infrastructural facilities in the state can never be amended. Also without appropriate spending in maternal and child health, the achievement of MMR and IMR targets of the state will continue to be a distant dream.

Conclusion and Policy Implication of the third objective:

The third objective which was to explore the health sector schemes with reference to allocation, utilization, and outcomes, draws the conclusion that the state government has laid little emphasis on schemes targeting MMR and IMR and has focused more on the tertiary health care services. It is relying mostly on the central scheme for knocking down the problem of MMR and IMR. A few state-sponsored schemes are at work that targets these vital issues but those too are at the threshold of shutting down. The system of budget allocation is also not at all transparent. There is an underutilization of funds in almost all the schemes which imply that the channelization of funds has not been administered properly. From this conclusion two important policy implications can be made, such as,

a) The whole process of making budget provisions, allocating funds, channelization as well as utilization of those funds must be made transparent.
b) The government should have a proper monitoring authority to look into the proper implementation of the schemes.

c) The Government should focus more on schemes targeting the MMR and IMR instead of focusing on tertiary health care services.

d) Along with the central schemes the government should take up some proper state-sponsored schemes targeting the vital health concerns of the people.

e) The government should conduct annual surveys to capture any sort of malpractices happening at the grass-root level, to evade poor utilization of the funds and to find out if the beneficiaries are actually benefiting from the scheme or not.

Thus, only a set of well planned, well-regulated and well-monitored schemes with adequate allocation and utilization of funds targeting the core health issues of the people will act as an add-on to the budgetary intervention of the government to eradicate the menace poor health outcome of the state.

The present research work set out with some pre-determined objectives has unveiled a number of findings with regard to the health sector of Assam. The pursuance and fulfillment of these objectives have given insight into some of the core issues. Based on these findings of the study and conclusions gathered thereof, this research has put forward certain policy implications that may be considered from the point of view of espousing a more focused intervention in the health sector by the state government.

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