BENGALURU RURAL DISTRICT

HUMAN DEVELOPMENT REPORT

2014

Bengaluru Rural Zilla Panchayat

And

Planning, Programme Monitoring and Statistics Department,
Government of Karnataka

Bengaluru Rural District Human Development Report, 2014

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SIDDARAMAIAH
CHIEF MINISTER

VIDHANA SOUDHA
BANGALORE 560 001
CM/PS/234/2014
Date : 27.10.2014

MESSAGE

I am delighted to learn that the Department of Planning, Programme, Monitoring and Statistics is bringing out District Human Development Reports for all the 30 districts of the State, simultaneously.

Karnataka is consistently striving to improve human development parameters in education, nutrition and health through many initiatives and well-conceived programmes. However, it is still a matter of concern that certain pockets of the state have not shown as much improvement as desired in the human development parameters. Human resource is the real wealth of any state. Sustainable growth and advancement is not feasible without human development. It is expected that these reports will throw light on the unique development challenges within each district, and would provide necessary pointers for planners and policy makers to address these challenges.

The District Human Development Reports are expected to become guiding documents for planning and implementation of programmes within the districts. I urge the Members of Parliament, Legislators, Zilla Panchayat, Taluk Panchayat and Gram Panchayat members, vis-a vis, representatives of Urban Local Bodies to make conscious attempt to understand the analysis that has been provided in the District Human Development Reports and strive hard to ensure that the identified gaps are bridged through effective planning and implementation.

A number of people from many walks of life including administrators, academicians and people representatives have contributed in making of these reports. I commend each and every one associated with the preparation of the District Human Development Reports. I acknowledge the efforts put in by District Committees headed by Chief Executive officers and Officers of the Planning Department in completing this challenging task.

It gives me great pride to share with you that Karnataka is the first state in the country to prepare District Human Development Reports for all the districts. I am hopeful that this initiative will spur us to double our efforts to make Karnataka, a more equitable progressive State.

Siddaramaiah

(SIDDARAMAIAH)

S.R. PATIL
Minister for Planning &
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Science & technology
And
Bagalkot District In charge Minister

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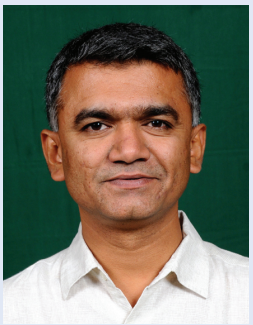
MESSAGE

I am happy to learn that the District Human Development Reports (DHDRs) for all the 30 districts in the State are being placed in public domain shortly. A painstaking and massive effort has gone into the preparation of these reports. I heartily congratulate the Zilla Panchayats and the Planning Department for this commendable work.

The reports, I am sure, would help policy makers, administrators, researchers, social organizations and the public at large to understand the critical concerns of human development in the districts and taluks of our State and also to bridge such deprivations by initiating suitable policy and programme interventions.

(S.R. PATIL)



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MESSAGE

I am extremely happy to learn that Bengaluru Rural District Human Development Report is being brought out along with the other district human development reports of the State. This report presents a critical analysis of various indicators of human development at the taluk level and facilitate intra-district comparison of the same.

The preparation of this report reflects the State Government's commitment towards its people in terms of improving quality of their lives. For this, I commend the efforts of Human Development Division, Department of Planning, officials of Bengaluru Rural Zilla Panchayat and other departments in the district for joining the hands with Centre for Budget and Policy Studies in preparing this report. I am confident that the insights and recommendations contained in this report will be helpful in realizing the full potential of the district along with addressing the challenges of the district in the near future.

(Krishna Byregowda)

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MESSAGE

The Bengaluru Rural District Human Development Report embodies the Karnataka government's efforts to integrate the concept of development into its planning process. The primary reason for the inclusion of development concepts in the planning process is to ensure that benefits from government policies accrue to the people in an equitable manner. This report provides necessary analytical information to the officials of the state at all levels in adopting appropriate strategies to promote sustainable growth with people as central focus.

The report provides a comprehensive view of the level of development in the district. In KHDR (2005), Bengaluru Rural district was ranked sixth out of thirty districts, on the basis of human development index- moving up from twelfth rank in 1991. Whilst this movement in ranking indicated impressive performance of Bengaluru Rural district in human development a closer examination of sub-indices revealed that the district had performed poorly under health and education relative to state average. This raises the question why did the high performance under income index not influence performance in other sectors. The identification of such gaps in the district is essential to achieve sustainable development and improve quality of life simultaneously.

This Human Development Report highlights the areas of strengths and weakness in each of the four taluks of the district. Further the multi-dimensional approach adopted in this report offers several insights about the opportunities and constraints that exist in the system. In addition to the indices, the report also offers four case studies focusing on issues pertinent to the development of Bengaluru Rural District and also lessons which could be emulated by other districts.

Given its importance, the report should be disseminated widely to all stakeholders so that it encourages debate about further course of action and policy interventions to promote sustainable development of Bengaluru Rural district.

(Shanthamma)
President

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ಮುಖ್ಯ ಕಾರ್ಯನಿರ್ವಾಹಕ ಅಧಿಕಾರಿ

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Foreword

Development process requires a multi-dimensional approach to improve quality of human life. It should provide for attainment of short-term and long-term goals in a sustainable manner with people at the centre of the entire process. In this regard, the concept of human development and Human Development Index as propounded by Prof. Mahbub–ul-Haq and Prof. Amartya Sen is an important refinement of development theory and evaluation method. It facilitates an analysis and understanding of the degree of human development, based on which appropriate course of action to improve the quality of life can be planned and implemented.

Proximity of Bengaluru Rural to Bengaluru city significantly impacts the quality of life of its people. While it offers residents of Bengaluru Rural district greater choice with respect to education, economic and cultural activities, and improved standard of living, it also creates pressure on land use affecting their (especially of marginalized sections) access to houses and land, besides adversely impacting the availability and quality of water, quality of air, food prices and so on. Thus, development policies for Bengaluru Rural district should, while leveraging the advantages bestowed by closeness to Bengaluru city, mitigate its negative impacts.

Bengaluru Rural District Human Development Report provides a comprehensive analysis of the status of education, health, gender, urban issues, child development, governance and standard of living in the district through several indices. This is a very useful report for the Zilla Panchyat, Taluk Panchayat, Gram Panchayat and State Government departments in the district in two ways. Firstly, it would sensitize the public and officials to the varied needs of different sections of the populations, and their approach towards planning of policies would be informed by the concept human development. Secondly, as the report provides rich analysis of all the parameters of human development disaggregated at taluk level, it should help officials to focus on the needs of individual needs to each taluk. Further, independent researchers, academic organizations, public policy experts, activists and non-governmental organisation would find this report very useful in appreciating the policy interventions.

I compliment the commendable efforts of Dr. Jyotsna Jha, Principal Investigator, and her team at Centre for Budget and Policy Studies and all others involved in the preparation of this report.

C.P. SHYLAJA
Chief Executive Officer
Bengaluru Rural Zilla Panchayat

PREFACE

The first Human Development Report brought out by UNDP in 1990, by focussing on development as enlarging people's choices, had placed people at the centre of development discourse. Access to health care, education and a decent standard of living were seen as critical components of human development as their absence limits the choices a person can exercise as a member of society, polity and economy. Since 1990 UNDP has been annually bringing out Human Development Report which ranks the countries of the world based on Human Development Index (HDI). Since the measurement is simple and applicable worldwide, it is accepted by policymakers and social scientists around the world. This was followed by individual countries preparing their own country specific HDRs. The first India HDR with the assistance of UNDP was released in 2001.

As the country level HDR provides only inter state comparison of human development indicators many states with the assistance of UNDP have started preparing state level Human Development Reports. The state HDR provides inter-district comparison of human development indicators which helps policy makers at the State Government to better target their interventions. Karnataka was one of the first states to prepare a state level Human Development Report in 1999 marking the first step in assessing inter-district comparison progress across various sectors. This was followed by the second State Human Development Report in 2005.

Karnataka Government had also taken another initiative in 2002 to appoint a High Power Committee for Redressal of Regional Imbalances (HPCRRI) which assessed the development at the taluk level by considering 35 indicators. In the year 2008, Karnataka state with assistance from UNDP and Planning Commission of India went a step ahead to prepare Human Development Reports at district level. Human Development Reports were prepared for four districts viz Udupi, Vijayapura, Kalaburagi and Mysuru. The District HDRs computed the human development indices at the taluk or the sub district level. This process helped the government in assessing the limitation in availability of data and ways to remedy them. Encouraged by the experience gained in preparing these four District Human Development Reports, Government of Karnataka has embarked on the ambitious task of preparing District Human Development Reports for all the 30 districts simultaneously so that these reports would serve as an input for the district level planning exercise.

The Planning Department has laid out a clear and well thought out plan for preparation of the District Human Development Reports. Eminent research institutions and Universities were entrusted the task of preparing the DHDRs. Human Development Report for Bengaluru Rural district has been prepared by Centre for Budget and Policy Studies, Bengaluru which has a long and considerable experience of working on issues related to social sectors.

The Human Development Division of the Planning Department provided technical guidance and administrative support to these lead agencies. The District Core Committee under the chairmanship of Chief Executive Officer and Chief Planning Officer (CPO) as the member secretary with lead agency and district heads of various departments such as health, education, social welfare, urban development, agriculture, horticulture etc as members was constituted to oversee the process of data collection and data validation. The committee met regularly to monitor the progress of data collection and resolve any issues between the lead agency and departmental heads.

The data for the report was provided by the Bengaluru Rural Zilla Panchayat officials and other departments. The data was then tested for internal consistency and validated through a rigorous process of cross checking. Wherever validation process showed inconsistencies in the data the same was referred to departments concerned for clarification and correction. As instances of such data inconsistencies were numerous, it was felt that the validation process should be built into the process of data gathering and its compilation so that data collected is accurate. Also, it will be good to sensitize district, taluk and gram panchayat level officials about the purpose, use and interpretation of the data collected. This will benefit not only in the preparation of future human development reports, but also in the formulation of government policies and interventions by the local authorities.

The District HDR has in addition to Human Development Index, other indies such as Gender Inequality Index, Child Development Index, Food Security Index, Urban Development Index and Composite Taluk Development Index. It also provides a Composite Dalit Development Index to assess the status of dalits using the data from a Gram Panchayat within a backward taluk of the district. The DHDR uses 126 indicators in the calculation of these indices. It contains four small area studies on district specific issues were undertaken. It is hoped that this elaborate exercise of preparing District Human Development Reports would help in guiding preparation of district plans and decisions relating to development expenditures resulting in correcting imbalances within the district and across districts.

Jyotsna Jha

Dr. Jyotsna Jha
Director
Centre for Budget and Policy Studies.

Acknowledgements

The Government of Karnataka entrusted the responsibility of preparing the Bengaluru Rural – District Human Development Report to Centre for Budget and Policy Studies. This report is the outcome of collective hard work of researchers at Centre for Budget and Policy Studies, officials of Bengaluru Rural Zilla Panchayat and Taluk Panchayat office, and Human Development Division, Department of Planning, Programme Monitoring and Statistics, Government of Karnataka.

We are grateful to Shri.C.P. Shylaja, Chief Executive Officer, Shri. N. Krishnappa, former Chief Executive Officer, Shri. N. Madhuram, Chief Planning Officer, and Shri. Siddoji Rao, former Deputy Director, Bengaluru Rural Zilla Panchayat, D.R. Ramesh, Scientist, NRDMS District Centre for taking keen interest in the preparation of the report, extending support in facilitating data collection, convening District Core Committee meetings, and participating in the discussion to resolve issues, if any. Our special thanks are due to department officials, both at district and taluk level, who generously shared their time with the CBPS team in spite of their busy schedules and ensured that all doubts and problems were satisfactorily resolved.

Shri Sanjiv Kumar, I.A.S., former Principal Secretary, and Smt. Anita Kaul, I.A.S., former Additional Chief Secretary, Department of Planning, Programme Monitoring and Statistics, made possible the inception and the initial drive to undertake the task of District Human Development Reports. V. Manjula, I.A.S., Principal Secretary and Shri Rajiv Rajan, I.F.S., Secretary, Department of Planning, Programme Monitoring and Statistics, and Dr. Shashidhar, State Level Consultant and Co-ordinator, Human Development Division, were instrumental in ensuring that this report is completed in an expeditious and satisfactory manner. We are grateful to Prof. Vani and Prof. James for their valuable inputs on the index values that were calculated for the report. We are also grateful to Shri. Naryana Shastry, Member, Quality Monitoring Group, who provided valuable advice and facilitated in completion of this report.

The District Human Development Report is also supported by United Nations Development Programme – PCI, under their project Human Development towards Bridging Inequalities (HDBI).

The report was prepared by the core team comprising Dr. Jyotsna Jha, B.V. Madhusudhan Rao, Shreekanth Mahendiran and Srinivas Alamuru. The draft for the report was prepared, along with the core team, by Sandhya Chandrashekaran, Sambhu Singh Rathi and Neha Ghatak. We are grateful to Shobha Sylvia Veigas for her valuable contribution in conducting the primary survey for Dalit Development Index. Further, we wish to acknowledge the inputs and efforts of Lakshmi Parvathi and Surashree Shome in preparation of small area study on Total Sanitation Campaign and Suma and Kavitha Narayan in preparation of small area study on transportation. The report greatly benefited from the reviews by Prof. Vinod Vyasulu, and Dr. Sreelakshmi Gururaja. We also thank Shri. Siddharth Lunia for his valuable service as the photographer. All pictures in the report was taken by Shri. Siddharth Lunia, unless mentioned otherwise.

Dr. Jyotsna Jha
Director
Centre for Budget and Policy Studies

Acronyms

ADE	Aeronautical Development Establishment
AFR	Adolescent Fertility Rate
AIDS	Acquired Immune Deficiency Syndrome.
AMG	Annual Maintenance Grant
ANC	Ante Natal Care
ANM	Auxiliary Nurse Mid-wife
ARS	Arogya Raksha Samiti
ART	Anti Retroviral Therapy
ASER	Annual Status of Education Report
AYUSH	Ayurveda, Unani, Siddha and Homeopathy
BASEZ	Bengaluru Aerospace Special Economic Zone
BBMP	Bruhat Bengaluru Mahanagara Palike
BCG	Bacillus Calmette–Guérin
BIAAPA	Bengaluru International Airport Area Planning Authority
BIAL	Bengaluru International Airport Limited
BMI	Body Mass Index
BMRDA	Bengaluru Metropolitan Region Development Authority
BMRDA	Bengaluru Metropolitan Region Development Authority
BPL	Below Poverty line
CAG	Comptroller and Auditor General
CALC	Computer Assisted learning Centres
CBPS	Centre for Budget and Policy Studies
CDDI	Composite Dalit Development Index
CDI	Child Development Index
CEO	Chief Executive Officer
CGWD	Central Ground Water Board
CHC	Community Health Centers
CMASK	Committee Monitoring and Strengthening SC/ST (PoA) Act in Karnataka
CMC	City Municipal Council
CMR	Child Mortality Rate
CMDR	Centre for Multidisciplinary Development Research
CTDI	Composite Taluk Development Index
DAG	District at a Glance
DCC	District Core Committee
DDI	Dalit Deprivation Index
DHDR	District Human Development Report
DISE	District Information System for Education
DLHS	District Level Health Survey
DPEP	District Primary Education Project
DPT	Diphtheria, Pertusis (Whooping Cough) and Tetunus
DRDO	Defense Research and Development Organization
DSEL	Department of School Education and Literacy
DVMC	District level Vigilance and Monitoring Committee
EEDI	Elementary Education Development Index
EfA	Education for All
FSI	Food Security Index
GDI	Gender Development Index
GDP	Gross Domestic Product
GEM	Gender Empowerment Measure
GEM	Gender Empowerment Measure
GER	Gross Enrolment Rate
GII	Gender Inequality Index
GOI	Government of India
GSA	Gross Sown Area

HAL	Hindustan Aeronautics Limited
HDI	Human Development Index
HDR	Human Development Report
HIV	Human Immune Deficiency Virus
HPCCRI	High Power Committee for Redressal of Regional Imbalances
ICDS	Integrated Child Development Services
IIHR	Indian Institute of Horticultural Research
IISC	Indian Institute of Science
ISEC	Institute of Social and Economic change
ISRO	Indian Space Research Organization
ITIR	Information Technology Investment Region
IUD	intra uterine device
JFMC	Joint Forest Management Committee
JNCASR	Jawaharlal Nehru Centre for Advanced Scientific Research
JSY	Janani Suraksha Yojana
KDP	Karnataka Development Programme
KIA	Kempegowda International Airport
KIADB	Karnataka Industrial Areas Development Board
KSTDC	Karnataka State Tourism Development Corporation
LMPR	Labour Market Participation Rate
MDM	Mid Day Meal
MDR	Multi-Drug Resistant
MHRD	Ministry of Human Resource Development
MHW	Multipurpose Health Worker
MMR	Measles, Mumps and Rubella
MNREGA	Mahatma Gandhi National Rural Employment Gurantee Act
MRO	Maintenance Repair and Overhaul
NAL	National Aerospace Laboratories
NBARD	National Bank for Agriculture and Rural Development
NCST	National commission for Scheduled Tribes
NDP	Net Domestic Product
NER	Net Enrolment Rate
NFHS	National Family Health Survey
NH	National Highways
NIAS	National Institute of Advanced studies
NRHM	National Rural Health mission
NSA	Net Sown Area
NSFDC	National Scheduled Castes Finance and Development Corporation
NSKFDC	National Safai Karamcharis Finance & Development Cooporation
NSS	National Sample surveys
OBC	Other Backward Class
ODF	Open Defecation Free
OoSC	Out of School Children
OPV	Oral Polio Vaccine
P	Primary
PCA	Primary Census Abstract
PDO	Panchayat Development Officer
PDS	Public Distribution System
PGR	Public Grievance Redressal
PHC	Public Health Centres
PNC	Post Natal Care
PRI	Panchayati Raj Institutions
PTA	Parent Teacher Association
PTM	Parent Teacher Meeting
PUC	Pre university Certificate
RCH	Reproductive and Child Health
RET	Regional Evaluation Team
RMSA	Rashtriya Madhyamik Shiksha Abhiyan

RSBY	Rashtriya Swasthya Bhima Yojana
RTC	Records of Tenancy and Cultivation
RTE	Right to Education
SAS	Small Area Study
SBM	Saakshar Bharat Mission
SC	Scheduled Caste
SDMC	School Development and Monitoring Committee
SE	Secondary Education
SEC	State Election Commission
SFC	State Finance Commission
SGRY	Sampoorna Grameen Rozgar Yojana
SHG	Self Help Groups
SHSRC	State Health Systems Resource Centre
SLWM	Solid and Liquid Waste Management
SSA	Sarva Siksha Abhiyaan
SSLC	Secondary School Leaving Certificate
ST	Scheduled Tribe
STD	Sexually Tansmitted Diseases
TDP	Taluk Domestic Product
TLC	Total Literacy Campaign
TMC	Town Municipal Councils
TSP	Tribal Sub Plan
TTI	Tetanus Toxoid Injections
UDI	Urban Development Index
UEE	Universalization of Elementary Education
ULB	Urban Local Bodies
UNDP	United Nations Development Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
UP	Upper Primary
VBD	Vector Borne Diseases
VHSC	Village Panchayat and Village Health Sanitation Committee
VHSC	Village Health Sanitation Committees
WHO	World Health Organisation
WPR	Work Participation Rate
ZP	Zilla Panchayat

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Part 1
Executive Summary

Executive Summary

The concept of human development propounded by Mahbub-ul-Haq and Amartya Sen can be defined as `a process of enlarging people's choices'. Development is an outcome of a complex process where diverse factors interact with each other to create the environment which enables people to lead a creative, healthy, and productive life. In 1990, UNDP adopted this concept of development in its first Human Development Report (HDR) ending the pre-occupation with economic growth and per capita income focused models. The report also introduced Human Development Index (HDI) to measure the level of human development, facilitated inter-temporal comparison and altered the approach towards development-oriented policy formulation. Further, it paved way for the formulation of other development-focused indices such as Gender Inequality Index (GII), Gender Development Index (GDI) and Food Security Index (FSI).

The Bengaluru Rural District Human Development Report makes use of HDI, GII, FSI, Child Development Index (CDI), Urban Development Index (UDI), Comprehensive Taluk Development Index (CTDI), Composite Dalit Development Index (CDDI) and Composite District Development Index to provide a comprehensive analysis and understanding of the level of human development at the taluk-level. The analysis in the report is based on data provided by Bengaluru Rural Zilla Panchayat and the line departments for the time period 2010-2011. The data was tested for internal consistency and validated through a rigorous process of cross-checking. Other data sources such as Census, National Sample Surveys (NSS), District Level Household and Facility Survey (DLHS) and other small sample based studies have been suitably used to go deeper into certain issues. In addition, four small area studies were conducted on topics relevant for the district. These are related to the quality of education in private institutions, good practices in implementation of Total Sanitation Campaign (TSC), access and quality of bus services, and changes in land use.

Bengaluru Rural district comprises of four taluks, two revenues sub-division, 1052 villages and 1272 habitations. The High Power Committee for Redressal and Imbalances report, headed by Dr D.M. Nanjundappa, ranked Devanahalli, Doddaballapur, Hosakote and Nelamangala as 51st, 46th, 72nd and 54th respectively in the list of 176 taluks in the state.

According to census 2011, the population of Bengaluru Rural was 9.90 lakh of which 5.09 lakh and 4.82 lakh were male and female respectively. The sex ratio of Bengaluru Rural at 946 is slightly lower than the sex ratio recorded at the state level (973). The rural and urban population constituted 72.88 per cent and 27.12 per cent of the total population respectively. The decadal growth rate of population is 16.45 per cent for the entire district where Nelamangala and Hosakote recorded higher decadal growth rate of 20.59 per cent and 21.75 per cent respectively. The Scheduled Caste (SC) and Scheduled Tribe (ST) population has increased from 2.30 lakh in 2001 to 2.67 lakh in 2011.

According to agricultural census (2011), about 55 per cent of the land is under agriculture use with 87 per cent of the holdings falling under small and marginal holding category. There are 74 large and medium scale industries in the district with an investment of Rs 1557 crore. The number of micro, small and medium enterprises is 12,988 units, mostly textile-based, employing over 56,000 workers.

HDI is a composite index constructed to measure the achievements in education, standard of living and health. The HDI index was calculated by taking geometric mean of education, standard of living and health parameters. For GII, the calculation was based on the parameters of equality in three dimensions viz. reproductive health, empowerment and labor market. Other indices such as CDI, FSI, UDI, CTDI and CDDI were calculated by taking arithmetic mean of relevant developmental parameters. The selection of variables for calculating each of the indices is based on the availability and relevance of these variables at the taluk level.

Among the four taluks, Nelamangala ranks first with an HDI value of 0.766, followed by Devanahalli (0.685), Doddaballapur (0.637) and Hosakote (0.616). Nelamangala taluk has the highest per centage of households with safe cooking fuel (40.09 per cent), toilets (84.45 per cent), safe drinking water (89.18 per cent), and electricity (96.17 per cent). Also it has the highest per centage of non-agricultural workers (60.69per cent) and highest per capita income (Rs 78,875.85) in the district. However, Nelamangala has the worst maternal mortality rate (150 maternal deaths per 100,000 live births) among the four taluks. Devanahalli taluk, on the other hand, was able to attain better level of achievement in health and education dimension but it has the lowest per capita income (Rs 40,093) in the district. In the case of Doddaballapur and Hosakote, the poor performance is due to high child mortality rate and significantly lower gross enrolment ratio (both primary and secondary levels) and average performance in standard of living indicators. This is despite the fact that these taluks have high per capita income and low maternal mortality rate. This emphasizes the need for efficient resource allocation and planning to develop all parameters of human development simultaneously.

Overall, Bengaluru Rural district can be described as one with high child development, high level of gender equality, mid-level human development coupled with low taluk development and low level of food security. Within the district, Nelamangala and Devanahalli are the two better performing taluks outperforming Doddaballapur and Hosakote significantly in most of the development parameters.

Under education, the analysis reveals that there is high level of gender parity at elementary and secondary levels which changes into high level of gender disparity at higher levels of education. The implementation of RTE norms has ensured that high access, enrolment, and transition rate in the district at the elementary level. However, female enrolment, especially from poorer households, in higher levels of education is significantly lower than male enrolment in the district. Moreover, the increasing presence of private institutions at all education levels and recent decline in state education expenditure in the district might have adverse implications on enrolment of children, especially girls, from poorer households in the district.

Bengaluru Rural presents a contradictory picture in the case of health and nutrition indicators: institutional deliveries, coverage of women by ANC services, per centage of children being covered by full immunization and anganwadi coverage are fairly good in the district but the per centage of pregnant women with severe anemia, per centage of children born underweight and MMR are high in the district. A closer inspection of taluk level numbers reveals that per centage of pregnant women with anemia is higher in Doddaballapur and Hosakote but this does not get reflected in Maternal mortality rate .Surprisingly MMR is high for Devanahalli and Nelamangala where the per centage of pregnant women with anemia is lower relative to the other two taluks. These facts raise the issue of adequacy and quality of services provided in the district. There is only one doctor for every 8000 population and one nurse for every 10000 population in the district as agains the WHO recommended norm of a doctor per 1000 population and 3 nurses/ANMs per 1000 population[1]. Further, the increase in beneficiaries of anganwadi centres is not matched by increase in anganwadi workers in the district. It is essential to have both physical and human resources to be able to provide an efficient and effective health service to the districts population.

The number of workers in Bengaluru Rural has increased from 4 lakh in 2001 to 4.6 lakh in 2011, and experienced a growth rate of 1.61 per cent per annum. However, the work participation rate has decreased slightly from 53 per cent in 2001 to 52 per cent in 2011 mainly owing to a decline of 2.8 per centage points in Hosakote. While the work participation rate has increased in the urban

[1] High Level Expert Group Report on Universal Health Coverage for India (2011) - http://planningcommission.nic.in/reports/genrep/rep_uhc0812.pdf

sector, it has decreased in the rural sector. Within the rural sector, the agriculture sector employs around 71 per cent of the work force. The average weekly wage in agriculture work is Rs 513.70 which is significantly lower than the average weekly wage earned by engaging in non-agricultural work (Rs 927.40). In the urban sector, the tertiary sector employs majority of the population and the average weekly wage earned is Rs 1494.20.

Further, analysis of sectoral distribution of income reveals that primary sector contribution has declined from 15.67 per cent in 2004-2005 to 13.43 per cent in 2008-2009. On the other hand, the secondary sector's share increased from 35.65 per cent in 2004-2005 to 37 per cent in 2008-2009. The tertiary sector contributed 49.56 per cent of the district net domestic product increased by one per centage point in 2008-2009. Overall, the per capita income earned is highest in Nelamangala taluk (Rs 78,875), followed by Doddaballapur (Rs 76,080), Hosakote (Rs 75,749) and Devanahalli (Rs 40,092) in 2008-2009.An assessment of income inequalities (Gini coefficient) – using NSS 66th round - reveals that income inequality was greater in urban areas (0.3) than in rural areas (0.15) of Bengaluru Rural. However, there is less income inequality in Bengaluru Rural in comparison to Karnataka as a whole.

In terms of standard of living, all four taluks of Bengaluru Rural have witnessed significant increase in ownership of pucca houses, safe drinking water, latrine facility, electricity, banking services, and household goods (television, computer, two-wheeler and four-wheeler). The better performance of the district can be attributed to: (a) Increase in per centage of household ownership of assets, pucca houses and access to essential standard of living indicators - especially quality of drinking water, clean cooking fuel, and sanitation; and (b) Significant reduction in the rural-urban gap over the decade in Bengaluru Rural in comparison to Karnataka. However, there are still households which require government intervention to meet the basic requirements of shelter especially in Devanahalli and Doddaballapur. In these two taluks, the government was not able to provide house sites to houseless families due to non-availability of sites at affordable prices. This issue requires immediate attention and an effective, alternative, solution.

Gender Inequality Index which measures the (formal) equality between male and female population ranges between 0.0710 (Devanahalli) and 0.0919 (Hosakote) indicating that the level of inequality among male and female population is low in the district. However, closer inspection of each indicator presents a different picture. This is because the index takes into account only inter-taluk variations in gender imbalances. The calculated GII can be low if those inter-taluk variations within the district are marginal irrespective of presence of huge imbalances between male and female population in each taluk. In other words, if the gender disparities are high in all taluks, the inequality index shows a lower value because of the low inter-taluk differences.

Work participation of women is only two-thirds that of men, and is concentrated around low-paid wage work in agriculture in rural areas and household industry in urban areas. Female wages are almost half of the male wages in the rural sector. In the urban sector, the male wages are around 112 per cent more than the female wage in addition to high level of female unemployment rate. Women own less than one-fifth of the total land holding in the district. On the positive side, the literacy rates and number of elected women representatives have increased over the decade but these are merely the first steps and a lot more needs to be done for achieving substantive gender equality in the district.

Scheduled Caste and Scheduled Tribe also remain on the periphery despite showing major improvement in certain areas. The small study based on survey of dalit households in Hosakote showed that the rigours of discrimination has loosened but private space that had always been separated is still guided by notions of pollution and purity. Further, the SC and ST population groups appear to be adversely affected by changing land use patterns. The number of SC land holding has reduced by 600 in Devanahalli amounting to a reduction of 880 hectares in a period of five years between 2005-06 and 2010-11, the reduction being most marked in Doddaballapur. The small area study on `land use

changes in Bengaluru Rural district' revealed that farmers, especially those with small and marginal holdings and many of them belonging to SC and ST, are less informed about the process of acquisition and land use policies adopted by the government. Moreover, they feel alienated by this process since the government has failed to involve them as legitimate stakeholders. The lack of support, poor knowledge of actual market prices of land and alienation increases the probability of weaker sections of the society, especially SC and ST, being exploited by real estate agents and buyers as well.

The drastic change in land use pattern and upsurge in land acquisitions by both government and private players in Bengaluru Rural district is due to its close proximity to Bengaluru city which is one of the fastest growing metropolitan cities in India. The proximity presents the residents of Bengaluru Rural with greater choices in education, economic and cultural spaces, and improvements in standard of living but it also adversely impacts food prices, the quality of water and air, and makes them more vulnerable to unscrupulous market forces. Therefore, the State has to plan and invest strategically such that the residents of the district are able to benefit from the advantages owing to its closeness to Bengaluru city, and are protected from its negative impacts.

These facts emphasize the need for better urban governance in the district. An important indicator of urban governance is its capacity to generate revenue, and the analysis of this indicator shows high property tax efficiency by three out of five Municipal bodies in the district. The district invests less in SC and ST related schemes: 42 per cent of the SC and ST funds were unspent taking all ULBs together. The utilisation was lowest in Hosakote while it was highest in Doddaballapur town.

In conclusion, Bengaluru Rural district presents a mixed picture in terms of human development. There are sharp inter-taluk differences as evidenced in the indices computed for the purpose of this report but no single taluk has performed better consistently across all the indicators. The analysis and findings of this report should be understood by juxtaposing the fact that Bengaluru Rural district is situated next to a fast evolving mega city (Bengaluru). The proximity determines and influences almost all aspects of life in this district to the extent that it at times makes the analysis of Bengaluru Rural in isolation of Bengaluru Urban district difficult. In general, the district presents an encouraging trend for developments in literacy, elementary education, availability of medical institutions, standard of living, employment generation, labor productivity, and ability and determination of officials at all levels to implement schemes and interventions successfully. On the downside, development policies need to be implemented to improve the status as well as social and economic imbalances of female and SC/ST population. Further, the state should give more attention to the high level of gender disparity that exists in higher levels of education in addition to ensuring that access to higher level of education exists for all section of the society. The state government also needs to employ more number of doctors, nurses and anganwadi workers to improve the quality of health service provided in the district. In addition, interventions are required to ensure that maternal mortality, child mortality and pregnant women with severe anemia are reduced drastically in the district.

Part 2
Chapters

Introduction

1 : Introduction

"Human development, as an approach, is concerned with what I take to be the basic development idea: namely, advancing the richness of human life, rather than the richness of the economy in which human beings live, which is only a part of it." - Amartya Sen, Professor of Economics, Harvard University Nobel Laureate in Economics, 1998[2]

1.1. Concept and Methodology

Human development as propounded by Mahbub ul Haq and Amartya Sen, and adopted by the first Human Development Report 1990, is 'a process of enlarging people's choices' and 'the most critical of these wide-ranging choices are to live a long and healthy life, to be educated and to have access to resources needed for a decent standard of living; additional choices include political freedom, guaranteed human rights and personal self-respect.[3]' The advent of human development approach brought the notions of 'enlarging choices', 'enhancing freedoms' and 'promoting well-being' in the development discourse and influenced the research as well as the practice since then in a radical way. A number of 'unfreedom' practices persisted even in higher income countries, and non-desirability of such model of development process ended the pre-occupation with growth and per capita income focused models, and brought the people in the centre of the development debate.

The notion of human development itself also underwent change over the years. The evolution of capability approach and its extension to various areas such as gender, social inclusion and political processes also influenced the human development measurement and deliberations. Amartya Sen (1999) argues that development is dependent on the free agency of people, and there is a strong inter-connectedness between individual freedom and social development. People's achievements are influenced by social, cultural and economic arrangements as well as the political and civil rights that they experience. These factors, in turn, are influenced by the exercise of people's freedoms through their participation in public discussion on policy and social choices that advance development. Sen's capabilities approach[4] argues that human well-being is influenced by people's actions rather than what they own. People should have equal access to resources and freedom to be able to make choices regarding health, education, politics and culture on a daily basis. By extension, the quality of available options should be enhanced since it also enhances an individual's choice. Thus, any development effort should focus on enhancing options and ensuring availability of individual choices. The global HDRs, an annual exercise since 1990, also reflect this evolution of the concept in terms of how it is defined and treated the notion of human development (Table 1.1).

2 http://hdr.undp.org/en/humandev
3 Human Development Report, 1990
4 'Capability approach is a theoretical framework that entails two core normative claims: first, the claim that the freedom to achieve well-being is of primary moral importance, and second, that freedom to achieve well-being is to be understood in terms of people's capabilities, that is, their real opportunities to do and what they have reason to value. The core ideas of Capability Approach are – Functionings and Capabilities. Functionings are defined as "beings and doings" i.e. the various states of human beings and activities that a person can undertake while capabilities are the real freedom or opportunities available to an individual to achieve functionings' (Robeyns, 2011)

Table 1.1: The idea of Human Development as expressed in various Human Development Reports

Year	Theme
1990	A process of enlarging people's choices
1991	The real objective of development is to increase people's choices
1992	A process of enlarging people's choices.
1993	Involves widening [people's] choices
1994	To create an environment in which all people can expand their capabilities.
1995	A process of enlarging people's choices.
1996	A process of enlarging people's choices.
1997	The process of enlarging people's choices
1998	A process of enlarging people's choices.
1999	The process of enlarging people's choices
2000	A process of enhancing human capabilities
2001	About expanding the choices people have to lead lives that they value.
2002	About people, about expanding their choices to lead lives they value.
2003	To improve people's lives by expanding their choices, freedom and dignity.
2004	The process of widening choices for people to do and be what they value in life.
2005	About building human capabilities—the range of things that people can do, and what they can be
2007/08	About expanding people's real choice and the substantive freedoms – the capabilities- that enable them to lead lives that they value
2009	The expansion of people's freedoms to live their lives as they choose

Source: Sabina Alkire, UNDP, 2010

Following the publication of Human Development Report (HDR) 1990 that ranked nation states as per their human development status, UNDP has been encouraging the countries to develop their own HDRs at national and sub-national levels. Karnataka was one of the first states in India, second only to Madhya Pradesh, to develop its own HDR, first in 1999 and then in 2005. The state then went on to develop district level HDRs for four districts. Encouraged by the exercise, Karnataka has now initiated the exercise for all districts in the state. This report for Bengaluru Rural is a part of that initiative.

The HDR has at its centre the Human Development Index (HDI) which is usually a composite index of three indicators - health, education and standard of living. This index serves as a frame of reference for both social and economic development. The HDI sets a minimum and a maximum for each dimension, called goalposts, and then shows where each geographical location stands in relation to these goalposts, expressed as a value between 0 and 1.The construction of Human Development Index (HDI), thus, embodies Sen's capabilities approach emphasizing the importance of both the means and the ends, many a times the end itself also becoming a means, example, access to education is both an end in itself as it leads to widening of freedoms in many ways, and also a means as it enhances the capability to make choices. Similarly livelihood and income security is both an end and a means.

The evolution of human development concept also led to its extension to many related concepts, the issues related with various forms of inequalities being one of the most prominent ones. A good body of literature exists on extension of capabilities and human development approach to women and gender related issues. The global HDRs and the HDRs at various national and sub national levels have attempted to understand the gender inequality in various ways; this report also attempts gender inequality index taking some indicators of reproductive health, women's empowerment and labour market participation into account.

In order to complement the HDI, the human development

approach has also been extended to encompass other indices or measures that explore the regional, cultural, political and gender disparities that exist in a society. This report attempts to develop supplementary indices such as Child Development Index (CDI), Dalit Development Index (DDI), Food Security Index (FSI), Urban Development Index (UDI), and Composite Taluk[5] Development Index (CTDI). As is clear from their names, these are varied in nature: while CDI and DDI refer to particular sub-groups of population –one based on age and another on social category, FSI pertains to a particular entitlement and right, and UDI and CTDI refer to geographical units. Sections 1.2 and 1.3 go into greater details of methodology: while section 1.2 lists the factors constituting these indices in general section 1.3 details out the methods followed for measurement of indices.

1.2. Factors contributing to Human Development

Human development is a result of a process which is rather complex, and where different factors act and interact to make the environment enabling so as to allow people to enjoy long, healthy and creative lives. This section lists the factors that contribute to human development in some manner or the other. It should be noted that the factors that influence human development are not mutually exclusive as progress in one factor would trigger progress in another factor as well. For example, improvement in hygienic practices leads to better health and thus higher school attendance.

1.2.1. Education

Education plays a critical role in human development. Education has both intrinsic and instrumental value: it raises confidence and self-worth, allows one to explore new areas of knowledge and new forms of understanding, and opens up new opportunities. It is considered essential to break the vicious cycle of poverty and for expanding the choices of a person in terms of employment options.[6] Several studies across the globe have found that girls' education has led to a more gender equal society, significant progress in health indices and education attainment of the next generation. In recognition of the importance of education, United Nations has listed universalisation of primary education as one of its Millennium Development Goals to be achieved by 2015. The achievement of this goal requires increased investment in education infrastructure, trained teachers together with availability of quality educational material.

1.2.2. Health

Health and nutrition form an integral part of human development. Health as defined by the World Health Organization (WHO) includes physical, mental and social well-being. It plays a vital role in an individual's ability to attain proper education, explore and benefit from work opportunities, ensure higher productivity, ability to spend time with family and friends, and actively participate in the process of democratic decision making. While achievements in health indicators can be considered as ends in themselves, it can also be an important pre-requisite to ensure development. The progress in the health sector is vital to poverty eradication, sustainable economic and social development of a nation.

1.2.3. Food Security

Food security is defined as '[the condition] when all people, at all times, have physical, social and economic access to sufficient and nutritious food [to meet] their dietary needs and food preferences for an active and healthy life' [African HDR, 2012]. The lack of nutrition hinders one's full physical and mental development, which in turn has implications of lower productivity for the individual as well as the economy as a whole. Availability of sufficient food and easy access to food are essential for human dignity and development. Equitable distribution of food to all individuals and all sections of the society is of particular importance in economies with wide regional, socio-economic and inter-personal disparities.

[5] Taluk refers to the sub-district administrative unit in Karnataka, usually referred to as block in most other Indian states.
[6] Education for All: Global Monitoring Report, 2006, Chapter 5.

1.2.4. Per Capita Income

Higher income enables a person to have more disposable income in hand which in turn contributes to a better standard of life. Although per capita income does not tell anything about real distribution of total income of a country or any other sub-national unit, growth in per capita income is an important indicator for economic growth, which is also necessary for human development.

1.2.5. Access to Decent Standard of Living

Article 25(1) of the Universal Declaration of Human Rights states that 'everyone has the right to a standard of living adequate for the health and well-being of himself and of his family, including food, clothing, housing and medical care and necessary social services, and the right to security in the event of unemployment, sickness, disability or other lack of livelihood in circumstances beyond his or her control'. Therefore, access to safe drinking water, sanitation, decent housing, clean cooking fuel and security are other important factors for human well-being.

1.2.6. Political and Economic Participation

Political and economic participation becomes especially important for groups that are traditionally not as empowered as others, i.e., women. Participation in political processes such as elections and economic processes such as labour market are indicators of the level of freedoms enjoyed by the particular group, and therefore critical for comparative analysis and understanding.

1.2.7. Access to Safe and Secure Environment

Safe and secure environment in terms of reduced likelihood of facing violence or other forms of hazards are critical for enhancing freedoms and allowing greater mobility and enhancing the choices for fuller use of available opportunities. While it is important for all individuals, it assumes greater significance for those sub-groups that have traditionally faced greater violence and deprivation, i.e., women or dalits, or are more vulnerable, i.e., children.

The methodology for measuring human development has evolved over the past two decades and is still evolving. However, the issues related with the measurement of certain indicators and data constraints usually limit the exercise of estimating human development status to certain basic constituents. The present exercise is no exception where the need for comparability among all districts also guided the choice of constituents. All the indices have been computed for all the taluks of the district, and the report follows the pattern of inter-taluk comparative analyses for all indicators.

The Human Development Index (HDI) for the taluks as well as for the district in Bengaluru Rural district is computed on the basis of the methodology developed by the Human Development Division, Planning, Programme Monitoring and Statistics Department, Karnataka which in turn is based on the 2010 HDR by UNDP. The following section discusses the measurement of indices in detail.

1.3. Measurement of Indices[7]

1.3.1. Human Development Index

The concept of human development is much broader than the composite index that is constructed to measure it as quantification of any concept is only an approximation. Despite this limitation, Human development index is a fundamental measure of human development which allows for inter-temporal comparisons and has serious policy implications.

The first HDI was constructed on the basis of three basic dimensions: life expectancy to represent the longevity of human life; education to represent the knowledge dimension; and income per capita (real GDP per capita) to represent the resources available to an individual for a decent living. Each of these components was converted into an index using the normalization formula. During

[7] The methodology was centrally developed by Government of Karnataka in collaboration with Institute of Social and Economic Change (ISEC) Bengaluru.

initial years, the final HDI was calculated by taking an arithmetic average of these three dimensions. The practice changed in recent years and the HDI is now calculated by taking a geometric mean of standard of living, health and education indicators. Arithmetic mean by averaging the performance across the three dimensions allows for higher performance in one dimension to compensate for poor performance in another whereas the geometric mean brings the average down to the extent any particular dimension has underperformed. However, in case of geometric mean, the final value becomes zero if any one indicator has a value equal to zero. In order to overcome this problem, the value of every indicator is converted to a non-zero value; the process of this conversion is described later along with the description of the measurement of each index.

Table 1.2 provides the list of variables that are used to compute the human development index and its sub-indices – standard of living, education and health along with the data-sources used for respective variables.

Table 1.2: Details of Indicators for computing HDI

Dimension	Indicator	Positive / Negative Indicator	Unit	Definition	Data Source
Standard of Living	Access to cooking fuel	Positive	%	Per centage of households using modern fuels: LPG, electricity and gas.	Census of India
	Access to toilet	Positive	%	Per centage of households which have toilet facility within the house.	Census of India
	Access to safe drinking water	Positive	%	Per centage of households which have access to tap, bore well, hand pumps and tube well.	Census of India
	Access to electricity	Positive	%	Per centage of households with access to electricity.	Census of India
	Access to pucca households	Positive	%	Per centage of households with pucca houses	Census of India
	Non- agricultural workers (main + marginal)	sPositive	%	Per centage of non-agricultural workers (both main and marginal workers).	Census of India
	Per-capita income	Positive	per capita	Per capita income is defined as the mean income of the people in the Taluk. It is calculated by taking the Gross Domestic Product of each Taluk at 2008 prices and dividing it by the total taluk population	Directorate of Economics and Statistics, Government of Karnataka
Health	Child Mortality Rate	Negative	per 1000 live births	Children mortality rate, also known as under-5 mortality rate, is defined as the probability per 1,000 that a new born baby will die before reaching the age of five, if subject to the current age-specific mortality rates.	Department of Health, Bengaluru Rural district

Dimension	Indicator	Positive / Negative Indicator	Unit	Definition	Data Source
Health	Maternal Mortality Rate	Negative	per 1,00,000 live births	Maternal Mortality Rate is the number of women who die during pregnancy and childbirth per 1, 00,000 live births.	HMIS 2011-12
Education	Literacy Rate	Positive	%	Per centage of people in the age group 7 year and above who are able to read and write	Department of Public Instructions, Bengaluru Rural district
	Gross Enrolment Rate (Primary + Secondary)	Positive	%	Per centage of children in the age group 6-16 years enrolled in primary and secondary grades	Department of Public Instructions, Bengaluru Rural district

1.3.2. Methodology for estimating HDI

The following steps were undertaken to compute the Human Development Index:

Conversion of absolute values to index value

The formula used for the calculation of index value is different for positive and negative indicators to ensure that higher index value represents higher level of development. The index value for positive indicators was calculated using the following formula.

$$\text{Index value} = \frac{(\text{Actual value} - \text{Modified minimum value})}{(\text{Maximum value} - \text{Modified minimum value})}$$

The modified minimum value is 90 per cent of the observed minimum value. In other words, 10 per cent is deducted from the observed minimum value of the positive indicators to derive the modified minimum value.

The index value for negative indicators was calculated using the following formula:

$$\text{Index value} = \frac{(\text{Modified maximum value} - \text{Actual value})}{(\text{Modified maximum value} - \text{Minimum value})}$$

The modified maximum value is 10 per cent more than the observed maximum value. In other words, 10 per cent is added to the observed maximum value of the negative indicators to derive the modified maximum value. The use of modified minimum and maximum values ensures that no individual value remains zero.

Treatment of Income

It should be noted that the per capita income was first converted to logarithmic values to reflect the diminishing importance of income with increasing Gross Taluk Domestic Product (TDP) per capita. This treatment of the income measure has been followed since the first HDR by UNDP in 1990. Thus, the income measure is treated first by converting it into logarithmic values and then normalized with respect to the modified minimum logarithmic value of Gross TDP per capita and maximum logarithmic value of Gross TDP per capita.

Calculation of Dimension-based Index:

The second step in the computation of HDI is to calculate the geometric mean for each dimension. The geometric mean for each dimension is calculated using the following formula:

$$\text{Dimension based Index} = (I1 * I2 * I3 * \ldots * In)^{\left(\frac{1}{n}\right)}$$

Where n indicates the number of indicators considered for a dimension.

Computation of HDI

The final step is to compute the HDI by taking geometric mean of the three dimension based indices. The following formula was used for the calculation of HDI:

$$\text{HDI} = (\text{Standard of Living Index}) * (\text{Education Index}) * (\text{Health Index})^{\frac{1}{n}}$$

1.3.3. Gender Inequality Index

Gender Inequality Index is composite index consisting of three dimensions: (a) Reproductive Health, (b) Empowerment and (c) Labour Market. It measures the loss in potential of human development due to inequality between male and female achievements as well as opportunities available to each gender. Table 1.3 provides details of the variables that were used to compute the gender inequality index.

Table 1.3: Details of Indicators for computing GII

Dimension	Indicator	Positive / Negative Indicator	Unit	Definition	Data Source
Reproductive Health	Maternal Mortality Rate	Negative	Per 1,00,000 live birth	Maternal Mortality Rate is the number of women who die during pregnancy and childbirth per 1, 00,000 live births.	HMIS 2011-12
	Institutional Deliveries	Positive	%	Per centage of institutional deliveries to total deliveries	Department of Health and Family Welfare, Bengaluru Rural district
	Pregnant women with Anemia	Negative	%	Share of pregnant women with severe anemia to total pregnant women	Department of Health and Family Welfare, Bengaluru Rural district
Empowerment	Female elected representatives in PRIs and ULBs	Positive	%	Per centage of female elected representatives in PRIs and ULBs to total elected representatives in PRIs and ULBs	Bengaluru Rural District at a Glance 2011-12
	Male elected representatives in PRIs and ULBs	Positive	%	Per centage of male elected representatives in PRIs and ULBs to total elected representatives in PRIs and ULBs	Bengaluru Rural District at a Glance 2011-12
	Female children in the age group 0-6 years	Positive	%	Per centage of female children in the age group 0-6 years to total population in the age group 0-6 years	Census of India
	Male children in the age group 0-6 years	Positive	%	Per centage of male children in the age group 0-6 years to total population in the age group 0-6 years	Census of India
	Female Literacy Rate	Positive	%	Per centage of female literate population to total population in the age group 7 years and above	Census of India
	Male Literacy Rate	Positive	%	Per centage of male literate population to total population in the age group 7 years and above	Census of India
Labor Market	Female work participation rate	Positive	%	Per centage of female workers to total population in the age group 7 years and above	Census of India
	Male work participation rate	Positive	%	Per centage of male workers to total population in the age group 7 years and above	Census of India

Labor Market	Female non-agricultural workers	Positive	%	Per centage of female non-agricultural workers to total female workers	Census of India
	Male non-agricultural workers	Positive	%	Per centage of male non-agricultural workers to total male workers	Census of India
	Female agricultural wage rate	Positive	Per person	Female minimum agricultural wage rate as fixed by Government of Karnataka	Agricultural Department, Bengaluru Rural District
	Male agricultural wage rate	Positive	Per person	Male minimum agricultural wage rate as fixed by Government of Karnataka	Agricultural Department, Bengaluru Rural District

1.3.4. Methodology for estimating GII

In order to calculate the GII we follow the following process. First, the normalized values of three dimensions vis. reproductive health, empowerment and labor market for male and female are aggregated using geometric mean. In absence of any particular data, the reproductive health dimension for mean gender is assumed to be one to enable computation of gender inequality index. The aggregated values of male and female represent the level of achievement of respective gender in leading a healthy life, participation in work force and level of representation in the labour market which would facilitate in raising their concerns more effectively. These values of male and female are then aggregated using harmonic mean to represent equally distributed Gender Index. This value, in turn, is compared with the reference standard which is the overall mean across three dimensions and deducted from one to derive the level of gender inequality prevailing among taluks.

The steps involved in the calculation of gender inequality index are as follows:

Calculation of Dimension-based Index:

The first step in the computation of GII is to calculate the geometric mean for each dimension. The geometric mean for each dimension is calculated using the following formula:

$$\text{Dimension based Index} = (\mathrm{I1} * \mathrm{I2} * \mathrm{I3} * \ldots * \mathrm{In})^{\left(\frac{1}{n}\right)}$$

Where n indicates the number of indicators considered for a dimension

Treatment of share of pregnant women with anemia:

The share of pregnant women with anemia is deducted from one to derive the share of pregnant women without anemia and therefore is considered as a positive indicator. Since any improvement in share of pregnant women without anemia will lead to increase in the development status of a taluk.

Treatment of Female and Male agricultural wage rate:

The female and male agricultural wage rate is converted from its absolute values to normalized value such that it ranges between zero to one. The formula used for the calculation of index value varies for positive and negative indicators to make the index unidirectional. The index value for positive indicators was calculated using the following formula.

$$\text{Index value} = \frac{(\text{Actual value} - \text{Modified minimum value})}{(\text{Maximum value} - \text{Modified minimum value})}$$

The modified minimum value is 90per cent of the observed minimum value. In other words, 10 per cent is deducted from the observed minimum value of the positive indicators to derive the modified minimum value.

Aggregation across dimensions within each Gender group:

The second step in the calculation of GII is to aggregate across dimensions within each gender group using geometric mean. Therefore, the three dimensions of reproductive health, empowerment and labor market are aggregated using the following formula:

$$\mathrm{G(f)} = \left(\mathrm{R(f)} * \mathrm{E(f)} * \mathrm{L(f)}\right)^{\frac{1}{3}}$$

Where

R(f) = Reproductive health dimension for female gender.

E(f) = Empowerment dimension for female gender.

L(f) = Labor market dimension for female gender.

$$G(m) = \left(R(m) * E(m) * L(m)\right)^{\frac{1}{3}}$$

Where

R(m) = Reproductive health dimension for male gender.

E(m) = Empowerment dimension for male gender.

L(m) = Labor market dimension for male gender.

Aggregating across Gender group using Harmonic Mean:

The gender-wise aggregated values are further aggregated across genders using harmonic mean to derive the equally distributed gender index. It is calculated to capture the female and male inequality that exists in each taluk. The following formula is used to calculate the harmonic mean:

$$HARM\left(G(f), G(m)\right) = \left\{\frac{\left[\left(\frac{1}{G(f)}\right) + \left(\frac{1}{G(m)}\right)\right]}{2}\right\} \wedge (-1)$$

<u>Calculation of reference index:</u>

The reference index is obtained by aggregating the female and male indices with equal weight and then aggregating across dimensions. The following formula is used to obtain the reference index:

*G(f,m) = (Health * Empowerment * Labout)⅓)*

Where

$$Health = \left\{\left(\left[\frac{1}{MMR}\right] * D * ANE\right)^{\frac{1}{3}} + 1\right)/(2)\}$$

MMR = Maternal Mortality Rate

D = Share of Institutional Deliveries

ANE = Share of Pregnant women not suffering from anemia

Where

$$Empowerment = \left\{[R(f) * CHLD(f) * LIT(f)]^{\frac{1}{3}} + [R(m) * CHLD(m) * LIT(m)]^{\frac{1}{3}}\right\}/(2)$$

R(f) = Share of female elected representatives in ULBs and PRIs

CHLD(f) = Share of female children in the age group 0-6 years

LIT(f) = Share of female literacy

R(m) = Share of male elected representatives in ULBs and PRIs

CHLD(m) = Share of male children in the age group 0-6 years

LIT(m) = Share of male literacy

Where

$$Labor\ Market = \left\{[W(f) * N(f) * Wage(f)]^{\frac{1}{3}} + [W(m) * N(m) * Wage(m)]^{\frac{1}{3}}\right\}/(2)$$

W(f) = Female work participation rate

N(f) = Share of female workers in non-agricultural sector

Wage(f) = Normalized female agricultural wage rate

W(m) = Male work participation rate

N(m) = Share of male workers in non-agricultural sector

Wage(m) = Normalized male agricultural wage rate

<u>Computation of GII</u>

The GII value is derived by comparing the equally distributed gender index to the Reference Index. The GII value ranges from zero and one, where zero indicates no gender inequality across dimensions and one indicates absolute inequality across dimensions. The following formula is used to compute the GII:

$$GII = 1 - [HARM(G(f), G(m))/G(f, m)]$$

1.4. Supplementary Indices

1.4.1. Child Development Index

An arduous and persistent campaign by the UK based organization Save the Children led to the development and use of the Child Development Index (CDI) as part of HDRs. The CDI is based on three dimensions specific to children: education, health and nutrition. Table 1.4 provides details of indicators used for computing CDI.

Table 1.4: Details of Indicators for computing CDI

Dimension	Indicator	Positive / Negative Indicator	Unit	Definition	Data Source
Health	Child mortality rate	Negative	per 1000 live births	Children mortality rate, also known as under-5 mortality rate, is defined as the probability per 1,000 that a new born baby will die before reaching the age of five, if subject to the current age-specific mortality rates.	HMIS 2011-12
Nutrition	Mal-nourished Children	Negative	%	Per centage of children under the age of five years who are moderately or severely malnourished	HMIS 2011-12
	Children born under-weight	Negative	%	Per centage of children born under-weight	HMIS 2011-12
Education	Primary and Secondary children who have been mainstreamed	Positive	%	Per centage of drop out children who have been mainstreamed.	Department of Public Instructions, Bengaluru Rural District

1.4.2. Composite Dalit Development Index (CDDI)

The Composite Dalit Development Index (CDDI) is a composite index computed using ten sub-indices to understand the development status of Scheduled Caste (SC) population. As is well-known, dalits, officially categorized as Scheduled Castes, have historically faced discrimination and exclusion on various counts and through various means. The independent India, apart from making the practice of untouchability illegal, has also taken a large number of affirmative action to promote the well-being of this group but they still remain relatively deprived on many counts. A separate index is computed for the dalit population in recognition of the fact that factors that promote or hinder their development are unique. The CDDI has been computed only for one panchayat of Bengaluru Rural district and is not representative of the development status of dalit population in Karnataka. However, it provides an opportunity and some insights to understand the status of human development among dalits. The ten sub-indices used to calculate the CDDI are as follows

a. Institutional Inclusion – This sub-index account for the level of participation of dalit population in terms of membership in governance and decision-making bodies such as School Development and Monitoring Committee (SDMC), Water Society, Joint Forest Management Committee (JFMC), Village Panchayat and Village Health Sanitation Committee (VHSC).

b. Standard of living – This sub-index account for the standard of living of dalit households in the sample panchayat area. The factors that were

considered for this sub-index are ownership of non-agricultural establishments by SCs, pucca houses, two wheelers and electrification of SC households.

c. Access to basic facilities – This sub-index account for the level of access to basic facilities such as drinking water, toilet and drainage facilities available to SC population relative to general population.

d. Access to basic educational facilities – This is an extension of the access to basic facilities index. The factors that are considered for this sub-index are enrolment rate, transition rate and attendance rate of SC students relative to general students.

e. Gender dimension – This sub-index focuses primarily on the reproductive health of SC women in relation to reproductive health of women in general categories. The factors included in the computation of this sub-index are institutional delivery rate, health assistant visits, reproductive health support, and rest taken by pregnant women prior and after delivery.

f. Perception of Social Inclusion – This sub-index account for the social inclusion by exploring the freedom enjoyed by dalit population to attend and participate in religious and social functions, treatment between dalit and non-dalit, and social acceptance of dalit by non-dalit population in the panchayat area.

g. Perception of Freedom – This sub-index attempts to capture the level of freedom enjoyed by the SC population in the panchayat area. It explores whether people from SC community have the freedom to question, equal opportunities for employment and participation in cultural and religious activities, and unrestricted mobility.

h. Perception of Discrimination – This sub-index accounts for existence of any kind of discrimination towards dalit population in terms of access to drinking water, education facilities, health and socio-economic factors.

i. Protest against Discrimination – This sub-index accounts for the voice of dalit population against discrimination meted out to them. It explores whether the dalit population registered any protest against any discriminatory activity.

j. Conflict Resolution – This sub-index is an extension of Protest against Discrimination sub-index. It explores whether adequate action were taken by the concerned authorities to resolve any discriminatory practices against SC population.

These sub-indices are then used to compute the CDDI. The methodology adopted to compute the CDDI is explained in greater detail in Chapter 9 -Status of Scheduled Castes and Scheduled Tribes.

Urban Development Index

The Urban Development Index covers aspects related to the quality of urban infrastructure along with the level of concentration of people. In this case, the index measures the quality of urban infrastructure and services that is available to the general population residing in the four taluks of Bengaluru Rural district. Table 1.5 provides details of indicators that are used to compute the urban development index (UDI)

Table 1.5: Details of Indicators for computing UDI

Indicator	Positive / Negative Indicator	Unit	Definition	Data Source
Urban population	Positive	%	Per centage of people living in urban areas	District Urban Development Cell, Bengaluru Rural District
Owning a house	Negative	%	Per centage of urban households who own a house	District Urban Development Cell, Bengaluru Rural District
Slum population	Negative	%	Per centage of urban population living in slums	District Urban Development Cell, Bengaluru Rural District
Water supply	Positive	%	Per centage of urban households with a tap water connection	District Urban Development Cell, Bengaluru Rural District
Sewerage/Drainage	Positive	%	Per centage of urban households which has both closed and open sewerage/ drainage facilities	District Urban Development Cell, Bengaluru Rural District
Medical facilities	Positive	per 1000 population	Number of hospital beds available per 1000 population in medical facilities in urban areas	Department of Health and Family Welfare Bengaluru Rural district
Growth rate of Own Resources Mobilization	Positive	%	Rate of growth of ULBs own resource mobilization to total receipts of ULBs	District Urban Development Cell, Bengaluru Rural District
Expenditure on Development Works	Positive	per capita	Per capita expenditure on development works by ULBs. The population considered for the per capita calculation includes only the urban population.	District Urban Development Cell, Bengaluru Rural District
Road connectivity	Positive	per sq.km	Length of roads in kms per sq.km of geographical area of taluks	District Urban Development Cell, Bengaluru Rural District
Crime Rate	Negative	per 10,000 population	Number of crimes committed per 10,000 urban populations.	Police Department, Bengaluru Rural District
Road accidents	Negative	per 10,000 population	Road accidents per 10,000 urban population.	Police Department, Bengaluru Rural District

1.4.3. Food Security Index

Food security is defined as '[the condition] when all people, at all times, have physical, social and economic access to sufficient, state and nutritious food [to meet] their dietary needs and food preferences for an active and healthy life' [African HDR, 2012]. The index consists of three dimensions: availability, accessibility and absorption of food. Table 1.6 provides details of variables that were used to compute the Food Security Index (FSI).

Table 1.6: Details of Indicators for computing FSI

Dimension	Indicators	Positive / Negative Indicator	Units	Definition	Data Source
Availability	Cropping Intensity	Positive	%	Per centage of Gross Sown Area (GSA) to Net Sown Area (NSA)	Bengaluru District at a Glance, 2001-02 and 2011-2012
	Change in Net Sown Area (NSA)	Positive	%	Per centage change in Net Sown Area (NSA) over the years (the change from 2001 to 2011)	Bengaluru District at a Glance, 2001-02 and 2011-2012
	Per capita food grain production (in Kgs)	Positive	Per capita	Food grain production (in Kgs) divided by total population.	Bengaluru District at a Glance, 2001-2002 and 2011-2012
	Forest cover	Positive	%	Per centage of forest covers to total geographical area.	Bengaluru District at a Glance, 2001-2002 and 2011-2012
	Irrigation Intensity	Positive	%	Per centage of Gross Irrigated Area to Net Irrigated Area	Bengaluru District at a Glance, 2001-2002 and 2011-2012
	Degraded area (cultivable waste)	Negative	%	Per centage of degraded area (cultivable waste) to total geographical area.	Bengaluru District at a Glance, 2001-2002 and 2011-2012
	Leguminous (area under pulses) crops	Positive	%	Per centage of leguminous (area under pulses) crops to gross cropped area.	Bengaluru District at a Glance, 2001-2002 and 2011-2012
Accessibility	Below Poverty line (BPL) Card holders	Negative	%	Per centage of Below Poverty line (BPL) card holders to Total card holders.	Directorate of Economics and Statistics, Government of Karnataka
	Per-capita income	Positive	Per capita	Per capita income is defined as the mean income of the people in the Taluk. It is calculated by taking the Gross Domestic Product of each Taluk at 2008 current prices and dividing it by the total population in the Taluk	Directorate of Economics and Statistics, Government of Karnataka
	Non agricultural workers	Positive	%	Per centage of Non-agricultural workers (main + marginal) to total workers.	Census of India
	Average size of holdings	Positive	Per land holding	Total area of land holdings divided by total number of holdings	District Statistics Office, Bengaluru Rural district
	Agriculture laborers	Negative	%	Per centage of agricultural laborers to total workers	Census of India
	Villages with PDS outlets	Positive	%	Per centage of village having Public Distribution System (PDS) outlets within the village	Bengaluru Rural Zilla Panchayat

Dimension	Indicators	Positive / Negative Indicator	Units	Definition	Data Source
Absorption	Child Mortality Rate - CMR (0-5 years)	Negative	Per 1000 live births	Children mortality rate, also known as under-5 mortality rate, is defined as the probability per 1,000 that a new born baby will die before reaching the age of five, if subject to the current age-specific mortality rates.	Department of Health and Family Welfare, Bengaluru Rural district
	Access to Water	Positive	%	Per centage of households having access to water	Census of India
	Pregnant Women with Anemia - ANE -	Negative	%	Share of pregnant women with anemia to total pregnant women	Department of Health and Family Welfare, Bengaluru Rural district
	Mal-nourished Children	Negative	%	Per centage of malnourished children	HMIS 2011-12
	Children born under-weight	Negative	%	Per centage of children born underweight	HMIS 2011-12
	Female Literacy Rate	Positive	%	Per centage of literate female population to total female population in the age group 7 years and above.	HMIS 2011-12

1.4.4. Composite Taluk Development Index

The Composite Taluk Development Index (CTDI) is calculated using 68 indicators which can be categorized under: (a) Standard of living; (b) Health and (c) Education. Variables such as population density, sex ratio, infant mortality rate, maternal mortality rate, women headed households, work participation rate, employment under MNREGA scheme, wage rate, pucca households, elected representatives and asset ownership are used to calculate the standard of living dimension.

Variables such as pregnant women with anemia, institutional deliveries, immunization rate, communicable diseases, health institution infrastructure, access to toilets, safe drinking water and drainage, and per capita health expenditure are used to calculate the health dimension.

Variables such as literacy rate, combined gross enrolment ratio and net enrolment ratio, dropout rate, student-pupil ratio, SSLC and PUC pass per centage, and school infrastructure index and per capita education expenditure are used to calculate the education dimension.

1.4.5.1 Methodology for estimating supplementary indices

Same methodology as HDI computation is adopted to compute the supplementary indices: child development index, urban development index, food security index and composite taluk development index. It is similar to the methodology adopted to compute HDI. The only difference is that supplementary indices are computed using arithmetic mean while HDI is computed using geometric mean. The following steps were undertaken to compute the supplementary indices:

<u>Conversion of absolute values to index value:</u>

The first step in the computation of supplementary indices is to convert the absolute values of indicators to index value such that it ranges between zero to one. The formula used for the calculation of index value is different for positive and negative indicators to ensure that higher index value represents higher level of development. The index value for positive indicators was calculated using the following formula.

$$\text{Index value} = \frac{(\text{Actual value} - \text{Minimum value})}{(\text{Maximum value} - \text{Minimum value})}$$

The index value for negative indicators was calculated using the following formula:

$$\text{Index value} = \frac{(\text{Maximum value} - \text{Actual value})}{(\text{Maximum value} - \text{Minimum value})}$$

Treatment of Income

It should be noted that the per capita income was first converted to logarithmic values to reflect the diminishing importance of income with increasing Gross Taluk Domestic Product (TDP) per capita. This treatment of the income measure has been followed since the first HDR by UNDP in 1990. Thus the income measure is treated first by converting it into logarithm values and then normalized with respect to the modified minimum logarithmic value of Gross TDP per capita and maximum logarithmic value of Gross TDP per capita.

Calculation of Dimension-based Sub-Index:

The second step in the computation of supplementary indices is to calculate the geometric mean for each dimension. The arithmetic mean for each dimension is calculated using the following formula:

$$\text{Dimension based Index} = (\text{I1} + \text{I2} + \text{I3} + \cdots + \text{In})/\text{N}$$

Where n indicates the number of indicators considered for a dimension.

Computation of Supplementary Indices:

The final step is to compute the supplementary indices by taking arithmetic mean of the dimension based sub-indices. The following formula was used for the calculation:

$$\text{SI} = (\text{D1} + \text{D2} + \text{D3} + \cdots + \text{Dn})/\text{N}$$

1.5. Data Collection, Compilation and Validation

The state government identified a lead technical agency for the development of HDR in each district. The lead agency was supposed to develop the HDR in collaboration with the district administration. Hence, this HDR for Bengaluru Rural district is a result of the joint efforts of the district administration and the lead technical agency, i.e., Centre for Budget and Policy Studies (CBPS). The state government set up a District Core Committee (DCC) in every district to facilitate the process of data collection and validation. Senior officials from district administration, planning and all departmental heads were members of the DCC. The process of data collection and validation was an iterative process between the lead agency and the DCC.

This HDR is based on the analysis of data for the time period 2001-2011. Data collected from the district is the main source supported by the use of other sources such as Census or large sample surveys such as National Sample surveys.

Severe data constraints were faced, some of these were general to all districts while some were particular to this district. Bengaluru Rural district was restructured in 2008 when a new district Ramanagara was carved out by taking out four taluks from Bengaluru Rural. The district was then reduced to four taluks viz. Devanahalli, Doddaballapur, Hosakote and Nelamangala. This necessitated recalculation of the numbers for 2001 considering only four taluks that are part of Bengaluru Rural district to facilitate comparison with 2011 figures. This was possible only for those indicators for which taluk-wise data was available in 2001. Wherever taluk-wise data was not available for 2001, the comparison has either not been carried out or a different base year is used for which data from other sources are available. In order to check the veracity of the data some validation measures were in-built in the data-collection process. The district was asked to provide data for both the final variable and also the underlying variables that were used to construct the final variable. For example, the maternal mortality rate which is used for index calculation was collected along with number of maternal deaths and number of live births for each taluk. This helped in the independent calculation of the final variable and compare it with the one provided by the department. This also helped in identifying the problems, if any, with not only the final variable but also in underlying data that were used to construct the final variable.

The second data validation measure was to check the internal consistency. For example, Net Enrolment Rate (NER) of primary school and Out of School Children (OoSC) in the age group 6 – 13 years bear an inverse relationship; that is, if one goes up, the other should come down. It was checked whether OoSC dropped during

the years when an increase in NER was reported. In addition to these measures, discussions were also often held with concerned officials about the peculiarities in the data such as a sudden spike or trend reversal or change in relationship between two variables. It was necessary to understand whether these were due to valid reasons or because of incorrect data. Wherever the veracity of the data could not be established, alternative data sources were used from large sample surveys. Data collection, validation and decision to substitute using alternative sources were a tedious and time taking process and took about six to eight months.

The data sources used to substitute the date provided by the Government or used for strengthening the analysis included District Level Health Survey (DLHS), National Sample Survey (NSS), various rounds, Census of India (2001 and 2011), Bengaluru District at a Glance (2001-2012), Karnataka at a Glance (2011-12) and Economic Survey conducted by Government of Karnataka. The use of these sources strengthened the analysis, e.g., the NSS 66th round was used to calculate the Gini coefficient, incidence of property, employment and unemployment rate, and child labor for Bengaluru Rural district and Karnataka but such usage also had two limitations - a) the time period may vary for different data sets depending upon when the survey was conducted, e.g., the NSS 66th round was conducted during 2009-10; and b) these data sets are usually available for the district as a whole and not disaggregated to taluk level.

In addition to the analysis of large data sets and development of indices, four small area studies were also conducted with an objective of exploring district specific issues in greater depth and enrich the analysis. For Bengaluru Rural, the following four small studies were conducted and used for the analysis:

1. Quality of Private Schools in Bengaluru Rural District.
2. Total sanitation Campaign in two Gram Panchayats: A promising case.
3. Land use changes in Bengaluru Rural District.
4. Access to and Quality of bus services from Bengaluru Rural to Bengaluru City.

1.6. Introducing the Report

This HDR, despite a few limitations of data and measurement, is an important document for information on a number of human development related aspects at a disaggregated level. As is quite well-known, aggregates hide the extreme values and also the inequalities existing at various levels. The districts are generally huge units and unless one analyses the human development process at sub-district levels, the inequalities do not surface. The district HDR provides clearer understanding of areas and aspects that need greater attention from policy makers. It also facilitates deeper insights into the aspects that need further research and investigation.

The HDR is organized in 12 chapters including this introductory chapter. In addition to the district overview and computation of indices, separate chapters on Education and literacy, Health and nutrition, Income, poverty and employment, Standard of living, Gender and development, Status of Scheduled Castes and Scheduled Tribes and Urban issues in human development are included. These chapters go deeper into respective issues and also touch upon aspects that remain uncovered by the indices. Radar chart, a graphical method of displaying two or more quantitative variables in the form of a two-dimensional chart, has been used to facilitate inter-taluk and intra-taluk comparisons in some of these chapters. It facilitates easy visual identification of areas which require effort and investment thereby assists government officials and policy makers in the planning process. It brings all variables to a common scale using per centage format divided by ten so that it ranges between zero and ten. The variables have also been made unidirectional so that higher value of a variable plotted in the radar chart indicates higher human development, and lower value of a variable indicates lower human development irrespective of the fact whether it is a negative or a positive value.

The small area studies have also been suitably used in analysis within the text while the reports have been annexed. The final chapter identifies the areas that need greater attention and strategizing.

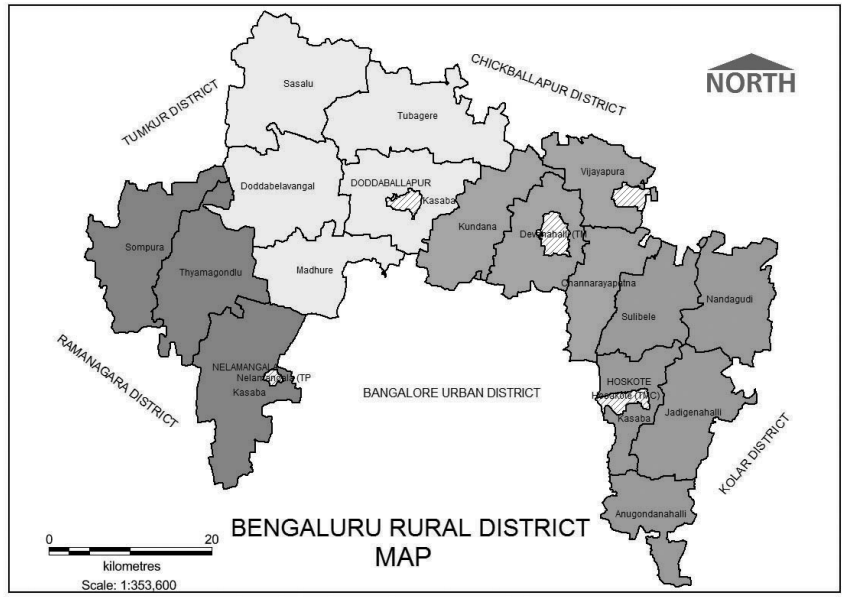
Overview of the District

2 : Overview of the District

2.1. Introduction

Bengaluru district was bifurcated into two districts, Bengaluru Urban district and Bengaluru Rural district in 1986. Bengaluru Rural district comprised 8 taluks surrounding the Bengaluru Urban district. Bengaluru Rural district in its present form with 4 taluks came into being in 2007 after Ramanagar district consisting of 4 taluks was carved out of Bengaluru Rural district (Figure 2.1). The district has 4 taluks, 2 revenue sub divisions, 17 sub-taluks, 1,052 villages and 1,272 habitations.The local self-governance structure includes 98 Gram Panchayats, 4 Taluk Panchayats, one Zilla Panchayat, one City Municipal Council (Doddaballapur) and 4 Town Municipal Councils (Devanahalli, Vijayapura, Hosakote and Nelamangala). Bengaluru Rural district is surrounded by Tumakuru and Chickballapur districts in the North, Kolar district in the East, Ramanagar in the West and Bengaluru Urban district in the South (Figure 2.2). This chapter presents a brief overview of the geographical, demographic and socio economic features of the district to provide a backdrop for district's Human development Report.

Figure 2.1: Bengaluru Rural Map (2011)*



*Source: Google

2.2. Background and Brief Regional History

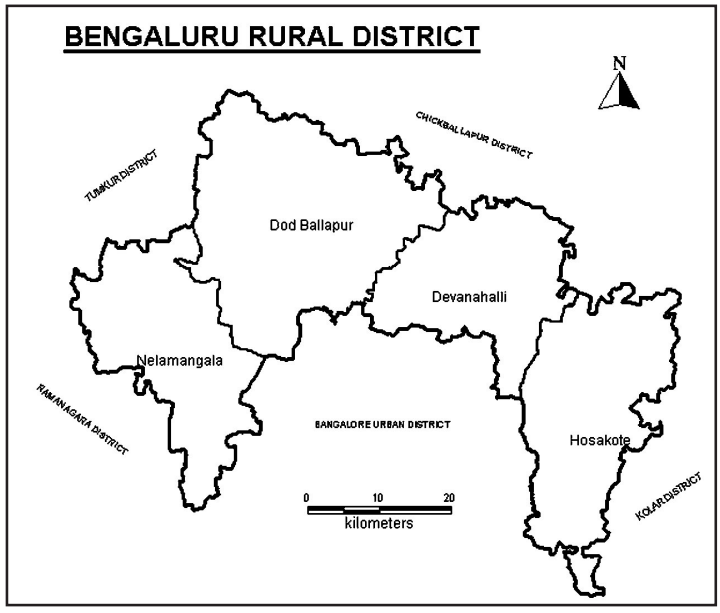


Figure 2.2: Bengaluru Rural District Map
Source: Google[8] - accessed on June 6th 2014

Historically, Bengaluru rural district was ruled by Gangas during the 4th century AD which formed the part of their larger territory including parts of the present Kolar and Chickballapur districts. Later, the Rastrakutas ruled the area during eighth century and Manne of Nelamangala taluk (Manyapura) was made royal residence by Sripurusha. Parts of the district were also ruled by Pallavas, Hoysalas, Marathas and Wodeyars of Mysuru.

Devanahalli is 39 kilometers from Bengaluru city. Mallabhaire Gowda is said to have built a fort with the consent of 'Deva' at Devanadoddi and changed the name to Devanahalli. This place was under the rule of Marathas and Mysuru Wodeyars. Tippu Sultan was born in Devanahalli. Devanahalli had traditional school of sculpture run by famous sculptor Hanumanthacharya.

[8] https://www.google.co.in/search?q=Bengaluru+rural+map&oq=Bengaluru+rural+map&aqs=chrome..69i57j69i60l3j69i59j69i60.2126j0j7&sourceid=chrome&es_sm=93&ie=UTF-8#q=Bengaluru+rural+district+map&revid=432793632

Table 2.1: Bengaluru Rural District Profile

Name	Devanahalli	Doddaballapur	Hosakote	Nelamangala	Bengaluru Rural
Area (Sq. Kms)	431	778	544	506	2,259
ULBs	2	1	1	1	5
GPs	21	29	26	22	98
Villages	214	298	297	243	1052
Total Population (2011)	209,622	299,594	270,818	210,889	990,923
Population Density	486	385	498	417	439
Rural Population (2011)	146,705	198,546	213,838	163,090	722,179
Urban population (2011)	62,917	101,048	56,980	47,799	268,744
SC Population (2011)	49,517	60,773	57,882	45,528	213,700
ST Population (2011)	20,385	14,259	9,753	8,506	52,903
Literacy rate (2011)	76.76	78.00	77.98	78.91	77.93
SC Literacy Rate (2011)	66.43	67.81	69.31	71.27	68.64
ST Literacy Rate(2011)	70.68	72.19	70.37	75.38	71.79
Sex ratio (2011)	944	951	930	962	946
Male WPR (2011)	69.45	70.08	69.29	68.76	69.45
Female WPR (2011)	36.94	38.64	29.08	28.88	33.61
Per centage of Non Agricultural workers	47.21	53.61	54.70	60.69	53.92
Per centage of Agricultural workers	52.79	46.39	45.30	39.31	46.08
GSDP 2008-09 at constant prices	68,510	176,592	142,635	115,246	502,983
CMR	25	36	37	26	31
MMR	126	101	102	150	120
GER	90.11	85.74	84.02	89.13	86.97

Source: Census of India and HMIS 2011 and DES, Government of Karnataka.

Doddaballapur is 32 kilometers from Bengaluru city. This has been a commercial centre since the time of Hoysalas. When Hyder Ali captured the region he renamed it as Doddaballapur to distinguish it from Chickballapur. Silk weaving has been a major traditional occupation and even today a large number of power looms exist. This place was also known for manufacturing of musical instruments like veena and tamburi, and pottery and incense sticks works were also very popular.

Hosakote is 25 kilometers from Bengaluru city. According to the copper plate given to the Veerashaiva Matha in 1494, the place was founded by Thammegowda, the Chief of Sugatur. The place was known for a large tank which had an embankment of 3.2 km long and 12 km of circumference when it was full. The place was captured by Mughals in 1687 and became part of Sira province. In 1761 it came under Mysuru rule.The old fort area in Hosakote has famous temples of Avimukteshwara, Varadaraja and Vittoba temples.

Nelamangala is 27 kms from Bengaluru. This place is mentioned in the records dated 1464 AD as Nelavangala of Vijayanagara feudatory from Kanasawadi. Nelamangala appears to have been transferred to Mysuru Kings from Mughals during 1689 after acquiring it from Vijayapura sultans. This place has temples of Rudradeva, Basaveshwara, Anjaneya, Lakshmi Channakeshava, Vijayavittala and Basavanna.

2.3. Physiographic Divisions and Natural Resource Endowments

Bengaluru Rural district lies between the longitudinal meridians of 77 04'E and 77 59'E and latitudinal parallels of 12 15'N and 13 31'N. The area of the district is 2,259 sq km. Doddaballapur is the taluk with largest area of 778 sq km. The taluks of Hosakote, Nelamangala and Devanahalli have an area of 544 sq km, 506 sq km and 431 sq km respectively. The district forms the part of the southern plateau with elevation varying in the range of 650-900 meters. The district consists of rocky upland, plateau and flat topped laterite hills. The flat topped hills are found in the northern part of the district at about 900 meters above mean sea level. The pediplains constitute major portion of district with gneisses and granites types of rock at about 650-850 meters above mean sea level. The larger area of the district falls in the Cauvery basin. Arkavathy, Kumudvati and Dakshina Pinakini are the rivers that flow in the district. The rivers have now become seasonal streams. The pressure on the ground water for irrigation, industry and domestic purposes is very high. All the taluks except for Nelamangala have recorded over exploitation of groundwater resources.

The district falls in the Eastern Dry Zone[9] of Karnataka which comprises of Bengaluru Rural, Tumakuru, Chickballapur and Kolar districts. The major soil types found in the district are red sandy loam, lateritic soil and lateritic gravelly soil. These soils are characterized by low nitrogen, low organic carbon, medium phosphorus and potassium levels resulting in medium water holding capacity and medium levels of fertility. These soils are also more prone to erosion and lead to faster siltation of the tanks. The mean annual rainfall is around 820 mm while it ranges from 650 mm to 850 mm across taluks. The district has hot and semiarid climate and is quite salubrious. The temperature hovers around 15^0 C and 34^0 C during winter and summer respectively. Of the 2,259 sq km area in the district, about 113 sq km of area under reserve forests and protected forests.

2.4. Demography and Literacy

According to 2011 census, the total population of the district was 9.90 lakh of which 5.09 lakh and 4.82 lakh were males and females respectively. The decadal growth rate of population for the period 2001-2011 was 16.45 per cent for the entire district while the taluks of Nelamangala and Hosakote recorded a higher growth rate of population at 20.59 per cent and 21.75 per cent respectively. The rural and urban population was 7.22 lakh and 2.68 lakh constituting 72.88 per cent and 27.12 per cent of the total population respectively. The decadal growth of urban population was 39.73 per cent which is third highest in the state after Bengaluru Urban and Udupi districts. Hosakote and Nelamangala taluks recorded 56.87 per cent and 89.03 per cent of growth rate of urban population. Migration is one major reason for high population growth and the proximity to Bengaluru Urban districts one of the important factors contributing to this trend (Table 2.2 and 2.3).

Table 2.2: Decadal Changes in the Population

Taluk / District / State	2001			2011			Decadal growth (%)		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
Devanahalli	95,288	90,038	185,326	107,842	101,780	209,622	13.17	13.04	13.11
Doddaballapur	137,541	130,791	268,332	153,527	146,067	299,594	11.62	11.68	11.65
Hosakote	115,187	107,243	222,430	140,299	130,519	270,818	21.80	21.70	21.75
Nelamangala	89,473	85,407	174,880	107,504	103,385	210,889	20.15	21.05	20.59
Bengaluru Rural	437,489	413,479	850,968	509,172	481,751	990,923	16.39	16.51	16.45
Karnataka	26,898,918	25,951,644	52,850,562	30,966,657	30,128,640	61,095,297	15.12	16.10	15.60

Source: Census of India

[9] Agro-meteorological classification based on annual rainfall.

Table 2.3: Decadal Changes in Rural and Urban Population

Taluk / District / State	2001			2011			Decadal growth (%)		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
Devanahalli	132,380	52,946	185,326	146,705	62,917	209,622	10.82	18.83	13.11
Doddaballapur	190,554	77,778	268,332	198,546	101,048	299,594	4.19	29.92	11.65
Hosakote	186,107	36,323	222,430	213,838	56,980	270,818	14.90	56.87	21.75
Nelamangala	149,593	25,287	174,880	163,090	47,799	210,889	9.02	89.03	20.59
Bengaluru Rural	658,634	192,334	850,968	722,179	268,744	990,923	9.65	39.73	16.45
Karnataka	34,889,033	17,961,529	52,850,562	37,469,335	23,625,962	61,095,297	7.40	31.54	15.60

Source: Census of India

Table 2.4: Proportion of Urban, SC and ST in Total Population

Taluk / District / State	2001			2011		
	Urban	SC	ST	Urban	SC	ST
Devanahalli	28.57	23.36	9.76	30.01	23.62	9.72
Doddaballapur	28.99	20.40	4.33	33.73	20.29	4.76
Hosakote	16.33	21.92	3.44	21.04	21.37	3.60
Nelamangala	14.46	22.77	3.61	22.67	21.59	4.03
Bengaluru Rural	22.60	21.93	5.13	27.12	21.57	5.34
Karnataka	33.99	16.20	6.55	38.67	17.15	6.95

Source: Census of India

The share of urban population has increased in the district from 22.6 per cent in the year 2001 to 27.12 per cent in 2011 (Table 2.4).Devanahalli and Doddaballapur had the higher share of urban population both in 2001 and 2011. The share of SC population in the district has marginally come down from 21.93 per cent in 2001 to 21.57 per cent in 2011. The ST population has shown a marginal increase in its share in the district from 5.13 per cent to 5.34 per cent. The share of SC population in the district was higher while that of ST population was lower than the state average.

As a result of the population growth, the population density in the district has increased from 377 per sq.km to 439 per sq.km during the period 2001 to 2011 (Table 2.5). The increase in the density during the same period was much higher in Hosakote and Nelamangala as compared to the other two taluks. The literacy rate in the district increased from 69.59 per cent in 2001 to 77.93 per cent in 2011 and was above the state average for both the years. Nelamangala taluk recorded the highest literacy rate in the district during both the years 2001 and 2011. The work participation rate (WPR) in the district has marginally come down from 53.28 per cent in 2001 to 52.08 per cent in 2011. All taluks except for Doddaballapur showed a decrease in WPR during the same period.

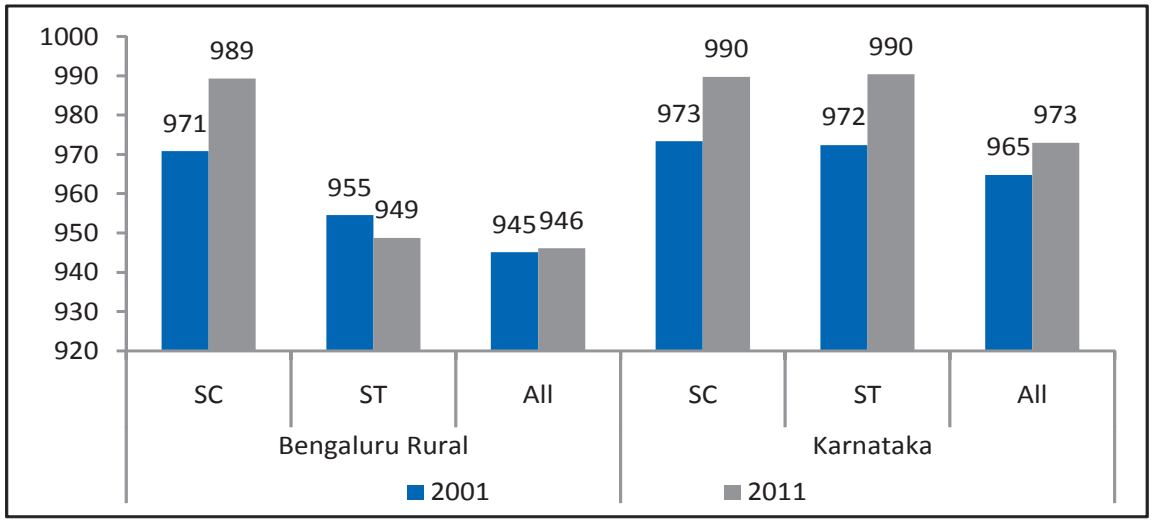
Table 2.5: Population Density, Literacy and Work Participation Rate (WPR)

Taluk / District / State	2001			2011		
	Urban	SC	ST	Urban	SC	ST
Devanahalli	28.57	23.36	9.76	30.01	23.62	9.72
Doddaballapur	28.99	20.40	4.33	33.73	20.29	4.76
Hosakote	16.33	21.92	3.44	21.04	21.37	3.60
Nelamangala	14.46	22.77	3.61	22.67	21.59	4.03
Bengaluru Rural	22.60	21.93	5.13	27.12	21.57	5.34
Karnataka	33.99	16.20	6.55	38.67	17.15	6.95

Source: Census of India

The sex ratio in the district improved marginally from 945 to 946 during the period 2001 and 2011. The sex ratio improved among SC while it decreased among ST during the same period. The sex ratio was found to be lower than the state average during both the years for all the categories (Figure 2.3). The sex ratio of SC and ST population in the district are better than that of the total population in the district for both the years 2001 and 2011.

Figure 2.3: Sex Ratios for Social Groups, 2001 and 2011



Source: Census of India

According to census 2011, the literacy rate of the district was 77.93 per cent, the male literacy rate being 84.82 per cent and the female literacy rate being 70.53 per cent. The literacy rates in rural and urban areas were 75.16 per cent and 85.37 per cent respectively. The literacy rate was highest among urban males in Nelamangala at 93.26 per cent while it was lowest among rural females in Doddaballapur taluk at 65.07 per cent in the district.

2.5. Agriculture

According to agricultural census 2010-11, about 55 per cent of the land is under agriculture and about 87 per cent of the holdings fall under the category of small and marginal holdings. Ragi and Maize are chief crops of the district which are mostly rain fed. Red gram and ground nut are also grown under rain fed conditions. Fruits, flowers and vegetables are significant crops owing to the closeness to the larger market in Bengaluru city. Rose, Jasmine and Crossandra are grown in taluks of Devanahalli, Hosakote and Doddaballapur. Mango, Grapes and Chikoo are also grown in the district. Dairy farming has become more common with the rearing of crossbred cows. Irrigation in the district is mainly dependent on the groundwater or the bore wells. There are 30,645 bore wells irrigating an area of 25,635 hectares in the district (DAG 2011-12). The pressure on the ground water for irrigation, industry and domestic purposes is very high. According to the Central Ground Water Board (CGWB), all the taluks except for Nelamangala recorded over exploitation of groundwater resources.

2.6. Industry

There are 74 large and medium scale industries in the district with an investment of Rs. 1,557 crore. Prominent companies include Himalaya drugs, Kirloskar Electric, Tata Tea, Bell Ceramics etc. Seven medium scale enterprises in the district (3 each in Doddaballapur and Hosakote and one in Nelamangala) are present and are involved in silk and automobile product manufacturing. The number of micro, small and medium enterprises in the district is 12,988 units employing over 56,000 workers. More than 48 per cent of them are textile based and provide employment to around 21,000 people. Electronics, leather goods, food and beverages and ferrous and non-ferrous enterprises are the other important micro enterprise units in the district.

The district has two industrial estates, one in Doddaballapur and other in Hosakote. The units in Doddaballapur are largely textile based while the ones in Hosakote are manufacturing based (automobile parts). With the Kempegowda International Airport (KIA) close by, Devanahalli is emerging a new hub for industries. The Aerospace Park close to the KIA is being developed in an area of 950 acres to create a hub for Aerospace industries. With the presence of industries like Hindustan Aeronautics Limited (HAL),National Aerospace Laboratories (NAL), DefenseResearch and Development Organization (DRDO), Indian Space Research Organization (ISRO) and Aeronautical Development Establishment (ADE), Bengaluru is the prime location for Aerospace industry in India. The Bengaluru Aerospace Park and Bengaluru Aerospace Special Economic Zone (BASEZ) are expected to become vibrant Aerospace hub in Asia and a globally recognized aerospace destination. Several medium, small and micro enterprises relating to the aerospace Maintenance Repair and Overhaul (MRO) activities are expected to grow in this district due to lack of land availability within Bengaluru city.

2.7. Infrastructure

The total road length of the district is 4,512 kms (District at a Glance 2011-12). While the taluks of Doddaballapur and Hosakote have road length of 2.1 kms/sq km, the taluks of Devanahalli and Nelamangala have road length of around 1.8kms/sq km. The National Highways (NH) NH 4, NH 7, NH 207 and NH48 form part of the road network in the district. All four taluks are connected with railway network and the district has about 75 km of railway line. The district has 133 post offices catering postal services to its population. The number of post offices per lakh population was 20 in Nelamangala while it was 13 for the district as a whole.

Of the 1,272 habitations in the district, 61 per cent of habitations have access to all weather roads. The per centage of habitations having access to all weather roads varies between 51 per cent and 75 per cent across the taluks. The district has 1.9 lakh motor vehicles. The number of co-operative credit societies in the district is 880 with the highest number of societies present in Doddaballapur. Proximity to higher education centres/ centres of excellence such as Indian Institute of Science (IISC), Indian institute of Horticultural Research (IIHR), Jawaharlal Nehru Centre for Advanced Scientific Research (JNCASR), National Institute of Advanced studies (NIAS) and Institute of Social and Economic Change (ISEC) has been an added advantage for the prospective students of the district.

2.8. Tourism

The district has tourist attractions which are also religious places. The Ghati Subrahmanya temple in Doddaballapur taluk attracts thousands of pilgrims throughout the year. Shivagange/Shivaganga in Nelamangala taluk is another pilgrim place. The water here is believed to be as sacred as river Ganga in Kashi. Tipu Sultan's fort in Devanahalli is another historically important place.

2.9. Regional Perspective and Relative Backwardness

The High Power Committee for Redressal of Regional Imbalances (HPCCRI) report[10] identified about 35 indicators to determine the backwardness at the taluk level. The indicators were grouped into 5 categories. They are agriculture and allied Industry, trade and finance, economic infrastructure, social infrastructure and population characteristics. A Comprehensive Composite Development Index (CCDI) was developed to indicate the backwardness using these 35 indicators. Only Hosakote was classified under backward taluk while the other 3 were classified as forward/relatively developed taluks. The taluks of Doddaballapur, Devanahalli, Nelamangala and Hosakote ranked 46th, 51st, 54th and 72nd respectively in the list of 176 taluks in the state.

All four taluks of the district were grouped as taluks

[10] This was headed by Dr D.M. Nanjundappa and report was submitted to Government of Karnataka in 2002.

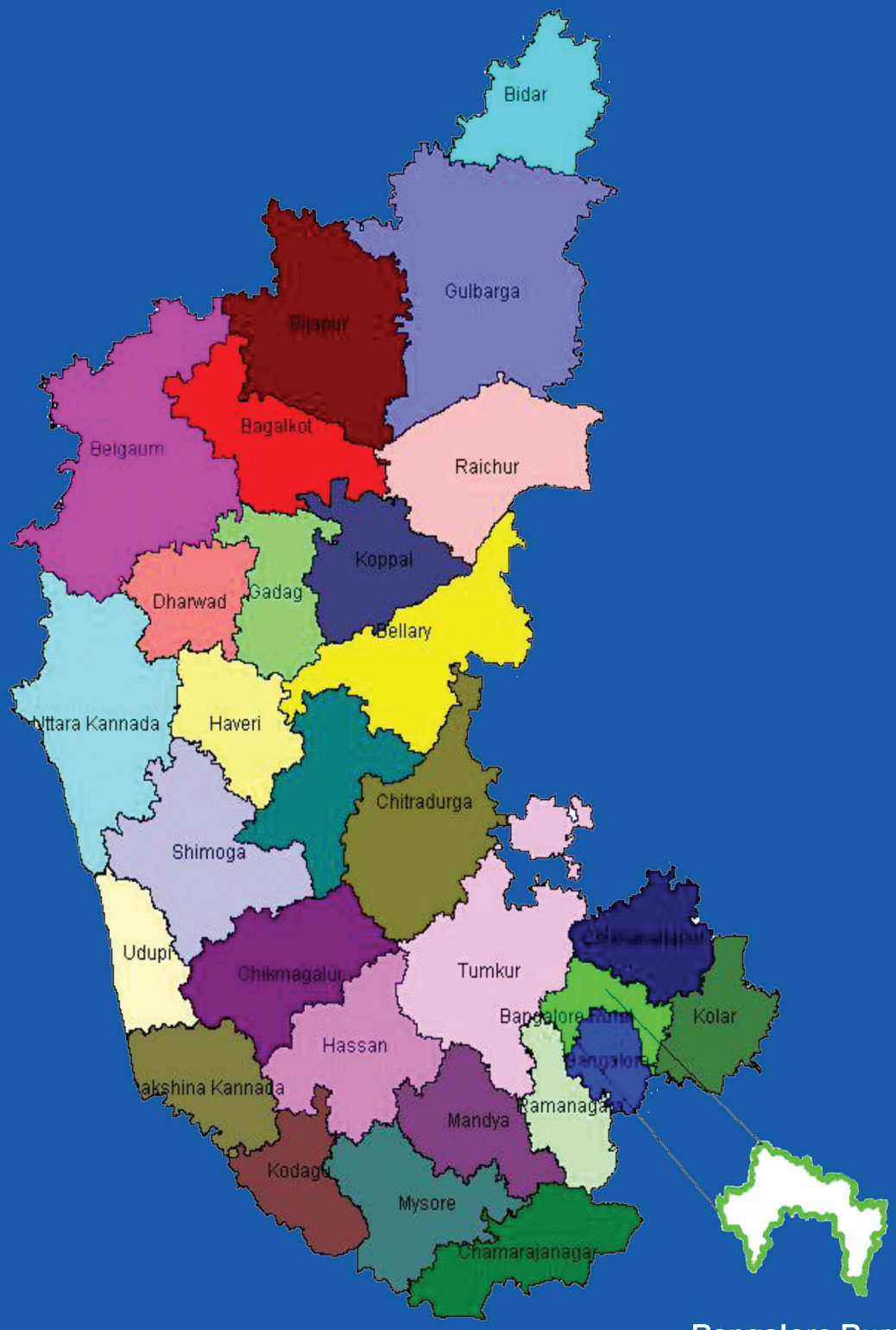
having agriculture, infrastructure and agricultural production performance above the state average. However, Doddaballapur and Devanahalli have often experienced droughts in the last few decades. Under industrial infrastructure and industrial performance, taluks of Devanahalli, Hosakote and Nelamangala were grouped into taluks having both industrial infrastructure and industrial performance below the state level. Doddaballapur despite the industrial infrastructure being below the state average performed better than the state average in industrial production.

All taluks except Nelamangala taluk figured under relatively developed category in terms development of road network. In terms of social infrastructure index which comprises of health and education infrastructure, Hosakote and Devanahalli taluks were classified as more backward taluks while Doddaballapur and Nelamangala were classified as backward taluk and relatively developed taluk respectively. Under health infrastructure index, Nelamangala was classified as backward taluk, while the other three taluks were classified as more backward taluks. Under drinking water provision to rural habitations (of 40 LPCD and above), Devanahalli taluk was classified as most backward taluk while the other three were classified as relatively developed taluks. All the taluks were classified as relatively developed taluks with respect of education infrastructure.

2.10. Concluding Remarks

Bengaluru Rural district with its proximity to Bengaluru city is uniquely placed in terms of both opportunities and risks. The opportunities for industrial investment and growth, job opportunities in the non-agricultural sector, real estate market and private educational institutions are huge. But so are the risks, as subsequent chapter reveal, of loss of irrigated land for agriculture, environmental degradation, depletion of forests and ground water, disintegration of social structures, processes and relationships. It is possible, at least to an extent, to convert challenges into the opportunities but that depends heavily on the policy responses, governance measures including regulatory structures and processes, and civil society's vigil and action. This report explores how these opportunities and risks are unfolding in Bengaluru Rural district and where does the human development stand in all this at this point of time.

Indices: Bengaluru Rural



The basic purpose of development is to enlarge people's choices. In principle, these choices can be infinite and can change over time. People often value achievements that do not show up at all, or not immediately, in income or growth figures: greater access to knowledge, better nutrition and health services, more secure livelihoods, security against crime and physical violence, satisfying leisure hours, political and cultural freedoms and sense of participation in community activities. The objective of development is to create an enabling environment for people to enjoy long, healthy and creative lives' Mahbub ul Haq[11]

3.1. Introduction

In this report, the human development index and gender inequality index are based on the same methodology as adopted in the 2010 UNDP Human Development Report. As mentioned earlier, in addition to these indices, the report computes indices such as child development index, composite taluk development index, food security index and urban development index. These supplementary indices are computed to extend the discussion on development to aspects of child development, food security, quality of urban infrastructure and services, safety and security and status of taluk-level development.

3.2. Human Development Index

The HDI is a composite index constructed to measure achievements in three aspects of development: *standard of living, education and health*. The variables were selected to capture the achievements of taluks of Bengaluru Rural district in enabling its citizens to lead a healthy life, access to knowledge and decent standard of living.

The components of standard of living dimension includes the households access to drinking water, electricity, toilet, use of clean cooking fuel and pucca houses, non-agricultural workers and per capita income. It should be noted that the per capita income alone was used as a proxy for standard of living in previous HDRs such as Karnataka HDR 2005 and UNDP HDR 2010. The rationale for inclusion of access to basic services for the computation of standard of living dimension can be attributed to the strong association of these indicators to economic development and human well-being. Further, per capita income is a means to attain a decent standard of living and on its own but does not reflect human development.

The child mortality rate and maternal mortality rate are used as indicators of health for the computation of HDI. The choice of these variables instead of life expectancy at birth which is used as the indicator of health dimension in UNDP and State HDR is due to the non-availability of life-expectancy data at the taluk level. Nevertheless, both child mortality rate and maternal mortality rates do play a role in determining the life expectancy in a significant manner.

Education attainment is measured by a combination of literacy rate and combined primary and secondary gross enrolment ratios. Table 3.1 provides the value of human development index for each taluk in Bengaluru Rural district in addition to the dimensions that form the HDI.

Table 3.1: Taluk wise Human Development Index (2011)

Taluk	HDI Sub-Indices			HDI	Rank
	Standard of Living	Health	Education		
Devanahalli	0.465	0.781	0.884	0.685	2
Doddaballapur	0.592	0.547	0.796	0.637	3
Hosakote	0.670	0.482	0.724	0.616	4
Nelamangala	0.995	0.468	0.966	0.766	1

Source: Compiled by CBPS

[11] http://hdr.undp.org/en/humandev

Among the four taluks, Nelamangala ranks first in terms of human development with an index value of 0.766. It ranks first in standard of living and education dimension with sub-index value of 0.995 and 0.966 respectively. An examination of the indicators under these two dimensions reveals that it has the highest per centage of households with safe cooking fuel (40.09 per cent), toilets (84.45 per cent), safe drinking water (89.18 per cent), and electricity (96.17 per cent). Also it has the highest per centage of non-agricultural workers (60.69 per cent) and highest per capita income (Rs 78,875.85) in the district.

However, the level of achievement in health dimension of Nelamangala taluk is not in keeping with the high level of achievement in standard of living and education dimension. A closer examination of the two indicators used to compute the health dimension reveals that Nelamangala has the worst maternal mortality rate (150 maternal deaths per 100,000 live births) among the four taluks. This reinforces the belief that it is not possible to achieve high level of human development by investing resources in the development of one or two dimensions alone. In case of Nelamangala, the resources have to be invested strategically with well-directed government policies to maintain the levels of achievement in standard of living and education but at the same time ensuring that necessary actions are undertaken to reduce the level of maternal mortality and child mortality rates.

Devanahalli ranks second in terms of HDI with an index value of 0.685 due to better performance in health and education dimensions. It ranks fourth in terms of standard of living dimension with an index value of 0.465 which is 0.53 points lower than the standard of living index value of Nelamangala taluk. Low gross per capita income earned and low share of non-agricultural workers in the district are the two factors that have resulted in poor performance of the taluk. The per capita income of Devanahalli is Rs 40,093 which is only a little more than half of the per capita income in Nelamangala.

Doddaballapur and Hosakote are ranked third and fourth in terms of HDI with an index value of 0.636 and 0.616 respectively. This is interesting since Hosakote and Doddaballapur are ranked second and third respectively with respect to standard of living index. The per capita income in Doddaballapur (Rs 76,080) and Hosakote (Rs 75,749) is significantly higher than the per capita income earned in Devanahalli. In addition, these two taluks have the lowest maternal mortality rate in the district. The maternal mortality rate of Doddaballapur and Hosakote is 101 and 102 per 100,000 live births which is about 26 maternal deaths lower than Devanahalli and 50 maternal deaths lower than Nelamangala. Further, they consistently belong to either the second or third place in terms of indicators used to compute standard of living index. But Doddaballapur and Hosakote suffer from the high child mortality rate and have a significantly low combined gross enrolment ratio in the district. The poor performance in these two indicators and consistent average performance in other indicators has had an adverse impact on the overall HDI value of these taluks.

In conclusion, Nelamangala taluk is able to attain high level of human development since it significantly outperforms the other three taluks by higher margin in most indicators of HDI. However, there is still scope for attaining higher level of human development in the district. More measures need to be adopted to increase the per centage of households with clean cooking fuel, per centage of households with toilets, per centage of households with access to drinking water and households with access to pucca households. Further, the state should facilitate the movement of people to seek employment in non-agriculture enterprises. The people of Bengaluru Rural can avail of the employment opportunities in service industry available in Bengaluru city. This would require the state to invest in developing the required skills and capabilities of those who are willing to work in non-agricultural activities. In terms of health, the improvement of maternal health and reduction in death of below five year olds should be prioritized to improve the status of human development in the district.

3.3. Gender Inequality Index

Gender Inequality Index (GII) measures the loss in potential of human development due to inequality between male and female achievements as well as opportunities available to each gender. As mentioned earlier, the GII is a composite index consisting of three dimensions:(a) reproductive health – represented by Maternal Mortality Rate (MMR), share of institutional deliveries and share of pregnant women with severe anemia, (b) empowerment – represented by share of female and male elected representatives in Panchayati Raj Institutions (PRIs) and Urban Local Bodies (ULB), share of female and male children in the age group of 0 to 6 years and female and male literacy rates, and (c) labour market – represented by female and male work participation rates, share of female and male workers in the non-agricultural sector and agricultural wage rates of male and female population.

Table 3.2: Gender Inequality Index (2011)

Taluk	GII	Rank
Devanahalli	0.071	1
Doddaballapur	0.076	2
Hosakote	0.092	4
Nelamangala	0.085	3

Source: Compiled by CBPS

The GII values for the four taluks indicate that all of them are fairly close to each other in terms of gender inequality. The GII values of the four taluks are clustered between the values of 0.071 to 0.092. Among the four taluks, Devanahalli taluk has the lowest GII value and therefore is the most gender equal taluk. Better performance of Devanahalli taluk on GII can be attributed to the following:

a. *Significantly low number of pregnant women with anemia:* The per centage of pregnant women with anemia in Devanahalli taluk is only 21.63 per cent. On the other hand, per centage of pregnant women with anemia in Doddaballapur and Hosakote is 57 per cent and 63 per cent respectively which is significantly higher than in Devanahalli and Nelamangala.

b. *High per centage of institutional delivery:* In Devanahalli, the per centage of institutional delivery is 99.65 per cent which is the highest in the district. Hosakote is the only taluk which underperforms in this indicator with an institutional delivery of 91 per cent while Doddaballapur and Nelamangala have an institutional delivery per centage of 98 per cent.

c. *Less variation in other indicators across taluks:* Except for the above two indicators, all the four taluks do not vary significantly on other indicators. As a result, Devanahalli is marginally better than the other three taluks in terms of GII.

Hosakote is the most gender unequal taluk among the four taluks. The taluk has consistently performed poor in all the indicators. It has the highest share of pregnant women with anemia, low number of female representatives in PRIs and ULBs and low female work participation rate. Further, Nelamangala, the second most gender unequal taluk, has the highest maternal mortality rate in the Bengaluru Rural. The maternal mortality rate of Nelamangala is 150 against the district maternal mortality rate of 113.50. This requires rigorous remedial measures in the district with a greater focus on Nelamangala.

GII being a relative index masks the inequality that exists between male and female sex when examined in terms of absolute terms. A closer inspection indicates wide disparity between male and female prevalent in all the four taluks. Male literacy is higher than female literacy rates by about 14-15 per cent points. In terms of work participation, the average female work participation rate is 33.39 per cent whereas the average male work participation rate is 69.40 per cent. Although the government fixes the minimum wage rates for different agricultural activities with no difference for men and women, the prevalent wage rate for male is significantly higher than those for female rate across all the four taluks.

The state has to actively intervene and ensure improvement in female literacy rate, work participation rate and wage rate in absolute terms. A focused intervention would be necessary in Doddaballapur and Hosakote taluk to bring down the high per centage of pregnant women with anemia in these taluks.

3.4. Child Development Index

The CDI is based on three dimensions specific to children: education, health and nutrition. The values of CDI and rank based on the values for the four taluks are given in Table 3.3.

Table 3.3: Child Development Index (2011)

Taluk	Child Mortality Rate	Children born under weight (%)	Malnourished children (%)	Dropout children mainstreamed (%)	CDI	Rank
Devanahalli	25	13.5	26.16	65.96	0.479	2
Dod Ballapur	36	9.85	24.95	65.37	0.265	4
Hosakote	37	12.18	27.08	66.1	0.311	3
Nelamangala	26	8.1	19.97	66.01	0.943	1

Source: Compiled by CBPS

Nelamangala has the highest CDI (0.943) among the four taluks. It also performs consistently higher among the four taluks on the three dimensions used to compute the CDI. Devanahalli taluk is placed second. However, the difference between CDI values of Devanahalli and Nelamangala is very wide. Hosakote and Doddaballapur rank third and fourth respectively.

Devanahalli performs better on the health dimension relative to the other taluks. It may be noted there is significant amount of variation across taluks with respect to Child Mortality Rate (CMR)[12]. Doddaballapur and Hosakote have the highest CMRs with values of 36 and 37 respectively.

Nelamangala has the lowest level of malnourished children under five years (19.97 per cent) and children who are born under-weight (8.10 per cent). Devanahalli performs worst in terms of nutrition dimension. The per centage of malnourished children under five years is 26.16 per cent which is 6.19 per cent points higher than the value of Nelamangala. The per centage of children who are underweight in Devanahalli is 13.5 per cent, the highest among the four taluks. The poor performance of Devanahalli on the nutrition dimension adversely impacts its overall CDI value.

Hosakote is the best performing taluk on the education dimension. However, it should also be noted that that all the four taluks are very close to each other on the education dimension as the per centage of dropout children who are mainstreamed does not vary significantly across the four taluks.

3.5. Urban Development Index

The State of Karnataka is the fifth most urbanized state in the country with an urbanization rate around 38.63 per cent in 2011. The Urban Development Index covers aspects related to the quality of urban infrastructure along with the level of concentration of people. It must be stressed that the unit of analysis for urban development index is the urban local body within each of the four taluks. There are two urban local bodies' viz. Devanahalli Town Council and Vijayapura city council in Devanahalli taluk. And other three taluks have one urban local body each.

The index measures the quality of urban infrastructure and services that is available to the general population residing in the four taluks of Bengaluru Rural district. The value of UDI thus computed is given in the Table 3.4.

[12] The standard deviation across taluks is 6.67 for CMR.

Table 3.4: Urban Development Index (2011)

Indicators	Devanahalli	Vijayapura	Doddaballapur	Hosakote	Nelamangala
Per centage of ULB population to total population in the taluk	13.38	16.63	28.25	21.04	17.65
Per centage of Households without Own Houses	2.01	4.00	15.50	2.42	39.35
Per centage of Slum Population to Total ULB Population	23.92	25.10	19.11	13.33	7.86
Water Supply – Per centage of HHs with Tap water connection)	79.38	84.11	80.10	68.73	84.18
Sewerage/ Drainage – Per centage of HHs Sewerage and Drainage (Both Close and Open facilities)	84.05	92.90	90.31	92.43	95.98
No. of Hospital Beds per 1000 population in urban area	2.10	1.69	1.29	15.02	4.30
Per centage of Own Resource Mobilization to Total Receipts	39.57	43.84	27.46	76.92	9.25
Log of Per capita expenditure on Development Works	2,076.72	1,115.16	366.78	650.53	1,586.48
Length of Roads in Kms per Sq. Km of geographical area	3.88	4.56	10.33	4.11	3.74
Crime Rate per 10000 Population	252	204	176	401	403
Road accidents per 10000 population	252	58	39	142	158
Urban Development Index	0.359	0.527	0.592	0.512	0.424
Rank	5	2	1	3	4

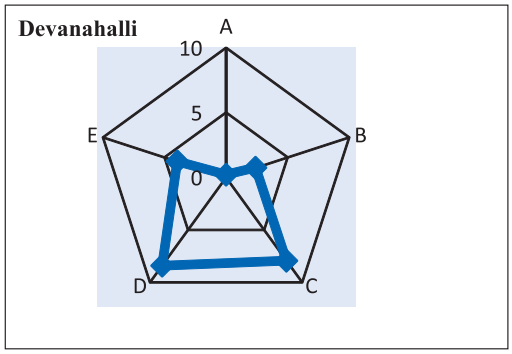
Source: Compiled by CBPS

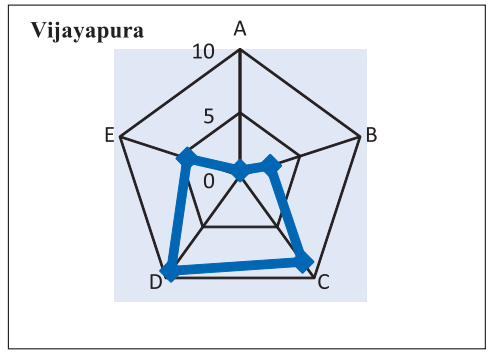
It is evident from table 3.4 that the urban development scenario is not encouraging in the district. This raises serious concerns about the level of development in the urban areas and points towards potential stress on available resources in the present and future time periods.

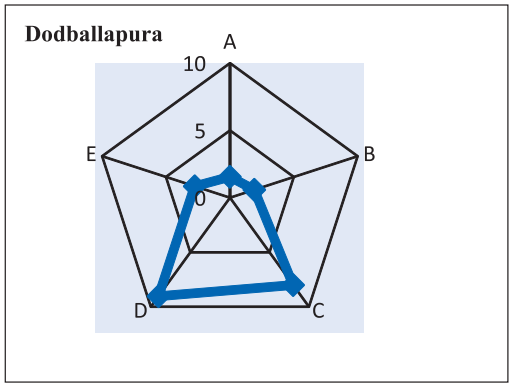
The poor performance of Nelamangala, Hosakote and Devanahalli urban bodies is due to the high rates of crime and road accidents. In terms of crime rate, 403 persons for every 10,000 population have suffered from a crime committed in Nelamangala ULB. In Hosakote, 401 persons for every 10,000 population have suffered from a crime committed in ULB. And in Devanahalli, 252 persons for every 10,000 population have suffered from a crime committed. In comparison, the crime rate per 10,000 populations is 204 and 176 in Vijayapura and Doddaballapur respectively. Further, road accidents per 10,000 persons are higher in Devanahalli, Nelamangala and Hosakote. The number of road accidents per 10,000 populations in Devanahalli, Nelamangala and Hosakote is five times more than Doddaballapur (39) which has the lowest level of road accidents per 10,000 persons. The adverse impact of these indicators on the overall UDI value brings forth the significance of security and safety factors in contributing to human well-being and development process. It may be noted that higher urban concentration in the taluk, measured by per centage of urban population, is negatively related to the number of crimes committed and road accidents per 10,000 persons[13].

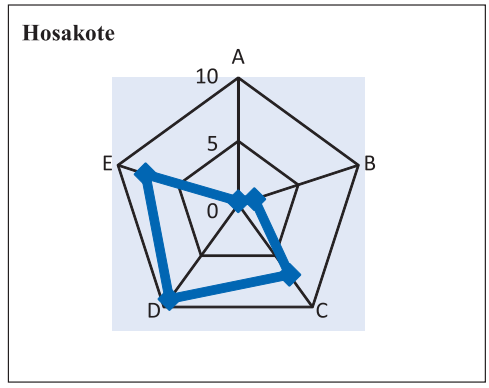
[13] The correlation between per centage of urban population and crime rate per 10,000 populations is -0.228. And the correlation between per centage of urban population and road accidents per 10,000 populations is -0.708.

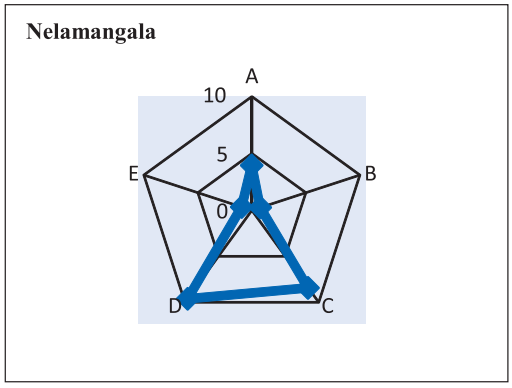
Figure 3.1: Urban Local Bodies: Status for Selected UDI Indicators (2011)*











* A=Per centage of urban households without own houses; B=Per centage of slum population; C=Per centage of Households with tap water connection; D=Per centages of Households with sewerage and drainage facilities; and E=Per centage of own resource mobilization to total receipts

Source: Compiled by CBPS

There also exist wide disparities among taluks with respect to the ability of urban local bodies (ULBs) to raise their own revenue to finance development works. The per centage of own source revenue to total receipts of ULBs of Nelamangala is only 9.25 per cent whereas ULBs in Hosakote were able to mobilize own revenues up to 76.92 per cent of its total receipts. In contrast, the per capita expenditure on development works by Hosakote was about Rs 651, one of the lowest in the district. On the other hand, Nelamangala, which collects low level of own revenue, has the second highest expenditure on development works per person among the four taluks. It is second only to Devanahalli city which spends Rs 2,077 per person on development works.

3.6. Food Security Index

In India, the concept of food security has evolved overtime beginning with the need for self-sufficiency and ensuring physical availability of food in the market. In the late 1960s, post the green revolution, it became apparent that economic access to food is important to food security. During the 1980s, the principle of social access with special reference to marginalized communities and gender discrimination was added to the concept of food security. The index consists of three dimensions: availability, accessibility and absorption of food. The value of FSI thus computed is given in Table 3.5. In addition to FSI value, the below table provides the status of three dimensions of FSI in the four taluks of Bengaluru Rural district.

Table 3.5: Food Security Index (2011)

Taluk	Availability Index	Accessibility Index	Absorption Index	FSI	Rank
Devanahalli	0.441	0.160	0.410	0.337	4
Doddaballapur	0.507	0.561	0.288	0.452	3
Hosakote	0.792	0.581	0.157	0.510	2
Nelamangala	0.275	0.816	0.964	0.685	1

Source: Compiled by CBPS

Among the four taluks, Nelamangala taluk is ranked first on FSI with an index value of 0.685. Nelamangala taluk outperforms all the other taluks in terms of accessibility index and absorption index. The primary drivers for the better performance of Nelamangala are high per capita income earned, per centage of non-agricultural workers, female literacy rate and per centage of villages with public distribution system within the village. In addition, it has also has the lowest per centage of agricultural workers, per centage of children born under-weight and malnourished children in the district.

While Devanahalli ranks second in terms of HDI, it is the worst performing taluk on FSI. The FSI value of Devanahalli is 0.337 which is 0.34 points lower than the FSI value of Nelamangala. The accessibility index value of Devanahalli is 0.160, significantly lower than Nelamangala (0.816). The low score under accessibility index has had a huge adverse impact on the overall performance of Devanahalli in terms of FSI. It has the lowest per capita income in the district, along with high per centage of agricultural workers and high per centage of BPL card holders to total card holders.

In conclusion, the status of availability, accessibility and absorption dimensions of Devanahalli requires attention from respective departments and implementation of appropriate policies to improve the level of food security in the taluk. Further, the availability of resources should be improved in all taluks to ensure food security and progress of human well-being in the long run.

3.7. Composite Taluk Development Index

The construction of Composite Taluk Development Index (CTDI) involves data collection and validation of 68 indicators which can be aggregated to the three dimensions – education, health and standard of living. The TDI is constructed to understand the relative positions of each taluk in terms of these three dimensions and overall index. Therefore, the CTDI provides a comprehensive picture on the status of human development at the taluk level. It helps us to understand the inter-district variations in development process within the district.

Table 3.6: Composite Taluk Development Index (2011)

Taluk	Standard of Living Index	Health Index	Education Index	CTDI	Rank
Devanahalli	0.528	0.665	0.492	0.562	2
Doddaballapur	0.459	0.428	0.411	0.433	3
Hosakote	0.548	0.223	0.416	0.396	4
Nelamangala	0.503	0.573	0.780	0.619	1

Source: Compiled by CBPS

Again, Nelamangala taluk performs better than all the other taluks in the district with a CTDI value of 0.619. The better performance of Nelamangala can be attributed to better education infrastructure, high literacy rate, Secondary School Leaving Certificate (SSLC) pass rate and per capita education expenditure in the district. Though Nelamangala has a decent performance on the education sub-index, it is not the top performer under the standard of living and health sub-indices. On the health dimension, Nelamangala has the highest maternal death in the district, high per centage of population affected by communicable diseases, low availability of nurses per 1000 persons, low per centage of fully immunized children and low per capita health expenditure.

In comparison to Nelamangala, the other taluks have performed significantly worse in terms of education indicators. Devanahalli with an index value of 0.562 is ranked second on CTDI. This is despite the fact that it outperforms Nelamangala in both standard of living and health indices. In education sub-index, the poor performance of Devanahalli in terms of school infrastructure index, pupil-teacher ratio in secondary school, per capita education expenditure and SSLC pass per centage has had a significant impact on the overall performance of Devanahalli.

Doddaballapur and Hosakote rank third and fourth respectively on the CTDI. While Doddaballapur consistently performs in the range of 0.41 to 0.46 in all the three sub-indices, Hosakote has the worst health status in the district as indicated by low health index value (0.22). In Hosakote, availability of doctors and nurses per 1000 persons is the lowest in the district. Further, it serves higher number of population about 21,383 populations per primary health centre which is significantly higher than the 16,312 population served by primary health centre on average in the district. In addition, it has the highest per centage of population affected by communicable diseases (35.84 per cent) and malnourished children (27.08 per cent) in the district. This is despite the fact that Hosakote has the highest per capita health expenditure among the four taluks in Bengaluru Rural district.

It is a matter of concern that none of the taluks have been able to perform consistently across all indicators. There exists wide disparity across taluks over various indicators. This indicates that it requires considerable efforts to improve the standard of living, health and education of all the four taluks in Bengaluru Rural district.

3.8. Concerns and Challenges

Devanahalli and Nelamangala are the two top performers with Doddaballapur and Hosakote performing lower than the other two as evident from their performance across HDI, GII, CTDI and CDI. In terms of FSI, Devanahalli is the worst performer among the four taluks due to low per capita income earned and poor availability of public distribution system outlets in the taluk.

A closer examination of the indicators used to compute the indices depicts that each taluk presents a mixed picture. In other words, none of the taluks has performed consistently better across all indicators relative to other taluks in the district. Each taluk performs poorly on one or two indicators. This indicates that certain areas require focused attention and strategic implementation in specific areas in Devanahalli and Nelamangala whereas Doddaballapur and Hosakote need to improve their performance in almost all areas that matter for human development.

The specific areas that require attention to improve the human development status in Bengaluru Rural are:

- *Maternal Mortality rate*: All four taluks of Bengaluru Rural district have high level of maternal mortality rate. Nelamangala which is otherwise the top performing taluk has the highest level of maternal mortality rate.
- *Female agricultural wage rate*: The female agricultural wage rate needs to be increased as the disparities between male-female rates are very high and therefore unacceptable. An increase in the income earned by women has the potential of enhancing their agency and well-being besides being instrumental in improving the well-being of others, especially in raising the educational attainment and health status of young children.
- *Malnourishment among children*: The number of malnourished children under the age group of five and children born underweight is very high in Devanahalli and Hosakote compared to the district average. This requires appropriate intervention and monitoring mechanisms to ensure that adequate nutrition is available to pregnant women and children under the age of five years. This has long term, inter-generational implications for health, education and livelihood status.
- *Urban services*: The performance of all the four taluks of Bengaluru Rural district in terms of UDI is poor. The quality of urban infrastructure and services needs to be improved in addition to achieving efficient management and distribution of available resources.
- *Food Security*: The availability index of FSI across four taluks of Bengaluru Rural district is very low indicating serious constraints in availability of and accessibility to food. This requires immediate attention towards identification of reasons for such low availability of food and the possible solutions. This is also linked with the issue of malnutrition and high maternal mortality rate; enhanced food security should have a positive impact on nutrition status and maternal mortality rates.

Literacy and Education

4 : Literacy and Education

"Not to be able to read or write or count or communicate is a tremendous deprivation. The extreme case of insecurity is the certainty of deprivation and the absence of any chance of avoiding that fate" – Amartya Sen at the Commonwealth Education Conference, 2003.

4.1. Introduction

Universal access to education was identified as one of the fundamental rights in the Universal Declaration of Human Rights (1948). Education has been universally recognized as a critical constituent contributing to human development. The World Declaration on Education for All (EfA) and the Dakar Summit on Education in 2000 reiterated the role of education as indispensible for personal and social improvement. Education has both intrinsic and instrumental values and its role in enhancing the capabilities and widening the choices is well-documented. Access to education as a component of human development also influences access to other services that contribute to human development.

Research conducted in a number of developing countries including Turkey, Nepal, Bolivia, Mexico, and Nigeria provides evidence that literacy has the potential to positively reinforce empowerment outcomes especially for the most marginalized[14]. Education enhances well-being at all levels: individual, collective and social. The impact of participation in educational processes and access to knowledge is particularly significant for more vulnerable groups such as women or dalits. At individual level, it enhances the self-worth and equips one to make intelligent choices, at collective levels it helps in giving voice and articulating public action, and at social level, it aids to reducing the inequalities of opportunities and attainments.

4.2. Literacy Profile

Literacy could be defined as a set of tangible skills, particularly the cognitive skills of reading and writing that are independent of the context in which they are acquired and the background of the person who acquires them. The Census of India defines a literate person as one having the ability to read and write with understanding in any one language. Over the past decade the definition of literacy according to UNESCO has moved beyond just reading and writing skills to incorporate a person's ability to understand and employ printed information in daily activities at home, at work and in the community, to achieve one's goals and to develop one's knowledge and potential. UNESCO distinguishes between literacy as a skill and literacy as a set of culturally and socially determined practices. The Hamburg declaration (1997) endorsed literacy as essential for lifelong learning and as a catalyst for active community engagement.

Bengaluru Rural District has shown a marked increase in literacy rate over the past decade as evident from Table 4.1. The literacy rate has increased in both the rural and urban areas, the increase being more significant for rural than urban areas. Despite this, notable disparities exist in the literacy rates between urban and rural areas. Bengaluru Rural is ahead of Karnataka as a whole but the difference has narrowed down in case of urban areas.

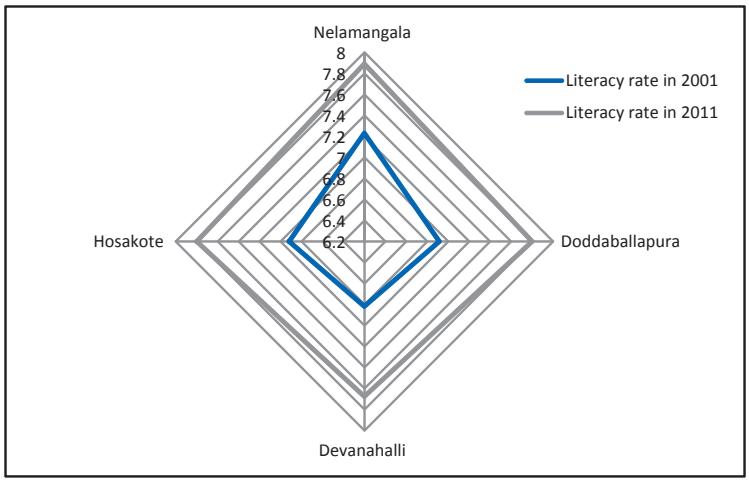
Table 4.1: Literacy Rates in 2001 and 2011

Taluk / District / State	2001			2011		
	Rural	Urban	Total	Rural	Urban	Total
Devanahalli	65.99	73.66	68.17	75.02	80.84	76.76
Doddaballapur	65.90	77.10	69.14	74.07	85.74	78.00
Hosakote	67.32	78.71	69.18	75.79	86.22	77.98
Nelamangala	69.90	86.43	72.30	75.81	89.52	78.91
Bengaluru Rural	63.23	84.02	74.84	75.16	85.37	77.93
Karnataka	59.33	80.58	66.64	68.73	85.78	75.36

Source: Census of India

[14] Education for All: Global Monitoring Report, 2006, Chapter 5.

Figure 4.1: Taluk wise Literacy Rates, 2001 and 2011



Source: Census of India

A look at the disaggregated literacy rates shows a significant improvement in literacy in all the four taluks, the rate of increase being a little lower in Nelamangala as compared to the other three (Figure 4.1). Table 4.2 shows that gender disparity in literacy rates exist in the district but the disparities are narrower as compared to the state as a whole. All four taluks have registered high growth in female literacy rate during this decade but gender disparities still exist. Table 4.3 shows that the disparities are most wide between female living in rural and urban areas, the difference is not as sharp for male located in rural and urban areas. Female literacy rate for rural areas is the lowest and that for male in urban areas the highest in all taluks; thisrelative position has remained unchanged between 2001 and 2011.

Table 4.2: Sex-segregated Literacy Rates (2001 and 2011)

Taluk / District / State	Male literacy rate in 2001	Female literacy rate in 2001	Male literacy rate in 2011	Female literacy rate in 2011
Devanahalli	77.63	58.16	83.84	69.24
Doddaballapur	78.98	58.80	85.18	70.44
Hosakote	78.20	59.51	84.45	71.01
Nelamangala	81.42	62.75	85.76	71.79
Bengaluru Rural	82.21	66.98	84.82	70.63
Karnataka	76.10	56.87	82.47	68.08

Source: Census of India

Table 4.3: Literacy Rates by Sex and Residence (2001 and 2011)

Taluk / District / State	Male				Female			
	Rural		Urban		Rural		Urban	
	2001	2011	2001	2011	2001	2011	2001	2011
Devanahalli	76.40	82.89	80.72	86.10	55.02	66.58	66.14	75.37
Doddaballapur	77.14	82.71	83.44	89.98	54.16	65.07	70.34	81.19
Hosakote	77.08	83.11	83.91	89.58	56.85	67.89	73.11	82.68
Nelamangala	79.75	83.59	91.06	93.26	59.66	67.70	81.41	85.68
Bengaluru Rural	73.77	83.06	88.68	89.57	52.35	66.80	78.91	80.95
Karnataka	70.45	77.61	86.66	90.04	48.01	59.71	74.12	81.36

Source: Census of India

Table 4.4: Literate and Illiterate Population (2001 and 2011)

Taluk / District	2001			2011			Difference in per centage of illiterate population between 2001 and 2011
	Population (7 years and above)	Literate Population	Illiterate Population	Population (7 years and above)	Literate Population	Illiterate Population	
Devanahalli	161,886	110,358	74,968	186,612	143,244	66,378	-10.74
Doddaballapur	234,180	161,902	106,430	268,922	209,756	89,838	-12.04
Hosakote	193,383	133,790	88,640	239,790	186,979	83,839	-10.87
Nelamangala	154,218	111,500	63,380	188,537	148,770	62,119	-8.15
Bengaluru Rural	743,667	517,550	333,418	883,861	688,749	302,174	-10.65

Source: Census of India

Table 4.4 shows that during 2001 and 2011, the absolute number of illiterates also declined in all four taluks. This is significant as increase in literacy rate is not always combined with decrease in the number of illiterates. Only when the natural increase in population is offset by the change in the number of literates, the number of illiterates goes down. In 2011, the number of illiterates for aged 7 and above was slightly more than 3 lakhs.

4.2.1. Policy Response

Total Literacy Campaign (TLC) followed by Saakshar Bharat Mission (SBM) is the major policy responses to remove adult illiteracy. Like TLC, SBM is a centrally sponsored scheme of Department of School Education and Literacy (DSEL), Ministry of Human Resource Development (MHRD), Government of India (GOI.) The state of Karnataka implemented this scheme in all the districts including Bengaluru Rural. SBM aims to promote and strengthen Adult Education, especially for women by extending educational options including basic literacy, basic education (equivalency to formal education), vocational education, etc. The SBM is a combination of the National Literacy Mission, Continuing Education Programme and Special Component Programme. There were 14 continuing education camps with an enrolment of 260 neo literates as per Vocational Training Programme for neo literates progress report dated 31.03.2013, Government of Karnataka. Prior to this scheme, the state undertook Total Literacy Mission in Bengaluru Rural under which 1.31 lakh males and 1.86 lakh females were targeted and 24 thousand males and 24 thousand females were helped to acquire literacy over a period of nine years (Total Literacy Campaign, progress report, 1990-99, Government of Karnataka).

4.3. Elementary Education

The Right to Education, 2009 (RTE) made right to universal elementary education a fundamental, and therefore justifiable right. Under the RTE every child in the age group of 6-14 years is entitled to compulsory eight years of quality education. Quality under the right to education is guaranteed by defining norms forinfrastructure, hot midday meals, free text books, uniforms, trained and qualified teachers andenabling school environment. Karnataka adopted the state specific RTE rules in 2012. Karnataka has kept in mind the local character of the state while drafting the state RTE rules in order to facilitate the smooth implementation of the act in its true spirit.

4.3.1. Access and Enrolment

There are 1,323 elementary schools in Bengaluru Rural. The number of government schools has decreased in Devanahalli and Hosakote, and remained almost the same in the remaining two taluks between 2001 and 2011. The number of private schools has increased in all four taluks which can be viewed as a sign of increased demand for private schooling. However, it is important to remember that the government schools continue to account for nearly 86 per cent of all schools.

In view of the perceived high demand for private schooling and their increasing share in the total numbers, it becomes imperative to examine the quality of facilities and education that exist in these schools. A small study covering eight private schools, two in each taluk was conducted to examine the status of physical infrastructure, teachers, equity and teaching-learning related practices as against the Right to Education (RTE) norms and recommendations. The report is available in SAS 1.

Table 4.5: Elementary Schools by Management (2001 and 2011)

Taluk / District	2001			2011		
	Govt.	Private	Total	Govt.	Private	Total
Devanahalli	223	28	251	218	49	267
Doddaballapur	360	39	399	360	52	412
Hosakote	298	32	330	269	46	315
Nelamangala	296	16	312	296	33	329
Bengaluru Rural	1,177	115	1,292	1,143	180	1,323

Source: Department of Public Instructions, Bengaluru Rural

The Right to Education, 2009 defines access in terms of access to a neighborhood school. The norm for neighborhood school states that all children eligible to be enrolled in standard I-V should have a school within 1kilometer from their place of residence. Similarly all children eligible to be enrolled in standard VI-VIII should have a school within 3 kilometersfrom their place of residence. The access ratio at both primary and upper primary levels is high in Bengaluru Rural (Table 4.6). Though minor inter-taluk variations exist the access ratio is high for all the taluks.

Table 4.6: Access to Primary and Upper Primary Level (2011-2012)

Taluk / District	Habitations	Primary Schools		Upper Primary Schools	
		Within 1km	Access Ratio	Within 3 km	Access Ratio
Devanahalli	211	205	97.15	205	97.15
Doddaballapur	417	405	97.12	404	96.88
Hosakote	298	289	96.97	289	96.97
Nelamangala	372	360	96.77	364	97.84
Bengaluru Rural	1,298	1,259	97.00	1,262	97.25

Note:

1. Access ratio is defined as number of primary and upper primary schools within 1 km and 3 km respectively in a habitation divided by total number of habitations in the taluk / district, and then multiplied by 100

2. Access ratio was computed by officials of Department of Public Instructions, Bengaluru Rural district

Source: Department of Public Instructions, Bengaluru Rural

While the availability and accessibility of schoolsis one of the pre-requisites for universal access to schooling, it does not necessarily ensure participation of all eligible children in the schooling process.Studies from different parts of India have suggested that even when within accessible distance the schools are generally located outside the localities with concentration of population from, usually socially deprived groups such as dalits, adivasis and Muslims, and at times act as a deterrent for their children to participate in schooling (Nambissan (2001) and Jha and Jhingran (2005)).Therefore enrolment and attendance rates across social categories become important indicators to get a holistic picture of access.

Table 4.7: Gross and Net Enrolment Ratios at Elementary Level (2004 and 2011)

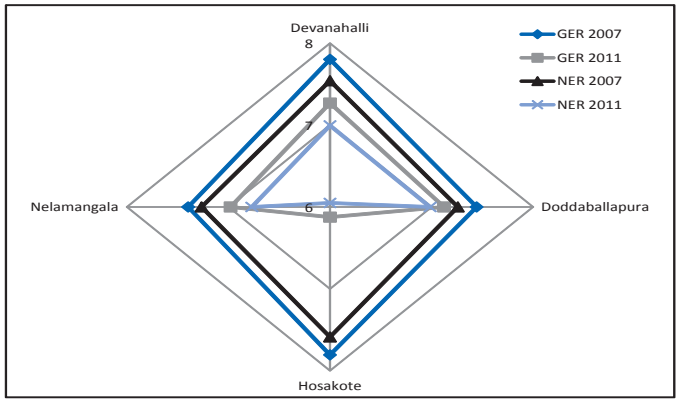
Taluk / District / State	GER (P)	GER (UP)	NER (P)	NER (UP)	GER (P)	GER (UP)	NER (P)	NER (UP)
	2004				2011			
Devanahalli	86	71	83	65	95	96	91	92
Doddaballapur	79	68	77	68	96	82	92	80
Hosakote	90	74	88	73	92	91	89	89
Nelamangala	90	75	87	68	94	97	91	92
Bengaluru Rural	86	72	83	84	94	90	91	87
Karnataka	106	-	96	-	109	71.5	99.8	61.7

Legend: P – Primary; UP – Upper Primary

Source: Department of Public Instructions, Bengaluru Rural (for taluk wise data) and DISE State Report Card 2004-05, 2011-12 (for Karnataka data)

Gross Enrolment Ratio (GER) is total enrolment in education regardless of age, expressed as a per centage of the relevant school age population in a given year. Table 4.7 shows that the GERs for Bengaluru Rural have increased for both primary and upper primary levels between 2004 and 2011, the rate of increase being higher for the latter. Each taluk has reported an increase in both the GER at both the levels. However, the GER for primary level in Bengaluru Rural in 2011 is lower than that for the state as a whole whereas the opposite is true for upper primary level. This could be due to the fact that these two data are from two sources, and therefore not strictly comparable.

Figure 4.2: Gross and Net Enrolment Ratios, Primary Level (2004 and 2011)

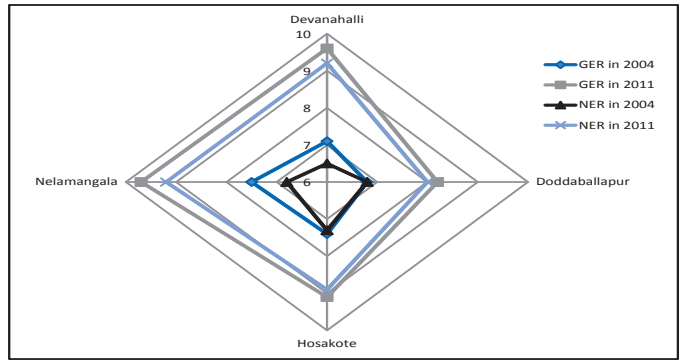


Source: Department of Public Instructions, Bengaluru Rural (for taluk wise data).

This inconsistency becomes more evident when one compares Net Enrolment Ratio (NER), the school age group expressed as a per centage of the corresponding population.NER gives a more precise measurement of appropriate age-groupschooling participation. Table 4.7 shows the district NER as 91 as against the state NER of 99.8, which is not possible unless each district in the state has an NER of 100. On the other hand, the NER at upper primary level is much higher in Bengaluru Rural as compared to the state average. This raises the issue of authenticity of data as the Department of Public Instructions is the source for DISE data as well.

Assuming that inter-taluk comparison remains valid as the data are from the same source, the following radar analysis shows that Doddaballapur has reported highest increase in both GER and NER between 2004 and 2011, the increase in NER being much higher than others (Figure 4.2). The change is the lowest in Hosakote for both GER and NER. All four taluks have narrowed the gap between GER and NER during this period showing that relevant age-group participation has increased at elementary level.

Figure 4.3: Gross and Net Enrolment Ratios, Upper Primary Level (2004 and 2011)



Source: Department of Public Instructions, Bengaluru Rural (for taluk wise data).

The picture changes at upper primary level with Doddaballapur registering the lowest rate of increase (Figure 4.3). This means that the taluk has a very low transition rate from primary to upper primary level. The taluk seems to be able to enhance the enrolment rates at primary but not able to sustain a good per centage of those at upper primary level. It is also possible that the high enrolment at primary level does not get translated in high attendance, a common problem experienced in areas where new enrolments are made as a result of drives and campaigns.

The GPI (Gender Parity Index) is nearly one or higher for each of the four taluks as revealed by the sex segregated GERs and NERs for the elementary level (Table 4.8). The enrolment ratios for females in all taluks is marginally more than or almost equal to males. Therefore, gender disparity in enrolment is not an issue in Bengaluru Rural.

Table 4.8: Sex-segregated Enrolment Rates of Elementary Level and Gender Parity Index (GPI) - 2011

Taluk / District	GER			NER		
	Male	Female	GPI	Male	Female	GPI
Devanahalli	94	97	1.03	90	92	1.02
Doddaballapur	89	92	1.03	85	89	1.04
Hosakote	91	93	1.02	88	90	1.02
Nelamangala	95	95	1.00	92	91	0.98
Bengaluru Rural	92	94	1.02	88	90	1.02

Note: 1. Elementary level includes enrolment for grades I to VIII.
2. GPI is equal to female enrolment divided by male enrolment, and then multiplied by 100.
Source: Department of Public Instructions, Bengaluru Rural.

Participation in schooling cannot be assessed by looking at Enrolment alone. A number of other indicators such as survival rate, transition rate and completion rates are used to judge the efficiency of the education system and have an understanding of the schooling participation status. The dropout rates, as seen in Table 4.9, are not very high in the district but they depict very unusual trends, especially with respect to upper primary level. While at primary level, the rates are between 2 and 3 per cent, and have also remained largely the same between 2001 and 2011, at upper primary level, the rates are not only higher than those at primary level but have also increased between 2001 and 2011. Gender disparities are not marked though the differences in the rates for boys and girls exist.

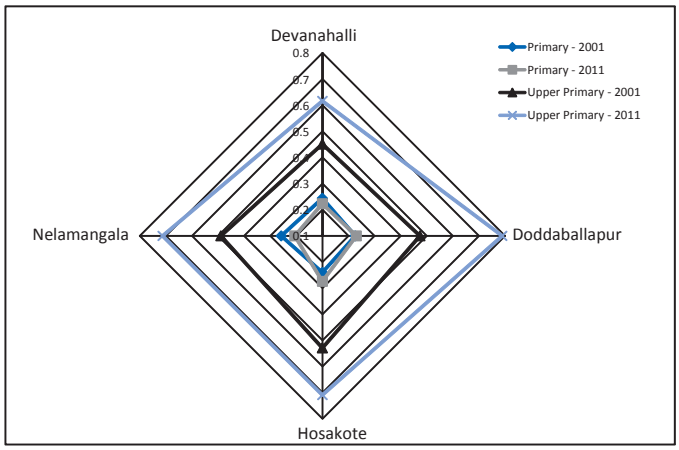
Table 4.9: Drop-out Rate of Elementary Level (2001 and 2011)

Taluk / District	Primary			Upper Primary			Primary			Upper Primary		
	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
	2001						2011					
Devanahalli	2.18	2.70	2.44	4.11	4.90	4.51	2.04	2.43	2.23	6.01	6.31	6.16
Doddaballapur	2.01	2.50	2.26	4.43	5.05	4.74	2.18	2.41	2.30	8.94	6.83	7.89
Hosakote	2.45	2.35	2.40	5.26	5.32	5.29	2.63	2.84	2.74	7.04	7.14	7.09
Nelamangala	2.35	2.80	2.58	5.23	4.54	4.89	2.03	2.08	2.06	6.00	8.26	7.13
Bengaluru Rural	2.25	2.59	2.42	4.76	4.95	4.85	2.22	2.44	2.33	7.00	7.14	7.07

Note: Drop-out rates of elementary school was computed by officials of Department of Public Instructions (Bengaluru Rural district).
Drop-out rate was defined and computed by the Education Department, Bengaluru Rrual Zilla Panchayat.
Source: Department of Public Instructions, Bengaluru Rural

The radar analysis shows that Nelamangala is the best performer at primary level with a decrease in the dropout rate between 2001 and 2011 while Doddaballapur and Hosakote have reported an increase. The dropout rates havemarginally reduced in Devanahalli (Figure 4.4). At upper primary level, all four taluks have reported increase in dropout rates but the increase is the highest in Doddaballapur (Figure 4.4).

Figure 4.4: Drop-out Rate at Primary and Upper Primary Levels (2001 and 2011)



Source: Department of Public Instructions, Bengaluru Rural district

One explanation for the higher dropout rate at upper primary level could be the change in the composition of primary and upper primary in the state. Karnataka used to follow a seven year schooling system for elementary where the first four years were for primary, known as lower primary in the state, and the next three years as upper primary, known as higher primary in the state. Then, it added class five to lower primary while the elementary cycle still remained of seven years. The state has adopted the eight year schooling system for elementary education recently but most upper primary schools still do not have class VIII, and therefore a good proportion of children drop out at that stage. The data includes information for grade VIII as part of the upper primary level, when it was not actually part of the upper primary system. This, however, does not explain the increase in dropout rates for upper primary level. One reason could be the migration of students to Bengaluru Urban, the neighboring district where the schools are perceived to be of better quality but this needs further investigation to be confirmed.

The district reports a high completion rate, this being lower at upper primary level as compared to primary level. While it has remained almost the same for primary, it has registered a decline for upper primary level between 2001 and 2011. Bengaluru Rural also has a high transition rate from primary to upper primary. However, the district reported 100 per cent transition rate between primary and upper primary in 2001 for all four taluks, which seems highly unlikely in view of the dropout rate figures already discussed and the numbers of Out of School children that is being discussed next. Upper primary level has also reported a decline and transition rate from upper primary to secondary. The declining trends in transition and completion rates and increasing trend for dropout rates at upper primary level in Bengaluru Rural need further examination.

Table 4.10: Transition and Completion Ratesat Elementary Level

Taluk / District	Transition Rate		Completion Rate		Transition Rate		Completion Rate	
	P to UP	UP to Sec	P	UP	P to UP	UP to Sec	P	UP
	2001				2011			
Devanahalli	97.56	95.5	96.34	94.13	100	93.84	96.34	92.45
Doddaballapur	97.75	95.26	96.49	94.23	100	92.12	96.44	91.18
Hosakote	97.6	94.71	95.95	93.37	100	92.91	95.83	91.78
Nelamangala	97.43	95.12	96.03	93.93	100	92.87	96.31	91.82
Bengaluru Rural	97.58	95.35	96.2	94.01	100	92.37	96.23	91.8

Legend: P – Primary, UP – Upper Primary, Sec – Secondary

Note:

1. Transition rate is defined as the number of pupils admitted to the first grade of higher level of education in a given year as a per centage of the number of pupils enrolled in the final grade of the immediately lower level of education in the previous year.
2. Completion rate refers to total number of pupils in the final grade of a level, regardless of age, as a per centage of the total relevant age-group population for that grade in a particular year.

Source: Department of Public Instructions, Bengaluru Rural

Out of school children (OoSC) consist of children who have either never been enrolled and are dropouts. As per reported figures, the number of OoSC children has significantly dropped in Bengaluru Rural. Nelamangala is the only taluk where the number of OoSC children in primary education age-group (6-10 years) has increased from 232 in 2005 to 269 in 2011. The representation of dalits and adivasis, officially the SC and ST communities, has also declined among OoSC, thereby reflecting that their participation in schooling has increased during this period (Table 4.11). The number of OoSC for 11-13 years is small and has declined in all taluks. This, however, is not consistent with the increasing trend of dropout rates at upper primary level discussed earlier. The inconsistency of the data needs to be resolved.

Table 4.11: Out of School Children (OoSC) in the Age Group of 6-10 Years and 11-13 Years by Social Category

Taluk / District	Age group	2005				2011			
		Gen	SC	ST	Total	Gen	SC	ST	Total
Devanahalli	6 -10 years	139	103	46	288	0	0	0	0
	11 -13 years	79	58	27	164	0	0	0	0
Doddaballapur	6 -10 years	354	212	49	615	19	6	3	28
	11 -13 years	182	120	28	330	6	3	0	9
Hosakote	6 -10 years	75	31	1	107	24	11	2	37
	11 -13 years	44	18	0	62	10	6	2	18
Nelamangala	6 -10 years	97	42	8	147	163	76	5	244
	11 -13 years	56	24	5	85	16	8	1	25
Bengaluru Rural	6 -10 years	635	388	104	1127	206	93	10	309
	11 -13 years	361	220	60	641	32	17	3	52

Legend: Gen – General category; SC – Scheduled Caste; ST – Scheduled Tribe.

Source: Department of Public Instructions, Bengaluru Rural

Table 4.12: Out of School Children by Sex in the Age Group 6-10 Years and 11-13 Years

Taluk / District	Age group	Male	Female	Male	Female
		2005		2011	
Devanahalli	6-10 years	145	143	0	0
	11-13 years	83	81	0	0
Doddaballapur	6-10 years	297	288	22	6
	11-13 years	168	162	8	1
Hosakote	6-10 years	54	53	16	21
	11-13 years	31	31	13	5
Nelamangala	6-10 years	82	65	134	110
	11-13 years	47	38	11	14
Bengaluru Rural	6-10 years	578	549	172	137
	11-13 years	329	312	32	20

Source: Department of Public Instructions, Bengaluru Rural

The share of out of school boys is generally higher as compared to girls in Bengaluru Rural (Table 4.12). This could possibly be due to a variety of factors. The engagement of boys in child labour due to migration and other labour market opportunities prompted by proximity to Bengaluru city could be one reason. The proportion of male population is also high at 51.92 per cent of total population in the age group of 6-14 year old in Bengaluru Rural.

4.3.2. Infrastructure

The physical infrastructure of the school plays a very important part in creating an enabling environment for education. The physical environment of a school depends on the suitable availability of infrastructure for all children especially for children with special needs. The RTE lays strict norms that have to be followed by all schools for provision of these essential facilities. This includes provision for separate toilets for boys and girls, having ramps in schools for children with special needs, having a library equipped with books in Braille besidesage and class appropriate books for different subjects, clean and safe drinking water and other provisions.

Table 4.13: Infrastructural Facilities in Elementary Schools (2005 and 2011)

Infrastructural Facilities	Year	Devanahalli		Doddaballapur		Hosakote		Nelamangala		Bengaluru Rural	
		P	UP	P	UP	P	UP	P	UP	P	UP
Total Number of Schools	2005	137	114	259	146	166	144	230	105	792	509
	2011	133	134	228	184	151	164	203	126	715	608
% with boundary wall	2005	29.20	30.70	35.14	56.16	37.95	41.67	40.00	28.57	36.11	40.67
	2011	51.13	92.54	75.44	88.04	58.28	80.49	67.98	85.71	65.17	86.51
% with drinking water facility	2005	71.53	70.18	64.86	75.34	68.07	69.44	73.04	80.95	69.07	73.67
	2011	93.23	92.54	87.28	87.50	87.42	92.07	91.13	98.41	89.51	92.11
% with Girls toilet	2005	8.76	55.26	24.71	47.95	9.04	40.28	14.78	57.14	15.78	49.31
	2011	58.65	65.67	60.96	63.59	66.89	70.12	42.36	68.25	56.50	66.78
% with boys toilet	2005	37.23	59.65	50.97	68.49	52.41	62.50	63.91	71.43	52.65	65.42
	2011	83.46	97.76	91.67	94.57	92.72	93.29	97.04	98.41	91.89	95.72
% with play ground	2005	24.09	39.47	19.31	39.73	22.89	38.19	14.78	28.57	19.57	36.94
	2011	41.35	43.28	29.39	41.30	49.67	47.56	24.14	50.79	34.41	45.39
% with kitchen shed	2005	32.12	43.86	29.73	47.95	54.22	40.28	40.00	42.86	38.26	43.81
	2011	82.71	89.55	87.72	86.41	82.78	91.46	93.60	98.41	87.41	90.95
% with ramp facility	2005	37.96	41.23	35.91	37.67	60.24	40.28	47.39	35.24	44.70	38.70
	2011	84.21	76.87	81.58	81.52	86.09	89.63	77.34	92.06	81.82	84.87
% with library	2005	27.74	43.86	27.03	47.95	45.18	41.67	37.39	42.86	33.96	44.20
	2011	89.47	98.51	91.67	97.83	92.72	98.17	96.55	96.83	92.87	97.86

Legend: P – Primary; UP – Upper Primary

Source: Department of Public Instructions, Bengaluru Rural

The infrastructural facilities in primary and upper primary schools in Bengaluru Rural have improved since 2005 as can be seen from Table 4.13. The improvement can be seen for all the facilities listed by RTE as essential for quality education. However, there is still a long way to go in making these universally available in all schools. In 2011, nearly thirty five per cent primary schools are without a boundary wall, 43.5 per cent primary and 33.22 per cent upper primary schools are without toilets for girls, and 65.59 primary and 54.61 upper primary schools do not have a playground in the district. It is important to add that the presence of a facility alone does not tell much about the condition and use. The small area study conducted by CBPS across 8 private unaided schools in Bengaluru Rural found that the condition and usage varied widely across schools, and one can easily surmise that the situation will not be very different in government schools either. However, it is important to ensure the presence of facilities as that is the first step towards creating an enabling environment, and therefore necessary.

4.3.3. Teachers

RTE mentions an ideal school environment as one that is non-discriminatory and stress free, and which guarantees all round development of the child. In this context, the role of the teacher becomes crucial as they have to play a key role in making educational experiences inclusive and meaningful. In order to achieve this ideal school environment the RTE mandates norms related to a teacher pupil ratio of 1:30 for primary and 1:35 for upper primary, and trained regular teacher in the system.

Table 4.14: Teacher Pupil Ratio at Primary and Upper Primary Levels

Taluk / District	2004		2011	
	Primary	Upper Primary	Primary	Upper Primary
Devanahalli	25	32	12	19
Doddaballapur	24	33	12	19
Hosakote	23	30	12	20
Nelamangala	19	29	10	18
Bengaluru Rural	23	31	12	19

Source: Department of Public Instructions, Bengaluru Rural

As an average at taluk level, Bengaluru Rural fulfills the criteria of the desired teacher pupil ratio as mandated by RTE (Table 4.14). But this picture changes when disaggregated data is analysedat the level of school. According to the DISE District report card 2011-12, 5.4 per cent primary schools in Bengaluru Rural have a TPR above 1:30 and 5.3 per cent upper primary schools have a TPR above 1:35. Therefore there is a need for rational redeployment and transfer of teachers, or hiring of new teachers in order to ensure that each school followed the norm.

Karnataka has traditionally hired only regular teachers implying that unlike many other states, it has not hired so-called para teachers. According to District report card 2011-12 DISE, 95 per cent regular teachers in the Bengaluru Rural are professionally trained. The qualification required to be a teacher in a primary school is Pre-University Course (PUC) plus D.Ed. This applies to all schools with classes from 1st to 7th. The qualification required to be a teacher for the upgraded schools where eighth standard has been added is Graduate plus B.Ed for class VIII teaching. The teacher qualification requirement for secondary schools is Graduate plus B.Ed. This is at variance with the RTE norms where all teachers at upper primary sections starting at grade VI should have graduate plus D.Ed/B.Ed degrees. The district needs to find a solution to address this. As services of existing teachers cannot be terminated, one possible measure to would be to encourage the teachers to attain additional qualification.

Table 4.15: Educational Qualification of Teachers, 2011

School category	< Sec	Sec	H.S	Grad	P.G	M. Phil	Others
Primary only	22	430	779	200	73	4	14
Primary with upper primary	33	819	1,327	486	233	8	64
Primary with U. P. & Sec/ H.S.	21	56	229	359	220	3	78
Upper Primary only	2	5	2	9	8	0	18
Upper Primary with Secondary and H.S	9	112	72	512	592	16	89
Total	87	1,422	2,409	1,566	1,126	31	263

Legend: Sec-Secondary; H.S – Higher Secondary; Grad – Graduate; P.G. – Post Graduate; M.Phil. – Master of Philosophy

Source: District Report Card 2004-05 and 2011-12 (DISE)

4.3.4. Learning Outcomes

Although learning outcome is not the only one indicator for the quality of learning but it is an important one that is amenableto measurement. However, the data on learning achievement is not easily available and the available data from sources such as ASER survey suffer from several limitations: small sample, inappropriate tests in some cases, method related issues, e.g., tests at home rather than in school setting. Nevertheless, in absence of any other source, they become important and can be taken as indicative of the reality, at least to a limited extent. Table 4.16 shows that the performance of children in Bengaluru Rural was better than Karnataka for all four indicators included there. Nearly 95 per cent

children in grades I and II could read and recognize numbers. The performance of children in grades III to V was not as good, both in language and mathematics. This is indeed a cause of worry and needs attention.

Table 4.16: Learning Achievements of Students in Primary School (2013)

Indicators	Bengaluru Rural	Karnataka
% children(std I-II) who can recognize numbers (1-9) or more	94.7	86.1
% children(std I-II) who can read letters, words or more	94.7	83.8
% children(std III-V) who can do subtraction or more	56.5	45.0
% children(std III-V) who can read a standand I level text or more	70.8	56.6

Source: ASER 2013, District Performance Tables, Karnataka.

4.3.5. Policy Responses

In order to improve the reach and quality of education the state government has made several interventions; many of these are present in Bengaluru Rural as well. Most of these interventions are part of some or the other centrally sponsored scheme and some are result of the state initiatives. For instance, Karnataka implemented a scheme for free distribution of textbooks for all primary grades in the entire state much before it was supported by centrally sponsored projects in other parts of the country. Bengaluru Rural also became part of the mega primary education reform project known as District Primary Education Project in 1996. The DPEP was launched in 1994 as a major initiative to revitalise the primary education system and to achieve the objective of universalisation of primary education and evolve a model of reforming the primary education system. Karnataka was one of the seven states which was a part of the phase I of DPEP in 1994 covering four districts: Kolar, Mandya, Raichur and Belagavi in the state. In phase II, an additional 14 districts including Bengaluru were added. The primary focus of DPEP was to develop district specific education plans and work towards achieving universal access, enrolment, retention and substantial improvement in quality of education to enable all children to achieve essential learning levels. The Total Literacy Mission campaigns in Bengaluru Rural had helped create awareness and demand for basic education. Following this, the DPEP was able to renew interest and support for primary education in the district.

Following DPEP experience, the SSA was launched in 2002 in all the districts with objectives to achieve universal elementary education in a time bound manner. The programme seeks to open new schools in those habitations which do not have schooling facilities and strengthen existing school infrastructure through provision of additional class rooms, toilets, drinking water, maintenance grant and school improvement grants. Existing schools with inadequate teacher strength are provided with additional teachers, while the capacity of existing teachers is being strengthened by extensive training, grants for developing teaching-learning materials and strengthening of the academic support structure at a cluster, block and district level. In addition to these, SSA has several other interventions that are not necessarily present in all districts. Some of these interventions as operative in Bengaluru Rural are discussed below.

Chinnara Zilla Darshanis an innovative educational tour programme launched under the Sarva Shiksha Abhiyan (SSA) scheme, in collaboration with the Karnataka State Tourism Development Corporation (KSTDC) in 2009-10. The two-day programme is free of cost for government schools students who belong to SC and ST communities , with an aim to supplement the classroom learning by integrating school activities with the outside world. 1600 SC/ST students in Bengaluru Rural benefitted from this scheme in the year 2009-10. The state spent Rs.15 lakhs in Bengaluru Rural for the purpose of this scheme. Computer Assisted Learning Centres (CALC) have been initiated under SSA to bring changes in classroom transaction through visual media which also enforces learning through evaluation embedded in it. 93 CALCs have been established in Bengaluru Rural covering 20558 students.

Midday Meal is another important Government of India supported programme for achievement of

Universalization of Elementary Education (UEE). Midday meal programme was first implemented for primary classes in 7 educationally and economically backward north-eastern districts of the State during 2001-2002. Later, the scheme was extended to other districts of the state in a phased manner. Now the scheme has been extended to children enrolled in classes 1 to 8. Government of Karnataka is providing hot cooked meals to the children of 9th and 10th grades in government and government aided schools out of its own resources. Recently, the state government has also made it mandatory to serve milk along with the meal to every child. The scheme intends to raise the nutrition level among children and contribute to food security in a significant manner. It also impacts enrolment, attendance and retention rates positively. The coverage of this scheme in Bengaluru Rural as in November 2013 is shown in Table 4.17.

Table 4.17: Number of Students covered under Midday Meal Scheme (as on November 2013)

Taluk / District	Grade					Whether Milk distributed	Number of schools in which the school kitchen is sponsored by	
	1 to 5	6 to 7	8	9 to 10	Total		Government	NGO
Devanahalli	8,352	3,830	2,177	3,875	18,234	Yes	243	8
Doddaballapur	12,502	5,474	3,004	5,451	26,431	Yes	390	16
Hosakote	10,475	4,650	1,950	4,860	21,935	Yes	290	40
Nelamangala	9,152	4,432	1,343	3,601	18,528	Yes	317	0
Bengaluru Rural	40,481	18,386	8,474	17,787	85,128	Yes	1240	64

Source: Department of Public Instructions, Bengaluru Rural district.

One significant state run programme in Bengaluru Rural is Nali-kali. Nali-Kali meaning joyful learning started in 1995, as a small UNICEF-assisted pilot project in H. D. Kote, Mysuru District. Searching for ways to revitalize primary schools, a group of 15 primary school teachers and administrators went to Rishi Valley (Madanapalle, Chittoor district, Andhra Pradesh) to study the satellite schools where children in multi-grade classrooms were learning to read, write and unleash their creativity in a joyful and exciting environment. Upon return they adapted the approach for Karnataka and provided seed for initiating a state-wide programme, later known as Nali kali. Nali kali is significant because it was a teacher-led initiative recognized by the state government. In 2009-2010, Nali-Kali was extended to classes I and II in all Government Kannada medium schools in the state. The government supplied the required materials for running in the programme in schools and trained the teachers. Nali Kali is essentially an activity based learning process. It involves joyful learning which contains processes like songs, games, surveys, storytelling and use of educational toys. The idea is to make students participate in the classroom process actively which in turn increases the level of classroom interaction, reduces the burden of the teacher and makes the classroom environment stress free. An evaluation of Nali-Kali (that included Bengaluru Rural as a part of the sample) done by CMRD Dharwad found that the classroom environment in the sample schools was enabling and reflective, and most students were actively participating (CMDR Dharwad 2010).

The district has initiated a School Adoption programme where the community / private groups are encouraged to adopt schools and generate resources for various purposes. A good number of NGOs such as Prajayathna, Akshara Foundation, America India Foundation and Shikshana Foundation and companies such as CISCO and Bharath Electronics Limited are actively collaborating with the government for various purposes such as community mobilization, SMC training, provision of teaching learning materials, enhancement of physical infrastructure and technology aided learning.

4.4. Secondary Education

Secondary education is considered a gateway to the opportunities and benefits of economic and social development. Quality secondary education is indispensable in creating a bright future for individuals and nations alike. This is a critical stage between childhood and adulthood where education needs to respond to diverse kinds of needs: preparation for higher education and/or labour market participation, deepening of gender identities and strengthening of life-skills to be able to handle diverse and varied expectations from self as well as from others.

4.4.1. Access and Enrolment

Secondary education in Bengaluru Rural is marked by a large presence of private schools. Fee-charging private unaided schools constitute nearly half or more than half of the number of secondary schools each of the four taluks, the proportion being the highest for Nelamangala closely followed by Hosakote (Table 4.18). Government schools constitute less than one third of the total number of secondary schools with the government aided private schools constituting the remaining proportion. As is common in most parts of the country, the growth of private schools in the district could be attributed to the rise in the demand for English medium education and parental perception regarding private schools being better than government schools. In case of Bengaluru Rural, this growth also seems a response to the high level of migration of students to Bengaluru city, as suggested by the analysis of enrolment, Out of School Children and Child Tracking data.

Table 4.18: Number of Secondary Schools by Management (2013-2014)

District	Total Number of Secondary Schools	Government Schools	Government Aided Private Schools	Private Unaided Schools
Devanahalli	51	18	8	25
Doddaballapur	53	17	13	23
Hosakote	56	21	6	29
Nelamangala	52	11	14	27
Bengaluru Rural	212	67	41	104

Note: There are 63 schools under Department of Education and 4 schools under Tribal/Social Welfare Department

Source: Department of Public Instructions, Bengaluru Rural district.

Both gross and net enrolment ratios have dropped significantly at secondary level in all the four taluks of Bengaluru Rural.The highest fall in both GER and NER is in Hosakote which has registered a steep decrease in the GER by 16.83 per centage points and NER by 16.38 per centage points between 2007 and 2011 (Table 4.19). This would normally mean an increase in the number of Out of School children but the data does support this hypothesis (Table 4.23). The number of Out of School children has fallen for the relevant age-group in Bengaluru Rural during the same period. Child tracking data suggests that migration to other districts is high for both boys and girls, and this explains the anomaly to some extent.

Table 4.19: Gross and Net Enrolment Ratios at Secondary Level

Taluk / District	GER		NER	
	2007	2011	2007	2011
Devanahalli	78.04	72.69	75.41	69.95
Doddaballapur	74.44	71.23	72.59	69.86
Hosakote	78.06	61.23	75.88	59.50
Nelamangala	73.96	69.79	72.65	67.70
Bengaluru Rural	76.07	68.26	74.07	66.36

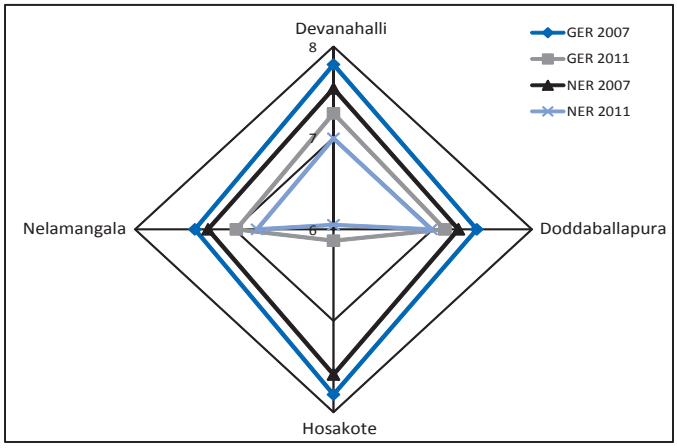
Source: Department of Public Instructions, Bengaluru Rural

Table 4.20: Out of School Children (2007 and 2011)

Taluk / District	2007			2011		
	Male	Female	Total	Male	Female	Total
Devanahalli	38	32	70	26	22	48
Doddaballapur	54	38	92	47	30	77
Hosakote	46	40	86	38	32	70
Nelamangala	56	44	100	48	38	86
Bengaluru Rural	194	154	348	159	122	281

Source: Department of Public Instructions, Bengaluru Rural

Figure 4.5: GER and NER of Secondary schools in Bengaluru Rural District



Source: Department of Public Instructions, Bengaluru Rural

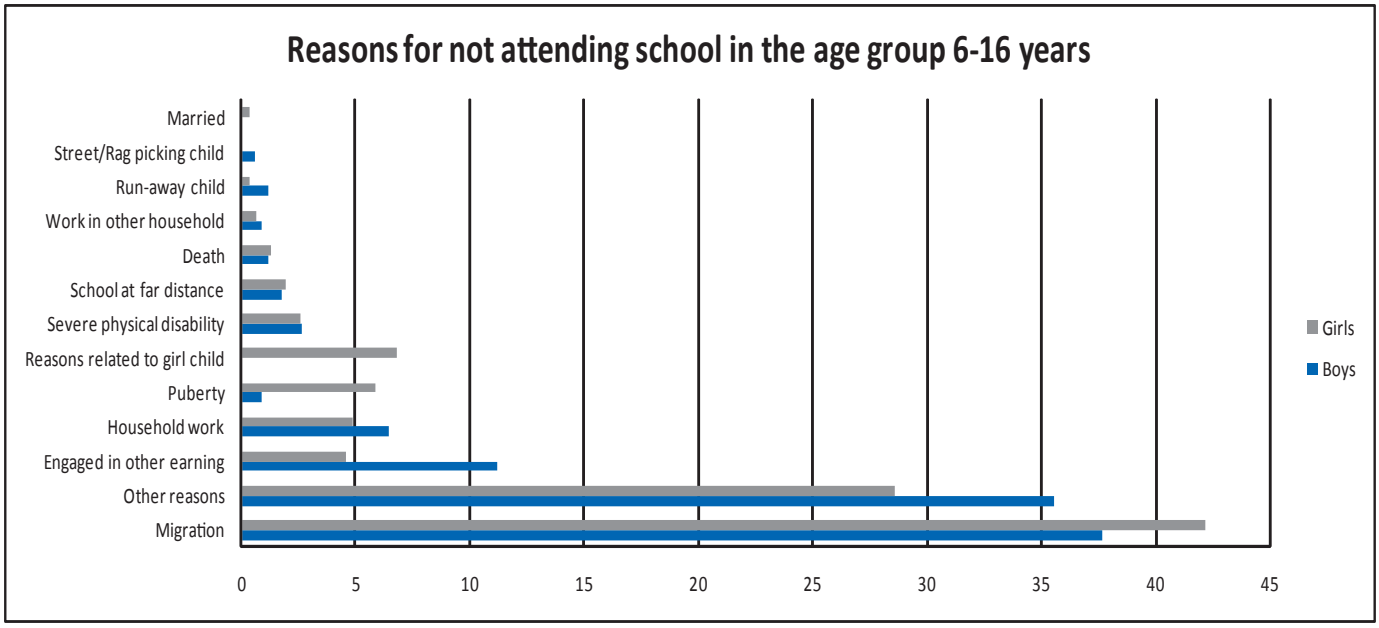
Sex segregated data for enrolment ratios and Out of School children also present an inconsistent picture for the district. While both GERs and NERs have consistently fallen for both male and female in all taluks, the decline for girls has been sharper than that for boys in all taluks, except in Hosakote.This sharper decline in enrolment for girls could be linked with gender bias where parents are withdrawing their girls at secondary stage because government schools are not readily accessible and fee-charging private schools are not considered wise investment for girls. Child tracking data for the year 2013-14 shows that puberty and 'reasons related to girl child' are two major reasons for girls' dropping out, migration being the most important reason for both boys and girls (Figure 4.6).

Table 4.21: Gross and Net Enrolment Rate at Secondary Level

Taluk / District	GER				NER			
	2007		2011		2007		2011	
	Male	Female	Male	Female	Male	Female	Male	Female
Devanahalli	76.01	80.11	73.88	71.47	73.30	77.58	70.51	69.37
Doddaballapur	74.12	74.76	73.86	68.53	72.37	72.81	71.99	67.66
Hosakote	78.01	78.11	52.08	74.74	75.88	75.88	50.70	72.51
Nelamangala	71.87	76.09	73.94	65.58	69.21	76.09	71.14	64.20
Bengaluru Rural	75.10	77.07	66.58	70.17	72.86	75.32	64.41	68.57

Source: Department of Public Instructions, Bengaluru Rural

Figure 4.6: Reasons for Not Attending School in the Age Group 6-16 Years (2013 - 2014)



Source: Department of Public Instructions, Bengaluru Rural district

The Child tracking data shows that migration is the most common reason for not attending school in Bengaluru Rural district. This child tracking exercise was undertaken in a manner that it captures all children who have joined other schools within the district. This means these children are either going to schools in the neighboring district or have migrated elsewhere. Considering that this district surrounds Bengaluru city, the construction and other similar activities also draw a large number of immigrant workers from other parts of the state / country whose children also leave once the parents leave the place on completion of work.

4.4.2. Completion and Learning Levels

Testing levels of learning is complex. Examination scores may not be the best way of testing a child's individual learning levels and skills since the system itself prioritizes rote learning over comprehension and analysis, and recent policy changes at the national level have recognised this. However, successful clearing of the Senior School Leaving Certificate is an indicator for the system's performance as a whole. The number of students who have successfully passed the class 10 board examination reflects the capability of the system to perform on criteria that the system has set itself for.

Table 4.22: Pass Per centage of Students Appearing for the Final SSLC (Secondary School Leaving Certificate) Examinations

Taluk / District	2009-2010	2012-2013
Devanahalli	83.25	84.2
Doddaballapur	78.97	83.2
Hosakote	78.34	80.88
Nelamangala	82.69	89.42
Bengaluru Rural	80.81	83.84

Source: Department of Public Instructions, Bengaluru Rural

The pass per centage data shows that 82.84 per cent of students appearing for SSLC cleared the examinations in this district in 2011 registering an improvement of 3.03 per cent points from 2009-2010. Pass per centage is the highest in Nelamangala at 89.42 per cent and lowest for Hosakote at 80.88 per cent. Although these per centages are not low, the system should make efforts to reach a stage where all students pass the secondary level.

4.4.3. Policy Response

In secondary education, Rashtriya Madhyamik Shiksha Abhiyan (RMSA) is the most important scheme run by the central government in partnership with the state government. This scheme was launched in 2009 with the objective to enhance access to secondary education and to improve its quality. The implementation of the scheme started from 2009-2010. The main objective of RMSA in Karnataka is to ensure provision of a secondary school with a maximum distance of five kilometers. Residential schools are opened or residential facilities provided for girls, students from socially and economically weaker sections, religious minorities and sparsely populated regions.

The district has been a recipient of funds and other support under Rashtriya Madhyamik Shiksha Abhiyan (RMSA) since 2010, a national programme to strengthen secondary level schools and education. In addition to grants received for minor and major repairs of school buildings in early years, the programme provides an annual grant of Rs.50000 to all government schools meant to be spent for activtities related to library, laboratory and regular maintenanceat school level. The district has initiated some eco-laboratory activities in collaboration with Environmental Management and Policy Research Institute in 100 secondary schools and organized excursion tours for more than 6000 students. RMSA has also supported teachers and headmasters' training for upgradation of skills and content knowledge.

4.5. Higher Education

Bengaluru Rural has a fairly good spread of colleges for higher education. Each taluk has at least one general degree college and at least one engineering or medical college. The number is also increasing with new institutions being started in the district. This could be due to proximity to Bengaluru city and paucity of space there to start new institutions. However, enrolment in these colleges, especially in the engineering colleges and polytechnics are heavily tilted towards male implying that gender disparity at this level is very high (Table 4.23 and 4.24). This again shows disconnect: high level of gender parity at elementary and secondary levels changes into a high level of gender disparity at

higher level of education. This could be indicative of a social norm where sending girls only up to class 10th or SSLC and Pre university education are considered as minimum desirable level after which it depends on individual household's choice, affordability and the importance they attach to the girl's higher education.

Table 4.23: Colleges and Enrolment (2009-2010)

Taluk/District	General Colleges			Private Aided Colleges			Medical Colleges		Polytechnic colleges			Engineering Colleges		
	No. of insti.	Enrolment		No. of insti.	Enrolment		No. of insti.	Total Enrolment	No. of insti.	Enrolment		No. of insti	Enrolment	
		M	F		M	F				M	F		M	F
Devanahalli	1	450	212	0	0	0	0	0	0	0	0	1	280	124
Doddaballapur	1	205	103	1	561	484	0	0	0	0	0	1	180	164
Hosakote	1	507	369	1	484	348	1	100	0	0	0	0	0	0
Nelamangala	2	303	292	0	0	0	0	0	1	130	58	1	-	-
Bengaluru Rural	5	1,465	976	2	1,045	832	1	100	1	130	58	3	460	288

Insti – Institutions; M – Male and F – Female.

Note: 1. Medical, Polytechnic and Engineering colleges are privately owned institutions.

2. Male female bifurcation not provided for medical college.

Source: Department of Public Instructions, Bengaluru Rural

Table 4.24: Colleges and Enrolment (2011-2012)

Taluk / District	General Degree Colleges						Medical Colleges			Polytechnic Colleges		Engineering Colleges	
	Government			Private									
	No. of insti.	Enrolment		No. of insti.	Enrolment		No. of insti.	Enrolment		No. of insti.	Enrolment Total	No. of insti.	Enrolment
		M	F		M	F		M	F				
Devanahalli	1	574	398	0	0	0	0	0	0	0	0	2	660
Doddaballapur	1	451	248	1	299	339	0	0	0	0	0	1	211
Hosakote	2	795	605	0	0	0	1	38	62	0	0	0	0
Nelamangala	2	449	441	1	502	475	0	0	0	1	126	3	194
Bengaluru Rural	6	2,269	1,692	2	801	814	1	38	62	1	126	6	1065

Insti – Institutions; M – Male and F – Female.

Note: 1. Medical, Polytechnic and Engineering colleges are privately owned institutions.

2. Male female bifurcation not provided for polytechnics and engineering colleges.

Source: District at a Glance, Bengaluru Rural district (2011-2012)

4.6. Private Institutions in Education

Private sector is present in a major way in Bengaluru Rural district. At higher education level, except six colleges meant for general undergraduate education, everything else is in owned and run by fee-charging private management. As discussed earlier, while at primary level, only about 14 per cent institutions belong to fee-charging private institutions, the share increases to more than 68 per cent at secondary level. This could have implications for the participation of poor or of those whose education is not necessarily valued very high. For instance, high gender disparity at higher education level against girls could be a result of the patrilocal practices because of which parents do not want to invest in girls' education. Since girls are likely to marry and go away, they would not contribute to family income. Poorer parents may stop sending their children soon after primary level if the accessibility to affordable schooling in public sector becomes very restricted. Household based survey data from NSSO 66th round conducted in 2007-08 confirms these conjectures.

Table 4.25: Distribution of those Attending Educational Institutions (based on Net Participation Rate) in Bengaluru Rural District (2007-2008) across Expenditure Quintile and the Type of Institutions

Level where attending	HH Monthly Consumption Expenditure Quintile					
	0 to 40		41 to 80		81 to 100	
	Govt	Private	Govt	Private	Govt	Private
Pre-primary	100.00	0.00	100.00	0.00	24.83	75.17
Primary	100.00	0.00	91.02	8.98	35.94	64.06
Upper Primary	100.00	0.00	100.00	0.00	37.66	62.34
Secondary	100.00	0.00	100.00	0.00	40.66	59.34
Higher secondary	100.00	0.00	100.00	0.00	74.19	25.81
Graduation	100.00	0.00	88.28	11.72	32.33	67.67
Post Graduation	-	-	-	-	100.00	0.00
Diploma (Below Graduation Level)	-	-	100.00	0.00	0.00	100.00
Diploma (Graduation Level)	-	-	-	-	-	-
Diploma (Post Graduation Level)	-	-	-	-	-	-

Note:

a. The per centages are calculated by estimating the number of population currently attending in a particular grade& appropriate age group in government (or) private institution and dividing it by population currently attending a particular grade& belonging to the appropriate age group.

b. Details of Age group – Pre-primary (3 to 5 years) ; Primary (6 to 10 years); Upper Primary (11 to 13 years); Secondary (14 to 15 years); Higher Secondary (16 to 17 years); Others – Graduation/Post Graduation/Diploma (18 to 24 years)

Source: National Sample Survey (2007-2008)

Table 4.25 shows that all children attending school and belonging to the poorest as indicated by the two lowest expenditure quintiles (0 per cent - 40 per cent) are going to government institutions at all levels. The situation changes slightly for the next level (41 per cent - 80 per cent) where about 9 per cent of those attending schools and 12 per cent of those attending colleges are going to private institutions. The situation changes once it comes to the highest quintile. More than half of those attending schools and colleges at all levels except higher secondary are going to private institutions. A small study on private elementary schools in the district was conducted to gain some insights on aspects of quality that exist there (SAS 1).

Table 4.26 brings the gender dimension to the fore: even in the highest quintile, the proportion of girls attending private institutions is clearly lower than total at all levels, indicating that parents are willing to spend more for boys' education. This coupled with the trend observed earlier showing significantly lower participation of girls at higher education level means that lack of adequate number of public institutions at higher education level in the district can have adverse impact on their participation limiting their opportunities. In general, an emphasis on improving the spread and quality of public institutions in education in the district can have positive impact on widening the opportunities and therefore the freedom for poor as well as girls from all economic strata in the district.

Table 4.26: Distribution of Female Students (with respect to Appropriate Age-wise Enrolment) in Government and Private Institutions in Bengaluru Rural District (2007-2008)

Grade	0 to 40		41 to 80		81 to 100	
	Govt	Private	Govt	Private	Govt	Private
Pre-primary	-	-	-	-	3.61	96.39
Primary	100.00	0.00	84.10	15.90	14.26	85.74
Upper Primary	100.00	0.00	100.00	0.00	28.53	71.47
Secondary	100.00	0.00	100.00	0.00	96.43	3.57
Higher secondary	100.00	0.00	100.00	0.00	95.07	4.93
Graduation	-	-	100.00	0.00	0.00	100.00
Post Graduation	-	-	-	-	100.00	0.00
Diploma (Below Graduation Level)	-	-	100.00	0.00	-	-
Diploma (Graduation Level)	-	-	-	-	-	-
Diploma (Post Graduation Level)	-	-	-	-	-	-

Note:

1. The percentages are calculated by estimating the number of female population currently attending in a particular grade& appropriate age group in government (or) private institution and dividing it by female students in the appropriate age group.

2. Details of Age group – Pre-primary (3 to 5 years) ; Primary (6 to 10 years); Upper Primary (11 to 13 years); Secondary (14 to 15 years); Higher Secondary (16 to 17 years); Others – Graduation/Post Graduation/Diploma (18 to 24 years)

Source: National Sample Survey (2007-2008)

4.7. Public Expenditure on Education

Doddaballapur shows the highest public spending on education in absolute terms but per capita expenditure is the highest in Nelamangala (Tables 4.27 and 4.28). The district as a whole has witnessed a real increase in public expenditure on education by 11.45 per cent in 2010-2011 and then a significant decline by more than 27 per cent the following year. All taluks witnessed growth and the subsequent decline though the rates of changes have been different. Doddaballapur experienced the highest growth in 2010-11 bringing the per capita expenditure closer to that of Nelamangala and Devanahalli remains the taluk with the lowest per capita public expenditure on education. Given that the district is yet to perform well at upper primary and secondary levels and the adverse implications for girls in general and children coming from poorer households, falling level of public expenditure on education in Bengaluru Rural is indeed a bad news for human development considerations.

Table 4.27: Education Expenditure (Rs in Lakhs - at 2009-2010 Prices)

Taluk / District	2009-2010	2010-2011	2011-2012	Growth Rate (%) (2010-2011)	Growth Rate (%) (2011-2012)
Devanahalli	1,469.09	1,581.17	1,494.46	7.63	-5.48
Doddaballapur	2,176.91	2,614.41	2,513.57	20.10	-3.86
Hosakote	1,878.50	1,991.47	1,995.16	6.01	0.19
Nelamangala	1,856.09	2,038.96	NA	9.85	NA
Bengaluru Rural	7,380.59	8,226.00	6,003.19	11.45	-27.02
GSDP Deflator	100.00	110.46	119.48		

Note:

1. The percentages are calculated by estimating the number of female population currently attending in a particular grade& appropriate age group in government (or) private institution and dividing it by female students in the appropriate age group.

2. Details of Age group – Pre-primary (3 to 5 years) ; Primary (6 to 10 years); Upper Primary (11 to 13 years); Secondary (14 to 15 years); Higher Secondary (16 to 17 years); Others – Graduation/Post Graduation/Diploma (18 to 24 years)

Table 4.28: Per capita Education Expenditure (at 2009-2010 Prices)

Taluk / District	2009-2010	2010-2011	2011-2012	Growth Rate (%) (2010-2011)	Growth Rate (%) (2011-2012)
Devanahalli	714.27	758.81	712.93	6.24	-6.05
Doddaballapur	739.48	877.86	838.99	18.71	-4.43
Hosakote	710.96	737.67	736.72	3.76	-0.13
Nelamangala	901.67	970.52	NA	7.64	NA
Bengaluru Rural	761.20	834.67	605.82	9.65	-27.42

Note: 1. Change of Base year = (Deflator value at T_1)*100/(Deflator value at 2009-2010) where T_1 varies from 2004-2005 to 2011-2012

2. Education expenditure at 2009-2010 prices = Education expenditure at T_2/Deflator value where T_2 varies from 2009-2010 to 2011-2012

3. The population to calculate the per capita figures was estimated using the decadal growth rate of population.

4. Growth Rate = (current year expenditure – previous year expenditure) x 100 / previous year expenditure

5. Education expenditure for Bengaluru Rural is an aggregate of the taluks for the respective years.

Source: ZillaPanchayat, Bengaluru Rural (for nominal education expenditure), Economic Survey of Karnataka, 2011-12 (for deflator values)

4.8. Conclusion

Bengaluru Rural has shown significant improvement in the literacy rates and schooling participation over the past few years, as reflected by the rise in literacy rate, enrolment ratios, infrastructural facilities and pass per centage of SSLC. The state has intervened through various programmes as discussed in the chapter to achieve the basic norms guaranteed by the RTE though there does not seem to be much emphasis on district specific initiative.

A deeper look into the literacy and education profile of the district reflects the fact that in this process of development, the most marginalized are not being fairly represented. The improvement in literacy rate for females, especially for females living in the rural areas has not been as high as compared to females residing in urban locations. Similarly, intra district comparisons in dropout rates show a high per centage of girls dropping out in Nelamangala where very few schools have separate toilets for girls.

A significant feature of the district is the rise in private schools especially at post primary level. The numbers of government schools is much less than that of private schools and therefore, the access to schooling becomes highly dependent on the fee paying capacity of the parents. This has a potential of creating a wide disparity in access to schooling for the rich and the poor. While the rich have more options in terms of both government and private schools, a poor child is left with only two options, either to go to a government school which could be located far away from his/her place of residence, given the number of government schools is so low, or stay out of school. Given that girls' schooling is valued less, lack of ready access to public schools also has adverse gender implications. The recent decline in real public spending on education is a cause of concern in this respect.

SAS 1 - Quality of Private Schools in Bengaluru Rural District

Introduction

Educational attainment has been recognized as a key component of the Human Development Index, since the time it was first postulated. Publicly funded school education, much like public health, has traditionally been seen as valuable and continues to be a social good deserving public money. However, coupled with the changing macro-economic scenario that discourages social sector spending on the one hand, parents choosing private schools over public schools and the perception of 'better quality education in private schools', is quite commonplace.

A significant feature of Karnataka's education system is the large private sector at all levels of education. Private unaided schools have grown at a fast rate over the last two decades and constitute nearly 17.23 per cent of the total number of schools in the state, and attract 40 per cent of the total enrolments (SSA Karnataka Annual Report 2011-12). This preference for private schools exists even as State Government seeks to improve investment in public schools in terms of infrastructure facilities and teacher training, with further impetus, in recent years, coming from the introduction of Right to Education Act. This study on Quality of Private Schools in Bengaluru Rural undertaken by CBPS sought to examine the claims and widely-held perception of quality of private schools as part of the DHDR of Bengaluru Rural. As of 2011, there were 163 upper-primary (till Class VII) private schools in Bengaluru rural, and more have opened in the last couple of years. The number of such private schools has doubled in the decade 2001-11, from just 80 in 2001 to over 160.

Objectives of the Study:

1. To study ***Quality of private schools*** based on a sample of two schools per talukof the four taluks – Devanahalli, Doddaballapur, Hosakote and Nelamangala (a total of eight schools) through criteria-referencing against RTE norms.

2. To examine in particular: Physical infrastructure, Quality of human resource, Equity dimension, Quality of teaching/learning process and School Governance

Findings

Physical Infrastructure

This involved examining the seven parameters as defined by SSA: pucca school building, separate toilets for boys and girls, compound wall, drinking water, ramps, play grounds, electrification, library, in addition to aspects like number of classrooms, whether transportation was provided by school and seating arrangements and equipment within classrooms.

School buildings were all pucca structures in the eight schools visited. Four of these were under construction. While in three schools it was a new wing that was being constructed, the fourth one had some classrooms with metal sheet for roofing as construction was planned for a top floor in future and additional classrooms were being added to the existing structure. All schools also had separate washrooms for boys and girls. The quality in terms of flooring, lighting, ventilation, and availability of running water in these varied greatly - two were very good, and one was rather bad. The remaining five were of an intermediate quality.Water supply to washrooms in three schools was through alternate arrangements (pumped from tanker supply, or manually filled buckets) in the absence of running water in taps. While five schools had additional toilets for staff, three did not. This school with the worst washroom had a separate washroom (with no running water) for the exclusive use of the husband-wife management duo. Five schools had complete compound walls, while three schools had partial walls/ fencing. Drinking water from a source with a visible water purifier/ filter was found in four schools. Two schools had non-purified tap water, and two reported asking students to bring their own drinking water from home.

Only one school had access arrangements for children with special needs (lift in the building), while none had any other arrangements to cater to such children, eg: special needs room or teacher. One Principal, however, emphasized integrating a child with attention deficit disorder, with the help of the class teacher, into the student body. All the schools had a designated area as playground, with five of them also having some play equipment ranging from jungle-gyms for the younger children to volley-ball courts. While all schools had an

electricity connection, five out of eight did not have fans in classrooms, and only three had computers for student use, with two of these schools requiring either the teacher to demonstrate the use of the computer, or students to use the limited number of machines in batches. A designated room for library, stocked with books, was present in five of the eight schools, (i.e.: 60 per cent of our sample schools have such a facility). Two schools had books stocked in various places, and one had a locked room that was stated to be the library, but this was not verifiable. The table below offers some observations on the library arrangement of the schools in the sample.

Table 4.29: Library Facilities and Environment

Observations about the library		No of schools
Number of books available	Less than 100	1
	100-500	2
	500-1000	1
	1000-2000	
	2000-3000	3
	Other observations	One school's library was closed and was reportedly being used to stock uniforms
Age-appropriate materials for every class	Yes	6
	No	0
	Don't know	2
Ventilation	Very good	1
	Good	3
	Bad	1
	Neither good nor bad	3
Accessibility to reading material for children	During designated library	6
	Free hour/ substitute class	3
	During recess	3
	After regular school hours	1
	Any other	1 (Books are given in the classroom)

Source: Primary Data collected by CBPS

The number of class rooms in a school varied from less than ten (one school) to more than forty (two schools). About twenty or thirty rooms were found in three and two of the schools respectively. While six of these schools had one room per class, one of them had a makeshift arrangement which divided a room by particle-board for the use of two classes (as the new wing was under construction), while another had multi-grade classrooms for the primary section. Seven schools provided a transportation facility at extra cost to students, with one of them having both buses and vans, and the others only vans. Classroom seating arrangements indicated that the majority of schools (seven) had benches and desks for students, one used seating on the floor due to lack of adequate number of benches and desks. One school provided individual desks and chairs to all students, including coloured and child-size ones in the lower grades. A table on the facilities and equipment in classrooms is below.

Table 4.30: Facilities/Equipments in the Classroom

Facilities/ equipment in the classroom	Availability Details	No of schools
Blackboard	Yes	8
	No	0
Other (Smartboard)	One school had a smart board in every class, which was being used (with power back-up) in 3 out of the 4 classes observed. Another reported having 3 rooms with smart boards and charging Rs100 per student per month for the same. However, these rooms were locked and could not be observed.	
Adequate ventilation	Yes	8
	No	0
Adequate lighting	Yes	7
	No	1
Ceiling fan(s)	Yes	3
	No	5
Charts and TLM	Yes	5
	No	3

Note: Only a few classes are were found to be lacking these equipments.

Source: Primary Data collected by CBPS

Quality of Human Resource

The quality of human resource in private schools was examined in terms of whether the stipulated teacher-pupil ratios as per the RTE act were maintained (1:30 for grades 1-V, and 1:35 for VI-VII); Education and Training levels of teachers, gender balance in staff, and their community background (as an indirect indicator of their

inter-generational social, educational and economic entitlement, and to help answer the question "who becomes a teacher, and where do they come from?")

Teacher Pupil Ratio (TPR) of less than or equal to 1:30 and more than 1:30 were found in four schools each. Teaching was found to be a feminised occupation with there being only 49 male teachers for 131 female teachers across the 8 schools. The background of teachers interviewed in a random sample indicated that the majority belonged to OBC category (45 out of 67) respondents, with Hindu General, SC, Christian and Muslim teachers accounting for much smaller numbers. The education and training level of teachers indicated that the highest academic qualification for the majority of teachers is PUC, followed by BA; and the most common professional training is B.Ed. Two teachers out of 67 were found to have a BE and MCA. The table below provides details.

Table 4.31: Highest Academic Qualification and Professional Qualification of Teachers in the 8 Selected Schools

Highest academic qualification	Professional qualification							Total
	No professional qualification	NTT	TCH	D.Ed	B.Ed	BPED	Other	
SSLC	0	0	1	0	0	0	0	1
PUC	0	0	7	6	1	0	1	15
BA	4	0	1	1	9	0	1	16
B.Com	2	0	0	0	0	0	1	3
B.Sc	3	1	0	1	5	0	1	11
BE	0	1	0	0	0	0	0	1
MA	1	0	0	0	10	1	0	12
M.Sc	1	0	0	0	5	0	0	6
MCA	0	0	0	0	0	0	1	1
DCA	1	0	0	0	0	0	0	1
Total	12	2	9	8	30	1	5	67

Source: Primary Data collected by CBPS

As the table below indicates, the salaries ranged from around Rs. 5,000 to Rs. 20,000 per month, and varied across academic qualifications of teachers. Most teachers (67 per cent of the sample) irrespective of their qualification earned between 5,000 and 10,000 per month.

Table 4.32: Highest Academic Qualification and Salary of Teaching Staff

School Name			Salary of teaching staff				Total
			0-5000	5001-10000	10001-15000	15001-20000	
Total	Highest academic qualification	SSLC	0	0	1	0	1
		PUC	3	7	2	3	15
		BA	1	14	1	0	16
		B.Com	0	3	0	0	3
		B.Sc	0	7	4	0	11
		BE	0	1	0	0	1
		MA	0	9	3	0	12
		M.Sc	0	3	2	1	6
		MCA	0	1	0	0	1
		DCA	1	0	0	0	1
	Total		5	45	13	4	67

Source: Primary Data collected by CBPS

Equity Dimension

The equity dimension as a parameter of quality in relation to private schools was examined in relation fee structure, sex-parity in the student body, proportional representation of communities (the extent to which management perceived it as reflecting demographics of the Taluk), compliance with RTE clause 12 (1) (c), and non-discrimination in day-to-day school experience as evident among students.

The annual fee ranged from Rs. 5000 - Rs. 14000, with three schools charging between Rs. 7000 and Rs. 9000, and three schools more than that. In general, boys outnumbered girls in seven out of the eight schools. The difference ranged from 64 per cent boys and 36 per cent girls to almost 50 per cent (but slightly less) girls. The table below indicates the sex-parity in enrollment

Table 4.33: Gender-Parity in Enrollment

Sl. no. of the school	Number ofStudents		Total
	Boys	Girls	
1	387	221	608
2	562	516	1078
3	139	114	253
4	58	40	98
5	131	84	215
6	173	136	309
7	487	520	1007
8	90	89	179

Source: Primary Data collected by CBPS

While six management-representatives opined that the student-body of their school was a microcosm of the population in the taluk (across caste, community and occupational groups), two were of the view that their school catered more to the middle class/poor because of the fee structure. While all the schools were found to be RTE compliant for 2013-14, one school had not complied with the law in 2012-13. Also, three schools were found to have filled in less than 25 per cent seats (ranging from 15-20 per cent) under the clause, and one had allotted slightly more (28 per cent).

The majority of schools (seven) indicated that admission to all classes was on ''first come, first serve'' basis. No more than 40, or in one school 50 students, were accommodated in a class. One school, started only last year, had intake only in single digits in the upper primary classes. Three schools also indicated that an entrance test was conducted for admission to class VIII and IX and that no new admissions were ordinarily allowed in class X. Most children were found to be in clean and pressed uniform. One school had a few children who were barefoot or in sandals (and not shoes and socks) and also some children wearing casual clothes as their uniforms had not been washed and ironed. All children were found to have similar access arrangements to washrooms and drinking water (where available) on school premises, and access to similar seating arrangements in class. None of the schools visited provided midday meals to students.

Quality of Teaching/Learning Process

Quality of the teaching/learning process is at the heart of the quality of a school, and this was examined by taking note of such aspects as regularity of teachers and students (attendance records), use of TLMs, accuracy and completeness of school work, monitoring and feedback for students, nature and pattern of assessment, classroom interactions, expectations of parental involvement and support, homework guidelines, and time allotted for play and extra-curricular activities.

Student's attendance register and Teachers attendance register were found to be complete and updated in all the schools. Absence of more than 5 days in a row was taken to indicate 'high absenteeism' and was not found for more than 5 students in any school, usually on account of late admissions (in the beginning of the academic year), serious illness (like dengue) or birth of a younger sibling/death in the mother's family, which caused especially young children to stay away from school. All principals were aware of the reason for extended absenteeism in every case, and most schools also made submission of reasons for such prolonged absence, in writing, mandatory.

Evidence of student work being checked by the teacher was found in six schools, and in some classes,

but not all, of one school. Student assessment tools were exclusively paper-pencil tests in all but one school (which also had oral assessment for reading and comprehension) in the sample. A few schools described these tests as 'continuous comprehensive evaluation (CCE)' in which there were two 'formative' round tests, and one 'summative' test (ie: three tests in all) in each of the two terms. However, all the test papers were almost identical, and how exactly the round test material qualified as being 'formative' assessment (given that it was no different from the summative assessment) was something that no principal could explain, except for stating that it was as per the CBSE rules. The content in the question papers, in the majority of cases (six schools) tested retention of content in text book, while in two schools, some effort was made to test knowledge of content in the textbook, as well as acquisition of skills and its application. Eg: Through an unseen comprehension passage and related questions in English, or posing different problems from those in the textbook in Math. The majority of schools (5) also demarcated the PT period as the only time allotted for play, while a smaller number indicated both lunch time and PT period were play time. While seven schools reported having a corporal punishment policy (disallowed corporal punishment), all eight claimed to limit the number of homework assignments children were given. When asked about the challenges that they faced on the job, ten teachers in the random sample interviewed (about 15 per cent of the sample) mentioned such things as ''parents don't pay enough attention to the child's studies'', ''parents don't take homework seriously'', ''parents in rural areas are uneducated and that is a problem''; indicative of the urban and middle class bias of the 'ideal' home environment for a school-going child. A few others indirectly problematised such diversity in classrooms by referring to 'weak students, especially first generation learners', and that 'some children (were) not familiar with computers'.

The ratio of teacher talking time to student talking time in class in the majority of classes observed across all eight schools (a total of 32 classes) was 70:30 (15), followed by 90:10 (9) and 50:50 (8). Direct instruction by the teacher, wherein the teacher explain content in the textbook through chalk and talk, accounted for the major chunk of teacher talking time. While direct instruction is useful in introducing and explaining unfamiliar matter, ensuring active rather than passive listening by students, assumes significance. Most often, the 70:30 pattern had the teacher eliciting factual information through questioning, rather than student-initiated questioning or questions that encouraged higher-order thinking. The only example to the contrary was when in a Class V EVS lesson, the teacher asked for factual understanding of herbivores, carnivores, omnivores, autotrophes and heterotrophes, but also posed to students the question of whether plants are really autotrophes since they depend on animals for carbon dioxide for photosynthesis. Value-addition to direct instruction also happens when the teacher offers ways and means to make real-life connections through examples. A Class II Science lesson on My Body had the teacher emphasise the difference between parts that one can see/can't see. Of the parts that cannot be seen she drew parallels (with simplified and detailed explanation) such as brain-computer, stomach-mixie, heart –pump to facilitate meaning making by students. Greater student-talking time did not essentially mean better teaching-learning, as this (more often than not) reflected drill and revision in the course of question-answer sessions. Another case in point was a Math lesson on long division in class IV. The teacher would write out a divisor and dividend on the board , and ask for the multiplication tables of the divisor to be recited. Eg: T:" say 7 ones are". A student got stuck at (the incorrect): 7*3=27. T: "eh? Next boy" (who also makes a mistake). T: ''Next. Tables baralwa?'' At no time did the teacher clarify that multiplication is repeated addition and assist students with the insight of how to get past their difficulty. The emphasis, instead, was on knowing the tables lucidly by rote, and while a substantial amount of time was being spent on students reciting tables (correct or otherwise), learning of those who experienced difficulties was not being facilitated. The 90:10 scenario included classrooms that used smart boards, as the visual and auditory stimuli from these, replaced the teacher. Besides, the teacher's ability to

influence content was also reduced. Taking a cue from the smart board, a History lesson in Class VI on the Vedic period saw the teacher describing the family structure with father as head of the family as originating in the Vedic period, to which she added her own (traditional/ normative/simplistic) rather than egalitarian/diverse notions of how most Indian families work. T: "Who does decision making in your family? Ensure discipline. Duty. Good of all. Yes father. In Kerala? We learnt, mother."

Errors (both factual and in language) that teachers made in class, further compromised the quality of education. For instance, the teacher mentioned above was confusing matrilineal households (which were also patriarchal) with matriarchy in Kerala. She also pronounced ploughing as ''fluffing'', referred to the Portuguese as ''Portugal people'', and stated that the first animal used by humans was the horse (when it is the dog). Another school where the main activity in a Class 1 English class was the teacher writing out on the board sentences identical to those in previous years question papers for students to learn by rote, her instructions included "Sharp the pencil", "Give the scale for him."A Class 8 teacher revising the topic Energy and momentum, asked: "Are you understood that one?", "Won't you confuse?" NCF 2005 emphasizes that learning English as a second language necessitates that children have the opportunity to hear correct use of the language in a wide variety of settings, outside the English language class. This criterion was seldom met in all the schools visited. This was reflected in assessment tools as well. Teachers answer key (including punctuation) for a Class 1 English test in one school was as below:

*Q. At what time did **rahul**wake up?*

*Ans. Rahul **wake up** at 8 o'clock in the morning.*

*Q. How does **neeta** go to school?*

*Ans. Neeta **walk to** school with her friend*

Elsewhere, an English teacher in a Grade IV class wrote **consonents** on the board, and a Biology teacher repeatedly used **gens** for genes. While 6 of the 8 schools stated that both English and Kannada was used as the medium of instruction, most teachers were found to use more Kannada than English, including in one of the two schools that declared itself to be exclusively English medium.

The quality of the teaching-learning process is related to preparatory time made available to the teacher in the timetable, and the large majority of teachers interviewed (55 out of 67 or 82 per cent of the sample) reported having 6-8 (out of a total of 8 periods) teaching hours in a day, with only 11 indicating 1-5 teaching periods. The majority (65 or 97 per cent) said teaching-learning material was provided to them by school, while two indicated that it was not. The majority (33 or 49 per cent of the respondents) also indicated that they instruct several classes of different students most or all of the day in one or more subjects, followed by those who teach only one subject to different classes of students (26 or 39 per cent of the sample), and an even smaller number instruct the same group of students all or most of the day in multiple subjects (7). In addition, 63 (94 per cent of the sample) indicated that they also correct both class work and homework for all their students.

School Governance

School level Governance as an aspect of quality was examined in relation to presence or absence of broad-based stakeholder-participation (PTAs and teachers' avenues for bottom-up communication), transparency(whether PTMs discussed key policy changes), accountability (frequency and mandates of PTMs, training and performance appraisals of HR, supervisory inputs for teachers).

In all eight schools, Parent- Teacher Associations did not exist, and Parent-Teacher meetings were found to be almost exclusively concerned with sharing report-cards with parents and discussing the academic progress of their wards. The frequency of these was reported to be as high as one a month in six out of the eight schools, and even more frequent (once a fortnight) in one, but only once a term in one school. Most management representatives were vague in their answers to staff performance appraisals, with only one school claiming that their good practice and competitive remuneration

explained low turnover. Two others stated it was based on years of service and quality of teaching, as well as staff adherence to school rules. Principal-staff meetings were reportedly being held once a month in four out of the eight schools, and once a week in three. One school principle described it as frequent, but need based, with teachers also being welcome to initiate a meeting. The mainstay of such meetings was reported to be principal giving the teachers feedback, in all 8 schools. In-service training was reported to be facilitated once a year in four schools, and twice or more in two. Two schools stated that it was when opportunities arose, and one of these did not arrange any training in the previous year. While most teachers in the sample reported having 2-5 years of experience, and a slightly smaller number 6-10 years of experience, salary increments (without controlling for other key variables like qualifications, that could possibly explain differences observed) were not clearly linked to more years of service as the table below indicates.

Table 4.34: Salary of Teaching Staff and Years of Experience in Teaching Profession

Years of Experience	Salary of teaching staff				Total
	0-5000	5001-10000	10001-15000	15001-20000	
0-1	1	5	0	0	6
2-5	3	18	0	0	21
6-10	0	14	4	2	20
11-15	1	5	7	2	15
16-20	0	3	2	0	5
Total	5	45	13	4	67

Source: Primary Data collected by CBPS

Conclusion

In examining quality of private schools in Bengaluru rural, against normative criteria laid down by the RTE, 2009 this small area study served to reveal that 'quality' remains an amorphous concept and the whole is more than the sum of the parts. Even when norms for libraries or teacher qualifications were satisfied the intended purpose of these criteria – reading material accessible to students or quality teaching learning experiences- remained elusive. The heart of quality education remains the capacity building of young people in empowering ways and not buildings or material, though these can be means to the end. Education is an enterprise in human interaction and therefore the role of teachers and the non-negotiability of their professional training, motivation and development cannot be emphasised enough. Norms related to pay and parity are not clearly articulated or followed in private schools. In the context of human development, education as a value adding process should not be lost sight of and provisioning for the same needs to be cognisant of the many factors that contribute to the same.

Health and Nutrition

"*It is my aspiration that health finally will be seen not as a blessing to be wished for, but as a human right to be fought for.*" – Kofi Annan (Former Secretary-General, United Nations)

5.1. Introduction

The Human Development Index uses longevity as a proxy for the nutrition and health status of a population. The ability to live a long and productive life is mediated by early foundations of good nutritional status, immunization that prevents or reduces susceptibility to illness and disability, and affordable and accessible healthcare facilities over the lifespan. The factors such as good birth weight, favorable health and nutritional status of the mother, awareness at the level of family and society that makes balanced diets and habits promoting hygiene and sanitation common place, and a per capita income that makes adequate nutrition affordable together with adequate public health allocations; all make the health of every individual the outcome of a variety of social and economic factors acting in tandem.

5.2. Demographic Features

Bengaluru Rural has a population of 9.90 lakhs (Census of India - 2011). This is about 1.6 per cent of the state's population. According to the 2011 census, 21.57 per cent of the population in the district is SC and 5.34 per cent is ST. Karnataka has a significant urban population, with over 38 per cent of the state's residents being concentrated in urban areas. For Bengaluru Rural, this figure is 27 per cent, and proportionally, a greater part of the district's population continues to reside in rural areas. Rural-urban disparities in various health indicators therefore become a significant area of concern. Private sector participation in provisioning of health care is also by and large an urban phenomenon. For this reason, examining the adequacy of state-sponsored healthcare on which rural areas are more dependent also assumes relevance. The health of traditionally disadvantaged social groups - SCs, STs and women is also more closely linked to public provisioning of healthcare.

Table 5.1 suggests that while Karnataka has a sex ratio of 973 females to every 1000 males, Bengaluru Rural has a slightly lower figure of 946 females to every 1000 males. For Rural Karnataka the figure is 979 and for Urban Karnataka it is 963, while the corresponding figures for the rural and urban parts of Bengaluru Rural are 945 and 950 respectively.

Table 5.1: Population by Sex and Location (2011)

District / State	Total / Rural / Urban	Total Population	Male	Female
Bengaluru Rural	Rural	722,179	371,369	350,810
	Urban	268,744	137,803	130,941
	Total	990,923	509,172	481,751
Karnataka	Rural	37,469,335	18,929,354	18,539,981
	Urban	23,625,962	12,037,303	11,588,659
	Total	61,095,297	30,966,657	30,128,640

Source: Census of India

5.3. Infant Mortality Rate (IMR) and Maternal Mortality Rate (MMR)

The success with which newborns survive their first year of life is correlated to several indicators that capture the public health status of a society. The socio-economic status of families, gender inequality that results in early marriage and child bearing, poor family planning and spacing of births; poor educational status of women, and poor institutional support for maternal and child health, all have a bearing on the same.

Low birth weight of babies, infectious diseases contacted soon after birth, poor health of the mother that makes breastfeeding and care difficult, unsafe deliveries and inadequate access to timely care and support owing to social or institutional deficits, all take a toll. Infant mortality is further classified as neonatal death (occurring in the first 4 weeks after delivery), and post-neonatal death (1 month-1year after delivery). The former poses a greater risk given that delivery/ the act of being born itself poses a risk, and the infant is required to adjust to life outside the womb involving a great deal of adjustment with regard to breathing, feeding, bowel and bladder functioning. It is a period of

great stress and strain for the newborn, reflected in the sudden dip in weight of the baby soon after birth. For a low birth weight baby with a malnourished mother, this can be life-threatening. By the time the newborn is a month old (s)he can be expected to have made the required adjustments fairly well, and thereafter the risk to the infants survival is considerably reduced.

The IMR for the state as a whole averages to 14, and Bengaluru Rural compares favorably in relation to the same, with an IMR of 10. It is in 6th position and therefore among the better performing districts of the state.Among the taluks, Doddaballapur has achieved an IMR that matches the best performing district in the state, i.e. Bengaluru Urban, while Hosakote has an IMR closer to the bottom one-third of districts, and three times higher than Doddaballapur, while Devanahalli and Nelamangala approximate the district average.

Table 5.2: District wise Infant Mortality Rate (IMR), Karnataka 2011

District	Reported live births in 2011	No. of deaths of infants (0-1yr)	IMR
Bengaluru Urban	1,876	9	5
Dharwad	2,387	14	6
Bidar	2,140	13	6
Shivamoga	1,832	12	7
Chitradurga	2,344	16	7
Kalaburagi	3,130	22	7
Dakshina Kannada	1,667	14	8
Chickballapur	1,428	13	9
Kolar	1,515	14	9
Udupi	1,174	11	9
Bengaluru Rural	1,123	11	10
Ramanagara	984	10	10
Haveri	2,137	24	11
Davanagere	2,395	27	11
Hassan	1,573	18	11
Uttar Kannada	1,920	22	11
Belagavi	7,565	95	13
Mysuru	3,102	40	13
Chickmagalur	1,041	14	13
Mandya	1,515	22	15
Ballari	2,693	42	16
Bagalkot	3,235	55	17
Gadag	1,506	27	18
Tumakuru	2,408	46	19
Chamarajanagar	890	18	20
Yadgir	1,837	38	21
Kodagu	411	9	22
Koppal	2,042	46	23
Vijayapura	3,310	80	24
Raichur	2,969	90	30

Note: IMR is the number of deaths of children less than 1 year old per 1000 live births ;Source: HMIS 2012-13

Table 5.3: Taluk wise Infant Mortality Rate (IMR), 2011

Taluk/District	Reported live births	No. of deaths of infants (0-1yr)	IMR
Devanahalli	285	3	11
Doddaballapur	389	2	5
Hosakote	250	4	16
Nelamangala	199	2	10
Bengaluru Rural	1,123	11	10

Source: HMIS 2012-13

The single largest cause of women's deaths among the child-bearing age-group in the country is childbirth and while women's health requires consideration of several factors ranging from nutritional status over the lifespan (but especially at critical periods in the lifecycle such as the first year of life and during adolescence), and access to, and quality of health services; MMR remains a key indicator that offers a snapshot of women's health. Mothers' mortality further poses a hazard to infant survival. Leading causes of maternal death in Karnataka are sepsis, hemorrhage, anaemia and abortion – all of which can be substantially reduced if not prevented through ensuring access to good obstetric care and abortion facilities (Karnataka HDR 2005). The MMR is high in Bengaluru Rural in comparison to best performing district (Udupi:50) although better than many other districts in the state.

Table 5.4: Taluk wise and District level Maternal Mortality Rate (2011)

Taluk / District	MMR
Devanahalli	126
Doddaballapur	101
Hosakote	102
Nelamangala	150
Bengaluru Rural	120

Source: HMIS 2011-12

Both IMR and MMR are found to be correlated to mothers' age, with incidence increasing when the mothers' age is below 20 or above 30. In 2007-08, among the women aged 20-24 years in Bengaluru Rural, 36.3 per cent reported to have been married before the age of 18years (Karnataka DLHFS 2007-08). In the same year, among marriages conducted in the district, 14.6 per cent were found to be ones where the age of the bride was less the legally permissible age of 18 years (ibid).

IMR and MMR are also correlated to spacing between births, with a less than 24 month interval between successive births putting the mother and baby at considerable risk, and more than 36 month interval between successive births significantly improving their chances of survival (Karnataka HDR 2005). That these factors explain IMR and MMR indicate women's lack of control over reproductive decision-making, stemming from gender inequality.

5.4. Couple Protection Issues and Family Welfare

Closely related to the issues of IMR and MMR is the issue of family planning. Overwhelmingly, it is still something for which an uneven burden falls on the women, as the number of vasectomies as against the number of laparoscopic sterilizations in the Table 5.5 below indicates. Bengaluru rural has the dubious distinction of not having had a single vasectomy conducted in 2011, while for the state as a whole also it was the low number of 112. In contrast, the number of Laparoscopic sterilizations conducted in the state exceeds 10000, while over 250 women in Bengaluru Rural opted for this terminal measure for family planning. Intra-Uterine Devices (IUDs) are the next favored option, at both the state and district levels.In Bengaluru Rural, the family planning approach is highly oral contraceptive dependent. World Health Organisation (WHO) lists oral contraceptives as Group 1 carcinogens. Hence, it calls for more informed, responsible and gender sensitive approach toward contraception.

Table 5.5: Use of Family Planning Measures (2013-2014)

Sl. No.	Protection Measures	Karnataka	Bengaluru Rural
1.1	Total Number of NSV or Conventional Vasectomy conducted at Public facilities i.e. PHC, CHC, SDH, DH and other State owned public institutions	107	0
1.2	Number of NSV or Conventional Vasectomy conducted at Private facilities	5	0
2.1.a	Number of Laparoscopic sterilizations conducted at PHCs	2,875	0
2.1.b	Number of Laparoscopic sterilizations conducted at CHCs	3,092	32
2.1.c	Number of Laparoscopic sterilizations conducted at SDHs or DHs	6,698	224
2.1.d	Total Number of Laparoscopic sterilizations conducted at Public facilities i.e. PHC, CHC, SDH, DH and other State owned public institutions (sum of items from 2.1.a to 2.1.c)	12,665	256
2.2	Number of Laparoscopic sterilizations conducted at Private facilities	1,447	20
3.1.	Total Number of Mini-lap sterilizations conducted at Public facilities i.e. PHC, CHC, SDH, DH and other State owned public institutions	5,790	38
3.2	Number of Mini-lap sterilizations conducted at Private facilities	2,045	23
4.1.	Total Number of Post-Partum sterilizations conducted at Public facilities i.e. PHC, CHC, SDH, DH and other State owned public institutions	3,367	16
4.2	Number of Post-Partum sterilizations conducted at Private facilities	1,939	26
5.1	Total Number of IUD Insertions conducted at Public facilities i.e. SC, PHC, CHC, SDH, DH and other State owned public institutions	12,550	195
5.2	Number of IUD Insertions conducted at Private facilities	1,869	92
6	Number of IUD removals	5,378	99
7	Number of Oral Pills cycles distributed	103,697	2,623
8	Number of Condom pieces distributed	887,683	21,662
9	Number of Centchroman (weekly) pills given	4,007	20

Source: Department of Health, Bengaluru Rural

The changes in the time interval period between DLHS-2 and DLHS-3 are indicated in Table 5.6. A slightly greater proportion of women (about 4 per centage points more) are now using a contraception method in rural areas of the district. Resorting to female sterilization has also increased more significantly (by 4 per centage points) in rural areas as compared to the 1 per centage point increase in urban areas. IUD use has gone down in both rural and urban areas of the district. The unmet need (in per centage terms) for family planning has also been brought down by 3 per centage points, which is a good development.

Table 5.6: Family Planning among Currently Married Women (15-49 years) in Bengaluru Rural District

Details	DLHS-2 : 2002-2004		DLHS-3: 2007-2008	
	Total	Rural	Total	Rural
Current Use:				
Any Method (%)	66.9	64.6	66.1	68.0
Any Modern method (%)	66.4	64.2	66.1	68.0
Female Sterilization (%)	61.5	62.0	62.9	66.2
Male Sterilization (%)	-	-	0.0	0.0
IUD (%)	3.5	1.7	1.9	1.4
Pill (%)	0.2	0.2	0.2	0.3
Condom (%)	1.2	0.4	1.1	0.1
Unmet Need for Family Planning:				
Total unmet need (%)	13.4	12.0	10.7	9.7
For spacing (%)	4.6	4.8	6.0	6.5
For limiting (%)	8.8	7.3	4.7	3.2

Source: Bengaluru Rural DLHS-3 (2007-2008)

5.5. Infrastructure, Facilities and Health Personnel

Sub-centres are intended to cater to a population of 5000 while Primary Health Centres are established to cover a population of 30,000 in the plains and 20,000 in hilly and tribal areas. Community Health Centers are upgraded PHCs intended to offer both primary and curative services. They also act as the First Referral Units to the surrounding PHCs. CHCs are established by upgrading one out of every four PHCs covering a population of 120 thousand. The CHCs have 30 beds and three specialties – Medicine, Surgery, and Gynecology. Dental care is an additional specialty now introduced in the CHCs. At the Sub Division level there are CHCs with 50 beds covering five specialties - Medicine, Surgery, Pediatrics, Gynecology and Dental Surgery. DLHS-3 (2007-08) puts the average population covered by various facilities in Bengaluru Rural district as: sub-centre – 4,254; PHC – 21,827 and CHC – 528,085. Thus, while sub-centres and PHCs approximate the norm for population to be served, the number of CHCs is over four times short of the normative requirement.

DLHS-3 collected data on health personnel, availability of drugs / medicines, equipment, basic RCH care amenities, communication means and infrastructure at the level of sub-centre, PHC and CHC in order to assess the adequacy of RCH services in rural areas. Of the total number of 36 sub centres surveyed in Bengaluru Rural in 2007-08, 24 (67 per cent) were adjudged 'adequately equipped' and 29 (80.5 per cent) as having 'adequate drugs', based on the fairly lenient criteria, in both cases, of meeting 60 per cent of the normative requirements.

Doddaballapur, with 16, leads in the number of PHCs in the district, and has about one-third more PHCs than the other three taluks (Table 5.7). All the taluks have only one or two CHCs. The number of private hospitals across the four taluks shows a wide variation, ranging from 3 in Devanahalli to 49 in Doddaballapur. With regard to sub-centres also Doddaballapur is better placed, with again, almost one-third more sub-centres than Devanahalli which has 40 of them.

Table 5.7: Number of Health Facilities (2011)

Taluk / District	Primary Health Centres	Community Health Centres	Private Hospital	Sub-Centre
Devanahalli	11	2	3	40
Doddaballapur	16	1	49	59
Hosakote	10	1	31	50
Nelamangala	9	2	13	50
Bengaluru Rural	46	6	96	199

Source: Department of Health, Bengaluru Rural

A trend analysis across 2001, 2008 and 2011 indicates that the number of sub-centres in Devanahalli almost doubled between 2001 and 2011. In striking contrast, the number of sub-centres in the three other taluks has remained unchanged since 2001. The number of PHCs in Devanahalli also went up between 2001 and 2008 with not much change thereafter. Private hospitals, from being non-existent in the taluk in 2001 and 2008, numbered three by 2011. The number of private hospitals also went up in the three other taluks over the same time period, with Doddaballapur showing almost a 100 per cent rise in their numbers (from 25 to 49). While all four taluks had only one CHC each in 2001, by 2011, two of them – Devanahalli and Nelamangala had two each.

Table 5.8: Number of Primary and Community Health Centres, Private Hospital and Sub Centres

Taluk / District	2001				2008				2011			
	Primary Health Centres	Community Health Centres	Private Hospital	Sub-Centre	PHCs	CHCs	Private Hospital	Sub-Centre	PHCs	CHCs	Private Hospital	Sub-Centre
Devanahalli	8	1	NA	25	11	1	0	40	11	2	3	40
Doddaballapur	10	1	25	59	16	1	31	59	16	1	49	59
Hosakote	8	1	11	50	10	1	28	50	10	1	31	50
Nelamangala	6	1	6	50	10	1	12	50	9	2	13	50
Bengaluru Rural	32	4	42	184	47	4	71	199	46	6	96	199

Source: Department of Health, Bengaluru Rural

While Devanahalli has markedly better indicators for physical infrastructure, this is not so with regard to health personnel. Doddaballapur had 4 more doctors (12 per cent higher) and 3 more nurses (10 per cent higher) than Devanahalli in 2011, or about 30 per cent of the doctors and 32 per cent of the nurses in the district. The number of nurses in the district on the whole has more than doubled between 2001 and 2011. From having just 12 per cent of the nurses in the district in 2001, Hosakote in 2011 employed 22 per cent of them, which is an improvement. The district has one doctor for nearly 8000 population and 1 nurse for every 10000 populationwhereas WHO recommends 1 doctor per 1000 population and 3 nurses/ANMs per 1000 population.

Table 5.9: Medical Personnel (2001, 2008 and 2011)

Taluk / District	2001		2008		2011	
	Doctors	Nurses	Doctors	Nurses	Doctors	Nurses
Devanahalli	27	16	34	24	33	28
Doddaballapur	28	10	--	--	37	31
Hosakote	23	5	29	11	29	22
Nelamangala	26	10	28	15	27	17
Bengaluru Rural	104	41	91	50	126	98

Source: Department of Health, Bengaluru Rural

Data on beds and hospitals indicate that there are, on an average 6 beds in a PHC, and while Doddaballapur has the largest number of beds to cater to people at the village level (102), the other three taluks have 60 or slightly more number of beds across their PHCs. Private hospitals and nursing homes are a major presence in Hosakote followed by Doddaballapur, indicating a change of the 2008 rankings in this respect indicated in the table above. Three taluks also have no hospitals or beds following the Indian systems of medicine, in spite of the 11th five year plan having spoken of the need to revive the alternative health systems abbreviated as AYUSH (Ayurveda, Unani, Siddha and Homeopathy) at the village level. Finally, while all the taluks had one allopathic hospital each, the number of beds was 50 in two and almost half that number, 30, in the other two taluks.

Table 5.10: Number of Beds Available in Hospitals, PHCs and CHCs(2011-2012)

Taluk / District	Allopathy Hospital	Indian system of medicine hospital	Private hospital (including nursing home)	PHC	CHC
	Bed	Bed	Bed	Bed	Bed
Devanahalli	30	0	24	60	30
Doddaballapur	50	6	59	102	--
Hosakote	30	0	76	66	--
Nelamangala	50	0	53	63	30
Bengaluru Rural	160	6	212	291	--

Source: Department of Health, Bengaluru Rural

The Anganwadis also form an important community health institution, given the crucial place of the Integrated Child Development Services (ICDS) Scheme in India's preventive and promotive health strategy. Bengaluru Rural district saw an increase in the number of Anganwadis by about 200, in the period between 2008 and 2011. Of these, most new Anganwadi's were in Nelamangala, followed by Doddaballapur, Hosakote and Devanahalli. There were also corresponding increases in the number of villages and beneficiaries covered during the same period.

Table 5.11: Anganwadi Coverage and Beneficiaries (2008 and 2011)

Taluk / District	2008				2011			
	Number of Anganwadi	Number of villages covered	Beneficiaries covered	Beneficiaries per Anganwadi	Number of Anganwadi	Number of villages covered	Beneficiaries covered	Beneficiaries per Anganwadi
Devanahalli	255	242	13,203	52	263	242	15,845	60
Doddaballapur	283	283	17,883	63	360	393	39,145	109
Hosakote	289	236	15,589	54	301	236	23,546	78
Nelamangala	201	194	11,250	56	283	291	16,850	60
Bengaluru Rural	1,028	955	57,925	56	1,207	1,162	95,386	69

Source: Department of Health, Bengaluru Rural

The largest leap in the number of beneficiaries covered by anganwadis was in Doddaballapur (118.90 per cent), followed by Hosakote (51.04 per cent), Nelamangala (49.78 per cent) and Devanahalli (20.01 per cent). However, this also raises the issue of the quality of services being provided by Anganwadis – the increase in number of beneficiaries has also resulted in an increase in per beneficiary served by one Anganwadi. It is important to examine whether it has resulted in any adverse implication for the quality of nutrition, pre-school and health related services that they are providing.

5.6. ANC coverage and Anemia among Pregnant Women

The first trimester is the period when the mother contracting illnesses like German measles or Rubella, or being undernourished can permanently damage the foetus, causing sensory impairments or developmental delays after birth. This underlines the importance of ante natal care (ANC). In 2007-08, 98.5 per cent of the pregnant women in Bengaluru Rural reported having received antenatal care in some facility or the other (DLHS-3). A majority (52.9 per cent) of them availed of the government health facilities, while a much smaller number (6.2 per cent) made use of Community Health Services, also provided by the state. The rest availed of a private health facility (DLHS-3).

Table 5.12: ANC Services Availed in Bengaluru Rural District and Karnataka (2013-2014)

Sl. No	ANC service availed	Karnataka	Bengaluru Rural
1.1	Total number of pregnant women registered for ANC	118,268	1,266
1.1.1	Number of pregnant women registered within first trimester	76,058	944
1.2	Number of Pregnant women registered under Janani Suraksha Yojana (JSY)	57,989	958
1.3	Number of pregnant women received 3 ANC check-ups during pregnancy	119,666	3,614
1.4.1	Number of pregnant women given TT1 during current pregnancy	93,435	1,797
1.4.2	Number of pregnant women given TT2 or Booster during current pregnancy	98,732	1,894
1.5.1	Number of Pregnant women with anemia i.e. Hb level<11 (tested cases)	77,879	1,603
1.5.2	Number of Pregnant women having severe anemia (Hb<7) treated at institution	3,518	52

Source: Department of Health, Bengaluru Rural

Table 5.12 indicates that of the total number of pregnant women registered for ANC in the state, about 75 per cent of them registered within the crucial first trimester, during which the single-celled zygote becomes a fully formed multi-cellular organism, which thereafter only grows in size. The corresponding per centage for Bengaluru Rural was about the same. About 3 times the number of women registered for the ANC services received 3 ANC checkups in the district. This is, proportionately, a much higher number than those who received 3 ANC checkups in the state as against those who were registered for the ANC services. About 42 per cent more women than those registered for ANC were given tetanus toxoid injections (TT1) and about 50 per cent more were given the booster shot (TT2) in Bengaluru Rural. The corresponding figures at the state level were 79 per cent and 83.5 per cent of (and not more than) the number registered for ANC services. This suggests the presence of pro-active ANC services in Bengaluru Rural. Anemia is a major nutritional deficiency disorder in India and other developing countries. The most vulnerable groups are pregnant women and young children. Poor intake of iron-rich foods, as well as the problem posed by cereal-based diets (such as are common in India, and more so among the poorer sections) in causing poor absorption of whatever iron is present in the diet, explains the high prevalence of even up to 70 per cent in some pockets, among these vulnerable sections. Anemic women are at a higher risk of delivery related complications that result in a loss of blood. Severe anemia is known to have functional consequences like decreased capacity for work owing to fatigue, decreased immunity and poor learning outcomes in children. In Bengaluru Rural, Hosakote has an alarming 50 per cent of pregnant women indicating severe anemia, while Doddaballapur has only 0.36 per cent and Devanahalli 1.87 per cent. Nelamangala records closer to the district average of 15 per cent.

Table 5.13: Pregnant Women with Severe Anemia (2010-2011)

Taluk / District	Pregnant women tested	Pregnant women with severe anemia	Per centage of pregnant women with severe anemia
Devanahalli	3,849	72	1.87
Doddaballapur	4,972	18	0.36
Hosakote	3,526	1,763	50.00
Nelamangala	3,315	537	16.20
Bengaluru Rural	15,662	2,390	15.26

Source: Department of Health, Bengaluru Rural district

5.7. Institutional Delivery

Institutional delivery makes attending to complications at the time of delivery and post-delivery easier. Given that there is a constraint of infrastructure and human resources, as already discussed, this is not easy to achieve. That said, the district on the whole has had an impressive run in moving from an average of around 65 per cent deliveries in institutions in 2001 to an average of almost 97 per cent institutional deliveries by 2011. This has meant that every taluk achieved an improvement ranging from about 10 to around 40 per centage points.

Table 5.14: Number of Deliveries in Health Institutions

Taluk / District	2001			2011		
	Total Number of Deliveries	Number of deliveries in institutions	% of Institutional Deliveries	Total Number of Deliveries	Number of institutional deliveries	% of Institutional Deliveries
Devanahalli	2,821	1,910	67.71	3,406	3,394	99.65
Doddaballapur	2,730	1,474	53.99	4,289	4,203	97.99
Hosakote	2,516	2,012	79.97	3,173	2,901	91.43
Nelamangala	2,570	1,542	60.00	3,582	3,510	98.00
Bengaluru Rural	10,637	6,938	65.23	14,450	14,008	96.94

Source: Department of Health, Bengaluru Rural

Table 5.15: Institutional Deliveries in Bengaluru Rural District (2013-2014)

Sl. No	Details of Institutional delivery	Karnataka	Bengaluru Rural
1.1.a	Number of deliveries conducted at home and attended by trained Specialized Birth Attendant (SBA)(i.e. Doctor or Nurse or ANM)	599	2
1.1.b	Number of deliveries conducted at Home and attended by non-trained SBA (i.e. trained TBA or Relatives etc.)	499	1
1.1.c	Total number of deliveries conducted at Home and attended by trained or non-trained SBA (i.e. sum of 2.1.1.a and 2.1.1.b)	1,098	3
1.2	Number of newborns visited within 24 hours of delivery for deliveries conducted at home	796	1
2.1	Deliveries conducted at Public Institutions	50,999	377
2.2.1	Number of women discharged under 48 hours of delivery conducted at Public Institutions	18,065	189
3.1	Number of Deliveries at accredited Private Institutions	20,307	319

Source: Department of Health, Bengaluru Rural

Table 5.15 indicates that the specifics of institutional deliveries in Bengaluru Rural and for the state. Nearly 73 per cent of the total institutional deliveries in Karnataka tale place in public institutions as against only 54 per cent in Bengaluru Rural, suggesting a proportionally greater preference for private services. The reasons for this could perhaps be tied to issues of access or quality (real or perceived).

5.8. Immunization of Children

The public health policy on immunization in India ensures that vaccines are taken to children in their communities on announced dates, and a simplified immunisation schedule and a family-retained record are put in place to ease monitoring and facilitate compliance. Vaccines and other materials are managed at a district level; the local arrangements for vaccination are made by the PHC staff and village level workers. The advantages of this technique include higher coverage, shortened and strengthened cold chain (vital to ensure effectiveness of the vaccine), reduced red tape for recipients of the vaccine, the involvement of private health institutions in national campaigns, and a strengthening of the PHC system. Vaccines to protect against tuberculosis (BCG), Diphtheria, Pertusis (Whooping Cough) and Tetunus (DPT), Polio (OPV – Oral Polio Vaccine), Measles, Mumps and Rubella (MMR) are the ones commonly administered to children as per the Government of India immunization schedule. The per centage of children who were fully vaccinated in Bengaluru Rural was 90.3 per cent in 2007-08 (DLHS-3).

Table 5.16: Child Immunization in Bengaluru Rural District and Karnataka (as of April 2014)

Details	Karnataka	Bengaluru Rural
Total number of male children (9 to 11 months old) fully immunized (BCG+DPT123+OPV123+Measles) during the month	46,001	757
Total number of female children (9 to 11 months old) fully immunized (BCG+DPT123+OPV123+Measles) during the month	42,537	713
Total number of children (9 to 11 months old) fully immunized (BCG+DPT123+OPV123+Measles) during the month	88,538	1,470
Number of Infants (more than 16 months old) received DPT Booster dose	69,244	1,204
Number of Infants (more than 16 months old) received OPV Booster dose	68,697	1,198
Number of Infants (more than 16 months old) received Measles, Mumps, Rubella (MMR) Vaccination	8,408	266
Total number of male children (12 to 23 months old) fully immunized (BCG+DPT123+OPV123+Measles) during the month	19,310	269
Total number of female children (12 to 23 months old) fully immunized (BCG+DPT123+OPV123+Measles) during the month	17,814	245
Total number of children (12 to 23 months old) fully immunized (BCG+DPT123+OPV123+Measles) during the month	37,124	514

Source: Department of Health, Bengaluru Rural

Table 5.17: Child Immunization and Vitamin A Supplementation

Details	DLHS-2: 2002-2004		DLHS-3: 2007-2008	
	Total	Rural	Total	Rural
Children (12-23 months) fully immunized (BCG, 3 doses each of DPT, and Polio and Measles) (%)	86.5	84.1	92.5	92.2
Children (12-23 months) who have received BCG (%)	100	100	100	100
Children (12-23 months) who have received 3 doses of Polio Vaccine (%)	97.5	96.8	97.5	96.9
Children (12-23 months) who have received 3 doses of DPT Vaccine (%)	96.5	96.8	95.8	94.8
Children (12-23 months) who have received Measles Vaccine (%)	87.6	84.1	91.8	91.3

Source: DLHS-2 and DLHS-3

The Table 5.17 indicates that the rural areas of the district are more or less at par with the district average in terms of immunization coverage, with the difference not being more than 1 per centage point as of 2007-08. Better rural coverage for immunization against measles has been a significant area of improvement in the interval between DLHS-2 and DLHS-3.

5.9. Underweight Children and BMI Ratio

Early foundations are crucial, and under-nutrition in children is associated with immune depression and increased risk of infections; which in turn aggravate under-nutrition. Being underweight (as determined by age appropriate norms and in relation to height) is the most widely used indicator for assessment of under-

nutrition. In India, nearly half the children are stunted and underweight; but majority of children have appropriate weight for their height and less than a fifth are wasted. Five commonly accepted anthropometric indices for assessment of under-nutrition include weight for age, height for age, wasting, BMI for age, and wasting and stunting with low BMI. The National Family Health Survey-3 (NFHS-3, 2005-06) database provides the following information in relation to preschool children: age, sex, weight, height, infant and young child feeding practices and morbidity due to infections in the last fortnight.

BMI has become more popular in public health in recent years, given that it provides a good indicator for levels of body fat,and having a BMI that is either too low or too high is associated with an increased risk of ill health during childhood as well as later in life. It is also relatively quick and easy to calculate making it suitable for population surveys. However, this information is not available for Bengaluru Rural district as the NFHS 3 lists it for eight taluks together and therefore cannot be used now.

5.10. Communicable Diseases

India faces the challenge of a range of infectious diseases. Although fairly successful in fighting polio, leprosy and AIDS, the country continues to face severe threats from infectious diseases like tuberculosis, malaria and kala-azar which constitute 30 per cent of the country's disease burden. Home to the largest number of tuberculosis patients in a single country, some estimates say that India is where one person dies of the disease every two minutes. No less that 40 per cent of the Indian population of all ages has mycobacterium tuberculosis infection; and there are about 8.5 million people with TB at any given time. The fight against TB is getting progressively tougher as drug-resistant TB is on the rise and poses new challenges. According to the WHO, around 4.5 million people are victims of multi-drug resistant (MDR) type of TB globally with China, India and Russia together accounting for most cases. MDR occurs when people stop taking medicines midway, making subsequent treatments more difficult and complicated.

India has been less severely affected by the HIV epidemic than many other countries, but still has almost three million people living with the virus. India has the second largest population of people living with HIV - an epidemic which is concentrated in high risk populations such as sex workers and their clients, men who have sex with men, transgenders, and injecting drug users. As the HIV infection only destroys immunity and makes those who are infected susceptible to opportunistic infections, full blown AIDS most commonly leads to death from TB or Pneumonia.

Malaria also continues to be one of India's leading public health problems. In a statement to mark World Malaria Day (April 25), The Hindu reported that the WHO called for more funds to ensure that more people, especially those living in high-risk areas, have access to long-lasting insecticidal nets, rapid diagnostic tests and laboratory equipment to detect the disease, and artemisinin-based combination therapy. Those most vulnerable to malaria include tribal communities, migrant populations, subsistence farmers and those working in development projects such as agro-forestry, hydropower dams, roads, irrigation projects, mining and rubber plantations.

India also leads the world in Dengue burden; the world's most rapidly spreading mosquito-borne viral disease. Other vector borne diseases (VBD) such as Japanese encephalitis, lymphatic filariasis, and the sandfly-transmitted kala azar affect the poorest of the poor in large numbers given their often unhygienic housing conditions. About 250,000 people also die of viral hepatitis in India annually. Hepatitis A and E are typically caused by ingestion of contaminated food or water. Hepatitis B, C and D usually occur as a result of prenatal contact with infected body fluids. Types B and C lead to chronic diseases in hundreds of millions of people and together, are the most common cause of liver cirrhosis.

Table 5.18 indicates that morbidity from both communicable and non-communicable diseases in Bengaluru Rural District in 2011 was highest in Hosakote (49.22 per cent) followed by Nelamangala (44.10 per cent), Devanahalli (17.12 per cent) and Doddaballapur (6.31 per cent). The taluk ranking with regard to prevalence of communicable diseases was also the same. Hosakote and Nelamangala in particular have very high incidence of communicable diseases.

Table 5.18: Number of People Affected by Communicable and Non-communicable Diseases

Taluk / District	2001			2008			2011		
	Communicable disease	Non-Communicable disease	Total	Communicable disease	Non-Communicable disease	Total	Communicable disease	Non-Communicable disease	Total
Devanahalli	6,016	10,677	16,683	10,841	19,090	29,931	13,965	21,915	35,880
%	3.25	5.76	9	5.34	9.4	14.74	6.67	10.45	17.12
Doddaballapur	7,090	2,595	9,685	9,907	4,368	14,275	12,290	6,627	18,917
%	2.64	0.97	3.61	3.4	1.5	4.91	4.1	2.11	6.31
Hosakote	38,157	19,083	57,240	59,911	27,732	87,643	97,059	36,238	133,297
%	17.15	8.58	25.73	23.17	10.72	33.89	35.84	13.38	49.22
Nelamangala	42,636	21,318	63,954	51,514	25,757	77,271	62,000	31,000	93,000
%	24.38	12.19	36.57	25.54	12.77	38.31	29.4	14.7	44.1
Bengaluru Rural	93,899	53,663	147,562	132,173	76,947	209,120	185,314	95,780	281,094
%	11.03	6.31	17.34	13.86	8.07	21.92	18.7	9.67	28.37

Note:
1. Disaggregated disease-wise data is not available.
2. Per centages are calculated by taking the total number of people affected by communicable and non-communicable disease and dividing it y total population, then multiplied by 100.

Source: Department of Health, Bengaluru Rural

Table 5.19: Number of TB Cases (2010-2011 and 2011-2012)

Taluk / District	Number of identified TB patients			Patients Cured		
	Male	Female	Total	Male	Female	Total
Devanahalli	149	69	218	103	55	158
Doddaballapur	293	129	422	197	87	284
Hosakote	195	134	329	181	118	299
Nelamangala	173	92	265	134	56	190
Bengaluru Rural	810	424	1,234	615	316	931

Source: TB Control Programme

Among the four taluks, the TB burden (in terms of actual numbers) is highest is Doddaballapur, followed by Hosakote, Nelamangala and Devanahalli. Doddaballapur has almost double the number of TB patients being recorded for the same period as Devanahalli. Males reporting TB outnumber females in all the taluks. They also outnumber females for those being treated and cured in every taluk. The district as a whole offered successful curative care to 75.45 per cent of those reporting ill with TB. While 74.53 per cent of the female patients were cured, 75.93 per cent of the males were treated successfully.

The number of HIV positive cases was highest in Doddaballapur in 2008, but by 2011, the highest number of cases was reported from Hosakote. While the number of cases in Doddaballapur dropped over the same period, the same went up for Devanahalli. Incidence of HIV was higher among females than males in two out of four taluks in 2008. However the scenario changes in 2011 where the incidence of positive HIV cases is same for male and female for three out of four taluks. The South-Asia pattern of prevalence of HIV where women usually get infected by her partner who has multiple partners, suggests either greater out-migration or mortality of men in these taluks. Hosakote indicates a reversal of the ratio of incidence among males and females between 2008 and 2011. Perhaps greater awareness and condom-usage explains the fact, as also suggested by the radar analysis presented later.

Table 5.20: Number of HIV Positive Cases (2008 and 2011)

Taluk / District	2008			2011		
	Total	Male	Female	Total	Male	Female
Devanahalli	35	18	17	56	31	25
%	0.02	0.01	0.01	0.03	0.01	0.01
Dodballapura	107	35	72	97	46	51
%	0.04	0.01	0.02	0.03	0.02	0.02
Hosakote	55	20	35	119	74	45
%	0.02	0.01	0.01	0.04	0.03	0.02
Nelamangala	86	30	56	92	43	49
%	0.04	0.01	0.02	0.04	0.02	0.02
Bengaluru Rural	283	103	180	364	194	170
%	0.03	0.01	0.02	0.04	0.02	0.02

Note: Per centages are calculated by taking the total/male/female positive HIV cases and dividing it by total population, then multiplied by 100.

Source: District at a Glance, Bengaluru Rural district

Table 5.21 indicates that those registered for Anti Retroviral Therapy (ART) in the district went up by 10 per centage points between 2008 and 2011. While this was brought about by an almost 30 per centage points increase of females registered for ART, unfortunately the males registered for the same have fallen by over 10 per centage points. Among the taluks, Doddaballapur registers the largest number of patients for treatment (90.72 per cent), beating Devanahalli to first place from 2008, and exceed the district average in per centage registration of patients by about 8 per centage points. Devanahalli is the only taluk indicating a drop in the number of patients registered (by over 3 per centage points), while the other two have higher registration by 8-13 per centage points.

Table 5.21: Per centage of HIV Cases Registered for ART Treatment (2008 and 2011)

Taluk / District	2008			2011		
	Total	Male	Female	Total	Male	Female
Devanahalli	80.00	88.89	70.59	76.79	67.74	88.00
Doddaballapur	71.96	91.43	62.50	90.72	91.30	90.20
Hosakote	70.91	85.00	62.86	78.15	68.92	93.33
Nelamangala	70.93	86.67	62.50	83.70	79.07	87.76
Bengaluru Rural	72.44	88.35	63.33	82.69	76.29	90.00

Source: Department of Health, Bengaluru Rural

5.11. The District Response for Ensuring Access to Health Care

The district has a public health care facility network of hospitals and health centres similar to all other districts. Some major health schemes launched to improve the public health care system or facilitate the access to health care either by the union or state government are present in the district. This includes National Rural Health mission (NRHM) and a few health insurance schemes such as Rashtriya Swasthya Bhima Yojana (RSBY) and Yeshashwini.

The National Rural Health mission (NRHM), launched in 2005, to provide accessible, affordable and quality health care to the rural population, especially the

vulnerable groups, has certain key features in order to achieve the goals of the Mission (nrhm.gov.in). These include making the public health delivery system fully functional and accountable to the community, human resources management, community involvement, decentralization, rigorous monitoring and evaluation against standards, convergence of health and related programmes form village level upwards, innovations and flexible financing and also interventions for improving the health indictors. Besides concrete service guarantees related to existing rural health infrastructure and functionaries, NRHM also put schemes like Janani Suraksha Yojana under its ambit. Janani Suraksha Yojna (JSY) is a cash transfer scheme wherein women belonging to BPL and SC/ ST category family are eligible for cash payments for their first two deliveries.

The NRHM website provides state and district specific reports prepared by regional evaluation teams that provide some insights on the functioning of the programme in Bengaluru Rural[15]. Major observations of the Regional Evaluation Team (RET), Bengaluru about the NRHM in Bengaluru Rural District in April, 2011, include that 7 of the 24 sanctioned posts of Lady Health Visitor (LHV), 49 of the 107 sanctioned posts of Multipurpose Health Worker (MPHW) (Male) and 18 of the 207 sanctioned posts of MPHW (Female) / Auxiliary Nurse Mid-wife (ANM) were vacant in the district.

For JSY, 21,180 Ante Natal Care (ANC) cases were registered during 2009-10 and 23,926 during April, 2010 to February, 2011. 13,160 deliveries were conducted during 2009-10 and 10,952 during April, 2010 to February, 2011 and JSY cash incentive could be made available to 6,892 beneficiaries during 2009-10 and 6,558 beneficiaries during April, 2010 to February, 2011. JSY beneficiary registers were maintained in printed registers. JSY cards were issued to all the beneficiaries. 35 JSY beneficiaries were selected and 27 were contacted in the field for sample verification. All JSY beneficiaries stated that they received full JSY cash incentive in time. Follow up visits were made by the Accredited Social Health Activist (ASHA)/ANM after delivery.

Under NRHM, all health facilities are provided with a specific sum of money as untied grants which can be used by the health facilities as per its discretion in order to improve the quality of services. There are three different kinds of funds that are flexible in nature and disbursed to health facilities in state under NRHM, namely, the ARS (Arogya Raksha Samiti) Corpus Grant, AMG (Annual Maintenance Grant) and Untied Funds. Village Health and Sanitation Committees are established at village level for maintaining infrastructure, patient welfare and other funding requirements of the health facility which are outside the scope of traditional funding.

A CBPS study in 2012[16] conducted in collaboration with State Health Systems Resource Centre (SHSRC) of which Bengaluru Rural was part of the sample shows that public health facilities are not encouraged to utilize untied funds fully and effectively. This was especially true for Bengaluru Rural. Most of the health facilities are ignorant about the bifurcation of funds released under untied funds, ARS and AMG. It was also observed that most of the health facilities are spending the funds under “not-allowed” category of operational guidelines. The study also found a high variation in per capita receipt of funds at the health facilities. Though as per the set standards a public health facility is expected to serve a population as per the norms, over a period of time, there has been a huge variation in the population served by health facility at same level. Thus, the study proposes base formula of differential financing on the population served by the health facility as a measure to rationalize allocation of funds and attain equity. Redistribution through differential financing will also raise the chances of full utilization of funds as per needs. This will result

[15] National Rural Health Mission (NRHM) website - http://nrhm.gov.in/

[16] The study was conducted in two districts of Karnataka state namely: Udupi and Bengaluru Urban. All in all 46 health facilities were covered and data on the flow of untied funds, utilization was collected from 92 stakeholders managing these funds. Based on the data collected for three years (2008-2009, 2009-2010, 2010-2011) regarding flow and utilization of untied funds the study proposes an alternative approach of financing which serve the purpose of equity and efficiency more effectively.
http://www.cbps.in/wp-content/themes/cbps/pdf/RSBY%20-%20A%20study%20in%20Karnataka_CBPS_Jun-2013.pdf

in higher efficiency in public health facilities. It will also result as a motivator for performance and de-motivator for poor performance. Thus implementing alternative policy can provide an option to use the remaining funds efficiently by the state.

In the context of ASHA worker, the Regional Evaluation Team (RET) reported that 672 ASHAs were appointed till March 2011 under NRHM in the district. All were trained and provided with drug kits. 160 new ASHAs were proposed to be inducted during 2011-12. In the visited sample institutions, 15 ASHAs were contacted. As informed, all were trained and given drug kits. Performance based remuneration was paid regularly to them. Findings related to the functioning of Village Health Sanitation Committees (VHSC) under NRHM were that 763 VHSCs were setup against 951 revenue villages covered under 98 Gram Panchayat in the district.

The working of the 24 x 7 hours Delivery Care System in the district indicated that 17 of the 43 PHCs in the district were identified for providing 24X7 delivery care services. Of these 17 centres, only 8 PHCs have 2 Medical Officers, and 8 PHCs have 3 Staff Nurses posted. No separate budget was released to these centres, except the salary budget to the contractual staff nurses. During 2010-11, 7 of the 17 PHCs functioning as 24 X 7 hour services did not achieve the stipulated minimum 10 deliveries per month.

Physical Infrastructure and Stock Position was also undertaken by the regional evaluation team. While some PHCs were functioning in Government buildings, others were not, and there were wide variations in the materials and supplies available. To gauge community satisfaction and opinion on health services rendered under NRHM, 20 mothers having child up to one year of age were interviewed to assess their knowledge and opinion on the services rendered by ANMs and found that most of them were satisfied having Post Natal Care (PNC) services in time in the area of 2 visited sub centres. However 15 (75 per cent) mothers had no knowledge on danger signs of ARI and 3 (15 per cent) mothers had no knowledge on advantages and side effects of contraceptive methods. Nineteen out of 20 deliveries were institutional. The opinion of the community about the services provided by the MPHW (M) was satisfactory at the visited centres. The villagers reported that MPHW (M)s were not staying at their headquarters. Public opinion was good on the services being rendered by the PHCs visited as part of the survey on NRHM. Village leader, ANC/ PNC beneficiaries and others expressed good opinion on the overall functioning of PHCs.

Another major scheme, the Rashtriya Swasthya Bhima Yojana (RSBY) was launched by the Ministry of Labour and Employment, Government of India to provide health insurance coverage for Below Poverty Line (BPL) families (rsby.gov.in). The objective of RSBY is to provide protection to BPL households from financial liabilities arising out of health shocks that involve hospitalization, given the broader finding that it is that which pushes up rural indebtedness. Beneficiaries under RSBY are entitled to hospitalization coverage up to Rs. 30,000/- for most of the diseases that require hospitalization. Government has even fixed the package rates for the hospitals for a large number of interventions. Pre-existing conditions are covered too with no age limit. Coverage extends to five members of the family – the head of household, spouse and three dependents. Beneficiaries need to pay only Rs. 30/- as registration fee while Central and State Government pays the premium to the insurer selected by the State Government on the basis of a competitive bidding.

Table 5.22: Number of Empanelled Hospital (as of May 2014)

Taluk / District	Public	Private
Devanahalli	2	2
Doddaballapur	2	4
Hosakote	3	6
Nelamangala	2	2
Bengaluru Rural	9	14

Note: Five hospitals are in Bengaluru Urban, cater to the BPL population of Bengaluru Rural as well: 1 in Krishnarajapuram, 1 in Kundalahalli, 1 in Yelahanka, 1 in B.B.Road, 1 in Old Madras Road.

Source: RSBY website accessed on May 22nd 2014

Table 5.22 indicates than in Bengaluru Rural, the largest number of empanelled hospitals are in Hosakote (9), followed by Doddaballapur (6) and then Devanahalli and Nelamangala with 4 each. However, in terms of the aggregate figures for the district, the number of empanelled hospitals are considered to be 9 in rural areas and 19 in urban areas, taking into account the 5 private hospitals in Bengaluru Urban but bordering Bengaluru Rural, that are accessed by BPL families from here.During 2011-12, the scheme succeeded in enrolling about 60.5 per cent of BPL households (Table 5.23) but a CBPS study conducted in 2012 on RSBY functioning in Shivamoga and Bengaluru Rural districts revealed that there was a lot of scope for improving the performance of the scheme in the district.[17] The study based on a survey of selected BPL households in the district concluded that only about 20 per cent of total BPL households had understanding of all key features of the scheme, and no case of successful use of the scheme was reported from the sample in Bengaluru Rural.

Table 5.23: Taluk-wise Enrolment Figures for Bengaluru Rural District

Taluk / District	Total BPL Families	Enrollment start date	Enrollment End date	Enrolled Count	Per centage
Devanahalli	15,738	26-Nov-2011	09-Jan-12	7,925	50.36
Doddaballapur	12,170	20-Dec-2011	31-Jan-12	6,013	49.41
Hosakote	15,173	20-Oct-2011	24-Nov-11	8,480	55.89
Nelamangala	6,523	21-Jan-2012	31-Jan-12	3,560	54.58
Bengaluru Rural	123,495			74,760	60.54

Source: RSBY – A Study in Karnataka, CBPS (2013)

The "Yeshasvini Cooperative Farmers Health Care Scheme" (Yeshasvini Scheme) was introduced by the State Government to the Co-operative farmers of Karnataka in November 2002 and it was operationalised with effect from 1st June 2003 (www.yeshasvini.kar.nic.in/about.htm).The concept of a "rural health care scheme" for hospital based care was initiated as a public private partnership by Narayana Hrudayalaya, Bengaluru and the Co-operation Department, Government of Karnataka. All rural co-operative society members, members of self-help group/Shree Shakti Group having financial transaction with the Cooperative Society/ Banks, members of Weavers, Beedi Workers and Fisherman Cooperative Societies and their families are eligible. It is a contributory scheme wherein the beneficiaries contribute a small amount of money every year to avail any possible treatment or surgery during the period. No district level data related to the scheme is available for Bengaluru Rural.

5.12. Per-capita Expenditure Analysis on Health Sector

Per capita expenditure on health in the district see-sawed in terms of nominal prices and showed a downward trend

[17] CBPS (2013) [http://www.cbps.in/wp-content/themes/cbps/pdf/RSBY%20-%20A%20study%20in%20Karnataka_CBPS_Jun-2013.pdf]

in terms of inflation-adjusted prices between 2009-10 and 2011-12 (Table 5.24). The drop in per-capita spending in the district in real terms was as high as 20.33 per cent. The taluk that indicated the highest decrease in spending in absolute terms (on the basis of available data) was Doddaballapur, but the per centage drop can be suspected to be most drastic in Nelamangala.

Table 5.24: Per Capita Health Expenditure (in Rs) in Current Prices

Taluk / District	2009-10	2010-11	2011-12
Devanahalli	169.00	166.65*	189.96
Doddaballapur	190.12	162.48	212.49
Hosakote	170.76	191.79	198.20
Nelamangala	127.46	161.67	-
Bengaluru Rural	167.03	171.20	158.60

*Note: 2010-11 (Devanahalli) = Medical and Public Health + Women and Children Welfare + Nutrition

Source: Expenditure data - Chief Accounting Officer, Bengaluru Rural District

Table 5.25: Inflation adjusted Per Capita Health Expenditure (Rs) (at 2004-2005 Prices)

Taluk / District	2009-2010	2010-2011	2011-2012	Per centage drop in spending from 2009-10 to 2011-12
Devanahalli	123.95	110.66*	116.61	5.92
Doddaballapur	139.45	107.89	130.45	6.45
Hosakote	125.25	127.36	121.67	2.85
Nelamangala	93.49	107.35	-	--
Bengaluru Rural	122.51	113.68	97.36	20.33

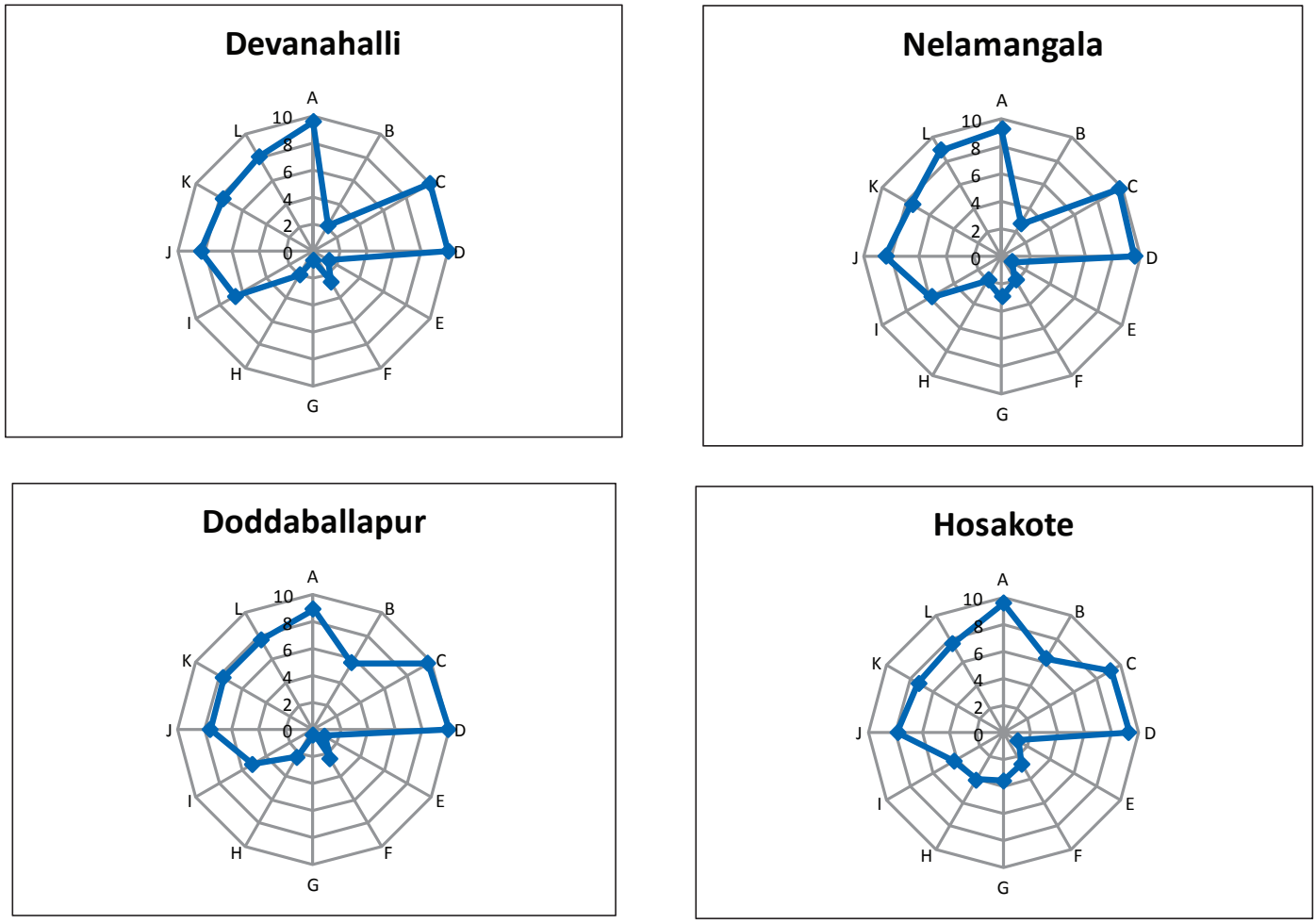
*Note: 2010-11 (Devanahalli) = Medical and Public Health + Women and Children Welfare + Nutrition

Source: Expenditure data - Chief Accounting Officer, Bengaluru Rural District

5.13. Radar Analysis for Health

The radar for Devanahalli indicates that it is, along with Hosakote, one of the best performing taluks when it comes to full coverage of women for ANC services (A). Devanahalli also does well in terms of per centage of institutional deliveries (C) and per centage of children who are fully immunized (D). The taluks next best performance (8.00) relates to households having access to toilets, drainage facilities and water (J, K and L). It has a low incidence of children being born underweight (E, 1.00) and a slightly higher share of pregnant women reporting anemia (B, 2.00). The per centage of people affected by communicable diseases (G) approximates 0.00. Among the four taluks, it is also the best performer in terms of per centage of GPs selected for Nirmal Gram Abhiyan Puraskar (I, 7.00), though there is scope for improvement. The per centage of couples protected by a contraceptive method is also low (H, 2.00).

Figure 5.1: Radar Analysis – Health (2011)



A – Per centage of pregnant women receiving full ANC services; B – Share of pregnant women with anemia (ANE – excluding normal); C – Per centage of Institutional deliveries; D – Per centage of children fully immunized; E – Per centage of children born underweight; F – Per centage of malnourished children; G – Per centage of people affected by major communicable diseases; H – Per centage of couples protected by any contraceptive method; I – Per centage of gram panchayats selected for NGP awards; J – Per centage of HHs having access to a toilet; K – Per centage of HHs with drainage facility (both open and closed) and L – Per centage of HHs having access to safe drinking water.

Note: B, E, F and G are negative indicators that should approximate 0.00 in the graph for the taluks to be rated as performing well with regard to this indicator, while for the rest of the indicators, the reverse holds true.

The radar for Doddaballapur indicates that it is, along with Devanahalli, it is one of the best performing taluks in terms of per centage of institutional deliveries (C) and per centage of children who are fully immunized (D). The taluks next best performance, also like Devanahalli (but with a rating slightly less that 8.00) relates to households having access to toilets, drainage facilities and water (J, K and L). It has a low incidence of children being born underweight (E, 1.00) and a much higher share of pregnant women reporting anemia (B, 6.00). The per centage of people affected by communicable diseases (G) approximates 0.00.

Among the four taluks, it is the third best performer in terms of per centage of GPs selected for Nirmal Gram Abhiyan Puraskar (I, slightly higher than 5.00), leaving much greater scope for improvement. When it comes to full coverage of women for ANC services (A) Doddaballapur is not doing as well as the other taluks, though it does approximate a score of 9.50. As for Devanahalli and Nelamangala, the per centage of couples protected by a contraceptive method is also low (H, 2.00).

The radar for Hosakote indicates that it is, along with Devanahalli, it is one of the best performing taluks in

terms of full coverage of women for ANC services (A). With regard to per centage of institutional deliveries (C) and per centage of children who are fully immunized (D) it is the only taluk among the four, not scoring a perfect 10, but only over 9.00. The taluks next best performance, for which it is at par with Devanahalli (with a rating of 8.00) relates to households having access to toilets and water (J and L). Hosakote rates slightly lower than the other three taluks on households with drainage facilities (K).

It has a low incidence of children being born under weight (E, less than 1.00) and as high a share of pregnant women reporting anemia (B, 6.00) as Doddaballapur. The per centage of people affected by communicable diseases (G) approximates 4.00, the highest among all taluks. It is also the worst performer in terms of per centage of GPs selected for Nirmal Gram Abhiyan Puraskar (slightly higher than 4.00), leaving a great scope for improvement. One indicator in which Hosakote fares better than the other three taluks is with regard to the per centage of couples protected by a contraceptive method (H, 4.00).

Together with Doddaballapur and Devanahalli, Nelamangala performs well in terms of per centage of institutional deliveries (C) and per centage of children who are fully immunized (D). The taluks next best performance, with a rating slightly less than Devanahalli and higher than Doddaballapur, at over 9.00, is with regard to full coverage of women for ANC services (A). It is the best taluk in terms of households having access to water (L) and toilets (J) with slightly less number of households having drainage facilities (K) in comparison. It has a low incidence of children being born underweight (E, less than 1.00) and the second-highest per centage of pregnant women reporting anemia (B, 3.00), among the four taluks. The per centage of people affected by communicable diseases (G) is higher than 3.00, also making it second worst in this respect among the taluks. It is the second best performer in terms of per centage of GPs selected for Nirmal Gram Abhiyan Puraskar (I, 6.00). As for Devanahalli and Doddaballapur, the per centage of couples protected by a contraceptive method is also low (H, 2.00).

5.14. Conclusion

To conclude, Bengaluru Rural presents a contradictory picture in the case of health and nutrition indicators: while some indicators are reported to be performing very well, others are not. The indicators vis-à-vis reproductive health indicators such as institutional deliveries, coverage of women by ANC services and the per centage of children being covered by full immunizationin the Bengaluru Rural are fairly good but the per centage of pregnant women with Anemia (severe), the per centage of children born underweight and the Maternal Mortality Rates are high in the district. Interestingly, while the proportion of pregnant women with Anemia (severe) is much higher in Doddaballapur and Hosakote, the MMRs are higher in Devanahalli (126) and Nelamangala (150). These facts raise the issue of quality of services provided under institutional delivery and ANC services. Also, though the proportion of girls getting married before the age of 18 has reduced, the numbers are still high.

Similarly, while the household level access to water, toilets and drainage facilities are on the higher side, the number of people affected by communicable diseases has been increasing at a high rate over the years. This, again, raises the issue of the quality of urban services and poor access to clean water and surroundings. The per centage of couples protected by a contraceptive method is low overall in the district, and is another area that needs to be addressed.

Income, Poverty and Employment

"A community is democratic only when the humblest and weakest person can enjoy the highest civil, economic and social rights that the biggest and most powerful possess." – A. Philip Randolph (Civil Rights Activist)

6.1. Introduction

This chapter provides an overview of the issues related to poverty, income and employment in Bengaluru Rural. Details regarding the overall income of Bengaluru Rural district, it's composition of labour force, income and consumption distribution, incidence of income poverty, distribution of assets and employment, trends in wages are some of key issues discussed. The district's income and poverty levels reveal the level of economic growth and its distribution, and employment details show the distribution of work patterns across sectors and population groups. These are somewhat linked though in a district like Bengaluru Rural, situated next to Bengaluru city, many of these are not necessarily revealing the full picture, nor are they as clearly interlinked as one finds in many other cases. Wherever possible, recent data is used. In a few cases, estimates based on NSS surveys have been used to understand trends and draw logical inferences.

6.2. Income

The sectoral distribution of district income shows a small decline in the share of the primary sector from 15.67 per cent in 2004-05 to 13.43 per cent in 2008-09. The secondary sector's share has increased from 35.65 per cent in 2004-05 to 37 per cent in 2008-09. There is a slight increase in the share of the tertiary sector as well, with 48.68 per cent in 2004-05 increasing to 49.56 per cent in 2008-09, contributing to around half of the Net Domestic Product[18] (NDP) of Bengaluru Rural. The change in this period is slightly bigger for the secondary sector showing that manufacturing sector has grown at a faster pace as compared to service sector though the latter's contribution to the district's income continues to be much higher.

Table 6.1: Sectoral Shares of Net District Domestic Product (at 2004-05 Prices)

Sector	2004-05	2008-09
Primary	15.67%	13.43%
Secondary	35.65%	37.01%
Tertiary	48.68%	49.56%

Source: Directorate of Economics and Statistics, Karnataka.

6.2.1. Rate of growth and Regional Disparities

Bengaluru Rural's economy (measured in terms of NDP) grew at the rate of 9.5 per cent per annum between 2004-05 and 2008-09, i.e. at a rate less than that of Karnataka which was 11.36 per cent. During the same period, the per capita growth rate achieved by Bengaluru Rural was around 7.95 per cent compared to Karnataka's 9.72 per cent. This implies that the population's growth rate for Bengaluru Rural was higher than that of Karnataka state as a whole. Bengaluru Rural's share in the total NDP of Karnataka saw a slight decline during the period from 2.12 per cent to 2.01 per cent. On the upside, while the share to the total state NDP was very low, the per capita NDP of Bengaluru Rural was much higher (Rs. 59,878) than that of Karnataka (Rs. 47,614), this in spite of the fact that the population in this district rose at a faster rate than of the state as a whole.

Between 2004-05 and 2008-09, the district's manufacturing and service sectors grew annually at 10.81 and 10.13 per cent respectively (Table 6.2), while the primary sector grew at a relatively lower rate of 4.56 per cent per year. This presents an interesting fact about the district: the dependence of the economy on agriculture is declining while it continues to employ three fourth of the working population.

[18] In order to assess the state of the economy Net Domestic Product (NDP) has been used instead of Gross Domestic Product (GDP). NDP is the Gross Domestic Product (GDP) minus depreciation on an economy's capital goods. Generally, NDP is considered a better measure of economic growth than GDP.

Table 6.2: Net Domestic Product by Industry of Origin (at 2004-2005 prices) in Rs Lakh

Industry	Primary	Secondary	Tertiary	Total NSDP	Per capita NDP (Rs)
2004-05	49,245	112,021	152,952	314,218	35,272
2008-09	58,235	160,476	214,933	433,644	46,493
Growth Rate (%)	4.56	10.81	10.13	9.50	7.95

Source: Directorate of Economics and Statistics, Karnataka

Bengaluru Rural is marked by stark intra district disparities. In 2008-09, Doddaballapur contributed around 35.7 per cent to the district's NDP whereas Devanahalli's share was a paltry 14.2 per cent. On the other hand, Nelamangala's share was 22.8 per cent in spite of the fact that its population size was not much different from that of Devanahalli. Hosakote contributed a decent 28.3 per cent to the district NDP. The per capita NDP of Doddaballapur, Hosakote and Nelamangala were quite high when compared to the per capita NDP of the district and state.

Table 6.3: Net Taluk Domestic Product (at 2004-2005 Prices)

Taluk / District / State	Net TDP (Rs. Lakh)		Per Capita NTDP (Rs.)		Share in NDDP (%)	
	2004-05	2008-09	2004-05	2008-09	2004-05	2008-09
Devanahalli	46,506	61,497	23,971	30,275	14.80	14.18
Doddaballapur	102,498	150,395	36,488	51,136	32.62	34.68
Hosakote	92,903	122,881	39,898	50,403	29.57	28.34
Nelamangala	72,311	98,870	39,498	51,582	23.01	22.80
Bengaluru Rural	314,218	433,644	35,272	46,493	2.12*	2.01*
Karnataka	14,830,913	21,567,745	26,806	37,233		

Notes: NDDP: Net District Domestic Product; NTDP: Net Taluk Domestic Product; *- Share in Karnataka's NDP

Source: Directorate of Economics and Statistics, Karnataka

6.3. Labour Productivity

Labour productivity is an important marker of human development. Hence, it is imperative that it should feature as one of the components of the human development discourse. Labour productivity is measured as the Gross Domestic Product per worker. Estimates of labour productivity for the four taluks for the year 2008-09 reveal that labour productivity was nearly same for Doddaballapur, Hosakote and Nelamangala (Table 6.4). However, during the period 2004-05 and 2008-09 labour productivity grew much faster per year for Doddaballapur (9.58 per cent) than for Hosakote (5.94 per cent) and Nelamangala (6.78 per cent). In 2008-09, Devanahalli had a very low labour productivity but its growth rate was same as Nelamangala. Overall, Bengaluru Rural had a much better labour productivity than Karnataka but the rate of growth was much higher for Karnataka than Bengaluru Rural in the period between 2004-05 and 2008-09.

Table 6.4: Estimates of Gross Domestic Product per Worker (at 2004-2005 Prices)

Taluk / District / State	2004-05 (Rs.)	2008-09 (Rs.)	Growth Rate (% per annum)
Devanahalli	55,678	70,611	6.70
Doddaballapur	89,862	124,299	9.58
Hosakote	100,224	124,036	5.94
Nelamangala	101,918	129,574	6.78
Bengaluru Rural	87,358	113,542	7.49
Karnataka	66,904	90,431	8.79

Source: Directorate of Economics and Statistics, Karnataka.

6.4. Trends in Wages

There is wide variation in the wages across sectors. Bulk of the workforce, around 71 per cent, in Bengaluru Rural is employed in the agricultural sector. This is despite the declining role of primary sector in the district's economy. The average weekly wages in the agricultural sector (Rs. 513.7) is much lower than the non-agricultural sector (Rs. 927.4) in the rural areas of the district. Overall, the rural wages in the agricultural sector are higher in rural parts of Bengaluru Rural as compared to Karnataka. It is the opposite in the urban areas. Wages in urban Karnataka (Rs. 1,842.4) is much higher than in urban Bengaluru Rural (Rs. 1,494.2).

Table 6.5: Estimates of Average Wages per Week by Sector (Rs.): Bengaluru Rural District and Karnataka (2009-2010)

Sector	Rural			Urban		
	Male	Female	Persons	Male	Female	Persons
	Bengaluru Rural					
Agriculture	666.58	386.51	513.70	660.00	521.64	528.26
Manufacturing	923.39	854.34	919.58	1,402.76	-	1,402.76
Others	1,156.62	549.22	935.31	1,739.44	960.13	1,633.13
Non-agriculture	1,040.01	701.78	927.45	1,571.10	960.13	1,517.95
All	820.14	416.03	632.93	1,635.44	770.24	1,494.16
	Karnataka					
Agriculture	535.75	340.42	452.39	559.35	344.78	459.52
Manufacturing	859.83	630.09	812.3	1,763.36	766.47	1,518.89
Others	1,066.23	739.49	981.46	2,106.76	1724.91	2,028.57
Non-agriculture	963.03	684.79	896.88	1,935.06	1245.69	1,773.73
All	688.85	404.97	580.68	1,982.37	1,365.41	1,842.49

Note: Non-agriculture is calculated by taking the weighted arithmetic mean of manufacturing and others.

Source: Employment and Unemployment Survey: NSS 66th Round (2009-10)

Table 6.6: Estimates of Average Wages per Week by Social Status (Rs): Bengaluru Rural Districtand Karnataka (2009-2010)

Social Status	Rural			Urban		
	Male	Female	Persons	Male	Female	Persons
	Bengaluru Rural					
SCs	733.77	529.12	650.53	809.32	-	809.32
STs	-	-	-	600.00	500.00	550.00
OBCs	708.39	364.01	530.19	2,167.32	655.01	1,862.90
Others	1,682.18	921.8	1,561.16	1,829.13	953.75	1,575.03
All	820.14	416.03	632.93	1,635.44	770.24	1,494.16
	Karnataka					
SCs	639.78	358.87	524.51	1,100.41	754.89	992.00
STs	726.31	528.66	656.47	1,083.36	386.87	830.48
OBCs	682.44	415.20	577.57	1,873.79	1,145.34	1,739.39
Others	756.32	409.99	645.94	2,589.73	2,220.13	2,505.98
All	688.85	404.97	580.68	1,982.37	1,365.41	1,842.49

Source: Employment and Unemployment Survey: NSS 66th Round (2009-10)

There is also a large gender-wage gap across all sectors and regions (Tables 6.5 and 6.6). Female wages are almost half of the male wages in rural Bengaluru Rural. In the urban areas, the male wages are around 112 per cent more than the female wages. Wages for people from the SC categories are better than the average in rural areas. However, in the urban areas SC wages are much lower than the district average.

6.5. Agricultural Holdings

Table 6.7 shows the details of agricultural land holding in Bengaluru Rural. There are large inequalities in the ownership of number and area of landholdings. An analysis of the data reveal that SC and ST combined held only 14per cent of the total land holdings. The ownership is also biased towards men who held around 81 per cent of the holdings. This pattern was seen in men in SC and ST categories as well.

Table 6.7: Agricultural Land Holdings - Bengaluru Rural District (2010-2011)

Land holding status	SCs		STs		Total		SCs as % of Total	STs as % of Total
	Male	Female	Male	Female	Male	Female		
Marginal Agriculture Land Holder (Less than 1 He)	12,521	3094	3712	874	105,067	25,664	11.94	3.51
	(80.2)	(19.8)	(80.9)	(19.1)	(80.3)	(19.7)		
Small Agriculture Land Holder (1 - 2 He)	2,510	533	919	188	25,575	5,517	9.78	3.56
	(82.5)	(17.5)	(83.1)	(16.9)	(82.2)	(17.8)		
Semi-Medium Agriculture Land Holder (2 - 4 He)	683	126	339	57	11,031	2,058	6.18	3.02
	(84.4)	(15.6)	(85.6)	(14.4)	(84.2)	(15.8)		
Medium Agriculture Land Holder (4 - 10 He)	115	20	75	9	3071	508	3.77	2.35
	(85.2)	(14.8)	(89.3)	(10.7)	(85.8)	(14.2)		
Large Agriculture Land Holder (More than 10 He)	3	0	2	1	276	42	0.94	0.94
	(100)	(0)	(66.7)	(33.3)	(86.5)	(13.5)		
All	15,832	3,773	5,047	1,129	145,020	33,789	10.96	3.45
	(80.8)	(19.2)	(81.7)	(18.3)	(81.1)	(18.9)		

Notes: 1. The area of land holdings is rounded to the nearest integer.; 2. Inst: Institutions ; and 3. Figures in brackets are per centages

Source: Bengaluru Rural District at a Glance: 2011 -12

A major per centage of the agricultural land holdings are used to grow cereal, millets and pulses. In Bengaluru Rural, about three-fourth of the area under agriculture was occupied by these crops in 2010-11 (Table 6.8). Although commercial crops occupy only about one fourth of the total area under agriculture, what is interesting is that fruits and vegetables, especially the latter occupies the major share within commercial crop. This shift is a result of proximity to Bengaluru city from where the high demand for vegetables and fruits generate and makes it profitable. The chapter on urban issues explores some of these issues in greater detail.

Table 6.8: Area under Crops in Hectares: Bengaluru Rural District (2010-2011)

Taluk/ District	Year	Food grains		Fruits	Vegetables	Oil seeds	Sugar-cane	Total
		Cereals and minor millets	Pulses					
Devanahalli	2005	9,819	1,197	2,168	1,302	286	3	14,775
		(66.40)	(8.10)	(14.60)	(8.81)	(1.90)	(0.02)	
	2011	8,769	1,498	2,028	1,068	389	2	13,754
		(63.70)	(10.80)	(14.70)	(7.70)	(2.80)	(0.00)	
Doddaballapur	2005	26,445	6,761	2,070	379	1,838	272	37,765
		(70.00)	(17.90)	(5.40)	(1.00)	(4.80)	(0.70)	
	2011	23,006	1,807	2,833	1,675	522	0	29,843
		(77.00)	(6.00)	(9.40)	(5.60)	(1.70)	(0.00)	
Hosakote	2005	14,289	2,939	4,172	3,469	613	10	25,492
		(56.00)	(11.50)	(16.30)	(13.60)	(2.40)	(0.00)	
	2011	12,195	2,181	4,075	4,087	632	0	23,170
		(52.60)	(9.40)	(17.50)	(17.60)	(2.70)	(0.00)	
Nelamangala	2005	17,358	3,040	1,516	686	708	7	23,315
		(74.40)	(13.00)	(6.50)	(2.90)	(3.00)	(0.00)	
	2011	15,189	1,726	1,650	553	201	2	19,321
		(78.60)	(8.90)	(8.50)	(2.80)	(1.00)	(0.00)	
Bengaluru Rural	2005	67,911	13,937	9,926	5,836	3,445	292	101,347
		(67.00)	(13.70)	(9.70)	(5.70)	(3.40)	(0.20)	
	2011	59,159	7,212	10,586	7,383	1,744	4	86,088
		(68.70)	(8.30)	(12.30)	(8.50)	(2.00)	(0.00)	

Note: Figures in brackets are per centages
Source: Bengaluru Rural District at a Glance: 2011 -12

6.6. Livestock and Poultry

In Bengaluru Rural, livestock grew by around 37 per cent between 2003-04 and 2007-08. The variation in distribution in livestock across the four taluks was low (Table 6.9). Interestingly, there was a drastic reduction in poultry during the same period. Although the legal framework and standards for poultry industry in India are not very evolved and environmental guidelines not very clear, the high growth in population leading to higher population density means competing demand for land making it difficult for poultry farms to survive. This, coupled with high rate of industrialisation and land acquisition in Bengaluru Rural (explored further in the chapter on urban issues), could be the reason for this drastic decline in poultry in Bengaluru Rural.

Table 6.9: Livestock and Poultry

Taluk/ District	Year	Livestock	Poultry
Devanahalli	2003	105,761	1,299,507
	%	24.47	36.69
	2007	163,830	71,592
	%	27.72	29.62
Doddaballapur	2003	140,641	342,910
	%	32.54	9.68
	2007	188,438	72,542
	%	31.88	30.02
Hosakote	2003	99,900	1,633,510
	%	23.11	46.12
	2007	132,643	58,202
	%	22.44	24.08
Nelamangala	2003	85,913	266,206
	%	19.88	7.52
	2007	106,184	39,342
	%	17.96	16.28
Bengaluru Rural	2003	432,215	3,542,133
	%	100.00	100.00
	2007	591,095	241,678
	%	100.00	100.00

Note: The per centages refer to the proportion in the Bengaluru Rural district Source: Livestock census 2003 and 2007

6.7. Income Deprivation[19]

Poverty estimates based on the household expenditure surveys conducted by the National Sample Survey Organization (NSSO) provide an indicator for material deprivation of the households. NSSO surveys provide details of consumption of and expenditure on various household items and are generally used as a proxy for income distribution.

Based on the NSS survey, estimates show that 10.41 per cent of the people in Bengaluru Rural are still below the poverty line. This picture is much better compared to the rather grim case of Karnataka where around 29.27 per cent of the population is poor (Table 6.10). The comparison is starker in the rural areas: 5.64 per cent in Bengaluru Rural compared to 31.65 per cent in rural Karnataka. In the urban areas, Bengaluru Rural (26.1 per cent) is slightly worse compared to that of urban Karnataka (25 per cent).

An assessment of the income inequalities— using Gini coefficient— reveals that income inequality was greater in urban areas (0.3) than in rural areas (0.15) of Bengaluru Rural. Further, there is less income inequality in Bengaluru Rural compared to overall Karnataka.

Table 6.10: Incidence of Poverty - Bengaluru Rural District and Karnataka (2009-2010)

District / State	Rural		Urban		Total	
	No. of persons	Proportion (%)	No. of persons	Proportion (%)	No. of persons	Proportion (%)
Bengaluru Rural	70,625	5.64	99,252	26.09	169,877	10.41
Karnataka	10,296,734	31.65	4,525,247	25.00	14,821,981	29.27

Source: Employment and Unemployment Survey: NSS 66th Round (2009-10)

6.7.1. Poverty and Levels of Living by Social Groups

This section provides a profile of incidence of poverty across different social groups (Table 6.11). The Scheduled Caste (SC) households account for about 17 per cent of the rural population and among these households only a small proportion (2 per cent) fall below the poverty line. The Scheduled Tribe (ST) households constitute a meager 0.85 per cent of the rural population and all of these households are poor. However, these numbers are staggering for Karnataka. The SC households comprise around 21 per cent of the rural population and of these around 40 per cent are poor. The ST households constitute a meager 8 per cent of the rural population and a little more than half of these falls below the poverty line.

Table 6.11: Levels of Living, Inequality and Poverty by Social Groups: Bengaluru Rural District and Karnataka (2009-2010)

Categories	Share in total population (%)	Average per capita consumption (Rs./month)	% of poor population	Gini Co-efficient	Share in total population (%)	Average per capita consumption (Rs./month)	% of poor population	Gini Co-efficient
	Rural (Bengaluru Rural)				Urban (Bengaluru Rural)			
SCs	16.72	1,018.73	2.01	-	14.49	684.12	75.11	-
STs	0.85	515.98	100.00	-	0.07	724.75	100.00	-
OBCs	63.69	970.23	6.61	0.14	54.52	1,579.73	19.23	0.28
Others	18.74	1,332.74	1.33	-	30.91	1,774.34	15.03	0.24
All	100	1,020.66	5.64	0.15	100	1,494.83	26.09	0.30
	Rural (Karnataka)				Urban (Karnataka)			
SCs	21.44	808.47	40.21	0.25	10.78	1,580.94	33.68	0.38
STs	8.00	799.59	52.09	0.26	5.02	1,214.62	56.79	0.28
OBCs	45.64	927.99	26.04	0.24	46.61	2,356.35	22.55	0.42
Others	24.92	1,042.59	28.01	0.27	37.60	2,884.22	21.31	0.44
All	100	922.07	31.65	0.26	100	2,425.99	25.00	0.44

[19] The discussion does not include BPL households due to non-availability of credible data.

Note: The rural poverty line was Rs. 629.4 and urban poverty line was Rs. 908. These poverty lines for Karnataka were taken from the Planning Commission estimates. It can be accessed at http://planningcommission.nic.in/news/press_pov1903.pdf

Source: Employment and Unemployment Survey: NSS 66th Round (2009-10)

For the urban areas, the share of SCs in the urban population of Bengaluru Rural is nearly same to share of SCs in the rural population. But, the share of poor households in the SC category stands very high, at 75 per cent, in urban areas. In urban Karnataka, the SCs account for around 11 per cent of the total population and among these, around 34 per cent are below the poverty line. On the other hand, the STs form around 5 per cent of the population and among these, 57 per cent are poor.

Among the remaining social groups, in Bengaluru Rural 'Other Backward Communities' (OBCs) constitute around 64 per cent of the rural population, of whom only around 7 per cent are below the poverty line. In urban areas of Bengaluru Rural, the OBCs constitute about 55 per cent of the urban population and nearly 19 per cent of them are poor – a proportion almost three times that of their rural counterparts.

6.8. Employment

The employment status is very crucial for human development and well-being. From a policy perspective, a profile of the distribution of the workforce is critical for an assessment of the relative importance of various employment opportunities.

6.8.1. Work Participation Rate

The work participation rate decreased slightly from 53 per cent in 2001 to 52 per cent in 2011. However, in absolute terms the workforce (number of workers) increased from 0.4 million in 2001 to 0.46 million in 2011 (1.61 per cent per annum). While there was not much change in the work participation rates of Devanahalli, Doddaballapur and Nelamangala, the work participation rates for Hosakote saw a decline of around 2.8 per centage points. In terms of location, the work participation rates in urban areas increased and in rural areas decreased.

Table 6.12: Work Participation Rate (WPR) (2001 and 2011)

Taluk / District / State	2001			2011		
	Urban	Rural	Total	Urban	Rural	Total
Devanahalli	44.86	58.58	54.69	46.03	56.95	53.69
Doddaballapur	45.23	58.40	54.59	47.40	58.50	54.76
Hosakote	42.01	54.69	52.62	43.75	51.55	49.92
Nelamangala	39.56	52.51	50.63	43.96	50.72	49.19
Bengaluru Rural	43.77	56.05	53.28	45.70	54.38	52.03
Karnataka	40.77	57.18	51.53	44.66	56.15	51.68

Source: Census of India

6.8.2. Work Participation Rate by Social Groups

The 2011 census provides data on SC and ST workers by broad category of activities. According to 2011 census, 22.2 per cent of the total workers (main + marginal) belong to the SC category and 5.69 per cent are from the ST category. A category-wise comparison shows that out of total cultivators, SCs constitute nearly 15.6 per cent and STs 5.7 per cent. The proportion of SC agricultural labourers is about 42.9 per cent and that of STs, about 8.5 per cent (Table 6.13). This indicates that SC and ST workers are found predominantly in the agricultural sector where they are concentrated in low-end jobs.

Table 6.13: Category of Workers by Social Groups (2011)

Category of workers	Number of workers									SCs as % of Total	STs as % of Total
	SCs			STs			Total				
	Men	Women	Persons	Men	Women	Persons	Men	Women	Persons		
Cultivators	14,157	5,754	19,911	5,142	2194	7,336	92,771	34,999	127,770	15.58	5.74
	(71.10)	(28.90)		(70.09)	(29.91)		(72.61)	(27.39)			
Agricultural laborers	17,975	18,128	36,103	3,570	3610	7,180	40,018	44,090	84,108	42.92	8.54
	(49.79)	(50.21)		(49.72)	(50.28)		(47.58)	(52.42)			
Workers in HH industries	1,632	1,195	2,827	316	265	581	12,111	7,346	19,457	14.53	2.99
	(57.73)	(42.27)		(54.39)	(45.61)		(62.24)	(37.76)			
Other Workers	30,628	12,619	43,247	7,633	3,431	11,064	170,599	57,957	228,556	18.92	4.84
	(70.82)	(29.18)		(68.99)	(31.01)		(74.64)	(25.36)			
Total	64,392	37,696	102,088	16,661	9,500	26,161	315,499	144,392	459,891	22.20	5.69
	(63.07)	(36.93)		(63.69)	(36.31)		(68.60)	(31.40)			

Note: Per centages are given in brackets.

Source: Census of India

6.8.3. Women's Work Participation Rate

Female work participation rate in Bengaluru Rural declined by 4 per cent points between 2001 and 2011 (Table 6.14). This is in line with the declining trends across India. Neff et al (2012), Olsen and Mehta (2006), Lahoti and Swaminathan (2013), Klasen and Pieters (2013), and Patel (2012) have attributed this trend to various reasons – increased educational enrolment of women, income effect (as household incomes rise, women are withdrawing from agricultural activities), increased male education (increase in male education leading to higher household income), lack of job opportunities, and measurement. It is difficult to assert the real or the main cause among these that would lead to this decline in Bengaluru Rural in absence of district specific studies.

A closer assessment of work participation by women (both general and among SCs and STs) shows that participation among SC women (36.93 per cent) and ST women (36.31 per cent) is higher than women's work participation for all groups (31 per cent). However, the composition of women workers across different economic activities reveals more or less similar trends for SCs, STs and all groups. Out of total cultivators, the proportion of women workers is about 27.4 per cent. SC (28.9 per cent) and ST (29.9 per cent) women as a proportion of SC and ST cultivators show similar pattern. Around 52.4 per cent of total agricultural labourers are women and around 37.8 per cent are women among those engaged in household industries. Similarly, women from SC and ST categories constitute around 50 per cent of the total agricultural labourers. Around 42 per cent of the women from SC category and 54 per cent women from the ST category participate in the household industries as workers. Women participate in activities dealing in manual work in the agricultural sector and household industrial activities requiring low skills. The share of women in the total 'other workers', which requires skilled labourers in the tertiary sector and manufacturing sector, is around 25 per cent. The proportion of women workers in the total number of SC and ST workers is about 38 per cent, which is significantly higher than women workers as a proportion of the total workers (31 per cent). Participation of women from SC and ST categories as a proportion of total SC and ST workers in the 'other workers category' is also significantly higher than the total women workers under the same category.

Table 6.14: Work Participation Rate by Sex (2001 and 2011)

Taluk / District / State	2001			2011		
	Male	Female	Persons	Male	Female	Persons
Devanahalli	68.91	39.65	54.69	69.45	36.94	53.69
Doddaballapur	69.72	38.71	54.59	70.08	38.64	54.76
Hosakote	67.92	36.19	52.62	69.29	29.08	49.92
Nelamangala	65.68	34.88	50.63	68.76	28.88	49.19
Bengaluru Rural	68.24	37.46	53.28	69.45	33.61	52.03
Karnataka	65.65	36.95	51.53	66.94	36.04	51.68

Source: Census of India

6.9. Child Labour

There are no reliable figures for child labour. Estimates using NSS survey was attempted but due to very less number of observation these estimates were skewed and hence, not credible.

6.10. Composition of Employment

The proportions of marginal and main labour[20] in the total workforce in Bengaluru Rural have remained fairly constant during the period 2001-2011. The share of marginal workers as a proportion of the total workers in 2001 was 16.3 per cent and 15.2 per cent in 2011. On the other hand, main workers constituted 83.7 per cent in 2001 and 84.8 per cent in 2011. Similar trends were seen in the four taluks of the district (Table 6.15).

Table 6.15: Main and Marginal Workers (2001 and 2011)

Taluk / District / State	2001			2011		
	Main	Marginal	Total	Main	Marginal	Total
Devanahalli	74,971	13,562	88,533	84,621	15,572	100,193
	(84.68)	(15.32)	(100.00)	(84.46)	(15.54)	(100.00)
Doddaballapur	105,989	21,854	127,843	121,448	25,813	147,261
	(82.91)	(17.09)	(100.00)	(82.47)	(17.53)	(100.00)
Hosakote	86,136	15,618	101,754	103,913	15,779	119,692
	(84.65)	(15.35)	(100.00)	(86.82)	(13.18)	(100.00)
Nelamangala	64,511	13,567	78,078	80,007	12,738	92,745
	(82.62)	(17.38)	(100.00)	(86.27)	(13.73)	(100
Bengaluru Rural	331,607	64,601	396,208	389,989	69,902	459,891
	(83.70)	(16.30)	(100.00)	(84.80)	(15.20)	(100.00)
Karnataka	19,364,759	4,170,032	23,534,791	23,397,181	4,475,416	27,872,597
	(82.28)	(17.72)	(100.00)	(83.94)	(16.06)	(100.00)

Note: Per centages are given in brackets.

Source: Census of India

[20] Main workers are those workers who had worked for 6 months or more in a year and marginal workers are those workers who worked for less than 6 months.

6.10.1. Sectoral Composition of Employment

Agriculture continues to be the predominant source of employment in the rural sector. The proportion of rural workers employed in agriculture (including animal husbandry, forestry and logging and fishing) is around 71.84 per cent as compared to the state's share of 74.95 per cent. The manufacturing sector, as a source of employment, is around 6.21 per cent in rural areas of Bengaluru Rural as against 36.98 per cent in urban areas of Bengaluru Rural. For the district as a whole, the proportion of workers is around 60.69 per cent and 10.24 per cent in the agricultural sector and manufacturing sector respectively (Table 6.16).

Table 6.16: Sectoral Distribution of Usual (Principal and Subsidiary) Status of Workers (%) (2009-2010)

District / State	Rural			Urban			Total		
	A	M	NA	A	M	NA	A	M	NA
Bengaluru Rural	71.84	6.21	28.16	11.58	36.98	88.42	60.69	11.90	39.31
Karnataka	74.95	5.93	25.05	8.97	20.33	91.03	55.18	10.24	44.82

Note: A: Agriculture, M: Manufacturing, NA: Non-agriculture

Source: Employment and Unemployment Survey: NSS 66th Round (2009-10)

6.11. Unemployment

The extent of unemployment is usually examined from various perspectives: (i) usual status; (ii) current weekly status; and (iii) current daily status. Estimates of unemployment in Bengaluru Rural and Karnataka corresponding to these three perspectives are presented separately for male and female for the years 2009-10 in Table 6.17. The estimate by the usual status indicates a measure of chronic unemployment. When the usual status estimate is adjusted for workers on subsidiary status is called 'Usual Status Adjusted'. Estimates by the current weekly status measures show current unemployment. Current daily status measures chronic unemployment, temporary unemployment and under-employment. Among all the measures, the current daily status estimate is the most conservative and comprehensive measure. It is the average level of unemployment on a day. By this measure, in the rural areas unemployment rate is lower in Bengaluru Rural (6.16) than in Karnataka (7.68). The unemployment rate for females is much higher in Bengaluru Rural (7.55) than males (5.19). The trend is opposite in rural Karnataka. In the urban Bengaluru Rural the unemployment rates are much higher for females (17.5) than males (4.67). Overall, in Bengaluru Rural, the employment rate is higher in urban areas than in rural areas. However, urban Bengaluru Rural is better than the all Karnataka average of the urban areas.

Table 6.17: Unemployment Rates - Bengaluru Rural District and Karnataka (2009-2010)

Status	Unemployment Rates					
	Male	Female	Persons	Male	Female	Persons
	Rural (Bengaluru Rural)			Urban (Bengaluru Rural)		
Usual status	3.47	0.21	2.22	-	-	-
Usual status adjusted	3.47	0.21	2.22	-	-	-
Current weekly	3.59	0.20	2.20	-	-	-
Current daily	5.19	7.55	6.16	4.67	17.50	7.37
	Rural (Karnataka)			Urban (Karnataka)		
Usual status	0.65	0.50	0.59	2.58	4.26	2.94
Usual status adjusted	0.59	0.48	0.55	2.48	4.16	2.84
Current weekly	1.58	1.70	1.62	4.50	7.33	5.11
Current daily	8.22	6.72	7.68	10.37	10.48	10.40

Source: Employment and Unemployment Survey: NSS 66th Round (2009-10)

6.12. Policy Responses

The state government has explored various policy formulations to improve the deprivation levels of the population and promote inclusive growth. The policy responses seek to reduce the poverty gap through two major pathways: asset endowment and employment generation. The major schemes falling under the heads are: *Sampoorna Grameen Rozgar Yojana (SGRY), Swarnajayanti Gram Swarozgar Yojana (SGSY)*, *Stree Shakti, Swavalambana* and *Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA).* These policies are formulated and intended at the central or state level; however, they are still expected to have desirable outcomes at the district level.

These policies have contributed to the generation of employment opportunities for population. In 2011, under the MGNEGA, around 819085 lakh person days were generated in Bengaluru Rural (Table 6.18). The progress of the scheme is provided in Table 6.19.

Table 6.18: Person Days Generated under Mahatma Gandhi National Rural Employment Guarantee Scheme (in Lakh) (2011)

Taluk / District	Men	Women	Total
Devanahalli	109,770	91,013	200,483
Doddaballapur	109,777	97,649	207,426
Hosakote	177,234	144,810	322,044
Nelamangala	49,463	39,669	89,132
Bengaluru Rural	445,944	373,141	819,085

Source: Bengaluru Rural District at a Glance: 2011 -12

Table 6.19: Mahatma Gandhi National Rural Employment Guarantee Scheme: Employment Details (2011)

Taluk / District	No. of Job cards issued	Household demanded employment	No of persons/ households worked under MGNREGS	No. of families availed 100 days of employment
Devanahalli	17,417	3,661	3,662	453
Doddaballapur	18,248	4,301	1,298	25
Hosakote	22,657	6,163	6,125	62
Nelamangala	19,018	1,849	1,816	80
Bengaluru Rural	77,340	15,974	15,901	620

Source: Bengaluru Rural District at a Glance: 2011 -12

Under the Sampoorna Grameen Rozgar Yojana (SGRY) around 7110 person days were generated in 2011 in Bengaluru Rural (Table 6.20).

Table 6.20: Sampoorna Grameen Rozgar Yojana (SGRY) - Bengaluru Rural District (2005 and 2011)

District	2005	2011		
	Number of groups	Self employment (small enterprises + training)	Wage employment (person-days)	Number of groups
Bengaluru Rural	54	80	7,110	87

Source: Bengaluru Rural District at a Glance: 2011 -12

6.13. Conclusions

As assessment of the income, poverty and employment figures for Bengaluru Rural provide some interesting and valuable information. Some of the major points are:

a. Bengaluru Rural's contribution is a meager 2 per cent to Karnataka's NDP. However, the per-capita NDP of Bengaluru Rural is much higher than that of Karnataka. This maybe because of its proximity to Bengaluru Urban. People from the district avail the employment opportunities present in the neighboring Bengaluru Urban.

b. The district has stark regional disparities with Devanahalli being the poorest taluk and Nelamangala being the richest taluk (in terms of per capita NDP.)

c. The district also has inequalities in terms of asset ownership, income and consumptions. However, these inequalities are much lesser compared to that of overall Karnataka.

d. Women are concentrated in low paid work in agriculture and household industries and the wage rates are much lower for women as compared to men.

e. The unemployment rates in Bengaluru Rural are low in the rural areas, owing to a large agrarian sector. In the urban areas, the employment rates are higher (still lesser than that of Karnataka). Female unemployment in the urban areas is very high in the district.

Some of these issues are being explored further in greater detail in subsequent chapters, especially those focusing on gender and on urban issues.

Standard of Living

"There is enough for man's need, but not enough for man's greed"- M.K. Gandhi

7.1. Introduction

Article 25(1) of the Universal Declaration of Human Rights states "everyone has the right to a standard of living adequate for the health and well-being of himself and of his family, including food, clothing, housing and medical care and necessary social services, and the right to security in the event of unemployment, sickness, disability or other lack of livelihood in circumstances beyond his or her control". It is important to ensure a decent standard of living to enable people to pursue activities that would improve their income, societal status, employment opportunities, educational levels and labor productivity. These are the parameters of human development and a decent standard of living is the stepping stone to ensure higher level of human development.

7.2. Housing

Shelter is a basic necessity (KHDR, 2005). Article 25(1) of the Universal Declaration of Human rights recognizes shelter as an essential human right to ensure health and well-being of an individual and his/her family. However, in reality, poor face severe constraints in having access to proper shelter due to non-ownership, rising cost of construction material and lack of availability of adequate land. Lack of proper shelter has implications for health, education, employment opportunities and labor productivity of an individual. Therefore, it is essential for the state to intervene and ensure that proper shelter is provided for the low income group through allocation of land, financial assistance, transfer of knowledge and other support services.

Table 7.1 provides details of number and proportion of households living in pucca houses in Bengaluru Rural in 2011. Pucca houses are defined as houses that are all weather-proof houses with roof made up of hand-made tiles, machine-made tiles, burnt brick, stone, slate metal sheets or concrete; and walls made up of wood, stone packed with mortar, metal sheets, burnt brick or concrete. Given this definition, about 73 per cent of households live in pucca houses in Doddaballapur and Nelamangala, and 69 per cent of households in Devanahalli and 68 per cent of households in Hosakote live in pucca households.

Table 7.1: Details of Pucca Households (2011)

District/Taluk	Total Number of households with a residence / residence-cum-other use	Number households with Pucca Houses	Per centage of households with Pucca Houses
	(A)	(B)	(B) as a per centage of (A)
Devanahalli	45,070	31,099	69
Doddaballapur	70,464	51,407	73
Hosakote	59,236	40,328	68
Nelamangala	49,975	36,525	73
Bengaluru Rural	2,24,745	1,59,359	71

Source: Census of India

In contrast, there are about 13 per cent of households in Bengaluru Rural that do not own any site. The problem appears to be severe in Nelamangala where 24 per cent of total households do not have any site at all. Hosakote is the second highest in terms of per centage of site-less households to total households. In Devanahalli and Doddaballapur, the per cent of site-less households to total households is below ten per cent.

As a policy response, the state intervened to provide sites to households which were identified as site-less households under Ashraya scheme. In 2011, the state identified 28,925 households without house sites in

Bengaluru Rural. About 42 per cent of the identified households were situated in Nelamangala taluk and 29 per cent of the identified households were situated in Hosakote taluk. In Devanahalli and Doddaballapur, the per cent of households identified without house sites ranged between 13 per cent and 14 per cent.

Table 7.2: Policy Responses – Site less Households (2011)

District/Taluk	Site-less Households	Total Households	Per centage
Devanahalli	4,005	45,070	9
Doddaballapur	4,084	70,464	6
Hosakote	8,649	59,236	15
Nelamangala	12,187	49,975	24
Bengaluru Rural	28,925	224,745	13

Source: Bengaluru Rural Zilla Panchayat

However, the state was able to provide sites only to a few households in Nelamangala and Hosakote taluk. In Nelamangala, only 66 households were provided with house sites by the state which is 0.54 per cent of households identified to be without house sites. And in Hosakote, only 36 households were provided with house sites by the state which is about 0.42 per cent of households identified to be without house sites. None of the identified households were provided with house sites in Devanahalli and Doddaballapur taluk. The non-availability of house sites in all the four taluks was attributed by the Bengaluru Rural official as the reason for the low number of households provided with house sites.

Additionally, the state has constructed houses for houseless families in Bengaluru Rural under schemes such as Indira Awas Yojane, Basava Vasathi Yojane, Housing for Special Occupational Groups and Ambedkar Housing scheme. Table 7.3 provides details of number of houses that were constructed under these schemes for the houseless families.

Table 7.3: Policy Response - Houses Constructed for Houseless Families (2011)

Taluk / District	Number of houses constructed for houseless families under different schemes	Number of families identified as houseless	Per centage of houseless households covered under different schemes
Devanahalli	187	450	41.56
Doddaballapur	415	524	79.20
Hosakote	187	286	65.38
Nelamangala	308	395	77.97
Bengaluru Rural	1,097	1,655	66.28

Source: Bengaluru Rural Zilla Panchayat

In total, there were 1,655 families which were identified as houseless in Bengaluru Rural in 2011. Out of 1,655 families, 524 families were identified as houseless in Doddaballapur, 450 families in Devanahalli, 395 families in Nelamangala and 286 families in Hosakote. Subsequently, the state was able to construct 1,097 houses out of the 1,655 families that were identified as houseless in Bengaluru Rural. In other words, the state was able to provide houses to 66 per cent of the identified houseless families. Doddaballapur fares the best in terms of per cent of identified houseless families being provided with houses. About 79 per cent of identified houseless families were provided with houses under union and state sponsored schemes. On the other hand, Devanahalli fares worst in terms of per cent of identified houseless families provided with houses in the district. Only 42 per cent of the identified houseless families were provided with houses.

In conclusion, majority of the households have access to pucca households in Bengaluru Rural though no information exists about the quality or the size of these houses. However, there still exist a small proportion of the total households which requires assistance from the government to meet the basic requirements of a shelter. The per cent of site-less households is higher in Nelamangala and Hosakote in comparison to

Devanahalli and Doddaballapur. But there appears to be difficulty in finding available site which can be allotted to site-less households in Devanahalli and Doddaballapur.

7.3. Asset Status

The asset status of households has a direct and positive relationship with the living standards of households. Access to assets such as television, computer, two-wheeler and four-wheeler helps in widening the access to information, entertainment and opportunities, and therefore, contribute the overall well-being. In this section, the asset status of households is measured by household ownership of television, computer or laptop, two-wheeler and four-wheeler in addition to availing banking services.

Availing banking services proves to be advantageous to households in facilitating financial management. Households stand to benefit from tapping financial services and instruments available in the formal sector by availing banking services. In addition, it enables households to save their income and increase their wealth by investing in the long run.

7.3.1. Television

Table 7.4 provides details of households owning television in 2011 in all the four taluks of Bengaluru Rural and Karnataka. In general, the per centage increase in households owning television has increased similarly in both Bengaluru Rural and Karnataka from 2001. Rural households of Karnataka have witnessed 25 per centage points increase in comparison to 20 per centage points increase witnessed by rural households in Bengaluru Rural. However, in absolute terms, the per cent of rural households owning television is 66 per cent, which is higher than the household ownership of television in Karnataka that is about 46 per cent in 2011.

Within Bengaluru Rural, ownership of television by rural households has increased by 20 per centage points on an average from 2001; the increase is not as high in urban areas. Devanahalli taluk registered the highest increase in ownership of television by urban household by 16 per centage points and Nelamangala taluk registered the lowest increase of 8 per centage points in ownership of television by urban households. Nelamangala already had a higher per centage of household ownership of television which explains the lower rate of increase. In 2001, about 77 per cent of urban households owned television which has increased to 85 per cent in Nelamangala in 2011.

Overall, there has been increase in television ownership by households in both Bengaluru Rural and Karnataka. But Bengaluru Rural has managed to reduce the difference between rural and urban household ownership from 5 per centage points in 2001 to 3 per centage points in 2011. On the other hand, the difference between rural and urban household has remained constant at 40 per centage points in Karnataka as a whole during the entire time period.

Table 7.4: Details of Household Ownership of Television (2011 and 2001)

Taluk / District / State	Total / Rural / Urban	Total households in 2011	Households owning television in 2011	Per centage of households owning television in 2011	Per centage of households owning television in 2001	Difference between 2011 and 2001
Devanahalli	Total	45,070	32,860	72.91	51.88	21.02
	Rural	31,177	22,173	71.12	47.92	23.19
	Urban	13,893	10,687	76.92	61.32	15.60
Doddaballapur	Total	70,464	45,210	64.16	44.76	19.40
	Rural	46,488	26,913	57.89	37.13	20.75
	Urban	23,976	18,297	76.31	63.19	13.12
Hosakote	Total	59,236	44,127	74.49	57.22	17.27
	Rural	46,145	32,995	71.50	53.65	17.85
	Urban	13,091	11,132	85.04	73.95	11.08
Nelamangala	Total	49,975	34,770	69.57	49.41	20.16
	Rural	38,588	25,137	65.14	44.77	20.37
	Urban	11,387	9,633	84.60	76.87	7.73

Bengaluru Rural	Total	224,745	156,967	69.84	50.32	19.51
	Rural	162,398	107,218	66.02	45.41	20.61
	Urban	62,347	49,749	79.79	66.52	13.27
Karnataka	Total	13,179,911	7,911,490	60.03	36.97	23.05
	Rural	7,864,196	3,640,301	46.29	21.22	25.06
	Urban	5,315,715	4,271,189	80.35	66.52	13.82

Source: Census of India

7.3.2. Computer or Laptop

The arrival of home desktops and later laptops has revolutionized the way human beings live their lives. The functional applicability of computers traverses the boundaries of personal and professional space of an individual. In personal space, its application has facilitated in improving the lifestyle of an individual and society as a whole. And in professional space, computer skills and knowledge of software is considered an essential ingredient for an individual to improve his/her employability, further it significantly impacts the productivity during one's work life. Given the importance accredited to computer skills and its impact on normal day-to-day activities, ownership of computers has become a critical factor to be considered in improving the capabilities of a person to lead a comfortable life in the modern society.

Table 7.5 provides the details of household ownership of computers in Bengaluru Rural and Karnataka in 2011. There exists wide regional disparity between rural and urban households in owning computers at both the district and state level. The per centage of urban households owning computers is 13 per cent for Bengaluru Rural and 24 per cent for Karnataka in 2011. On the other hand, only about 6 per cent of rural households own computers in rural areas, either in Bengaluru Rural or in Karnataka.

Table 7.5: Details of Household Ownership of Computer or Laptop (2011)

Taluk / District / State	Total / Rural / Urban	Total Households in 2011	Households owning computer	Per centage of households owning computer
Devanahalli	Total	45,070	3,658	8.12
	Rural	31,177	2,290	7.35
	Urban	13,893	1,368	9.85
Doddaballapur	Total	70,464	4,800	6.81
	Rural	46,488	1,662	3.58
	Urban	23,976	3,138	13.09
Hosakote	Total	59,236	4,429	7.48
	Rural	46,145	2,619	5.68
	Urban	13,091	1,810	13.83
Nelamangala	Total	49,975	4,179	8.36
	Rural	38,588	2,346	6.08
	Urban	11,387	1,833	16.10
Bengaluru Rural	Total	224,745	17,066	7.59
	Rural	162,398	8,917	5.49
	Urban	62,347	8,149	13.07
Karnataka	Total	13,179,911	1,692,253	12.84
	Rural	7,864,196	438,087	5.57
	Urban	5,315,715	1,254,166	23.59

Source: Census of India

Within Bengaluru Rural, the difference between rural and urban households owning computers averages about 10 per centage points in Doddaballapur, Hosakote and Nelamangala. In these three taluks, the average per centage of urban households' owning computers is about 14 per cent and average per centage of rural households' owning computers about 7 per cent in 2011. In contrast, Devanahalli is the only taluk in the district where the disparity between rural and urban sector is low. It has significantly higher per centage of households (7 per cent) owning computers in the rural sector relative to other three taluks in the district. But, it also has the lowest per centage of households owning computers (9 per cent) in the urban sector relative to other three taluks in the district.

7.3.3. Two-wheeler

Table 7.6 provides details about the number of households owning bicycle in all the taluks of Bengaluru Rural and Karnataka in 2011 and 2001. In Bengaluru Rural, there are 73,513 households in rural areas and 20,395 households in urban areas that own bicycles in 2011 whereas in Karnataka there are 2,870,746 households in rural areas and 1,594,623 households in urban areas. Hence, it is evident that rural households own more bicycles than urban households in both Karnataka and Bengaluru Rural district in 2011.

Table 7.6: Details of Household Ownership of Bicycle (2011 and 2001)

Taluk / District / State	Total / Rural / Urban	Total Household in 2011	Households owning Bicycle in 2011	Per centage of Households owning Bicycle in 2011	Per centage of Households owning Bicycle in 2001	Difference between 2011 and 2001
Devanahalli	Total	45,070	21,862	48.51	46.66	1.85
	Rural	31,177	16,531	53.02	50.83	2.20
	Urban	13,893	5,331	38.37	36.72	1.66
Doddaballapur	Total	70,464	28,380	40.28	36.41	3.87
	Rural	46,488	20,159	43.36	37.67	5.70
	Urban	23,976	8,221	34.29	33.36	0.93
Hosakote	Total	59,236	27,592	46.58	50.72	-4.14
	Rural	46,145	23,457	50.83	53.62	-2.79
	Urban	13,091	4,135	31.59	37.13	-5.54
Nelamangala	Total	49,975	16,074	32.16	32.91	-0.74
	Rural	38,588	13,366	34.64	35.12	-0.48
	Urban	11,387	2,708	23.78	19.80	3.98
Bengaluru Rural	Total	224,745	93,908	41.78	41.34	0.44
	Rural	162,398	73,513	45.27	43.82	1.44
	Urban	62,347	20,395	32.71	33.15	-0.44
Karnataka	Total	13,179,911	4,465,369	33.88	30.14	3.74
	Rural	7,864,196	2,870,746	36.50	27.85	8.66
	Urban	5,315,715	1,594,623	30.00	34.45	-4.45

Source: Census of India.

The per cent of household ownership of bicycles in Devanahalli and Dodballapura have witnessed a marginal increase in both rural and urban sector. In case of Hosakote, the per cent of household ownership of bicycles has decreased by 3 per cent and 6 per centage points in rural and urban areas respectively.

Table 7.7 provides details of household ownership of scooter/ motorcycle / moped of Bengaluru Rural and Karnataka in 2011 and 2001. Similar to household ownership of bicycles, the rural household ownership of motorized two-wheelers is higher than the urban household ownership in Bengaluru Rural. However, the case is reversed for Karnataka as a whole where urban households own more motorized two-wheelers than rural households in 2011.

Table 7.7: Details of Household Ownership of Motorized Two-wheeler (2011 and 2001)

Taluk / District / State	Total / Rural / Urban	Total HHs in 2011	HHs owning Scooter/ Motorcycle/ Moped in 2011	Per centage of HHs owning Scooter/ Motorcycle/ Moped in 2011	Per centage of HHs owning Scooter/ Motorcycle/ Moped in 2001	Difference between 2011 and 2001
Devanahalli	Total	45,070	16,509	36.63	16.33	20.30
	Rural	31,177	12,438	39.89	16.55	23.35
	Urban	13,893	4,071	29.30	15.82	13.48
Doddaballapur	Total	70,464	17,350	24.62	12.21	12.41
	Rural	46,488	11,128	23.94	10.37	13.57
	Urban	23,976	6,222	25.95	16.68	9.27
Hosakote	Total	59,236	21,897	36.97	18.98	17.99
	Rural	46,145	17,191	37.25	18.26	19.00
	Urban	13,091	4,706	35.95	22.36	13.59
Nelamangala	Total	49,975	13,249	26.51	11.51	15.00
	Rural	38,588	9,143	23.69	10.01	13.69
	Urban	11,387	4,106	36.06	20.40	15.66
Bengaluru Rural	Total	224,745	69,005	30.70	14.60	16.11
	Rural	162,398	49,900	30.73	13.56	17.17
	Urban	62,347	19,105	30.64	18.00	12.64
Karnataka	Total	3,179,911	3,374,302	25.60	14.44	11.16
	Rural	7,864,196	1,325,907	16.86	7.29	9.57
	Urban	5,315,715	2,048,395	38.53	27.88	10.66

Source: Census of India.

The per centage of households owning motorized two-wheelers has increased in all the four taluks of Bengaluru Rural. Devanahalli taluk has experienced the highest increase in the proportion of household ownership in the district primarily driven by the huge increase in rural household ownership of motorized vehicles. The rural household ownership of motorized vehicles is 40 per cent in 2011 which is 10 per centage points more than urban household ownership. Hosakote is the only other taluk with similar trends though the difference between rural and urban household ownership is only of 2 per cent. The case is reversed in Nelamangala since urban household ownership is greater than the rural household ownership of motorized vehicles. Overall, Bengaluru Rural fares better than Karnataka since it has higher per cent of household ownership of motorized vehicles (30 per cent) in comparison to Karnataka (26 per cent). And also because the difference between rural and urban sector in terms of ownership of motorized vehicles has reduced over the ten time period in the district.

7.3.4. Four-wheeler

Table 7.8 provides details of household ownership of four-wheelers in Bengaluru Rural and Karnataka in 2011 and 2001. Among the four taluks, Devanahalli taluk has witnessed a significant increase in household ownership in both rural and urban sector. In Nelamangala and Hosakote, the significant increase in household ownership has occurred in the urban sector in comparison the increase in rural household ownership witnessed in these two taluks. Overall, household ownership of four-wheelers has increased across all taluks of Bengaluru Rural. The urban households' ownership in Bengaluru Rural has increased by 3 per centage points from 2001 to 2011 where as the rural households in Bengaluru Rural have witnessed an increase of only 2 per centage points over the same time period.

Table 7.8: Details of Household Ownership of Four-wheeler (2011 and 2001)

Taluk / District / State	Total / Rural / Urban	Total Household in 2011	Number of households owning four-wheeler in 2011	Per centage of households owning four-wheeler in 2011	Per centage of households owning four-wheeler in 2001	Difference between 2011 and 2001
Devanahalli	Total	45,070	3,017	6.69	2.61	4.09
	Rural	31,177	2,105	6.75	2.27	4.48
	Urban	13,893	912	6.56	3.40	3.16
Doddaballapur	Total	70,464	1,882	2.67	1.63	1.04
	Rural	46,488	988	2.13	1.11	1.01
	Urban	23,976	894	3.73	2.88	0.85
Hosakote	Total	59,236	3,253	5.49	2.25	3.24
	Rural	46,145	2,194	4.75	1.93	2.82
	Urban	13,091	1,059	8.09	3.74	4.35
Nelamangala	Total	49,975	2,237	4.48	2.02	2.46
	Rural	38,588	1,140	2.95	1.63	1.33
	Urban	11,387	1,097	9.63	4.31	5.32
Bengaluru Rural	Total	224,745	10,389	4.62	2.07	2.55
	Rural	162,398	6,427	3.96	1.68	2.28
	Urban	62,347	3,962	6.35	3.37	2.99
Karnataka	Total	13,179,911	833,478	6.32	3.07	3.26
	Rural	7,864,196	200,131	2.54	1.36	1.19
	Urban	5,315,715	633,347	11.91	6.27	5.65

Source: Census of India

Nelamangala and Hosakote have the highest difference between rural and urban household ownership of four-wheelers among the four taluks. The difference between rural and urban household ownership is about 5 per cent point in Hosakote and 7 per cent point in Nelamangala in 2011, which is higher than difference that existed in 2001 (2 per cent and 3 per centage points respectively). Despite this, the disparity between rural and urban sector is only of 3 per cent point in 2011 at the district level due to significant increase in rural household ownership of four-wheelers in Devanahalli taluk.

7.3.5. Banking Services

Table 7.9 provides details of households which had availed banking services in 2011 in all the four taluks of Bengaluru Rural and Karnataka. In general, the per centage point increases in households availing banking services has been similar in both Bengaluru Rural and Karnataka from 2001. However, the urban households of Bengaluru Rural have witnessed a higher increase of 23 per centage points in comparison to 15 per centage points witnessed by Karnataka as a whole.

Table 7.9: Details of Household Availing Banking Services (2011 and 2001)

Taluk / District / State	Total / Rural / Urban	Total Households in 2011	Households availing banking services in 2011	Per centage of households availing banking services in 2011	Per centage of households availing banking services in 2001	Difference between 2011 and 2001
Devanahalli	Total	45,070	24,362	54.05	32.56	21.50
	Rural	31,177	17,805	57.11	33.56	23.55
	Urban	13,893	6,557	47.20	30.16	17.04
Doddaballapur	Total	70,464	31,004	44.00	23.72	20.28
	Rural	46,488	20,831	44.81	25.47	19.34
	Urban	23,976	10,173	42.43	19.49	22.94
Hosakote	Total	59,236	30,453	51.41	29.64	21.77
	Rural	46,145	21,960	47.59	27.67	19.92
	Urban	13,091	8,493	64.88	38.86	26.02
Nelamangala	Total	49,975	24,811	49.65	28.10	21.54
	Rural	38,588	17,330	44.91	25.51	19.40
	Urban	11,387	7,481	65.70	43.49	22.21
Bengaluru Rural	Total	224,745	10,630	49.22	27.98	21.25
	Rural	162,398	77,926	47.98	27.62	20.36
	Urban	62,347	32,704	52.45	29.14	23.31
Karnataka	Total	13,179,911	8,054,677	61.11	39.99	21.12
	Rural	7,864,196	4,633,762	58.92	35.21	23.71
	Urban	5,315,715	3,420,915	64.35	48.96	15.39

Source: Census of India

Within Bengaluru Rural, the rural households in Devanahalli and Doddaballapur have availed banking services more than urban households in 2011. In the other two taluks, it is the urban households which have availed banking services more than rural households. While the difference between rural and urban households availing banking services in Devanahalli is about 2 per centage points in 2001, it has increased to 10 per centage points in 2011. Therefore, the difference between rural and urban households in availing banking services has increased significantly over the time period.

The reverse is true in Nelamangala and Hosakote where the proportion of urban households availing banking services have increased significantly since 2001. In 2011, there were 66 per cent and 65 per cent urban households that had availed banking services in Nelamangala and Hosakote respectively. In comparison, only 45 per cent and 48 per cent of rural households have availed banking services in Nelamangala and Hosakote respectively. The difference between urban and rural households availing banking services has also increased to 18 per centage points on an average in 2011 from 10 per centage points on an average in 2001 in these two taluks.

In the case of Dodballapura, the number of households availing banking services has increased by 20 per centage points between 2011 and 2001. At the same time, the difference between rural and urban households availing banking services has also reduced to 2 per cent point in 2011 from 6 per centage points in 2001.

7.4. Drinking Water

7.4.1. Access to drinking water

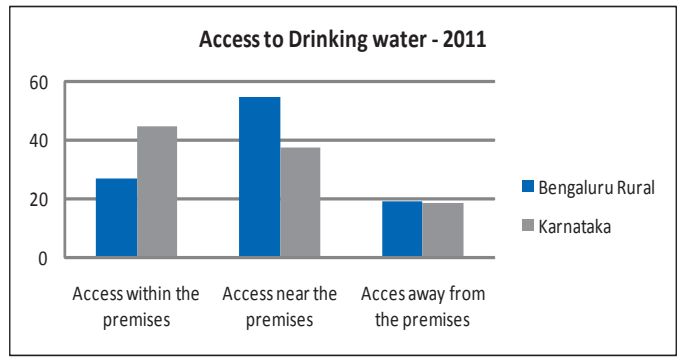
Access to drinking water is one of important markers for standard of living. Drinking water source closer to household has significant impact on women and child

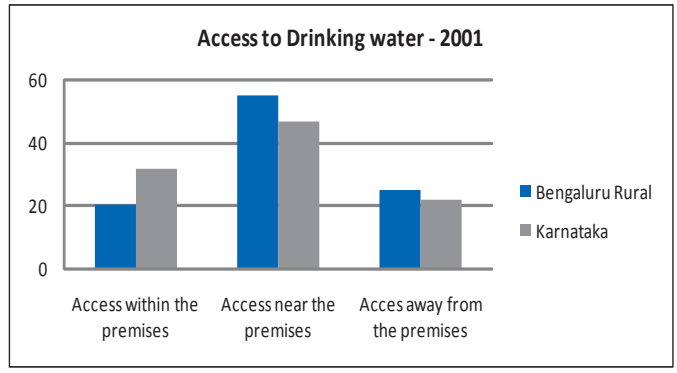
members of a household. This is because mostly women and children are given the responsibility to fetch water for the household. And the availability of drinking water nearer to household saves time and energy for both women and children. Time thus saved may in turn be utilized to engage in productive or leisure activities. Therefore, availability of drinking water source close to household would improve the standard of living of women and children to a great extent.

According to 2011 census, 54.5 per cent of all households in Bengaluru Rural have access near the premises with 26.4 per cent of all households having access within the premises and 19.1 per cent of all households having access away from the premises. In comparison to 2001 census, there has been a 2 per centage point increase in access to drinking water within the premises and access away from the premises has dropped by 1 per cent of all households in Bengaluru Rural. Disaggregated data shows that 59.6 per cent of all households in rural Bengaluru Rural and 41.4 per cent of all households in urban Bengaluru Rural have access to water near the premises. However, there appears to be 18 per centage point difference between rural and urban households in terms of access within the premises. The per centage of households having access to water within the premises has increased by 8 per centage points in rural households. In the case of urban households, the number of households with access within the household has increased from 16,226 in 2001 to 24,626 in 2011. There appears to be similar pattern of access to drinking water for both rural and urban households in Bengaluru Rural.

However, the pattern does not hold true when compared to Karnataka as a whole. There is significantly higher per cent of urban households in the state with access within the premises, about 70 per cent, in comparison to 40 per cent of urban households in Bengaluru Rural. The difference in per centage points between rural households in Bengaluru Rural and those in Karnataka with access within the premises is only of around 5 per centage points.

Figure 7.1: Per centage of Households with Access to Drinking Water (2001 and 2011)





Source: Census of India

The principal sources of drinking water are taps, hand pumps, tube wells, wells, and others which include ponds, lakes, canals and springs etc. Taps constitute the dominant source of water for 79 per cent of urban households and 62 per cent of rural households in Bengaluru Rural. Another important water source is tube well especially in rural areas. In 2011, about 35 per cent of rural households in Bengaluru Rural reported accessing water from tube wells in comparison to 9 per cent of urban households. The pattern holds true for all the four taluks of Bengaluru Rural.

Table 7.10: Sources of Drinking Water

Taluk / District / State	Total / Rural / Urban	2011					
		Total	Tap	Well	Hand pump	Tube well	Other
Devanahalli	Total	45,070	33,982	310	372	9,568	838
	%		75.40	0.69	0.83	21.23	1.86
	Rural	31,177	22,579	256	344	7,780	218
	%		72.42	0.82	1.10	24.95	0.70
	Urban	13,893	11,403	54	28	1,788	620
	%		82.08	0.39	0.20	12.87	4.46
Doddaballapur	Total	70,464	42,733	284	429	22,698	4,320
	%		60.65	0.40	0.61	32.21	6.13
	Rural	46,488	23,547	204	362	22,215	160
	%		50.65	0.44	0.78	47.79	0.34
	Urban	23,976	19,186	80	67	483	4,160
	%		80.02	0.33	0.28	2.01	17.35
Hosakote	Total	59,236	38,295	502	686	17,336	2,417
	%		64.65	0.85	1.16	29.27	4.08
	Rural	46,145	29,298	460	622	14,827	938
	%		63.49	1.00	1.35	32.13	2.03
	Urban	13,091	8,997	42	64	2,509	1,479
	%		68.73	0.32	0.49	19.17	11.30
Nelamangala	Total	49,975	35,152	270	821	13,408	324
	%		70.34	0.54	1.64	26.83	0.65
	Rural	38,588	25,215	258	791	12,105	219
	%		65.34	0.67	2.05	31.37	0.57
	Urban	11,387	9,937	12	30	1,303	105
	%		87.27	0.11	0.26	11.44	0.92
Bengaluru Rural	Total	224,745	150,162	1,366	2,308	63,010	7,899
	%		66.81	0.61	1.03	28.04	3.51
	Rural	162,398	100,639	1,178	2,119	56,927	1,535
	%		61.97	0.73	1.30	35.05	0.95
	Urban	62,347	49,523	188	189	6,083	6,364
	%		79.43	0.30	0.30	9.76	10.21
Karnataka	Total	13,179,911	8,706,964	1,182,990	729,630	2,101,712	458,615
	%		66.06	8.98	5.54	15.95	3.48
	Rural	7,864,196	4,432,115	935,263	662,370	1,539,109	295,339
	%		56.36	11.89	8.42	19.57	3.76
	Urban	5,315,715	4,274,849	247,727	67,260	562,603	163,276
	%		80.42	4.66	1.27	10.58	3.07

Source: Census of India

7.4.2. Quality of Water supply

Table 7.11: Water Contamination in Bengaluru Rural District (2012-13)

Taluk/ District	Population affected by (2012-2013)				Total Population affected (2010-2011)		Per cent change
	Fluoride	Iron	Salinity	Nitrate	Total		
Devanahalli	0	727	0	0	727	5,249	-99.86
Dodballapura	298	236	0	0	534	12,103	-99.96
Hosakote	0	368	418	3,312	4,098	27,547	-99.85
Nelamangala	1,161	421	2,482	1,309	5,373	11,793	-99.54
Bengaluru Rural	1,459	1,752	2,900	4,621	10,732	56,692	-99.81

Note:
1. Habitations with any contamination including Fluoride are counted under 'Fluoride' Column.
2. Habitations with any contamination including Iron and Fluoride are counted under 'Iron' Column.
3. Habitations with any contamination including Salinity, Fluoride and Iron are counted under 'Salinity' Column.
4. Habitations with only Nitrate contamination are counted under 'Nitrate' Column.

Source: Rajiv Gandhi National Drinking Water Mission website

Water contamination is an important aspect linked with access to water; clean drinking water is the real requirement for good health. The district seems to have done well in addressing this issue though there still remain more aspects to deal with. There are over 10,732 persons affected with major water quality issues: excess fluoride – 1,459; iron – 1,752; salinity– 2,900 and nitrate - 4,621 in 2012-13. The number of population affected due to contamination has reduced from 56,692 in 2010-11 to 10,732 in 2012-13. The 81 per cent reduction in population affected has been primarily due to significant reduction in per cent of population affected due to nitrate contamination. There were 41,961 persons affected due to nitrate contamination in 2010-11 which was brought down significantly to 4,621 persons in 2012-13. Moreover, all the four taluks of Bengaluru Rural have registered a reduction of 99 per cent in terms of affected population due to water contamination in 2013-14 relative to 2010-11.

7.5. Sanitation

Sanitation plays an important role in the health status of communities and thereby impacts the human development parameters. In acknowledgement of this, Karnataka government introduced the Total Sanitation Campaign in 2005 to promote the use of latrines to improve the sanitation condition of the population. It has special implication for children as poor health due to open defection practices impacts their school attendance rate thereby educational attainment. In addition to Total Sanitation Campaign, the Government of Karnataka government started providing awards to gram panchayats under Nirmal Gram Puraskar (NGP) Award scheme to encourage gram panchayats to aggressively tackle the problem of open defecation.

The introduction of Total Sanitation Campaign (TSC) and NGP award has had significant impact on the availability of latrine within the household over the time period. Table 7.12 provides details of the significant improvement in availability of latrine within the household in each taluk of Bengaluru Rural and Karnataka in 2001 and 2011.

The success of TSC and its impact was due to the initiatives taken up by the Bengaluru Rural officials, which is discussed in detail in SAS 2. The main beneficiaries of the drive to improve sanitation in Bengaluru Rural have been the rural households. In Devanahalli, the number of rural households with availability of latrine within the house increased from 20,835 in 2001 to 37,369 in 2011. It had witnessed an increase of 23 per centage points during this time period. Similarly, the urban households in Devanahalli also saw an increase of 12 per centage points in terms of households having latrine within the house during the same time period. In Hosakote, rural households experienced an increase of 16 per centage points and urban households experienced an increase of 9 per

centage points in terms of number of latrines within the house. The trend is reversed in Doddaballapur where the significant improvement has occurred in the urban sector. The per centage of urban households with latrine facility within the household increased from 79.05 per cent in 2001 to 90.67 per cent in 2011.

Table 7.12: Latrine Facility - 2011 and 2001

Taluk / District / State	Total/ Rural/ Urban	2011			2001		
		Total Number of HHs	Latrine within the HHs	No Latrine within the HHs	Total HHs	Latrine within the HHs	No latrine within the HHs
Devanahalli	Total	45,070	37,369	7,701	35,299	20,835	14,464
	%		82.91	17.09		59.02	40.98
	Rural	31,177	25,492	5,685	24,865	13,218	11,647
	%		81.77	18.23		53.16	46.84
	Urban	13,893	11,877	2,016	10,434	7,617	2,817
	%		85.49	14.51		73.00	27.00
Doddaballapur	Total	70,464	53,602	16,862	55,131	37,506	17,625
	%		76.07	23.93		68.03	31.97
	Rural	46,488	31,862	14,626	39,002	24,756	14,246
	%		68.54	31.46		63.47	36.53
	Urban	23,976	21,740	2,236	16,129	12,750	3,379
	%		90.67	9.33		79.05	20.95
Hosakote	Total	59,236	46,412	12,824	41,296	25,923	15,373
	%		78.35	21.65		62.77	37.23
	Rural	46,145	34,074	12,071	34,029	19,682	14,347
	%		73.84	26.16		57.84	42.16
	Urban	13,091	12,338	753	7,267	6,241	1,026
	%		94.25	5.75		85.88	14.12
Nelamangala	Total	49,975	42,206	7,769	35,951	28,032	7,919
	%		84.45	15.55		77.97	22.03
	Rural	38,588	31,215	7,373	30,754	23,153	7,601
	%		80.89	19.11		75.28	24.72
	Urban	11,387	10,991	396	5,197	4,879	318
	%		96.52	3.48		93.88	6.12
Bengaluru Rural	Total	224,745	179,589	45,156	167,677	112,296	55,381
	%		79.91	20.09		66.97	33.03
	Rural	162,398	122,643	39,755	128,650	80,809	47,841
	%		75.52	24.48		62.81	37.19
	Urban	62,347	56,946	5,401	39,027	31,487	7,540
	%		91.34	8.66		80.68	19.32
Karnataka	Total	13,179,911	6,749,396	6,430,515	10,232,133	6,023,650	4,208,483
	%		51.21	48.79		58.87	41.13
	Rural	7,864,196	2,234,534	5,629,662	6,675,173	3,208,448	3,466,725
	%		28.41	71.59		48.07	51.93
	Urban	5,315,715	4,514,862	800,853	3,556,960	2,815,202	741,758
	%		84.93	15.07		79.15	20.85

Source: Census of India

7.6. Electricity

Access to electricity is very crucial to human development as it is the source of power to run all the household appliances, agriculture, industries and commercial activities. Given the increasing population and finite amount of natural resources to generate electricity, the problem of access to electricity has increasingly been debated among the public, international organization and top government level. The problem is acute in India since coal is the primary source of energy used to generate electricity. In addition, lack of monitoring of electricity usage, electricity theft and loss of electricity during transmission has led to rise in cost of electricity. This in turn has a direct impact on the access to electricity especially to poor households in India.

According to 2011 census, about 95 per cent of households in Bengaluru Rural have access to electricity in comparison to 90 per cent of household in Karnataka. And in 2001, only about 89 per cent and 79 per cent of households had access to electricity in Bengaluru Rural and Karnataka respectively. The per centage of households with access to electricity ranges between 94 and 96 per cent across the taluks of Bengaluru Rural in 2011. Further, the difference between rural and urban household access to electricity is marginal, only about 0.54 per cent, in Bengaluru Rural relative to 10 per cent difference that exists in Karnataka. However, it must be mentioned that the difference between rural and urban households has reduced significantly, by about 15 per centage points, over this time period in Karnataka.

Moreover, the per centage of households using kerosene for lighting purpose has also reduced from 2001 to 2011 in both Bengaluru Rural and Karnataka. In Bengaluru Rural, the rural sector has witnessed a 6 per cent point reduction in per centage of households and the urban sector has witnessed a 4 per cent point reduction in per centage of households using kerosene for lighting purpose. The per centage of rural households using kerosene has reduced by 15 per centage points in Karnataka during the same time period. In addition, the use of other sources such as solar energy, other oils and others have remained constant or have reduced marginally over the same time period.

Therefore, the increase in per centage of households using electricity for lighting purpose and reduction of use of kerosene and other sources of energy by households in Bengaluru Rural and Karnataka indicates a conscious move towards reaching 100 per cent electrification of all households in the state.

7.7. Cooking Fuel

Use of clean cooking fuel such as LPG, electricity and bio-gas has huge implications for the development of women and children especially in India. The primary reason is due to role and duties performed by female members of a household in India. In most households, women are given the responsibility of cooking and young children tend to be around their mother during their early years of childhood. Given this, the hazardous fumes emitted by traditional cooking fuel adversely impacts the health of women and young children of the household. This adverse impact on health has implications on labor productivity of adult women members and education attainment of children in the household. Therefore, adoption of clean cooking fuel by households would improve the health status of women and children.

The primary source of cooking fuel in rural sector is firewood in Bengaluru Rural. In 2011, about 69 per cent of households and 82 per cent of households in the rural sector used fire wood for cooking in Bengaluru Rural and Karnataka respectively. In urban sector, the primary source of cooking fuel is LPG in both Bengaluru Rural and Karnataka. In 2011, about 62 per cent and 64 per cent of households in urban sector used LPG for cooking fuel in Bengaluru Rural and Karnataka respectively.

The use of clean cooking fuel has increased significantly in all the four taluks of Bengaluru Rural from 2001. In Devanahalli, the per centage of households using clean cooking fuel has increased from 14 per cent in 2001 to 35 per cent in 2011. In rural sector of Devanahalli, the per centage of households using clean cooking fuel has increased from 8 per cent in 2001 to 28 per cent in

2011. Nelamangala taluks witnessed the next highest increase in per centage of households switching to clean cooking fuel. In rural sector, the per centage of households using clean cooking fuel has increased from 7 per cent in 2001 to 30 per cent in 2011. And in urban sector, the per centage of households using clean cooking fuel has increased from 44 per cent in 2001 to 76 per cent in 2011. The trend is the same in the other two taluks of Bengaluru Rural.

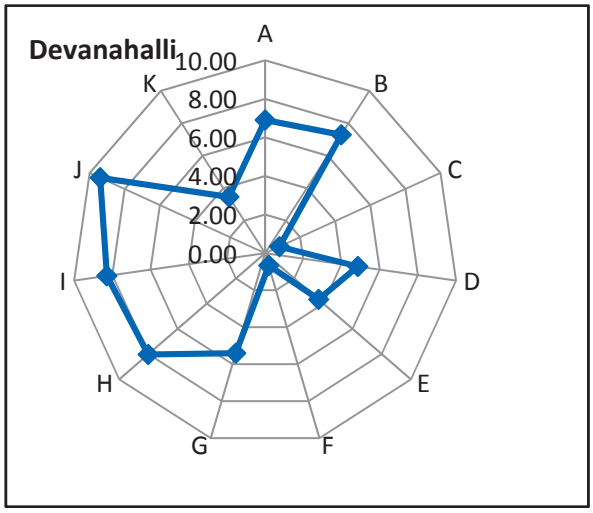
Therefore, there has been significant move towards to clean cooking fuel in all the taluks of Bengaluru Rural. But the per centage of households using clean cooking fuel does not constitute the majority of the population in the rural sector in both the district and state. Further, only 62 per cent of households use clean cooking fuel in Bengaluru Rural. There has to be more effort put in to ensure that all households switch to clean cooking fuel in both rural and urban sector. This switch to clean cooking fuel will positively impact the health status of women and children members of the household.

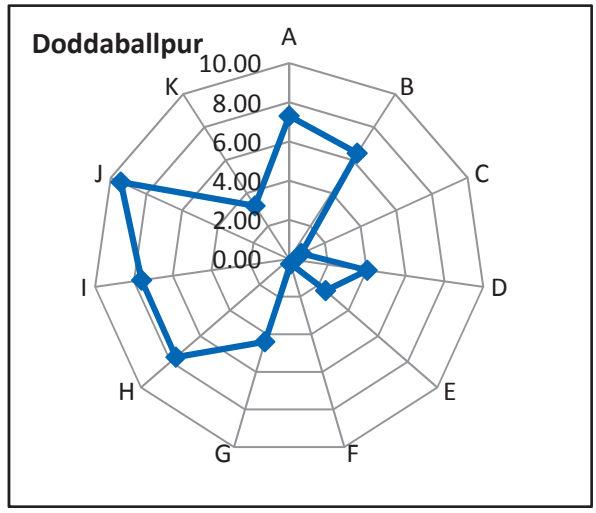
7.8. Radar Analysis

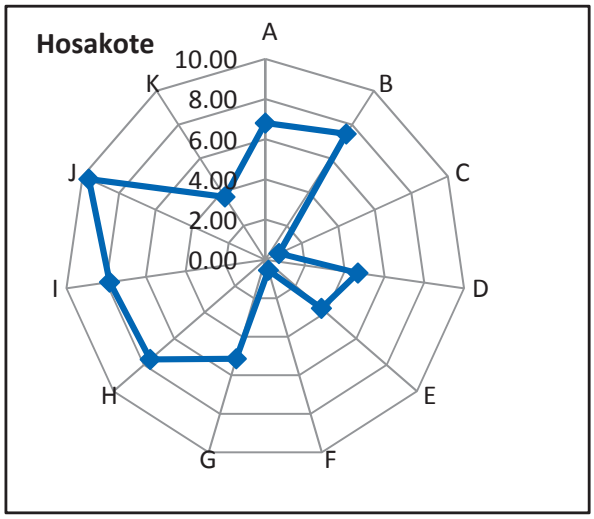
The radar chart (Figure 7.2) for Devanahalli indicates that it has the highest per centage of households owning television (72.91 per cent) in the district. In addition, it is also taluk with best asset status of households in the district. It has the highest per centage of households owning bicycle (48.51 per cent) and four-wheeler (6.69 per cent), and availing banking services (54.05 per cent) in the district. It is placed second (8.12 per cent) after Nelamangala taluk lagging behind by an infinitesimal per cent point of 0.24 with respect to household ownership of computers. The case is similar with respect to household ownership of motorized two-wheeler where Devanahalli is second lagging behind Hosakote taluk only by 0.34 per cent points. It is one of the worst performers in the district, ranking third, with respect to per centage of household ownership of pucca houses and cooking fuel.

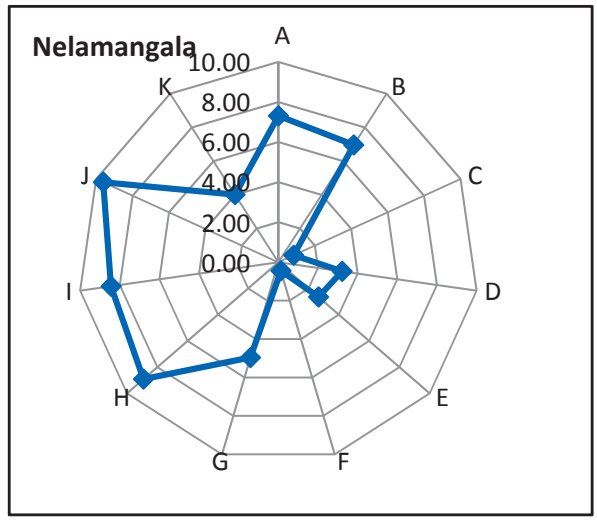
Nelamangala taluk is the next best performing taluk in the district. It significantly outperforms other taluks in standard of living variables such as per centage of households with - pucca houses (73.08 per cent), safe drinking water (89.19 per cent), latrine facility (84.45 per cent) and clean cooking fuel (40.09 per cent). It is also has the highest per centage of households with ownership of computers, but only marginally higher than Devanahalli taluk. Nelamangala taluk ranks third in the district in terms of household ownership of television (69.57 per cent), availing banking services (49.65 per cent), and access to electricity (96.17 per cent), motorized two-wheeler (26.51 per cent) and four-wheeler (4.48 per cent).

Figure 7.2: Indicators of Standard of Living (2011)









Legend: A: Per centage of households with pucca houses; B: Per centage of households owning television; C: Per centage of households owning computer; D: Per centage of households owning bicycle; E: Per centage of households owning motorized two-wheeler (scooter / moped / motorcycle); F: Per centage of households owning four-wheeler (car / jeep / van); G: Per centage of households availing banking services; H: Per centage of households with safe drinking water; I: Per centage of households with latrine facility within its premises; J: Per centage of households with access to electricity; K: Per centage of households with access to clean cooking fuel.

Source: Census of India.

The radar for Hosakote taluk indicates that it has the highest per centage of households with access to electricity (96.62 per cent) in the district. However, it must be noted that access to electricity ranges between 94 per cent and 97 per cent across taluks in the district. Therefore, the difference between Hosakote and other taluks with respect to this indicator of standard of living is marginal. It ranks second in terms of per centage of household ownership – television (74.49 per cent), bicycle (46.58 per cent), four-wheeler (5.49 per cent) and banking services (51.41 per cent). The taluks is placed third in the district with respect to other indicators of standard of living such as latrine facility (78.35 per cent) and clean cooking fuel (37.18 per cent). In terms of safe drinking water, it has lowest per centage of household with access to drinking water (75.85 per cent) in the district indicating scope for improvement in this particular area.

Doddaballapur taluk better performance is in terms of household ownership of pucca houses and safe drinking water where it is placed third in the district. It has the lowest level of performance in all the other standard of living indicators. The indicators that require more attention are: asset status of household, clean cooking fuel and latrine facility. Doddaballapur taluk lags behind by 7 per cent points on average relative to the values registered by top performing taluk in each of these standard of living indicators. Therefore, there is a need for more focus and intervention to improve the standard of living in Doddaballapur taluk.

7.9. Conclusion

All the four taluks of Bengaluru Rural have reported improved standard of living over a decade as measured in terms of asset status, safe drinking water, latrine facility, and electricity in general. Bengaluru Rural fares better than the state as a whole (Karnataka) especially in terms of asset status, electricity and clean cooking fuel. This better performance can be attributed to two reasons. First, it has witnessed higher increase in per centage of household ownership of assets, pucca houses and access to essential standard of living indicators. Second, the gap between rural and urban sector in terms of standard of living indicators has reduced significantly over this time period in Bengaluru Rural in comparison to other parts of the state. Proximity to Bengaluru city could be the reason for fast urbanization in Bengaluru Rural. Fast urbanization has its flip side too: in Devanahalli and Dodballapura, there were no house sites provided to houseless families due to non-availability of sites at affordable prices. This requires attention and an alternative solution.

SAS 2 - Total Sanitaiton Campaign in Two Gram Panchayats: A Promising Case

Introduction

Open defecation (OD) is extremely common in India, particularly in rural areas. According to the Census 2011, less than half (46.9%) of the households in India have a latrine facility within their premises. The situation is worse in rural India where only 30.7 per cent of the households have a latrine facility within their premises. According to UNICEF and World Health Organization 2012, about one-third of the 2.5 billion people without improved sanitation live in India.

Impact of poor sanitation on infant and child mortality and health is profound. Black et al. (2003) estimated that 10 million children under five die every year - 2.4 million of them in India - and that a fifth to a quarter of these deaths was attributable to diarrhea. Human Development Report 2006 reported death of around 450,000 children annually because of diarrhea in India. Disease early in life also has lasting effects on the health and human capital of children who survive (Almond and Currie, 2011). Other than associated health hazards, many studies have documented social hazards of lack of sanitation, like risk of attack and rape, absence from school and impact on livelihood.

In India, rural sanitation came into focus with the initiation of the Central Rural Sanitation Programme (CRSP) in 1986. In 1999, GoI launched its flagship programme on sanitation, named Total Sanitation Campaign (TSC). TSC adopted participatory and demand driven approach with a special focus on IEC activities and developing supply chain (Rural Sanitary Mart) to meet the demands of the sanitation sector in rural areas. TSC gave a small amount of cash incentive post construction and use of toilet to needy households. However, to encourage community level achievements - *Nirmal Gram Puruskar* (NGP) was launched in 2003 to facilitate fully sanitized and open defecation free GPs, Blocks, Districts and State with an incentive. In 2012, TSC was revamped as *Nirmal Bharat Abhiyan* (NBA). With an increased incentive, NBA is converged with MGNREGA. Also, list of beneficiaries included wider range of rural householdssuch as small and marginal farmers, woman headed households, etc. According to MDWS, the total government expenditure on sanitation from April 1999 to March 2014 is Rs. 1,434,050 lakhs, of which 70.4 per cent is the central government's expenditure and rest 29.6 per cent is the state government's expenditure.

In Karnataka, the situation is slightly better than the national achievements as 51.2 per cent of the households have latrine facility within their premises. However, there is significant disparity between rural and urban areas of the State in regard to sanitation as 84.9 per cent of the urban households have latrine facility within the premises whereas only 28.4 per cent of the rural households have the same (Census 2011). As per the information provided by Ministry of Drinking Water and Sanitation[21] (MDWS), about 82.64 per cent of the households in rural Karnataka have in-house toilets in against of national figure of 76.46 per cent. Similarly, all the schools and anganwadis of the state have toilets whereas the national figure stands for 97.11 for schools and 87.65 for anganwadis. However, the state is able to develop only 79.1 per cent of the sanitary complexes where the national achievement is of 82 per cent. One district, six blocks and 1069 GPs of the State have received *Nirmal Gram Puruskar* (NGP)[22]. Between the launch of the TSC in 1999 and March 2014, Karnataka has constructed 4,851,831 IHHLs, 44,313 toilets in school and 29,587 toilets in anganwadi's. According to MDWS, the total government expenditure on sanitation from April 1999 to March 2014 in the state is INR 40,644.92 lakhs, of which about 68 per cent is the central government's expenditure and 32 per cent is the state government's contribution.

[21] As on April 17, 2014

[22] Nirmal Gram Puruskar (NGP) is an award based Incentive scheme, launched in October 2003, for fully sanitized and open defecation free Gram Panchayats, Blocks, Districts and States.

Total Sanitation Campaign in Bengaluru Rural District

Under the leadership of Dr. Manjula Naik, the then CEO of Bengaluru Rural district, TSC gained momentum in the financial year of 2008 – 2009 in the district. Dr. Naik had identified sanitation as the administration's key priority and began applying pressure on subordinates to promote the campaign in their areas.The effort has resulted in achieving TSC targets in many GPs, as 40 GPs have received NGP status in 2009 only. As per MDWS, out of 98 Gram Panchayats of Bengaluru Rural District, 54 GPs have received NGP status by March 2012.

Strategy adopted by district administration to promote sanitation included: 1). preliminary assessment of the GPs to select GPs for various phases of the programme[23]; 2). training of key stakeholders like elected representatives from GPs, waterman and SHG members; 3). creation of Taskforce at GP level consisting of GP members, teachers and anganwadi workers, local health workers, SHG presidents and secretaries, SC/ST leaders etc; 4). involvement of NGOs for IEC activities; 5). promoting IEC activities through local print media, wall painting, street plays, films, exposure visits, regular meetings, musical programmes, processions, door-to-door visits by ANMs, SHG members, anganwadi workers and teachers, and repeated follow-ups by taskforce committee members; 6). strengthening usage of toilet in schools and anganwadis through inclusion of special chapter on importance of sanitation, also conducting dramas, essay competition etc in school; 7). provision of loans through local banks for the construction of toilets; 8). supply of raw-materials needed for construction of toilets by GPs; and 9). Installing social regulation techniques like patrolling customary open defection areas, fining people defecating in open and also publicly shaming them, printed notices to households, threatening to cut electricity, rations, water supply and other government facilities if toilet is not built, and using scare tactics like media stories on rape or murder of woman during open defecation, etc.

Case Study of Two GPs from Bengaluru Rural District of Karnataka

Under the Small Area Study (SAS) of the Human Development Report, two NGP-Gram Panchayat's[24] from Bengaluru Rural district have been selected. The objective of the study was to understand multi-pronged approach adopted towards the achievement of goals under TSC in the selected GPs, and its overall impact on the development and welfare of people.

Anneshwara GP from Devenahalli taluk and Basettihalli GP from Doddaballapur taluk were selected for the case study. Both the GPs had received NGP status in 2009. Along with secondary data collection from various sources, consultation was held with sector experts and government officials at the district level. At the GP level, interviews were conducted with GP members, teachers, anganwadi workers and beneficiaries.

Introduction of the Selected GPs

Situated near Bengaluru International Airport, the total population of Anneshwara village is 1511, of which 777 (51.4%) are male and rest 734 (49.6%) are female (Census 2011)[25]. As per the Ministry of Panchayati Raj (MoPR), the GP consists of 13 villages[26]. Of the total population, about 25.3 per cent are SCs and 8.8 per cent are STs. Total literate population of the GP is about 61.2 per cent. Of the total male population, about 68.7 per cent of the males are literate and corresponding figure for female is 53.3 per cent (Census, 2011).Before the initiation of TSC programme in the GP in 2005, only 30 per cent of the households used to have in-house toilet facility.

[23] TSC was expected to run on a phased four-year cycle, the last phases completing by 2012.
[24] GPs who have received Nirmal Gram Puruskar from GoI.
[25] http://www.censusindia.gov.in/pca/final_pca.aspx
[26] http://lgdirectory.gov.in/rptConsolidateVillageGramPanchayat.do?OWASP_CSRFTOKEN=PMNH-1V40-0W1J-NIK9-5TEC-14ZD-7SBW-UHVL

As per the Census 2011, Basehettihalli is a town with a total population of 7943 persons[27]. As per the MoPR, the town has 14 habitations. About 58 per cent of the total population is male and rest is female. About 14.8 per cent of the population belongs to SC and another 8.6 per cent to ST communities. Total literate population of the town is about 81.6 per cent. Of the total male population, about 85.9 per cent of the males are literate and corresponding figure for female is 75.7 per cent (Census, 2011). The town is located in an industrial zone of the state drawing significant number of migrants. As per our discussion with the GP members, per capita income of the households ranges between Rs. 3,000 to Rs. 100,000 per month.

TSC was initiated in 2008-09 in Bashettihalli (then a GP); at that period only 1140 households out of the 2445 households had toilets.

Major Activities Undertaken during the Campaign

a. IEC Activities:

Both the GPs have adopted various IEC activities to mobilize the people towards safe sanitation practices. In Bashettihalli, the Taskforce had organised street plays, hygiene processions and cultural programmes to generate awareness among the residents. Also, social regulation techniques have been adopted to restrict the practice of open defecation like patrolling customary open defection areas, fining people defecating in open and threatening to cut electricity, rations, water supply and other government facilities if initiative to build a toilet is not undertaken.

Anneshwara used the school platform to spread the message of safe sanitation in the GP. Teachers and students had imparted information about 'safe sanitation and hygiene practices' in the school assembly. 'Global Hand Wash Day' was celebrated in schools with the objective of instilling the practice of washing hands during critical times among the children. Also, a *Swatchatha Utsav* (Festival of Cleanliness) was also celebrated where the school children displayed the importance of sanitation. Each school had formed a 'Health and Hygiene Committee' which was responsible to address the issues related to sanitation in school, and also to monitor the cleanliness of the students in the school. Other than school, the members of SHG groups, anganwadi teachers and ASHAs workers were involved in generating awareness among community membersgeneration. According to the former PDO, after the awareness programme, many households had constructed toilets in their house.

b. Construction of Toilets

b.1. Household Toilets:

The sanitation campaign was initiated in 2008-09 in both the selected GPs[28]. At that period TSC programme was effective throughout the country. As per the programme, only the needy households could access the incentive for the construction of a toilet. However, in Bashettihalli, instead of cash transfer, the GP supplied the required construction materials to the households, who were eligible for the incentive. Each household was provided with 3 rings, 2 cement bags, 60 bricks, sand, stones and zinc sheets. In case, houses were constructed under IAY and other government schemes, incentive amount was given for the construction of the toilets. The taskforce was entrusted with the responsibility of ensuring the toilets were constructed. In case of space constraints, the toilets were built in a public place and the keys were given to the households.

TSC guidelines were followed in Anneshwara whilst giving incentive to eligible households as eligible households had received the incentive only after the verification of construction and usage of toilet.

[27] TSC is meant for rural areas (GP) only. Prior to Census 2011, Bashettihalli was a GP. Thus it was able to access the benefits of TSC Programme.
[28] As mentioned above, in Bashettihalli, the Campaign was initiated in 2005 but it has not achieved the needed target. It got revived in 2008.

Table 7.13: Total Number of Individual Toilets Constructed under TSC

GP	Total Households	HH with toilets before the initiation of TSC in GPs	Toilets built under TSC[29]
Anneswara	1555	251 (2005-06)	1376(394 APL+ 982 BPL)
Bashettihalli	2445	1140 (2008-09)	1338 (531 APL+807 BPL)

Source: Ministry of Drinking Water and Sanitation, GoI and Grama Panchayat Office of Anneswara and Bashettihalli

b.2. Institutional Toilets:

All the schools and *anganwadi's* in Anneshwara and Bashettihalli GP are equipped with toilets. Pipeline connection is given to supply water in the school toilets. Water to the toilets is provided through the pipe-line connection of GP. However, the schools still need to resolve the issue of maintenance of these toilets.

Two community toilets were built under the TSCprogramme in Bashettihalli - one near the bus stop which could be easily accessed by commuters, and the other one is in the Bank Circle (market area of the GP). Similarly, two community toilets were built in Anneshwara -one is built in the Anneshwara village and the other in the Dodasanne village. Both the GPs have employed sweepers for the maintenance of the public toilets.

Table 7.14: Number of School and Anganwadi Toilets Constructed

Gram Panchayat	Number of School Toilet constructed	Number of Anganwadi Toilets constructed
Anneswara	10	5
Bashettihalli	12	2

Source: Ministry of Drinking Water and Sanitation, GoI and Grama Panchayat Office of Anneswara and Bashettihalli

c. Utilization of cash incentive received through NGP

Anneswara GP had received a cash prize of Rs.1 Lakh and Bashettihalli GP has received a cash prize of Rs.2 Lakhs under the *Nirmal Gram Puruskar* scheme[30]. Bashettihalli GP has used the cash prize to construct a solid waste management plant, where the wastes collected from the households aresegregated. While, the bio-degradable waste is used to produce compost/manure, the non-degradable wastes are auctioned off. Taluk Panchayat is responsible for the maintenance of compost pit. Additionally, a MoU has been signed between the GP and Government of Kerala for generating electricity through incineration. All the households pay for the maintenance of drainage in the GP.

In Anneshwara, every household has contributed Rs.120 to initiate activities under the Solid and Liquid Waste Management (SLWM), under which drainage system is laid down in the village. Further, different coloured dustbins were distributed among the residents to collect and segregate degradable waste (green) and non-degradable wastes (red). Degradable waste is used to produce manure through vermin-compost method. GP has also employed five sweepers to ensure cleanliness of the villages. With the support of PHC, GP had conducted health evaluation of all the people in the village and issued a health report card to them. GP members also reported that the incidences of water borne diseases like fever and chicken-guniya has reduced gradually after the implementation of TSC programme.

Factors contributed for Attaining Open Defecation Free (ODF) Status in the Selected GPs

a. Active Panchayat and support from local taskforce: Determined Panchayatswith the support of taskforce has used rigorous methods to generate

[29] High Level Expert Group Report on Universal Health Coverage for India (2011) - http://planningcommission.nic.in/reports/genrep/rep_uhc0812.pdf

[30] Criteria for cash incentive under NGP scheme is based on the total population of the GP. (http://tnrd.gov.in/schemes/tsc.html)

awareness among the villagers. They ensured not only the construction but also the usage of toilets to ensure ODF village. Also, the local authorities and community functionaries have given needed support for the task.

b. Close proximity with urban areas: Close proximity of the GPs with Bengaluru City as well as to their respective Taluk headquarters has also played a vital role in the success of the programme. Lack of open space for defecation, exposure to urban lifestyles, increase in total income and availability of required sanitary hardware in neighbouring market has played crucial role to encourage households to build their own toilet facility.

Impact of TSC on the Welfare of the Community

a. The intensive awareness campaign conducted around TSC in these GPs has led to a heightened understanding of sanitation and hygiene among the community. There is a better understanding about the harmful effects of open-defecation which has resulted to increased demand for better sanitation facilities. Further, involvement of the community has acted as a strong deterrent on the practice of open defection.

b. Key for the success of the programme isthe intensive and engaging awareness campaign involving both the GP members and community. Our discussion with the GP members revealed that the relationship built during the campaign between the two stakeholders has resulted in a synergized and dynamic relation, which consequently increased the active participation of community in village development planning.

c. As per our discussion with the school teachers, absenteeism has decreased due to reduced incidence of diseases in the GP. Also, separate toilets for girls have reduced the drop-out rate of girls after they attain puberty.

d. TSC has also improved the safety and security situation in the GPs as in-house toilet has reduced the potential risks involved for girls/women in open defecation. The information also converges with the KCCI study[31] which argues that the benefit of toilet usage is not restricted only to “freedom from fear” but also in improved quality of life (Joshi , Wolcott, Chatterjee, & Kumar, 2010). As per our discussion with the woman group revealed that in-house toilet facility has benefitted them in terms of convenience, safety and time.Also,incidents of local quarrels or arguments over waste water disposal and sites of open defecation have been resolved.

e. SLWM has invoked the practice of segregating, recycling and re-using wastes, which has further contributed towards the cleaner environment. SLWM has also provided livelihood to few villagers and manure to local farmers.

Critical Issues

Anneswara and Bashetihalli can serve as model villages for successful implementation of the Total Sanitation Campaign. However, one needs to look at a few issues that may emerge during such replication. While creation of social awareness and consciousness aided the process, at the same time the installing social regulation techniques raised few difficult questions. Further, the denial of public distribution ration, public shaming etc can be seen as coercive, hence resulting in antagonizing the people towards the scheme. Another interesting initiative was the purchase of the necessary hardware by the officials which was then distributed among the beneficiaries. While such an act brings in the advantages of economies of scale as well as maintenance of standard equipment, it does open a window for probable malpractices and misuse, which needs to be safeguarded against, if this method is to be adopted. Likewise, stringent rules and checks need to be applied to the utilization of award funds that are received by the GP to ensure that they are used appropriately.

[31] This study looked at Household Behavior Determinants and Patterns in the Total Sanitation Campaign: A Case Study of Bengaluru Rural District. (2010)

Conclusion

TSC has been successfully implemented in these two GPs due to the collaborated efforts of the officials, elected representatives and the community. Thus, while the officials provided the necessary thrust, the elected representatives and the community ensured that the initiative was taken seriously and thoroughly executed. This has resulted not only in the construction of individual household toilets and their usage but also in an increased awareness about hygiene, sanitation and waste disposal, and consequently improving the overall living conditions of the community. Better toilet facilities in school have also helped in reducing absenteeism and decreasing drop-out rate of adolescent girls, thereby improving the access to education for the children of the community. Additionally, it has contributed to a sense of security and access to better sanitation facilities, and thus providing healthier living conditions to the community.

Gender and Development

8 : Gender and Development

"I measure the progress of a community by the degree of progress which women have achieved" – B.R. Ambedkar (Chairman of Constitution Drafting Committee and First Minister of Law and Justice, India)

8.1. Introduction –Gender as a Concept

Attempts to analyze development through a gender lens were first included in a big way as a component of human development in the mid-1990s. While 'sex' identifies the attribute of being biologically male or female, 'gender' is a culturally mediated construct that defines the behavior of biologically male and female individuals and the relationships between them.

Over the last two decades, feminist critiques have called for, and at times succeeded in, contributing to a re-defining of the gender dimension and its scope within the context of human development. Gender refers not simply to women and men, but the relationship between them, and for this reason, influences all social institutions and interactions. This chapter revisits the key debates and challenges that 'Gendering Development' in relation to HDRs has brought to fore through a discussion of the key gender-related indices, the Gender Development Index (GDI), Gender Empowerment Measure (GEM) and Gender Inequality Index (GII), particularly in relation to poor, rural women in the Global South. Takeaways from this discussion will inform the manner in which available data relating development to gender in Bengaluru Rural, and gaps in relation to this, will then be examined. The chapter concludes with some pointers on how the DHDR can be (among other things) a deeper and more self-critical policy exercise in gendering development.

8.2. Gendering Development to avoid Endangering Development- Issues and Challenges that the Indices pose

The Gender Development Index (GDI) and the Gender Empowerment Measure (GEM) were introduced as a part of Human Development Index in 1995. This came at a time when the issues surrounding women, gender and development were centrestage thanks to the UN's Fourth International Conference on Women in Beijing in the same year, and UN's Social Summit Conference in Copenhagen in March 1995 (Hirway & Mahadevia, 1996; Raghuram & Manorama, 1995). While GDI was gender-adjusted HDI, GEM focused on the spaces occupied by women in the political and economic realm by looking at representation of women in national politics and the formal economy. More recently, to capture women's disadvantage in the dimensions of empowerment, economic activity and reproductive health, the Gender Inequality Index (GII) was formulated (European Institute for Gender Equality, 2013). The Gender Inequality Index was officially adopted by the UNDP in its Human Development Report, 2010. The GII was conceived of as having three dimensions: reproductive health, empowerment and labour market participation, while also measuring these, where possible, in terms of gaps in achievements between women and men. The GII allows these dimensions to be defined dynamically on the basis of the context that it is being calculated in, as long as the three dimensions are captured.

The GDI measured the achievements of women in societies in terms of the their ability to live long, their capacity to read and write and their access to goods and services via monetary incomes - i.e. the same things that were being measured in relation to men - and made note of the inequality in achievement of the two groups, by adjusting the HDI downward to record greater inequality. An insurmountable critique leveled against the GDI, especially in relation to poor, rural women in the Global South, was that an attempt to measure their well-being ought to take on board factors closer to their lived realities (Hirway & Mahadevia, 1996; Kelkar, 2005). Two components that the GDI accorded one-third weightage to:income and education, were limiting in this regard. Besides the general drawbacks of per capita GDP(i.e. income) being directly proportional to expenditure on war or disaster relief; or sales (and correspondingly greater consumption of) alcohol, tobacco and medicines; or

increased industrial production irrespective of any consequent environmental destruction. By focusing on monetized income and participation in the formal economy, the income measure failed to (a) account for women, especially marginalized women, bearing the larger brunt of negative externalities that accompany a narrowly-defined growth in income, and (b)capture the reality of the informal and unorganized nature of the majority of women's work-participation.

The general pattern of women's employment in South Asia indicates that the large majority are agricultural labourers, with their numbers being slightly larger than that of men, who are the dominant cultivators (Kelkar, 2005). Similarly, the unorganized sector, excluding agriculture, accounts for 90 per cent of the women who are employed (ibid). The attempts to engender development need to be cognizant of the interesting findings related to economic participation in the region captured through self-reporting as 'contributing family workers' (women who reported unpaid care-work as work), 'own-account workers' (casual, home-based work such as tailoring or piece-work), or 'wage and salary workers'. While an indicator like the GDI is premised on how an improvement in women's status is synonymous with their status as independent income earners, it is blind to the double burden of work outside and inside the home that this translates into for most poor rural women; as well as the gendered-inequity in wage structures. Alternately, when women become income earners by moving away completely from their role as contributing care/family workers (as in the case of migrants), presuming their well-being is debatable. Women migrating to be maids often face the alienation of looking after families and children while being unable to do so for their own (Kelkar, 2005). Migration per se may be about escaping elements of society that are far from liberating or empowering, bearing down on women –stigma and violence related to inability to meet dowry demands, incest, rape, the need to be engaged in 'dishonorable'/harmful sex work, or the sheer distress of debt and poverty (ibid).

Women's education as a criteria for their empowerment – even as much as it allows them (in theory) to participate more meaningfully in socio, political and economic structures of society – is of limited value to the extent that it is not matched by the transformative education of men which will enable them to share care work in the domestic sphere and support women in their journey (Hirway & Mahadevia, 1996). Along the same lines GEM has been critiqued for measuring only women's presence in economic and political institutions, and not the actual ways in which their agency or power is manifest (Acharya & Ghimire, 2005).

What all these critiques have in common as an underlying theme is that 'parity with men' is not enough, and there is a need to move beyond this to meaningfully engender development. Having said this, 'moving beyond' does not discount the importance of trying to ensure and equalize opportunities for women, it only alerts development policy makers and practitioners to the fact that parity with men in select social indicators does not automatically alter the discrimination inherent in patriarchal social structures and traditional gender relations. There is no denying the importance of access to resources, yet calibrating achievement in relation to men – the dominant approach when trying to quantify development and capture it through indicators – falls short of being able to speak authentically for gendering of development (Kodoth & Eapen, 2005).

Enhancing women's agency necessitates action on a number of fronts, particularly direct action with, for and by men in relation to such aspects as curbing violence on women or altering traditionally entrenched discrimination in access to better nutrition and health care for girls and women. This points to a very basic requirement that the dominant paradigm of examining development in relation to gender fails with regard to: that *to en-gender development necessitates bringing men and their roles (whether constructive or otherwise) in the process up-front and making it visible*. The degree of localization allowed by processes like the DHDR allows a greater scope to critically analyze gender insensitive formulations in what is purportedly gender-sensitive policy. In the absence of such critical re-examination, (what are passed off as) 'gender-sensitive' policies, in fact propagate 'ideologies of gender' (Kumar, 2002). Pre-eminent among these are knowledge about women, and what women need being

constructed within patriarchal biases (Jain, 2007). In practice, this amounts to seeing women through essentialist notions informed by biological determinism that link them to motherhood and reproductive health, as against, say, human rights within a liberal framework, or health throughout the lifespan (Kumar, 2002). While biology and the lived reality of almost universal marriage and child bearing and rearing among women in the Global South cannot be denied, en-gendering development also entails simultaneously envisioning development that leverages strategic gender needs, or ways and means that alter the patriarchal structures and power relations within which women operate. This would mean, for instance, keeping alive questions on women's rights to land and inheritance; or including, in the ambit of development policy, not just the need for changes in formal political institutions, but also that in the powerful informal institutions – community, caste, family, marriage – that guide day to day life, through norms of behavior and codes of conduct that 'normalize' women's position of inequality and subjugation (Jain, 2007; Kelkar, 2005).

The Gender Inequality Index (GII) is a case-in-point as to how 'ideologies of gender' operate in the garb of gender-sensitive policy.

Table 8.1: GII Globally and in the Context of Karnataka's DHDR

Dimensions	Indicators Global GII	Indicators Karnataka DHDR GII
Reproductive Health	Maternal Mortality Ratio (MMR)	Maternal Mortality Rate (MMR)
	Adolescent fertility rate (AFR)	Share of Institutional deliveries (ID)
		Share of pregnant women with Anemia (ANE)
Empowerment	Share of parliamentary seats held by each sex (PR)	Share of female and male elected representatives in PRIs and ULBs (PRF and PRM)
	Attainment at secondary or higher education (SE)	Share of female and male children in the age group 0-6 years (CHLDF, CHLDM)
		Share of female and male literacy (LITF, LITM)
Labour market	Labour market participation rate (LFPR) for each sex	Share of female and male Work Participation Rate (WPRF, WPRM)
		Share of female and male workers in the non agricultural sector (NAGF, NAGM)
		Female and male Agricultural wage rate(WAGEF, WAGEM)

Source: UNDP HDR Manual; Karnataka DHDR Training Manual

The health sub-component of GII looks exclusively at reproductive health of women. At the global level, the indicators related to this sub-component are Maternal Mortality Rate and Adolescent Fertility Rate. A low MMR is taken to be a proxy for the quality of health services that pregnant women have access to. A high AFR, which measures early childbearing, results in health risks for mothers and infants as well as a lack of higher education attainment. The GIIs focus on reproductive health per se is informed by UNDP findings that suggest that poor reproductive health accounts for the largest loss due to gender inequality, among all regions. In the district context, this dimension of GII examines the maternal mortality rate, number of institutional deliveries and share of pregnant women with anemia. These three are given equal weight in the index. The focus of this indicator on reproductive health, the UNDP rationale notwithstanding, restricts the understanding of women's health to her role in child bearing and does not engage with her access to health otherwise, and at other crucial times in the life-cycle.

The empowerment aspect of the indicator examines child sex ratios, literacy rates for women and men and share of women elected representatives in Panchayati Raj institutions in the district context. Child Sex Ratio is measured as the number of girls in the age group of 0-6 years per 1000 males. It is a significant indicator given

female foeticide and infanticide practices. The literacy rates for women and men, arguably also a key enabling factor, are calculated for those above the age of 7 only. The third indicator in this sub-component looks at the share of women elected representatives at various levels of government, in the case of the DHDR, Gram Panchayats, Taluk Panchayats and District Panchayat. While representation is an important first step, it falls short of ensuring women's agency.

The third major sub-component relating to employment compares the work participation rate for male and female workers, average wage rates and participation in non-agricultural sector. These indicators are seen as representative of women's employment, and are a marginal improvement over the income component of GDI being the proxy for women's work participation, given that it accounts for gendered discrimination in wage rates. Yet it continues to ignore work participation in agriculture and the informal sector where women tend to be concentrated. In the light of this discussion, the next section examines some key figures and indices for Bengaluru Rural.

8.3. Gender and Development in Bengaluru Rural

According to the UNDP, the GII captures 'the loss of achievement due to gender inequality' using its three dimensions. National teams have been encouraged to adopt the global GII methodology to create a national GII, and they are also urged to use other indicators that either are not available for international comparisons or are particularly relevant to their country-specific context. The value of GII range between 0 to 1, with 0 being 0 per cent inequality, indicating women fare equally in comparison to men and 1 being 100 per cent inequality, indicating women fare poorly in comparison to men.

As already discussed, the GIIs focus on reproductive health in the district context, examines the three aspects of maternal mortality rate, number of institutional deliveries and share of pregnant women with anemia. The last of these has been difficult to measure. The proportion of institutional deliveries seems more or less uniformly high across the four taluks, with Hosakote recording the lowest (but not alarming low) among the four. India's goal is to bring MMR down to 109 per one lakh live births by 2015, and Bengaluru Rural is slightly off-target with regard to this goal. Nelamangala rather high MMR of 150, followed by Devanahalli 126, negatively affects the district's performance overall, as the other two taluks have at least achieved the aspired for national norm.

Table 8.2: GII in Bengaluru Rural District (2011)

Taluk	Devanahalli	Doddaballapur	Hosakote	Nelamangala	Bengaluru Rural
MMR	126.00	101.00	102.00	150.00	119.75
Share of Institutional deliveries (ID)	99.65	97.99	91.43	98.00	96.94
Anemia among pregnant women	21.63	57.06	63.25	27.21	42.29
Per centage of Female elected representatives in PRIs and ULBs	46.06	45.92	43.51	43.42	44.76
Per centage of Male elected representatives in PRIs and ULBs	53.94	54.08	56.49	56.58	55.24
Per centage of female in 0-6 population	49.24	48.91	48.20	48.61	48.71
Per centage of male children in 0-6 population	50.76	51.09	51.80	51.39	51.29
Female literacy rate	69.24	70.44	71.01	71.79	70.63

Taluk	Devanahalli	Doddaballapur	Hosakote	Nelamangala	Bengaluru Rural
Male literacy rate	83.84	85.18	84.45	85.76	84.82
Female work participation rate	36.94	38.64	29.08	28.88	33.61
Male work participation rate	69.45	70.08	69.29	68.76	69.45
Female non-agricultural workers in total female workers	41.00	43.09	46.02	53.56	45.23
Male non-agricultural workers in total male workers	50.31	59.13	58.09	63.58	57.91
Female wage	150.00	135.00	200.00	175.00	175.00
Male wage	250.00	200.00	300.00	300.00	275.00
GII	0.071	0.076	0.092	0.085	0.083
Rank(GII)	**1**	**2**	**4**	**3**	

Source: Compiled by CBPS from data provided by Bengaluru Rural Zilla Panchayat, Census of India, and HMIS data

Indicators under the dimension of Empowerment in the GII compare the number of children in the 0-6 age group, the literacy rates for women and men and the share of representative political space that is occupied by women and men. While governments at both Centre and State levels have been taking special initiatives in these three aspects, with the 73rd Constitutional Amendment, these aspects are also very closely tied to the work of local governance structures. Literacy rates indicate how many women are able to access basic education. A higher literacy rate for women means that women are enabled to access higher education/ formal forms of employment. Further, educated women are expected to have lower fertility rates, globally. Bengaluru Rural records a higher per centage of elected women representatives (44.76 per cent) as compared to the all-India average for women engaged in political activity. Politics, as the arena of institutionalized decision-making has traditionally been dominated by men, making it difficult for women to participate. Thus, it is noteworthy that Bengaluru Rural provides a conducive atmosphere for women to overcome the historical prejudice and have at least notional political involvement (discussed in greater detail in section 8.8).

Under the sub-component of Employment in the GII, the indicators are work participation rates (number of women and men engaged in marginal and main labour), per centage of population engaged in non-agricultural sector and the average wage rates for the two sexes. In terms of this indicator, there is a wide variation for the two sexes with women averaging 0.42 in the district as compared to 0.63 for men. The work participation rates of women are only two-thirds that of men in the District. Further, in Nelamangala taluk, the gap between the worker participation rates for the two sexes is almost 30 per cent.

Table 8.3: Indices of Individual Component of GII

Individual Indices	Devanahalli	Doddaballapur	Hosakote	Nelamangala
Female health indicator	0.40	0.35	0.32	0.36
Male health indicator	1.00	1.00	1.00	1.00
Female Empowerment	0.54	0.54	0.53	0.53
Male Empowerment	0.61	0.62	0.63	0.63
Female labour market	0.38	0.31	0.51	0.47
Male labour market	0.59	0.41	0.74	0.76

Source: Compiled by CBPS from data provided by Bengaluru Rural Zilla Panchayat, Census of India, and HMIS data

Women also are paid lower wages in comparison to the men in the district, with most taluks indicating an average wage rate for women that is around or approximates two-thirds that of men. It is estimated that on an average the women's wage rates are 75per cent of those of men in India and contribute only a quarter to the family income. This may be attributed to women being engaged more in the informal sector which offers lower wages and which is not under the purview of labour laws which results in them being exploited.

The GII for the district as a whole, being closer to 0 than to 1, suggests that, low work participation and low wages notwithstanding, Bengaluru Rural is not faring too badly in relation to achieving gender parity in other respects. However, given the need to 'move beyond' parity with men, in order to capture the gender empowerment facilitated by the development process, it is worthwhile to engage with some other facts and figures too.

8.4. Marginalization of Women's Work

Given that the unseen and unpaid 'care-work' (cleaning, cooking, intergenerational care of family members, collecting water and firewood) that poor, rural women and girls engage in accounts for a large part of their time and energy during the day, it is worthwhile to analyze ease of access to water and fuel as a key determinant of women's wellbeing. Care work also acts as a deterrent in pursuing paid work outside the home or pursuing education. Table 8.4 indicates that potable water in households in Bengaluru Rural is much less easy to come by, when compared to the state as a whole. Within the district, there is a marked discrepancy of almost 50 per cent between the rural and urban areas. Female headed households are further disadvantaged when it comes to availability of safe drinking water. Only about one-fifth of the households in the rural areas of the all the taluks have potable water.

Table 8.4: Per centages of Households with Availability of Drinking Water within its Premises (2011-2012)

Taluk / District / State	All Households			Female headed HHs		
	Total	Rural	Urban	Total	Rural	Urban
Devanahalli	25.24	21.96	32.59	22.20	19.91	26.71
Doddaballapur	20.23	17.81	24.92	15.31	14.06	18.66
Hosakote	30.17	25.11	48.02	23.37	18.81	42.67
Nelamangala	31.67	20.71	68.82	22.35	15.55	58.64
Bengaluru Rural	26.40	21.37	39.50	20.15	16.53	31.80
Karnataka	44.46	26.60	70.87	39.37	25.58	64.18

Source: District at a Glance 2011-12

The availability of a clean cooking fuel at the household level does away with the dependence on less efficient and more polluting solid fuels like firewood or cow dung cakes, as well as the opportunity costs of collecting these. The amount and form (solid, liquid or gaseous) of energy consumed at the household level for cooking purposes is also proxy for the disposable income available at the household level. In Karnataka as a whole, only about one-third of all households have access to a clean source of cooking fuel, with this ranging from an abysmal 12.02 per cent in rural areas to 65.34 per cent in urban areas. In Bengaluru Rural, the average availability is slightly better than the state average, at little over 35 per cent households; and the gap between rural and urban areas of the district (25 per cent : 62 per cent) is also a bit smaller, though still wide – at almost 40 per centage points – than it is in the state in general. Among the taluks, Nelamangala makes clean fuel available to over 40 per cent households, but this masks the almost 40 per centage point difference in availability between the rural and urban areas of the taluk. Rural Doddaballapur is most lacking in this respect with less than one-fifth of the households having a clean cooking fuel as compared to almost 60 per cent in the urban areas of the taluk.

Table 8.5: Per centage of Households with Access to Clean Fuel in the Kitchen (LPG, Biogas or Electricity) (2011-2012)

Taluk / District / State	All Households			Female headed HHs		
	Total	Rural	Urban	Total	Rural	Urban
Devanahalli	34.65	27.71	50.24	27.15	21.85	37.60
Doddaballapur	32.21	18.44	58.92	21.70	12.75	45.68
Hosakote	37.18	27.86	70.02	26.97	20.15	55.80
Nelamangala	40.09	29.48	76.08	27.28	20.80	61.87
Bengaluru Rural	35.76	25.52	62.45	25.30	18.22	48.03
Karnataka	33.52	12.02	65.34	24.90	9.38	52.81

Source: District at a Glance 2011-12

Together with access to a safe and uninterrupted supply of water, the availability of a functional latrine at the household level can be taken as a proxy of commitment to Water and Sanitation (WASH) as a human right and for the priority accorded to preventive and community health (by pre-empting the spread of several communicable diseases), which has a special bearing on the well-being of women and children. Bengaluru Rural fares better than the State average with respect to latrines within household premises as table below indicates. Almost 80 per cent of the households in the district have a latrine, though information of whether these are functional or not is lacking, and the disparity between rural and urban areas of the district in this regard, is less than 20 per centage points. Nelamangala is the best-positioned taluk in this regard with almost 85 per cent households having a latrine, and the disparity between rural and urban areas being about 15 per cent.

Table 8.6: Per centages of Households with Availability of Latrine within its Premises (2011-2012)

Taluk/District/State	All Households			Female headed HHs		
	Total	Rural	Urban	Total	Rural	Urban
Devanahalli	82.91	81.77	85.49	76.79	77.10	76.17
Doddaballapur	76.07	68.54	90.67	67.47	61.03	84.71
Hosakote	78.35	73.84	94.25	69.41	64.39	90.63
Nelamangala	84.45	80.89	96.52	77.74	74.46	95.23
Bengaluru Rural	79.91	75.52	91.34	72.29	68.25	85.25
Karnataka	51.21	28.41	84.93	45.49	27.53	77.80

Source: District at a Glance 2011-12

Households which have no access to a safe and uninterrupted source of water, to electricity or a functional latrine represent an especially disadvantaged home environment to all its inhabitants, but more so for the women. The proportion of households with access to these facilities is higher in Bengaluru Rural as compared to the state average.Among the taluks, Doddaballapur is the one where a slightly larger number of households – 4 per cent in the rural parts of the sub-district – are disadvantaged in this manner. The figure is slightly higher for female headed households, at 6 per cent in rural Doddaballapur.

Table 8.7: Per centages of Households with Non availability of Water within Premises, Electricity and Latrine (2011-2012)

Taluk/District/State	All Households			Female headed HHs		
	Total	Rural	Urban	Total	Rural	Urban
Devanahalli	3.24	3.44	2.79	5.09	4.64	5.98
Doddaballapur	3.40	4.10	2.05	5.89	6.62	3.95
Hosakote	1.78	1.99	1.08	3.73	4.09	2.24
Nelamangala	2.11	2.29	1.53	3.39	3.62	2.18
Bengaluru Rural	2.66	2.94	1.92	4.63	4.86	3.90
Karnataka	7.14	10.46	2.23	9.55	12.72	3.85

Source: District at a Glance 2011-12

Turning to workforce participation by women, the numbers indicate that their presence as agricultural labourers is fairly close to that of men, ranging from being less than 4 per centage points apart in some taluks to over 10 per centage points apart in others. Between 2001 and 2011, the number of women engaged in agricultural labour in the district has gone up slightly from 45 to 47 per cent. There has been a corresponding slight decrease in the number of men similarly employed from about 55 to 53 per cent. A reading into whether or not this is empowering for women can be made only by juxtaposing these figures with the opportunity costs or otherwise for women in relation to care work, as well as aspects such as wage rates. However, as mentioned, the degree of localization allowed by processes like the DHDR allows a greater scope to capture these dimensions and reformulate 'gender & development' related indices in a reflective and critical manner.

Table 8.8: Per centage of Agricultural Laborers (by Sex) to Total Workers

Taluk/District/State	2001		2011	
	Male	Female	Male	Female
Devanahalli	55.68	44.32	53.97	46.03
Doddaballapur	49.04	50.96	46.80	53.20
Hosakote	57.16	42.84	57.35	42.65
Nelamangala	48.35	51.65	52.77	47.23
Bengaluru Rural	54.94	45.06	52.78	47.22
Karnataka	51.84	48.16	50.96	49.04

Source: District at a Glance 2001-2002 and 2011-2012

Women's presence in small scale and home based industry is less equal to that of men as the table below indicates. Interestingly, Bengaluru Rural compared favourably against the state average in the case of men's workforce participation in this sector, but not so for women in 2001, and the gap only grew wider in the case of women by 2011. Given the certain degree of skill represented by participation in small scale industry work, as well as the investment required, it would be interesting to examine reasons that explain the nature and extent of this dimension of women's workforce participation in the district more closely.

Table 8.9: Per centage of Household Industry Workers – Main Occupation (by Sex) to Total Workers

Taluk/District/State	2001		2011	
	Male	Female	Male	Female
Devanahalli	60.99	39.01	57.29	42.71
Doddaballapur	75.68	24.32	73.71	26.29
Hosakote	66.05	33.95	69.44	30.56
Nelamangala	55.10	44.90	70.33	29.67
Bengaluru Rural	59.62	40.38	70.17	29.83
Karnataka	46.36	53.64	50.80	49.20

Source: District at a Glance 2001-2002 and 2011-2012

In contrast to the numbers that indicate that women's presence in Bengaluru Rural as agricultural labourers is fairly close to that of men; or that workforce participation by women in household industry is lower than the state average and in relation to men, their numbers as marginal workers (those with paid employment for less than 6 months in a year) is significant, though showing a downward trend between 2001 and 2011. Greater informalisation of work per se, is suggested by the increase in the number of male marginal workers from between 10 to 20 per centage points across the various taluks in the same decade.

Table 8.10: Per centage of Marginal Workers (by Sex) to Total Workers

Taluk/District/State	2001		2011	
	Male	Female	Male	Female
Devanahalli	32.28	67.72	44.35	55.65
Doddaballapur	28.80	71.20	42.03	57.97
Hosakote	32.03	67.97	54.99	45.01
Nelamangala	39.12	60.88	52.21	47.79
Bengaluru Rural	32.48	67.52	47.33	52.67
Karnataka	32.10	67.90	42.91	57.09

Source: District at a Glance 2001-2002 and 2011-2012

8.5. Patterns of Literacy and Enrolment

The number of adults who can read and write in a certain area or nation is one of the factors in measuring the Human Development Index (HDI), along with life expectancy, education, and standard of living. The indicator serves as a proxy for trainability and ability to acquire other skills latent in adult populations, in order to help them negotiate the demands of transitioning and adjusting as society changes. Adults are expected to use information in complex ways and to maintain and enhance their skills and abilities through literacy that they have attained. Gender gaps in adult literacy as also rural-urban gaps within this are matters of concern. In all the four taluks, the gender gap in 2001 was about 10 per centage points, and this appears to have narrowed only by a small measure to 7-8 per centage points by 2011. The rural-urban gender gap was about 10-12 per centage points (for rural areas) across the four taluks in 2001 compared to about 6-8 per centage points in the urban areas. There has been a reduction of the gap in rural areas to about 6-8 per centage points by 2011, while in the urban areas, while the per centage of both literate men and women have gone up, the gap has remained more or less the same over this time period.

Gender parity in relation to school enrollment at the primary level has been attained in the district, while the gap in adult literacy is about 15 per centage points as table 8.11 indicates. As already stated, women's education is of limited value if it is not matched by the transformative education of men. This is one aspect that the DHDR exercises can possible address in the near future, by promoting and incentivizing district-

level engagement through appropriate networking with district education functionaries. An indicative list of dimensions for 'transformative education' for men, could for instance be a broadly formulated life skills education with a focus on gender-awareness, critical media studies, reproductive and sexual health, emotional intelligence, soft skills and conflict resolution strategies.

Table 8.11: Adult Literacy in Bengaluru Rural District

Taluk / District / State	2001			2011		
	Total	Male	Female	Total	Male	Female
Devanahalli	68.17	77.63	58.16	76.76	83.84	69.24
Doddaballapur	69.14	78.98	58.80	78.00	85.18	70.44
Hosakote	69.18	78.20	59.51	77.98	84.45	71.01
Nelamangala	72.30	81.42	62.75	78.91	85.76	71.79
Bengaluru Rural	74.84	82.21	66.98	77.93	84.82	70.63
Karnataka	66.64	76.10	56.87	75.36	82.47	68.08
Rural Population						
Devanahalli	65.99	76.40	55.02	75.02	82.89	66.58
Doddaballapur	65.90	77.14	54.16	74.07	82.71	65.07
Hosakote	67.32	77.08	56.85	75.79	83.11	67.89
Nelamangala	69.90	79.75	59.66	75.81	83.59	67.70
Bengaluru Rural	63.23	73.77	52.35	75.16	83.06	66.80
Karnataka	59.33	70.45	48.01	68.73	77.61	59.71
Urban Population						
Devanahalli	73.66	80.72	66.14	80.84	86.10	75.37
Doddaballapur	77.10	83.44	70.34	85.74	89.98	81.19
Hosakote	78.71	83.91	73.11	86.22	89.58	82.68
Nelamangala	86.43	91.06	81.41	89.52	93.26	85.68
Bengaluru Rural	84.02	88.68	78.91	85.37	89.57	80.95
Karnataka	80.58	86.66	74.12	85.78	90.04	81.36

Source: District at a Glance 2001-2002 and 2011-2012

Table 8.12: Literacy & Basic Education in Bengaluru Rural District

Details	Total	Rural
Per cent total literate Population (Age 7 +)	71.1	68.3
Per cent literate Male Population (Age 7+)	78.3	76.5
Per cent literate Female Population (Age 7+)	63.5	59.7
Per cent girls (age 6-11) attending Schools	100.0	100.0
Per cent boys (age 6-11) attending Schools	100.0	100.0

Source: DLHS-3, District Fact Sheet for Bengaluru Rural (2007-08)

8.6. Crime against Women

Bringing men and their roles into prominence vis-à-vis genderand development offers scope to develop and present proactive and positive indicators in relation to the same as against only ones that show women as victims or strugglers. Indices for Gender and Development having a crucial and missing pillar in examining the role of men in making things better for women, as against men being only a criteria for comparison, is crucial also in relation to women's experience of violence. Arguably, direct action to decrease violence against women, given the near universality of the experience, is a crucial but currently ignored in measures of gender empowerment.

In Bengaluru Rural, cases of molestation and rape, abduction, domestic violence and dowry harassment account for the bulk of the violence against women, with sexual violence being most prevalent (District at a Glance, 2011-12). This finding is different in comparison to national level statistics according to which crimes of cruelty by husband and relatives are the single largest cause of violence at over 43.8 per cent. The table below indicates that the number of crimes, of all kinds, in absolute terms, have increased between 2002 and 2012. Devanahalli from reporting no rapes in 2002 was tied with Doddaballapur in 2012 in the dubious distinction of reporting the maximum number of 6 rapes. Hosakote reported fewer rapes in 2012 than in 2007. The violent sexual crime has more than doubled (in absolute terms) in the district, since 2002. Doddaballapur also reports the highest number of abductions in 2012, while Nelamangala reported the lowest number. Hosakote notably reported less abduction in 2012 than in 2007. Two or three cases of dowry harassment were reported in all the taluks in 2012.

Table 8.13: Cases Registered by Crime in Bengaluru Rural District

Rape	2002	2007	2012
Devanahalli	0	0	6
Doddaballapur	3	1	6
Hosakote	4	6	4
Nelamangala	1	1	2
Bengaluru Rural	8	8	18
Abduction of women and girls			
Devanahalli	0	1	4
Doddaballapur	2	4	7
Hosakote	7	5	3
Nelamangala	0	2	2
Bengaluru Rural	9	12	16
Dowry Harassment			
Devanahalli	1	1	3
Doddaballapur	5	1	3
Hosakote	1	3	2
Nelamangala	4	0	2
Bengaluru Rural	11	5	10

Source: Police Department, Bengaluru Rural district

Table 8.14: Cases Registered, Charge-sheeted and Convicted in Bengaluru Rural District

Taluk/District	Total crime registered against women		
	2002	2007	2012
Devanahalli	5	6	12
Doddaballapur	38	25	55
Hosakote	23	42	56
Nelamangala	25	20	50
Bengaluru Rural	91	93	173
	Total cases charge-sheeted		
Devanahalli	5	6	12
Doddaballapur	35	23	49
Hosakote	20	39	54
Nelamangala	21	16	46
Bengaluru Rural	81	84	161
	Total cases convicted		
Devanahalli	0	0	0
Doddaballapur	2	1	0
Hosakote	1	2	3
Nelamangala	1	1	0
Bengaluru Rural	4	4	3

Source: Police Department, Bengaluru Rural district

While 173 cases were registered in the district in 2012 and 161 were charge-sheeted (93 per cent) the convictions was abysmally low (less than 2 per cent of the registered cases). A significantly smaller number of cases are registered in Devanahalli, compared to the other three taluks. The other three reported between 50-56 registered cases in 2012. Of the 56 cases registered in Hosakote, 54 were charge-sheeted (96 per cent) and it was the best taluk among the taluks with a large number of cases being registered, in this regard (compared to Doddaballapur - 89 per cent and Nelamangala - 92 per cent). Devanahalli had 100 per cent cases being charge-sheeted, but none of these led to any convictions. Hosakote was the only taluk to record any convictions in 2012, compared to the more evenly distributed convictions across the taluks in 2007 and 2002.

8.7. Community attitudes and social prejudices affecting women

In 2007-08, among the women aged 20-24 in Bengaluru Rural District, 36.3 per cent reported to have been married

before the age of 18years (Karnataka DLHFS 2007-08). In the same year, among marriages conducted in the district, 14.6 per cent were found to be ones where the age of the bride was less the legally permissible age of 18 years (ibid). Social attitudes favouring early marriage and desire for male progeny pushes girls and women into an early cycle of child bearing and rearing, when their educational levels are low, and correspondingly both their awareness of, and ability to have a voice in matters of their reproductive health is low.

Table 8.15: Marriage and Fertility in Bengaluru Rural District (January 2004 to 2007-2008)

Details	Total	Rural
Per centage of girl's marrying before completing 18 years	14.8	16.1
Per centage of Births of Order 3 and above	11.4	11.2
Sex Ratio at birth	110	114
Per centage of women age 20-24 reporting birth of order 2 & above.	55.6	55.1
Per centage of births to women during age 15-19 out of total births	18.0	21.0
Family planning (currently married women, age 15-49)		
Current Use :		
Any Method (%)	66.1	68.0
Any Modern method (%)	66.1	68.0
Female Sterilization (%)	62.9	66.2
Male Sterilization (%)	0.0	0.0
IUD (%)	1.9	1.4
Pill (%)	0.2	0.3
Condom (%)	1.1	0.1
Unmet Need for Family Planning		
Total unmet need (%)	10.7	9.7
For spacing (%)	6.0	6.5
For limiting (%)	4.7	3.2

Source: DLHS-3, District Fact Sheet for Bengaluru Rural (2007-2008)

Another key area, where en-gendering development can benefit from bringing men's role in the process up-front, is with regard to reproductive health. Ironically, while GII dedicated a whole subcomponent to this aspect of reproductive health, it did so in a manner that completely sidelined the role and visibility of men. As Table 8.15 indicates, including male sterilization as a method, or the additional advantages of condom use in preventing STDs is a more gender-informed manner of bringing reproductive health under scrutiny particularly when the explicit purpose of the exercise is to further the cause of mainstreaming gender in development.

Keeping alive questions on women's rights to land and inheritance; or including, in the ambit of indicators, not just formal changes of inclusion or membership in political institutions, but also more substantial changes in process and outcomes of such institutions (initiated and aided by the formal changes, no doubt) is critical for the commitment to strategic gender needs and concomitant change. Table 8.16, non-disaggregated by sex in relation to asset ownership, then becomes an example of gender-insensitivity and what *not to do* vis-à-vis collecting data.

Table 8.16: Households with Own Houses

District / State	Total households			Female headed households		
	Total	Rural	Urban	Total	Rural	Urban
Bengaluru Rural	163,974	134,685	29,289	24,247	20,236	4,011
%	72.96	82.94	46.98	79.53	87.04	55.41
Karnataka	9,786,047	7,072,156	2,713,891	1,569,395	1,143,111	426,284
%	74.25	89.93	51.05	79.87	90.51	60.72

Source: District at a Glance 2011-2012

Table 8.17: Provision of Health Facilities in Bengaluru Rural District (2007-2008)

Indicators	Number
Primary Health Centre (PHC)	26
Human Resource :	
PHC having Lady Medical Officer (LMO)	11
PHC having Laboratory Technician	14
PHC organized any training programme in their PHC during last year	24
PHC having at least one MO ,who received Integrated Skill Development Training for 12 days during last five years	8
PHC having at least one MO, who received IMNCI training during last five years	4
Sub Centre (SC)	36
Infrastructure :	
Sub Centre located in government building	13
Sub Centre having communication facility	1
Sub Centre having separate labour room	18
ANM staying in Sub Centre village	4
Sub Centre having staff quarter for ANM	10
Sub Centre having regular water supply	25

Source: DLHS-3, District Fact Sheet for Bengaluru Rural (2007-08)

Last but not least, gender-sensitive formulations to women's health needs to take on board social norms that discourage male-female interaction in all but strictly delineated 'culturally appropriate' ways and structural aspects concerning provisioning of health services need to reflect these. Proximity to the health centre, presence of publicly financed health services versus private ones that mean out-of-pocket expenditure on (often, socio culturally less-valued) women's health, and the presence of female staff to attend to women, all become significant in understanding commitment to women's health as an aspect of development. In the context of Bengaluru Rural, it is a matter of concern that less than 50 per cent of the PHCs have a lady medical officer and that training of the medical officers who staff these centres hardly seems a priority.

8.8. Trends in Political Participation

The 73rd constitutional amendment marks a landmark in democratic decentralization in India. The bill passed in December 1992, mandated the reserving of the 1/3rd of the total seats at all levels in the three-tier panchayats, or India's rural local bodies linking villages, blocks and districts; for women, including among those seats reserved for members of the Dalit and Adivasi communities in proportion to their population in the concerned villages. Simultaneously, one-third of the positions of chairperson in all three tiers of the council were also reserved for women. In the Gram Panchayats or GPs they are directly elected; while at the intermediary and district levels they are indirectly elected. The amendment came into force on 24 April 1993.

As the structure of the Panchayati Raj ensures that local councils directly elected by the people are responsible for making decisions on an array of public good decisions, reservation for women at this level represents the hope that such formal representation would augur better for pro-women delivery of services. 'Delivery of services' refers to those related to functions listed in the Eleventh Schedule of the Constitution (modified by the states as required), many of which are linked to centrally sponsored schemes, announced from time to time. The larger issues of whether these are responsive to what women really need, sustainable and viable, and who decides this, remains; as also the unquestioned dichotomy of state and central legislatures making policy, and districts and villages receiving and implementing them.

The Act has brought more than ten lakh women to the fore as members and chairpersons of local bodies nation-wide. Karnataka, in the 1996 elections, exceeded the mandate and elected a little over 43 per cent representation for women in local bodies. The trend in Bengaluru Rural District is in keeping with this overall trend, with the rural local bodies favouring women's representation more than their urban counterparts.

Table 8.18: Women Elected Representatives in Rural Local Bodies (PRIs) 2011-2012

Taluk/District	Per centage of Women's Representation			
	ZP	TP	GP	Total
Devanahalli	50.00	57.14	46.49	46.94
Doddaballapur	60.00	55.00	45.86	46.35
Hosakote	80.00	57.89	42.77	43.71
Nelamangala	25.00	60.00	43.20	43.70
Bengaluru Rural	55.56	57.35	44.55	45.17

Source: District at a Glance 2011-12

Table 8.19: Women Elected Representatives in Urban Local Bodies (2011-2012)

Taluk/District	Total Members in ULBs	Total women members in ULB	Per centage
Devanahalli	23	9	39.13
Vijayapura	23	9	39.13
Doddaballapur	31	12	38.71
Hosakote	23	9	39.13
Nelamangala	23	9	39.13
Bengaluru Rural	123	48	39.02

Source: District at a Glance 2011-12

Table 8.18 indicates that except for Nelamangala, all the other taluks show a trend of voting lesser women to office for every successively lower tier of local government. However, despite this Gram Panchayats fulfill the mandate of the 73rd Amendment. Hosakote, despite being a 'backward' taluk as compared to the remaining three that are 'forward', has a striking majority of women in the Zilla Panchayat. Compared to the rural areas, the urban pockets of Bengaluru Rural as indicated in Table 8.19 seem less enthusiastic about voting women to power. The taluks are all more or less equally positioned in terms of the proportional representation of women in their urban local bodies, with Doddaballapur having only a slightly lower proportional representation than the others.

8.9. Role of Women's Groups and Self Help Groups (SHGs)

SHGs are widely hailed as revolutionary for making credit available to the poor, with low transaction costs. Low-interest credit for poor and vulnerable women is particularly hailed in the interest of the family (as against the local liquor shop) benefiting as a result, as the documented experiences of SEWA in Ahmedabad and the Grameen Bank in Bangladesh have indicated.

The Hindu, of January 10, 2014 stated that according to officials of the National Bank for Agriculture and Rural Development (NABARD) in Bengaluru, there are 8.11 lakh SHGs in the State covering about 1.13 crore households. The total bank credit disbursed during 2012-13 for SHGs amounted to Rs. 2,110.92 crore with commercial banks having a share of 59 per cent followed by regional rural banks with 16 per cent and cooperative banks with 25 per cent.

Besides Dakshina Kannada district, the density of SHGs was more than 70 in Chikkamagaluru (94), Shivamoga (93), Kalaburagi (85), Dharwad (83), Bidar (82), Uttara Kannada (82), Kodagu (81), Mysuru (80), Chitradurga (73), Mandya (72) and Udupi (70).The density of SHGs was 50 and more in Davangere and Gadag (66 each), Hassan (63), Chamarajanagar (62), Tumakuru (61), Kolar (58), Ballari (57), Raichur and Bengaluru Rural (55 each) and Bengaluru Urban 50. As the table 8.20 indicates, Hosakote has the largest number of women in absolute terms, participating in SHGs and a correspondingly high (in absolute terms) among of savings recorded through SHG. Nelamangala, by the same indicators appears to be lagging behind all the other taluks.

Table 8.20: Women's SHG and their Savings in Bengaluru Rural District (2011-2012)

Taluk / District	No of SHGs	No of members	SC	ST	Others	Savings in Rs Lakhs
Devanahalli	850	14,450	3,180	1,744	9,526	71.70
Doddaballapur	764	14,838	4,238	618	9,982	104.64
Hosakote	964	16,132	4,492	644	10,996	207.42
Nelamangala	787	11,910	1,075	126	10,709	60.10
Bengaluru Rural	3,365	57,330	12,985	3,132	41,213	443.86

Source: District at a Glance 2011-12

8.10. Concluding Remarks

Women in Bengaluru Rural are entering the domain of politics, accessing education, participating in the workforce etc. However, the quality of their participation and the access to these spaces need to be explored further to understand whether these represent empowerment as against believing it does. The Women and Men in India Report, 2012 states that for the country as a whole, among women in the age-group of 15-19 years, 23.4 per cent females in rural areas are not involved in any decision making while,in the urban areas, only 13.9 per cent of the resident women are not involved in any decision making.

With regard to work and income or health being studied in relation to development, there is a need to create an environment that favours greater equity for women. This is not unique to Bengaluru Rural; this is a fairly universal need. Yet, it is important to reiterate what can be done to address this need, some of those being the following:

a. reducing the structural barriers and constraints to enable women to access empowering work and income, and gender-sensitive provisioning for health care

b. quantifying the value of unpaid work,

c. development of new training modules and education systems that broaden the choices afterwards such as including designing and marketing in ITI courses in non-traditionally gendered skills (ie: beyond tailoring and pickle-making)

d. extending social protection, benefits and security to those in non-organised sectors (International Labour Office, 2010).

A shift towards a broader concept of gender equality also necessitates shifts in men's attributes and thinking and gender-sensitive indicators of development need to be fine-tuned to capture this, as this chapter has argued consistently.

Status of Scheduled Castes and Scheduled Tribes

9 : Status of Scheduled Castes and Scheduled Tribes

"Facts are facts and will not disappear on account of your likes" – Jawaharlal Nehru (First Prime Minister, India)

9.1. Introduction

Dalits and adivasis, officially known as Scheduled Castes (SC) and Scheduled Tribes (ST), have been given special status as part of the affirmative action policies the country adopted in the post-independence period. While dalits faced discrimination based on the notion of purity and pollution leading to practices such as untouchability and therefore did not have access to a range of resources and opportunities, adivasis largely remained isolated from the mainstream in the past impacting their access to opportunities and restricting their participation in the modern development. It is important to point out that these are official and not necessarily sociological categories, as there are wide variations among various castes and tribes listed under SC and ST. While there has been a debate whether integration or assimilation of tribal population is desirable, the present analysis follows the development paradigm adopted by the country and implicit in the HDR approach.

The act of notifying the castes as Scheduled Castes (SC) began with the Government of India Act 1935 in the pre-independence period. After Independence, both SCs and STs were notified under Article 341 and Article 342 in the Constitution of India. While the order was passed in 1950, amendments were subsequently made to include the castes and tribes that have been left out in the notification process. Karnataka has 101 castes under SC and has about 50 major tribes under ST which includes two tribes classified as primitive tribes.Apart from Articles 341 and 342, Articles 46, 15(4), 15(5), 16(4), 16(4A), 16(4B), 275(1) first proviso and 164(1) proviso mandate state governments to take measures for removing the disadvantages and to bring about equality in terms of social, economic and cultural justice to the SC and ST. The union and state governments came up with various development schemes targeting the development of SCs and STs.

Union and state governments have created separate departments to monitor the schemes for SCs and STs.The formulation of Tribal Sub Plan (TSP) in 1974 and Special Component Plan (SCP) in1978 by Union Governmentfor ST and SC respectively was a big step in ensuring the targeting of expenditures for the welfare of SCs and STs.The focused approach for the development of the SC and ST and to bridge the gap between SC/ST with that of the socially advanced sections of the society is seen as an important and essential step for the overall development of the country.This has made the comparison of educational, health, livelihood and income status of SCs and STS with the rest of the population an important measure of the equitable progress in the country. That is what this chapter attempts to do: present a comparative picture of the indicators for various social groups.

Box 9.1: Working of Ministries at National and State levels

Government of India

The separate ministries for ST (Ministry of Tribal Welfare) and SC (Ministry of Social Justice and Empowerment) were formed in 1999. These ministries are the nodal agencies for Protection of their civil rights, Prevention of Atrocities and implementation of developmental programmes meant for ST and SC respectively. The National commission for Scheduled Castes and Scheduled Tribes (NCSCST) was bifurcated into National commission for Scheduled castes (NCSC) and National commission for Scheduled Tribes (NCST) with effect from February 2004. Scheduled Caste sub plan (SCSP) strategy is implemented by the Department of Scheduled Caste within the Ministry of Social Justice and Empowerment under which Special component plan (SCP) in states/UT are implemented. Special assistance to SCP (100 per cent) is given by the ministry to states/ UTs based on SC population, backwardness and etc. National Scheduled Castes Finance and Development Corporation (NSFDC) and National SafaiKaramcharis Finance & Development Cooporation(NSKFDC) provides credit for income generating activities. The statement 21 and 21A of union Government of India Expenditure budget details out the exclusive expenditures meant for SC and ST.

Government of Karnataka

In the year 1999, The Department of Social welfare was reorganized to focus only on SC while the Department of Tribal welfare was created to oversee the welfare activities of ST in the State. The Department of Social Welfare focuses on the education, employment, social upliftment infrastructure, housing and etc of SC. Education also includes running the residential schools, hostels, providing scholarship, book bank facility and training for employment. Implementation of schemes for welfare of SC is supervised by this department. Entrepreneurial activities of SC are encouraged by the department by providing financial assistance. The Department of Tribal welfare runs hostels, residential schools, provides fees and scholarship and provides book bank facility and training to ST students. . Entrepreneurial activities of ST are encouraged by the department by providing financial assistance.

9.2. Population Size and Share

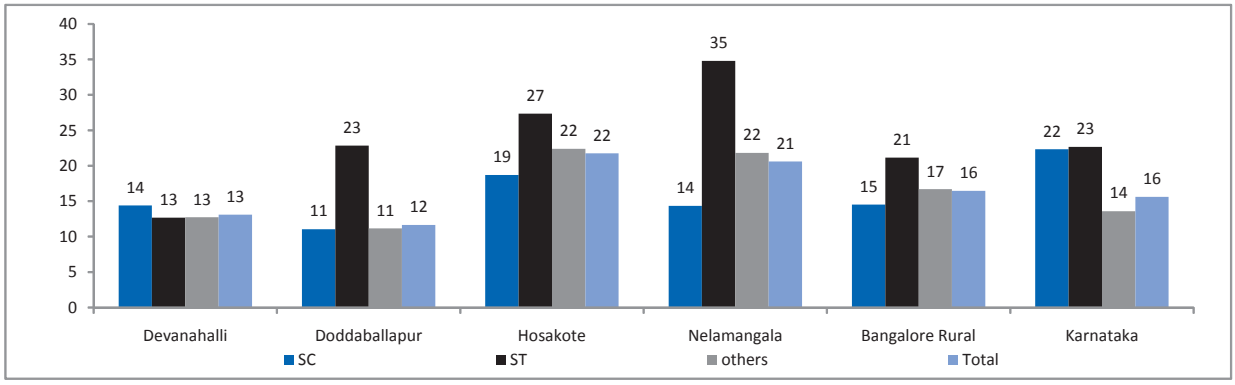
The SC and ST population together in the district has shown an increase over the period 2001 and 2011 from 2.3 lakh to 2.67 lakh while that in Karnataka increased from 120.27 lakh to 147.23 lakh (Table 9.1). While the growth of SC population in the district was lower than that of the 'others', i.e., non SC and ST population category, the growth of ST population in the district was higher than the 'others' category. This means the relative share of SCs has decreased and that of STs has increased during this decade although the change is marginal. Among the taluks, the SC population growth rate was highest in Hosakote and the ST population growth rate was highest for Nelamangala. The share of the SC population in the district is higher while that of ST population lower than that of the state average for both the years, 2001 and 2011 (Table 9.2). The share of SC population has declined in all taluks and the ST population has shown increase in all taluks except for Devanahalli. The population of 'others' has grown in the district at a higher rate than the state average; one reason could be the in-migration of population from other parts of the state and country to the district given the proximity to Bengaluru city.

Table 9.1: Total Population by Social Groups

Taluk	2001				2011			
	SC	ST	Others	Total	SC	ST	Others	Total
Devanahalli	43,288	18,093	123,945	185,326	49,517	20,385	139,720	209,622
Doddaballapur	54,728	11,609	201,995	268,332	60,773	14,259	224,562	299,594
Hosakote	48,766	7,658	166,006	222,430	57,882	9,753	203,183	270,818
Nelamangala	39,820	6,310	128,750	174,880	45,528	8,506	156,855	210,889
Bengaluru Rural	186,602	43,670	620,696	850,968	213,700	52,903	724,320	990,923
Karnataka	8,563,930	3,463,986	40,822,646	52,850,562	10,474,992	4,248,987	46,371,318	61,095,297

Source: Census of India

Figure 9.1: Growth Rates of Population by Social Categories in Per cent (for the period 2001-2011)



Source: Census of India

Table 9.2: Change in Per centage of SC and ST during the Decade 2001 - 2011

Taluk	2001			2011			Change		
	SC	ST	Others	SC	ST	Others	SC	ST	Others
Devanahalli	23.36	9.76	66.88	23.62	9.72	66.65	0.26	-0.04	-0.23
Doddaballapur	20.40	4.33	75.28	20.29	4.76	74.96	-0.11	0.43	-0.32
Hosakote	21.92	3.44	74.63	21.37	3.60	75.03	-0.55	0.16	0.39
Nelamangala	22.77	3.61	73.62	21.59	4.03	74.38	-1.18	0.43	0.76
Bengaluru Rural	21.93	5.13	72.94	21.57	5.34	73.10	-0.36	0.21	0.16
Karnataka	16.20	6.55	77.24	17.15	6.95	75.90	0.94	0.40	-1.34

Source: Census of India

The sex ratio of SC and ST population in the district shows better picture compared to 'Others' category population (Table 9.3). However, while the sex ratio of SC has improved from 971 in 2001 to 989 during 2011 the sex ratio of ST and 'Others' declined during the same period. The sex ratio of SC in the district has shown significant improvement in all taluks during the period 2001 to 2011, the rate of change being highest in Hosakote. On the contrary, the sex ratio of ST decreased in all taluks except Devanahalli during the period 2001 to 2011. This could be due to new ST migrants coming alone to the district leaving behind their families in the native villages.

Table 9.3: Change in the Sex ratio of SC and ST during the Decade 2001-2011

Taluk / District / State	2001			2011			Change		
	SC	ST	Others	SC	ST	Others	SC	ST	Others
Devanahalli	968	949	936	983	961	928	15	12	-8
Doddaballapur	975	951	944	995	938	941	19	-14	-3
Hosakote	959	949	922	988	941	914	29	-8	-8
Nelamangala	982	983	945	991	946	954	9	-37	9
Bengaluru Rural	971	955	937	989	949	934	19	-6	-3
Karnataka	973	972	962	990	990	968	16	18	5

Source: Census of India

9.3. Literacy and Education

Education with immense potential for opening up opportunities and inherent transformative impact is viewed as one of the most effective tools for changing inter-group positioning in the hands of the relatively deprived. This has been the rationale for including education in a major way in designing the affirmative action policies for the SCs and STs. The intervention in general includes various kinds of scholarships and transfers (cash and non-cash), reservation in the institutes of higher education, offering of free education for the SC and ST by the state government and setting up of residential schools for SC and ST students. Bengaluru Rural also has been the recipient of these schemes and interventions. A perusal of education related indicators in the district suggests that though there has been improvement for the SC and ST population groups, the inter-group differences are still wide.

Literacy with its impact on enhanced access to information and potential for significant inter-generational effects is an important indicator. The literacy rate in the district was higher than that of the state average for all categories including SC and ST.The 'others' has the highest literacy rates and the SC has the lowest literacy rates in all taluks as well as in the district as a whole. This means that the SC literacy rates are lower than that of ST in all taluks, which is contrary to the state average where SC literacy rate is higher than that of ST. The difference between literacy rate of SC and Other category was highest in Devanahallitaluk and lowest in Nelamangala taluk.The literacy ratesfor all categories were highest in Nelamangala among all four taluks.

Table 9.4: Literacy Rate of SC and ST (2011)

Taluk / District / State	SC	ST	Others	Total
Devanahalli	66.43	70.68	81.26	76.76
Doddaballapur	67.81	72.19	81.09	78.00
Hosakote	69.31	70.37	80.80	77.98
Nelamangala	71.27	75.38	81.31	78.91
Bengaluru Rural	68.64	71.79	81.09	77.93
Karnataka	65.33	62.08	78.78	75.36

Source: Census of India

Table 9.5: Total Enrolment and GER of SC and ST in Bengaluru Rural district (2007-2008 and 2011-2012)

Social group	Class	2007-2008			2011-2012		
		Enrollment	Population	GER	Enrollment	Population	GER
SC	Primary	19,960	18,486	107.97	17,805	18,565	95.91
	Upper Primary	9,045	12,102	74.74	11,068	15,215	72.74
	Elementary	29,005	30,588	94.82	28,873	33,780	85.47
ST	Primary	4,817	5,048	95.42	4,815	5,022	95.88
	Upper Primary	2,153	3,195	67.39	2,309	4,528	50.99
	Elementary	6,970	8,243	84.56	7,124	9,550	74.6
Others	Primary	54,978	56,003	98.17	50,634	53,176	95.22
	Upper Primary	24,137	33,452	72.15	31,637	25,442	124.35
	Elementary	79,115	89,456	88.44	82,271	78,618	104.65

Source: DISE data (Enrolment) and Education Department data (Population Estimates)

The Gross Enrollment Ratio (GER) for the district was analysed for two years: 2007-08 and 2011-12. The trends observed here are counter intuitive and need further examination. While the overall GER has shown improvement during this period the GERs for SC and ST students have decreased in 2011-12. The decrease was highest for the STat primary level.The 'others' also shows a decrease at primary level whereas their GER has shown an increase at upper primary level. The GER for the full elementary level taken together (classes 1 to 8) was higher for SC and ST categories than that of the 'others' category in 2007-08 while the opposite being true in 2011-2012.

Table 9.6: Out of School (OOS) Children and Out of School Children Mainstreamed (OOS-M) in Bengaluru Rural district

Age group	Social group	2007-2008			2011-2012		
		OOS	OOS-M	OOS- M(%)	OOS	OOS-M	OOS- M(%)
6-10 years	Others	175	151	86.29	206	195	94.66
	SC	73	63	86.30	93	81	87.10
	ST	28	23	82.14	10	9	90.00
	Total	276	237	85.87	309	285	92.23
11-13 years	Others	73	60	82.19	32	43	134.38
	SC	40	32	80.00	17	17	100.00
	ST	17	14	82.35	3	3	100.00
	Total	130	106	81.54	52	63	121.15

Source: Department of Public Instructions, Bengaluru Rural district

The analysis of the number of Out of School children in the district and those who were mainstreamed shows an improvement in the per cent of out of school children mainstreamed during the year 2011-12 over the year 2007-08.The out of school mainstreamed was higher than 100 per cent in the age group of 11 to 13 for other category. This may be due to the enrollment of migrated population who could have come in search of temporary jobs in the district especially in the housing sector, and therefore did not figure in the initial list of Out of School children.

9.4. Land Ownership and Alienation

Economic empowerment plays an important role in changing the economic and social status of those on the margin. In a study in Kalaburagi and Kolar districts in Karnataka[32], 92.8 per cent of SC and 95 per cent of ST respondents acknowledged that economic empowerment led improvement in the social status. Landlessness in case of SCs signified powerlessness in predominantly agrarian economy in the past. And in the modern times land ownership in a district surrounding a mega city like Bengaluru where real estate values have sky rocketed also signifies some power and control albeit in a very different manner. Land ownership among tribals followed a different pattern. While in some parts private ownership of land was nearly non-existent in traditional tribal societies with heavy dependence on forest products, in some areas they were mostly marginal or small cultivators. Land ownership has, however, similar significance for them. Landlessness in rural societies also translates itself into lower capacity to borrow and access to borrowings at a higher rate of interest often for consumption purposes leading to indebtedness and alienation. Landless households are therefore much more vulnerable.

The Government has imposed restriction on the transfer of the lands that are granted to SC/ST by the Government[33]. A prior permission by the state Government is required to sell/buy or gift these granted lands. Even sale to another SC/ST is considered void as per this Act. However, the Act does not apply to the lands that are not granted by Government. Successive governments have also formulated several schemes that would improve the economic inclusion of SC and ST households. MGNREGA has special provisions for these two groups: it allows for resource augmentation like provision of irrigation facilities and other measures for carrying out improvements to enhancethe productivity on the lands of SC and ST, along with provision of working on their own lands and getting paid for the same.

In absence of the data on landlessness, the number of landholdings and the area of land holdings are the other two important parameters: while the increase in the number of holdings does not indicate an improvement as it may be due to subdivision and fragmentation, the change in the area of holdings indicates the position of resource in possession. The situation when viewed from the perspective of SC and ST populations is not encouraging in Bengaluru Rural for either of the two indicators. The number of land holdings among SCs has shown an increase in two taluks, Hosakote and Nelamangala, while it recorded a decrease in Devanahalli and Doddaballapur taluks between 2005-06 and 2010-11. The number of land holdings among STs has shown decrease in all taluks except Devanahalli whereas the number has registered an increase for the 'others' category in all the taluks.The area of land holdings of SC has shown a decrease in all taluks except for Nelamangala where it has recorded a small increase. The area of land holdings of ST has decreased in all taluks except for Devanahalli.

The number of SC land holdings has reduced by 600 in number in Devanahalli amounting to an area of 880 hectares. In Doddaballapurtaluk the reduction in the area of SC holdings was about 285 hectares. In Hosakote though there was an increase in the number of land holdings among the SC the area reduced by over 1500 hectares which is highest among all the

[32] Accessed fromhttp://shodhganga.inflibnet.ac.in/bitstream/10603/8483/15/15_chapter%205.pdf on 20/1/2014

[33] The Karnataka Scheduled Castes and Scheduled Tribes (Prohibition of Transfer of Certain lands) Act, 1978 prohibits transfer of lands granted by the Government to persons belonging to the Schedule Castes and Schedule tribes in the state. The Object of the Act is to give effect to Directive principles of State Policy contained in Article 46 of the Constitution.

taluks. In Nelamangala taluk which recorded an increase in the number of land holdings, the area of land holdings among SC has increased marginally by 28 hectares.

Table 9.7: Number of Holdings and Area of holdings of SC and ST

Year	Taluk / District	No of Holdings				Area(Hectares)			
		SC	ST	Others	Total	SC	ST	Others	Total
2005-2006	Devanahalli	4,100	2,056	21,330	27,511	2,959	1,891	24,633	29,542
	Doddaballapur	6,588	2,040	38,952	47,653	5,288	2,049	42,722	50,161
	Hosakote	4,316	747	33,534	38,628	4,338	602	37,536	42,563
	Nelamangala	4,464	925	27,798	33,213	3,468	905	33,764	38,217
	Bengaluru Rural	19,468	5,768	121,614	147,005	16,053	5,447	138,655	160,483
2010-2011	Devanahalli	3,466	2,795	28,072	34,350	2,080	1,963	24,101	28,160
	Doddaballapur	6,564	1,929	46,199	54,698	5,005	1,858	44,638	51,541
	Hosakote	4,591	620	43,161	48,402	2,812	387	32,882	36,103
	Nelamangala	4,984	832	35,596	41,417	3,496	689	32,041	36,230
	Bengaluru Rural	19,605	6,176	153,028	178,867	13,393	4,897	133,662	152,034
Change						-2,660	-550	-4,993	-8,449
% change						-16.57	-10.10	-3.60	-5.26

Source: District at a Glance 2008-09 and 2011-12

The ST land holdings recorded an increase both in number and area in Devanahallitaluk. In the other three taluks, the number as well as the area decreased during the period.The decrease in area was around 200 hectares in Hosakote and Nelamangala while it was about 150 hectares in Doddaballapur. On the whole the decrease in area of holdings was 8449 hectares of which 3210 hectares belonged to SC and ST accounting for about 40 per cent of the land that has been moved out of agriculture. However, the decrease in the per cent area of land holdings was highest among SC atfollowed by ST and then the 'others' category. The reduction in area was the highest in Hosakotetaluk which recorded a decrease of over 35 per cent area among SC and ST. The reduction in area was higher among SC in Devanahalli and ST in Nelamangalataluk.

The reduction in the area of SC land holdings was very high among the land holdings of size 4 hectare and above compared to ST and 'others' category. While the possession of 1-2 hectares sized land holdings decreased among SCs and STs, the 'others'registered an increase of about 6 per cent points in the same period. The land size of less than one hectare decreased marginally among SC while it increased by nearly 25 per cent among the 'others' category. Given that SC lands in Devanahalli and Hosakote have decreased significantly and the same sized area belonging to 'others' category increased by 25 per cent, it appears that the SC lands were bought by the 'others' category in small patches for real estate purposes.

The building of international airport in Devanahalli and that of Apparel Park in Doddaballapur have impacted the land use significantly. Given the proximity to Bengaluru city and ever expanding real estate activity in the district, the SC and ST population groups can potentially benefit from this but if they are not well-informed about the growth potential in the area and the escalation of land prices, they are also likely to be the soft targets of the real estate industry. Losing the asset like land makes them more vulnerable than ever before if they are not otherwise equipped for the occupational changes. The decrease in the total land holdings area in the district across all social categories also indicates the land acquisition by the state government for industrial and other purposes.Given the pressures of real estate sector the possibility of violation of the Karnataka Scheduled Castes and Scheduled Tribes (Prohibition of Transfer of Certain lands) Act, 1978 also cannot be ruled out.

Table 9.8: Taluk-wise Change in the Area of Holdings of SC and ST between 2005-2006 and 2010-2011

Taluk / District	SC (%)	ST (%)	Others (%)
Devanahalli	-29.71	3.81	-2.16
Doddaballapur	-5.35	-9.32	4.48
Hosakote	-35.18	-35.71	-12.40
Nelamangala	0.81	-23.87	-5.10
Bengaluru Rural	-16.57	-10.10	-3.60

Source: District at a Glance 2008-2009 and 2011-2012

Table 9.9: Area Ownership wise Change in the Area of Holdings of SC and ST between 2005-2006 and 2010-2011

Size of holding	SC (%)	ST (%)	Others (%)
Below 1ha	-0.69	3.52	24.89
1-2ha	-10.30	-10.83	5.96
2-4 ha	-30.44	-14.83	-8.92
4-10 ha	-54.80	-33.48	-32.13
> 10 ha	-91.63	-41.18	-44.40
Bengaluru Rural	-16.57	-10.10	-3.60

Source: District at a Glance 2008-2009 and 2011-2012

9.5. Work Participation Rate

The work participation is an important measure indicating the involvement of working population in the productive employment. The male work participation rates among the SC and ST were lower than the 'others' category in the district, these being higher for each of these population groups as compared to the state average. The female work participation rate among SC and ST categories in the district was higher than the 'others' category. The female work participation rate in Doddaballapur stood above the state average for all categories.However, as discussed in the chapter on Income, Poverty and Employment, Women Work Participation Rate has declined in the district during 2001 and 2011, and SC and ST women workers are concentrated in low-end work of agricultural wage work.

Among the workers, share of persons employed in agriculture, either as cultivator or agricultural labourer, was higher among SC and ST compared to the 'others' category. The share of persons employed in agriculture was highest among SCs in Doddaballapur and among STs in Devanahalli. The share of those employed in agriculture was over 50 per cent among SC and ST in all taluks except Nelamangala.

Table 9.10 Male and Female Work Participation Rate by Social Group (2011)

Taluk / District / State	Male				Female			
	SC	ST	Others	Total	SC	ST	Others	Total
Devanahalli	67.44	67.86	70.35	69.45	42.50	41.50	34.25	36.94
Doddaballapur	68.63	70.61	70.43	70.08	45.88	50.69	35.90	38.64
Hosakote	67.16	68.81	69.90	69.29	36.53	34.42	26.63	29.08
Nelamangala	67.01	70.46	69.17	68.76	33.59	34.95	27.16	28.88
Bengaluru Rural	67.61	69.20	69.99	69.45	39.95	41.61	31.11	33.61
Karnataka	65.46	67.99	67.18	66.94	43.81	47.75	33.24	36.04

Source: Census of India

Table 9.11: Per centage of Agriculture Workers (Cultivators and Agricultural Labourers)

Taluk / District / State	SC	ST	Others	Total
Devanahalli	58.31	60.04	49.70	52.79
Doddaballapur	60.76	57.42	41.49	46.39
Hosakote	52.09	52.23	42.91	45.30
Nelamangala	45.49	44.14	37.18	39.31
Bengaluru Rural	54.87	55.49	42.62	46.07
Karnataka	57.69	67.89	45.35	49.28

Source: Census of India

Table 9.12: Job Cards Issued under MGNREGA in Bengaluru Rural District

Year	SC	ST	Others	Total enrolled by the end of the year [34]
2008 – 2009	15,864(30.75)	3,968(7.69)	31,751(61.55)	51,583
2009 – 2010	20,795(20.5)	5,217(5.14)	75,428(74.36)	101,440
2010 – 2011	15,540(20.61)	4,184(5.55)	55,660(73.84)	75,384
2011 – 2012	15,748(20.35)	4,121(5.32)	57,522(74.33)	77,391

Note: Per centages are given in brackets.
Source: www.karnregs.kar.nic.in

Given that agriculture workers form significant share of workers, the Mahatma Gandhi National Rural Employment Guarantee Act (MNREGA) has an important role in providing the employment to the workers in the district.The number of job card issued is higherfor the 'others' category as compared to the SC and ST categories in the district.The number of job cards issued by the end of year 2011- 12 was checked against the census data on households to understand the extent of enrollment or willingness to work under MGNREGA in the district. It was found that around 39 per cent of SC and 41 per cent of ST rural households had enrolled themselves for working under MGNREGA while 50 per cent of rural households under the 'others' category had enrolled under MGNREGA. The enrollment was highest in Devanahalli with 58 per cent of SC and 60 per cent of ST households willing to work under MGNREGA. This needs to be seen in view of the fact that Devanahalli had higher agricultural workers as well as higher reduction in the area of landholdings of SC. The enrollment of SC and ST households was lowest in Nelamangala.

Table 9.13: Social Group wise Number of Job Cards and the Per centage of Households with Job Cards (2011-2012)

Taluk / District	No. of Job cards				% of Households with Job cards			
	SC	ST	Others	Total	SC	ST	Others	Total
Doddaballapur	4,463	912	12,923	18,298	39.52	33.44	39.61	39.23
Hosakote	4,699	676	17,350	22,725	41.67	38.19	51.13	48.37
Nelamangala	1,576	317	17,156	19,049	17.01	17.77	60.49	48.33
Bengaluru Rural	15,748	4,121	57,522	77,391	38.97	41.36	50.27	46.96

Source: www.karnregs.kar.nic.in

Table 9.14: Number of Households Worked (2011-2012)

Taluk / District	No. of Households worked				% of Households with Jobc ards worked			
	SC	ST	Others	Total	SC	ST	Others	Total
Devanahalli	877	464	2,317	3,658	17.50	20.94	22.96	21.12
Doddaballapur	819	236	3,243	4,298	18.35	25.88	25.09	23.49
Hosakote	1,154	199	4,770	6,123	24.56	29.44	27.49	26.94
Nelamangala	189	21	1,592	1,802	11.99	6.62	9.28	9.46
Bengaluru Rural	3,039	920	11,922	15,881	19.30	22.32	20.73	20.52

Source: www.karnregs.kar.nic.in

Only 21 per cent of the all rural households who had job cards worked during the year 2011-12.Hosakote taluk had 27 per cent of jobcard holders working under MGNREGA during the year which was highest in the district. The proportion of job card holders who had worked was highest among SC and ST in Hosakote and lowest in Nelamangala. The share of person-days of employment among SC and ST was highest in Devanahalli and lowest in Nelamangala.The average number of person days worked by SC and ST was highest in Devanahalli.

[34] The enrollment shows a decline in 2010-11 which might be due to the weeding out bogus cards by ensuring one job card per household through verification.

Table 9.15: Number of Person Days Worked (2011-2012)

Taluk / District	SC	ST	Others	Total	SC (%)	ST (%)	Others (%)
Devanahalli	45,265	25,318	130,335	200,918	22.53	12.60	64.87
Doddaballapur	37,084	11,066	159,928	208,078	17.82	5.32	76.86
Hosakote	56,083	10,235	255,774	322,092	17.41	3.18	79.41
Nelamangala	8,736	1,117	79,499	89,352	9.78	1.25	88.97
Bengaluru Rural	147,168	47,736	625,536	820,440	17.94	5.82	76.24

Source: www.karnregs.kar.nic.in

Table 9.16: Average Number of Person Days Worked per Year (2011-2012)

Taluk	SC	ST	Others	Total
Devanahalli	52	55	56	55
Doddaballapur	45	47	49	48
Hosakote	49	51	54	53
Nelamangala	46	53	50	50
Bengaluru Rural	48	52	52	52

Source: www.karnregs.kar.nic.in

9.6. Living Conditions and Ownership of Assets

The living conditions denote the economic and social status of particular communities and population groups. The housing conditions, the availability of drinking water, bathroom and toilet facilities reflect the wellbeing and income levels of the households both in absolute and relative terms. Bhagat (2013) noted that despite increase in the access to housing, housing amenities and household assets of SCS and STs, the census 2011 figures indicated an increase in the difference (per centage points) between SC and ST with that of the total households over the period 2001 at All India level; this means though there was an increase in absolute terms, in relative terms there was a decline in the living conditions of SC and ST households. Important variables that showed increase in the difference between SC and ST with the 'others' category (over the year 2001) include access to bathroom, drainage, electricity, latrine facility, tap water and use of LPG for cooking purposes as well as for ownership of household assets like Television, two wheeler and four wheeler.

9.6.1. Housing and House Amenities

The difference in terms of the proportion of households living in 'good and livable houses' among SC, ST and 'others' households was not very high, the proportion was lower for SC and ST households as compared to that for the 'others' in both Bengaluru Rural district and Karnataka as a whole (Table 9.17). The proportion of households owning houses was higher for SC and ST rural households ascompared to the 'others' category households (Table 9.18). Though this appears to be a positive sign, as the analysis undertaken later suggests, the location, size and kind of houses owned tell a different story.

Table 9.17: Per centage of Good and Livable Houses by Social Category (2011)

District / State	Total / Rural / Urban	SC	ST	Others	Total
Bengaluru Rural	Total	94.1	95.13	97.74	96.85
	Rural	94.3	94.81	97.14	96.31
	Urban	92.9	96.41	99.03	98.27
Karnataka	Total	94.1	93.73	96.70	96.06
	Rural	93.3	92.96	95.29	94.70
	Urban	95.8	96.14	98.49	98.07

Note: Good and livable houses are defined as houses that do not require any repair and are in fairly good condition and those which need minor repairs to live in respectively

Source: Census of India

Table 9.18: Per centage of Households Owning Houses by Social Category (2011)

District / State	Total / Rural / Urban	SC	ST	Others	Total
Bengaluru Rural	Total	85.62	75.13	69.31	72.96
	Rural	89.76	83.42	80.53	82.94
	Urban	61.11	41.04	45.50	46.98
Karnataka	Total	82.76	81.36	71.79	74.25
	Rural	92.34	90.52	89.21	89.93
	Urban	59.80	52.51	49.74	51.05

Source: Census of India

Table 9.19: Per centage of Households with Access to Safe Drinking Water by Social Category (2011)

District / State	Total / Rural / Urban	SC	ST	Others	Total
Bengaluru Rural	Total	49.77	50.94	48.44	48.85
	Rural	53.67	55.63	56.85	56.01
	Urban	26.64	31.68	30.61	30.23
Karnataka	Total	62.34	59.29	64.39	63.70
	Rural	55.61	52.86	50.73	51.86
	Urban	78.48	79.52	81.68	81.21

Source: Census of India

The proportion of households with access to safe drinking water was highest among ST followed by SC and other category in the district. Among the rural population, the proportion of households with access to safe drinking water was highest among other category households. The proportion of households with access to safe drinking water was lowest among SC households in urban area of the district. This is due to the lower availability of treated piped water in the urban local bodies of the district. The proportion of households with access to safe drinking water in the district was lower than that of the state average. The proportion was significantly lower in the urban area with a difference of about 50 per centage points.

The proportion of households with bathrooms within the house premisewas found to be highest among the 'others' category households.The proportion of households with access to bathroom was higher in the district for all population categories as compared to the state average. The access to bathroom among ST was higher than that of the SC and lower than that of 'others' households in the district.The trend was opposite for households with drainage facility: the proportion was higher for SC households as compared to ST, and lower than the 'others' category households.

Table 9.20: Per centage of Households with Bathroom Facility by Social Category (2011)

District / State	Total / Rural / Urban	SC	ST	Others	Total
Bengaluru Rural	Total	79.64	84.46	92.60	89.50
	Rural	79.23	82.33	90.30	87.13
	Urban	82.07	93.22	97.50	95.70
Karnataka	Total	75.50	75.62	89.56	86.28
	Rural	69.30	70.23	83.33	79.45
	Urban	90.36	92.58	97.44	96.39

Source: Census of India

Table 9.21: Per centage of Households with Drainage Facility by Social Category (2011)

District / State	Total / Rural / Urban	SC	ST	Others	Total
Bengaluru Rural	Total	71.99	69.23	76.74	75.35
	Rural	69.86	65.48	69.06	69.03
	Urban	84.62	84.62	93.03	91.81
Karnataka	Total	53.24	48.38	63.44	60.71
	Rural	41.04	37.43	43.58	42.54
	Urban	82.48	82.82	88.56	87.60

Source: Census of India

Table 9.22: Per centage of Households with Latrine Facility by Social Category (2011)

District / State	Total / Rural / Urban	SC	ST	Others	Total
Bengaluru Rural	Total	67.26	73.66	83.87	79.91
	Rural	67.53	71.43	78.66	75.52
	Urban	65.64	82.81	94.92	91.34
Karnataka	Total	31.50	28.70	57.47	51.21
	Rural	16.39	15.64	33.24	28.41
	Urban	67.73	69.81	88.13	84.93

Source: Census of India

The proportion of households with access to latrine facility in the district was significantly higher than the state average for all the categories. For SC and ST households the proportion of households with access to latrine facility in the district was more than double the state average. However, the difference between the SC households and the 'others' category households in terms of access to latrine facility in the district was more than 10 per cent points in rural areas and nearly 30 per cent points in urban areas. The difference was not as high between ST and the 'others' category.

The proportion of electrified houses was highest among the 'others' category at around 97 per cent while that for SC and ST households was at 90 and 93 per cent respectively. Ten per cent of SC households do not have electric connection despite being eligible for connection under Bhagyajyothi scheme. However, these proportions are much better for all population categories in Bengaluru Rural as compared to Karnataka. The use of clean cooking fuel can be considered as a good indicator of economic empowerment and also has positive gender implication. While the use of clean cooking fuel in the district is higher than the state average, the gap between the 'others' category and SC and ST households is very wide. With the use being 20 per cent points lower while that of the gap between ST and other category is about 16 per cent.

Table 9.23: Per centage of Households with Electrified Houses by Social Category (2011)

District / State	Total / Rural / Urban	SC	ST	Others	Total
Bengaluru Rural	Total	90.31	93.01	96.89	95.33
	Rural	90.70	93.03	96.37	94.79
	Urban	88.04	92.94	97.99	96.73
Karnataka	Total	85.06	83.61	92.47	90.63
	Rural	82.42	81.01	88.59	86.72
	Urban	91.39	91.77	97.37	96.42

Source: Census of India

Table 9.24: Per centage of Households using Clean Cooking Fuel by Social Category (2011)

District / State	Total / Rural / Urban	SC	ST	Others	Total
Bengaluru Rural	Total	13.63	20.46	43.03	35.76
	Rural	10.61	14.24	31.70	25.52
	Urban	31.50	46.00	67.06	62.45
Karnataka	Total	15.30	14.27	39.17	33.52
	Rural	4.32	4.00	15.09	12.02
	Urban	41.62	46.58	69.64	65.34

Source: Census of India

Possession of household assets is yet another indicator of the economic empowerment and also the social status of SC and ST. The assets such as radio, television set and telephone enable communication and access to information while possession of a vehicle allows mobility, and therefore access to opportunities.

Radio has become less popular while the television has gained popularity and is seen as an essential good to be possessed. The share of households who own television among SC and ST (Table 9.25 and 9.26) was significantly lower than that for the 'others' category. The per centage of households owning TV in rural areas of the district was higher than that of the state average for rural areas while the opposite was true for urban areas.

Table 9.25: Per centage of Households Owning Television by Social Category (2011)

District / State	Total / Rural / Urban	SC	ST	Others	Total
Bengaluru Rural	Total	55.69	63.05	74.26	69.84
	Rural	54.38	60.60	70.55	66.02
	Urban	63.47	73.12	82.13	79.79
Karnataka	Total	46.22	44.18	64.42	60.03
	Rural	35.91	35.69	50.40	46.29
	Urban	70.94	70.91	82.16	80.35

Source: Census of India

Table 9.26: Per centage of Households Owning Telephone by Social Category (2011)

District / State	Total / Rural / Urban	SC	ST	Others	Total
Bengaluru Rural	Total	59.03	67.86	78.16	73.68
	Rural	58.35	66.31	75.62	70.87
	Urban	63.12	74.21	83.53	81.00
Karnataka	Total	57.36	57.38	75.90	71.57
	Rural	50.93	51.95	67.12	62.64
	Urban	72.76	74.47	87.02	84.79

Source: Census of India

The share of households owning a telephone (landline or mobile) is higher than the state average for all the categories. The share of households possessing telephone is higher among urban households of the 'others' as compared to that of SC households by 20 per cent points but the proportion of ST households owning a telephone was higher than that of the SC households.

Similarly the proportion of households possessing computer in the district was found to be higher than that of the state average among all categories. The gap between ST and 'others' categories, in terms of the proportion of households possessing a computer, was lower than that between the SC and 'others' categories.

Table 9.27: Share of Households Owning Computer by Social Category (2011)

District / State	Total / Rural / Urban	SC	ST	Others	Total
Bengaluru Rural	Total	5.56	7.01	8.20	7.59
	Rural	4.62	5.39	5.80	5.49
	Urban	11.13	13.68	13.28	13.07
Karnataka	Total	8.27	8.05	14.25	12.84
	Rural	5.56	5.49	5.58	5.57
	Urban	14.75	16.09	25.22	23.59

Source: Census of India

The proportion of SC and ST households possessing two-wheeler in the district was higher than that of the state average in rural areas while it was less than the state average for urban areas. The proportion of SC and ST households possessing two-wheeler was less than that of the 'others' category both in the district and at the state level. Similar trend was observed with respect of possessing four-wheeler among SC and ST households.

Table 9.28: Per centage of Households Owning Two-wheeler by Social Category (2011)

District / State	Total / Rural / Urban	SC	ST	Others	Total
Bengaluru Rural	Total	18.20	26.20	34.49	30.70
	Rural	18.10	27.05	35.44	30.73
	Urban	18.80	22.72	32.48	30.64
Karnataka	Total	13.55	13.89	29.24	25.60
	Rural	8.83	9.85	19.89	16.86
	Urban	24.88	26.58	41.07	38.53

Source: Census of India

Table 9.29: Per centage of Households Owning Four-wheeler by Social Category (2011)

District / State	Total / Rural / Urban	SC	ST	Others	Total
Bengaluru Rural	Total	5.05	6.59	10.43	9.39
	Rural	4.34	5.89	9.44	8.25
	Urban	9.64	9.65	12.40	12.11
Karnataka	Total	4.56	4.82	11.60	10.35
	Rural	2.17	2.44	4.92	4.32
	Urban	10.23	12.03	19.57	18.51

Source: Census of India

The proportions of SC and ST households who did not possess any of the assets (radio, TV, computer, telephone, two-wheeler and four-wheeler) were lower than the state averages. The proportion of SC households without any asset was the highest followed by ST and then 'others' households.

Table 9.30: Per centage of Households without any Assets by Social Category (2011)

District / State	Total / Rural / Urban	SC	ST	Others	Total
Bengaluru Rural	Total	19.13	13.32	7.95	10.53
	Rural	19.20	14.44	9.22	11.96
	Urban	18.69	8.72	5.24	6.81
Karnataka	Total	23.72	23.93	11.35	14.25
	Rural	28.72	28.00	16.52	19.90
	Urban	11.74	11.13	4.80	5.89

Source: Census of India

9.7. Political Empowerment and Governance

Karnataka is the second Indian state, after Andhra Pradesh, to pass a law, namely Karnataka Scheduled Castes Sub-Plan and Tribal Sub-Plan (Planning, Allocation and Utilisation of Financial Resources) Bill, 2013 to protect the level of expenditure for SC and ST development. The provisions of the Act include the earmarking of outlay for SC and ST in all the departments, extending the funds for next year without lapse and also punishment for the erring officials for not implementing the Act.

Political participation, either as voters or as representatives, is important for voice, representation and change in power relations. When communities that are traditionally disadvantaged participate in electoral politics it gives them a role in decision making with potential to influence the law, policy and investment priorities, and the delivery processes. The representation of SCs and STs in the institutions of the local governance is an important indicator of political empowerment. The reservation policy is guided by the population. The number of seats reserved in PRIs is equal to their proportion in the total population of that PRIs (GP or TP or ZP) and ULBs[35]. There is also a provision to ensure that at least one seat each be reserved for SC or / and ST.

The reservation is not just for the membership in these political institutions but also with respect to the positions of Chair in these institutions, which is by rotation as prescribed by the state government. The reservation is also extended to the other backward communities (OBC) and women.Nearly 33 per cent of all elected representatives of local governments belong to SC/ ST category in Bengaluru Rural and this appears to be a fairly representative portion considering that the population of SC and ST together constitute about 27 per cent of the population in the district.

Table 9.31: Per centage of SC/ST Elected Representatives in PRIs and ULBs (2011)

Taluk / District	Proportion of SC and ST population(in %)		Proportion of SC and ST Elected representatives (in %)	
	Urban	Rural	ULBs	PRIs
Devanahalli	20.26	38.96	19.57	39.17
Doddaballapur	12.43	31.20	16.13	32.69
Hosakote	13.19	28.12	17.39	30.74
Nelamangala	15.85	28.63	17.39	29.97
Bengaluru Rural	15.17	31.28	17.89	32.91

Source Census of India and District at a Glance 2011-12

The representation of SC and ST in PRIs and ULBs indicates compliance with the reservations as per the proportion of the population. The representation of SC and ST in ULBs and PRIs is higher than that of the proportion of SC and ST population in all taluks, except for Devanahalli where the proportion of SC and ST urban population is marginally higher than the representation in ULBs.

9.8. Discrimination and Redressal

The Prevention of Atrocities (PoA) Act was passed in Karnataka in 1989 to ensure that the atrocities against SC and ST are being dealt in a decisive manner. The report by the Committee Monitoring and Strengthening SC/ST (PoA) Act in Karnataka (CMASK) presents the state of affairs for the year 2011 and 2012. An analysis of the data indicated that the atrocities increased both in numbers and severity in the state. The conviction rate for Bengaluru Rural decreased from 5 per cent in 2011 to 3 per cent in 2012.The number of pending cases increased at a high annual rate of more than 18 per cent in Bengaluru Rural as against only five per cent in Karnataka as a whole. The number of meetings to be held by District level Vigilance and Monitoring Committee (DVMC) has also shown improvement during the year 2011 and 2012. Bengaluru Rural was

[35] Karnataka Panchayat Raj Act 1993 and Karnataka Municipalities Act 1964.

one of the six districts that met the legal requirement of conducting quarterly meetings of DVMC in 2012.

Table 9.32: District-wise Number of Cases Pending, Disposed and Convicted under PoA 1989

Year	Items	Bengaluru Rural	Karnataka
2011	PC	97	2,353
	CR	70	1,262
	TD	87	1,218
	CV (%)	4.6	6.40
	A (%)	93.1	86.37
	O (%)	2.3	7.22
2012	PC	80	2,397
	CR	75	1,238
	TD	31	1,041
	CV (%)	3.23	28.64
	A (%)	29.03	2.01
	O (%)	67.74	24.64
2013	PC	124	2,594
Average Annual Increase in Pending Cases (%)		18.74	5.04

Note: PC – Pending cases as on January 1st of respective year; CR – Case registered during that year; TD – Total cases disposed during that year; CV (%) – Convicted cases as a per cent of Total disposed cases; A (%) – Acquitted cases as a per cent of Total disposed cases; O (%) – Otherwise disposed cases as a per centage of total disposed cases; AAGR – Average Annual Growth Rate of Pending cases. Total Cases = Pending Cases + Total disposed cases.
Source: CommitteeMonitoring and Strengthening SC/ST (PoA) Act in Karnataka (CMASK) report to CM, Karnataka

9.9. Composite Dalit Development Index (CDDI)

While the efforts of Government towards development of SC and ST are making some impact, there exists a need to understand if there has been a change in the day-to-day living situation of dalit or adivasi individual or not. This is important for the necessary policy modifications or course correction leading to real expansion of opportunities of the targeted sections. The Composite Dalit Development Index (CDDI) helps in understanding the same which serves as a dipstick by using the actual data at a GP level in the district.

What emerges from the above discussion is that though legal frameworks exist and helped in improving the representation of dalits and adivasis, it has not necessarily changed their position to the extent that they do not face any discrimination and exclusion. The status of dalits in India has not improved significantly despite constant, deliberate and conscious efforts to discourage and remove negative discriminatory practices. The difficulty of dalit community to move up the socio-economic ladder are attributed to specific factors which hinder their ability to absorb the development opportunities provided to them by the government. This is a case study pertaining to a Gram Panchayat in Bengaluru Rural district, having minimum 50 dalit houses. The purpose of this study is to understand the difference between perception and reality in a limited manner without any generalization. Therefore, outcome of this study may not be applicable for any other similar, smaller or bigger geographical units.

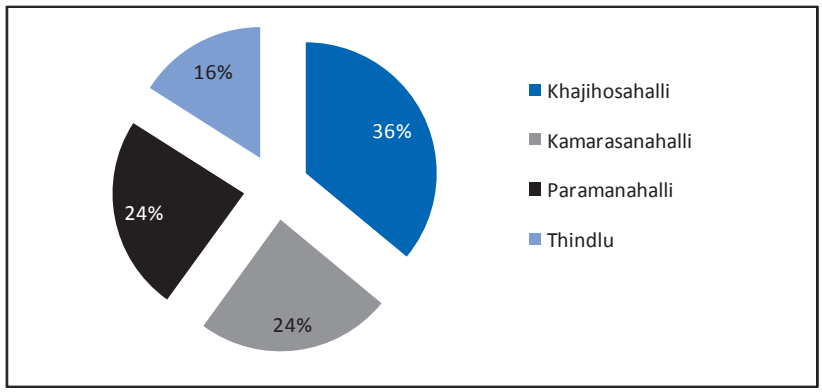
The index is based on a primary survey of fifty households in one average performing GP in Bengaluru Rural district belonging to the backward taluk. The rationale behind selecting a backward taluk and an average performing GP in that particular taluk was to understand the current level of development of dalits, existing conflicts and voice of the dalits against discrimination in a backward area.

9.9.1. Survey Methodology

The selection of 50 dalit households to conduct the survey was carried out in two stages. In the first stage, using Nanjundappa Committee Report[36], Hosakote, the only backward taluk in Bengaluru Rural district, was selected. In the second stage, Khajihosahalli GP was selected out of the 26 GPs in Hosakote on the basis of its location, distance from taluk headquarters and number of dalit households in the GP area. The location criterion denotes that the GP should be situated at least 15 kms away from the taluk headquarters. The second criterion specifies that there should be at least 50 dalit households in the GP. There are 1523 households in Khajihosahalli GP out of which 449 households were dalit households. After selection of the GP, 50 dalit households were randomly selected proportional to the total number of dalit households in each of the four villages in Khajihosahalli GP (Figure 9.2): 18 in Khajihosahalli village, 12 each in Kamarasanahalli and Paramanahalli villages and 8 in Thindlu village.

[36] High Power Committee for Redressal of Regional Imbalances- headed by Dr. D.M. Nanjundappa –used 35 indicators to classify taluks into forward, backward, more backward and most backward category.

Figure 9.2: Distribution of Sample Households in Each Village of Khajihosahalli GP



The survey was conducted in a three day time period from December 18th 2013 to December 20th 2013. The interviewers consulted the family head, female members and young members of the family. Women members were interviewed separately for the gender dimension section of the questionnaire. This was done to ensure that women respondents are able to provide accurate responses to questions related to reproductive health and health assistance provided under government schemes.

9.9.2. Profile of 50 Dalit Households

Table 9.33 provides a snapshot of the dalit households who were interviewed to collect the required data to construct CDDI. The sample population had 274 people including 124 males and 150 females. The population under 15-59 age group formed the majority constituting about 67.88 per cent of the sample population. There were 101 females and 85 males who belonged to this age-group. In terms of literacy, 65.33 per cent of the sample population was literate. Hundred and twenty two people reported to be employed in the sample population, out of which 51.64 per cent are employed in agriculture activities and 48.36 per cent are employed in non-agricultural activities. About 66.39 per cent of the employed are male and 33.61 per cent are female. In the age group 15-59 years female sample population, 42.42 per cent are home makers and 11.11 per cent are students. Further, the unemployment rate in Khajihosahalli GP is about 3.23 per cent. The average income of the 50 dalit households in the sample is Rs 10,831 per month[37].

Table 9.33: Profile of Sample Dalit Households

Variable	Total	Male	Female
A	B	C	D
Sample population	274	124 (45.26)	150 (54.74)
Average person per household	5.48	-	-
Age			
Under 5	18 (6.57)	6 (33.33)	12 (66.67)
5-14	39 (14.23)	17 (43.59)	22 (56.41)
15-59	186 (67.88)	85 (45.70)	101 (54.30)
60 and above	32 (11.68)	16 (50.00)	15 (46.86)
Marital status			
Never married	35 (17.41)	22 (62.86)	13 (37.14)
Currently married	139 (69.15)	67 (48.20)	72 (51.80)
Widowed	19 (9.45)	2 (10.53)	17 (89.47)
Divorced/Separated	3 (1.49)	1 (33.33)	2 (66.67)

[37] The average household income per month is calculated using the self-declared income of the employed by the respondent.

Variable	Total	Male	Female
Literate	179 (65.33)	91 (50.84)	88 (49.16)
Employed	122	81 (66.39)	41 (33.61)
Agriculture	63 (51.64)	33 (52.38)	30 (47.62)
Manufacturing	5 (4.10)	2 (40.00)	3 (60.00)
Non-Agriculture	59 (48.36)	46 (85.19)	8 (14.81)
Unemployed	6 (3.23)	1 (16.67)	5 (83.33)
Average HH Income per month(Rs)	10,831	-	-
Standard Deviation of monthly household income	5,270.35		

Note:
1. Per centages are provided in brackets ()
2. The per centages provided under age category and literate population was calculated by taking total population as the denominator.
3. The per centages provided under marital status category were calculated by taking population equal or above 18 years of age as the denominator.
4. The per centages provided under employed category – agriculture, manufacturing and non-agriculture – was calculated by taking total employed as the denominator. And manufacturing is a sub-set of non-agriculture so the summation of agriculture and non-agriculture will add up to 100 per cent.
5. The per centage for child labor was calculated by taking total population in the age group 5-14 years as the denominator.
6. The per centages provided in brackets under Column C and D is row per centages of Column B.

9.9.3. Data and Computation Methodology

Sample data includes responses from the respondents on access to basic facilities, perception of freedom, nature of treatment of dalits relative to non-dalits, level of discrimination, protest against such discriminations and action taken to resolve any conflict arisen in the GP area. In addition to sample data, data on demographics, standard of living, education and membership in GP and other societies of dalit and total households residing in the GP was collected from the Khajihosahalli GP office. Data from both primary and secondary source was then used to calculate the dalit development index.

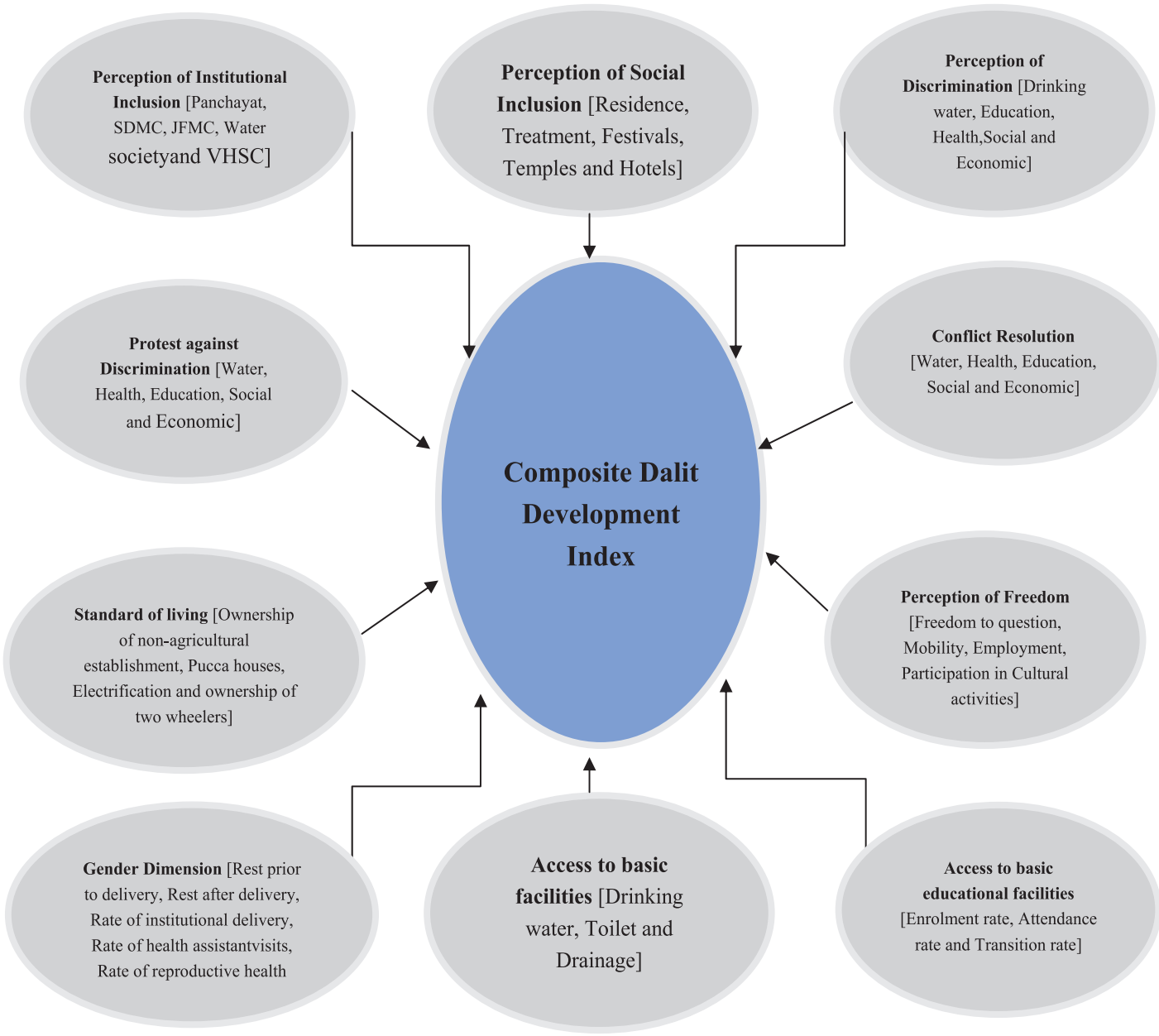
The dalit development index is composite index calculated using ten sub-indices which are normalized to range between the value of zero and one. Among the ten sub-indices, three sub-indices are based on the perception of respondents on matters of social inclusion, freedom and discrimination. Two sub-indices deal with protests against discriminations and resolution of conflicts in a satisfactory manner by the local authorities. A sub-index is calculated to measure the institutional inclusion of dalit population in the governance process. Two sub-indices deal with access of dalit households to basic facilities such as education, drinking water, toilets and drainage. Another sub-index is calculated to measure the standard of living of dalit households by comparing the ownership of pucca houses, electrification and non-agricultural establishments, and electrification of dalit households relative to non-dalit households in the sample GP. Finally, another sub-index is calculated to cover the dimension of gender relations of dalit women relative to non-dalit women on issues of opportunity to pursue education, fair treatment and reproductive health. Figure 9.3 (below) provides a detailed picture of the sub-indices and variables that were used to calculate the dalit development index.

The construction of dalit development index is based on scores assigned to individual variables ranging between zero and two. The decision to assign a particular score is based on a norm which is used for variables collected through secondary sources and also based on response rate of respondents for variables constructed from primary survey results.

Under the norm basis, the ratio of dalit and non-dalit household in the sample GP is calculated. This calculated share of dalit household is the norm used to calculate the benchmark. This benchmark, derived from the norm, is then used to assign a particular score to an individual variable. For example, if we were to assign a score to the variable `ownership of non-agricultural establishment', first the ratio of dalit

and non-dalit household in the GP is calculated. For the moment, assume that the ratio of dalit and non-dalit household is 3:1. Second, assume that the total ownership of non-agricultural establishment is 68 in the GP. Then the dalit ownership of non-agricultural establishment should be 17[38]. This value `17' is the benchmark which will be used to assign the appropriate score for this particular variable. If the dalit ownership of non-agricultural establishment is greater than 17 then a score of 2 is assigned. If the dalit ownership of non-agricultural establishment is equal to 17 (equal to norm) then a score of 1 is assigned. If dalit ownership is less than the norm then a score of zero is assigned.

Figure 9.3: Details of Sub-indices used to compute CDDI



Note: Variables under each sub-index are given in parentheses

[38] The dalit ownership is 1/4th of the total non-agricultural establishment in the GP. Therefore, the 1/4th of 68 equals 17 which is the dalit ownership of non-agricultural establishment in the GP.

Under the response rate basis, the per centage of responses to a particular variable of interest is used to assign the appropriate score. Take the example of conflict resolution here. If 70 per cent of the respondents say that conflicts were satisfactorily resolved then a score of 2 is assigned. If the response rate is between 50-69 per cent then a score of 1 is assigned. And if the response rate is below 49 per cent then the variable is assigned a score of 0.

After the appropriate scores to each variable are assigned, the scores under each sub-index is summed up and divided by the total possible score to derive the sub-index value. This division normalizes the sub-index value making it to range between the value zero and one. Then each of the sub-index value is summed up and again divided by the total possible score[39] to derive the dalit development index value.

9.9.4. Computation of Composite Dalit Development Index

At the outset, it must be mentioned that dalit households usually do not reside in the same locality as general households. The dalit households in this case reside in a separate colony provided under a government scheme which has its own water connections, shops, hotels and temples separated from the general households. This separation of dalit and non-dalit households has an impact on the level of discrimination and conflict between these two communities thereby on the perceptions of discrimination and conflict by dalit households

The calculated value of dalit development index is 0.685 indicating low level of actual dalit development in comparison to expected level of development. The primary reason for the low level of development can be attributed to problems with respect to social inclusion, no protest by dalits against any discrimination and low care of reproductive health needs of dalit women in the sample GP.

Table 9.34: Computation of CDDI

Dimensions	Value
Institutional inclusion[b]	0.8
Perception of social inclusion[a]	0.5
Perception of discrimination[a]	0.9
Protest against discrimination[a]	0
Conflict resolution[a]	1
Perception of freedom[a]	0.8
Standard of living[b]	0.6
Gender dimension[a,b]	0.5
Access to basic facilities[b]	0.75
Access to education[b]	1
Total calculated score	6.85
Total possible score	10
Composite Dalit Development Index (CDDI)	0.685
Dalit Deprivation Index (DDI)	0.315

Note: 1. a – scores are assigned on the basis of response rate; b – scores are assigned on the basis of norm.

The protest against discrimination sub-index is zero because no respondents had protested against any discrimination. Similarly, the conflict resolution sub-index suffers from the same problem. Zero conflict was resolved in the sample GP area since there were no conflicts reported by the dalit households. It was assumed that no conflict arose because all services are provided in a satisfactorily manner and no serious tensions exist between dalit and non-dalit community. By this assumption, the conflict resolution sub-index was assigned the full score of one which indicates that all conflicts were resolved. In addition, the access to education sub-index has enrolment rate, attendance rate and transition rate which were reported as 100 per cent by the GP office so the sub-index was also given the full score of one.

The following sub-section provides a detailed explanation of additional factors that positively or negatively impacted the dalit development index.

[39] The total possible score is10 since there are ten sub-indices and each can attain a maximum value of 1.

9.9.5. Institutional Inclusion

Table 9.35: Details of Institutional Inclusion Sub-index

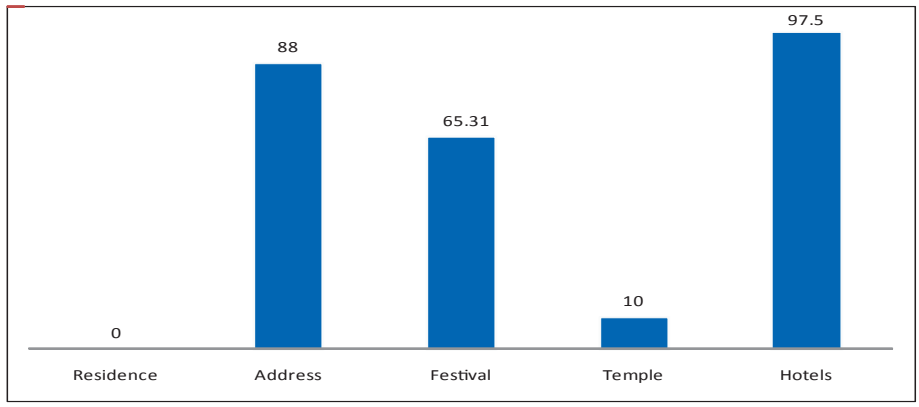
Institution name	Per centage of dalit membership	Norm (%)	Assigned score
Gram Panchayats	35.29	33	2
School Management Committee (SMC)	42.45	33	2
Joint Forest Management Committee (JFMC)	20.00	13	2
Water Societies	12.50	0	2
Village Health and Sanitation Committee (HSC)	40.00	0	2
Finance Societies	NC	0	0
Total calculated score			10
Total possible score			12
Sub-Index value			0.8

Note:
1., According to the guidelines, the constitution of Village Health and Sanitation Society mandate due representation of SC/ST population in the committee. Hence, it was assumed that no particular reservation applies to SC/ST membership in the committee.
2. As per RDPR circular dated 29-8-2013-RD/37/RWS(2)2013, there is no reservation for SC/ST members in Village Water and Sanitation Society.
3. NC = Not Constituted

In this sub-index, the per centage of dalit members in Grama sabha, SDMC, JFMC, water and finance societies and VHSC is considered to measure to existing level of inclusivity of dalit members in the governance process in the GP area. The representation of dalits is supposed to enable better understanding of their problems and contribute in the decision making process. The assignment of scores in this sub-index is based on the norm set by the government in terms of mandatory number of dalit members in these institutions. The score of 2 is assigned to variables such as GP, JFMC, SDMC, Water Society and VHSC since the per centage of dalit members is higher than the 33 per cent norm mandated by the Karnataka government. In the case of finance societies, a score of 0 is assigned since no finance society was constituted in the sample gram panchayat. As a result, the final value amounts to 0.8 indicates that the institutional inclusion of dalit households as mandated by the government was not upheld in one of the six institutions that was considered for this measure. The final sub-index value of 0.8 in Table 9.35 reveals that the dalit representation in government institution and societies is higher than the norm set by the government to ensure appropriate representation of this group.

9.9.6. Perception of Social Inclusion

Figure 9.4: Details of Responses under Social Inclusion Sub-index



The social inclusion index is a perception based index where the dalit respondents were asked questions on the following parameters:

a. Residence: whether they are allowed free entry into non-dalithouseholds?
b. Address: whether they are addressed respectfully by the non-dalits?
c. Festival: whether they participate in festivals like non-dalits?
d. Temple: whether they are allowed inside temples/ sacred places?
e. Hotels: whether they are treated in the same manner like non dalits in hotels?

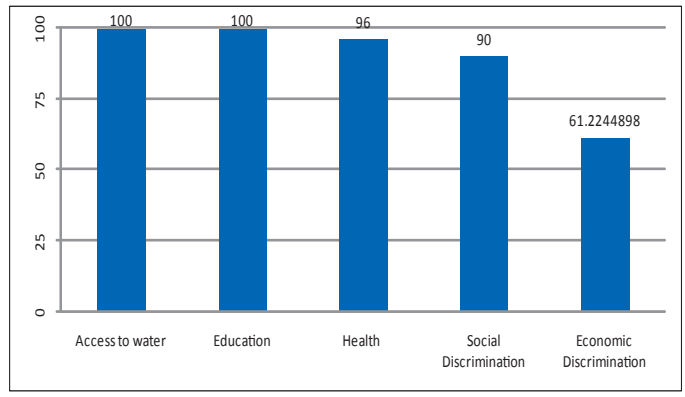
Out of the 50 dalit households that were interviewed, everyone responded that they do not have access to free entry into non-dalit households and about 10 per cent responded that access to inside of a temple is also restricted to them. Similarly, their participation in festivals is also constrained as they think there are restrictions for them to participate in festivals within the GP area. On the other hand, the treatment of dalit by non-dalit in terms of addressing them respectfully appears to be not an issue. About 88 per cent of respondents believe that they are addressed in a respectful manner by non-dalits. In addition, the treatment of dalits in hotels is positive since 97.5 per cent of the respondents responded that they are treated in the same manner as the non-dalits.

This implies that dalits continue to face discrimination when it comes to private spaces andreligious public places while the situation is almost free from discrimination or the discrimination is minimal when it comes to non-religious public places. This shows that while the purity-pollution related restrictions and taboos have become less rigorous in the contexts that are not religious and not personal but continue to be important in religious and personal settings: the two most critical areas where the notion of pollution has been considered critical.

9.9.7. Perception of Discrimination

This is another perception based sub-index where the respondents were asked whether they faced any

Figure 9.5: Response Rate to Question relating to Perception of Discrimination



discrimination in terms of access to water source, education and health facilities in addition to social and economic discrimination. From the responses of the respondents, it appears that they do not face any discrimination in terms of access to water source, education and health facilities. However, the access to water sources responses has to be taken with a pinch of salt since dalit households do not reside in the same locality as the non-dalits. The dalits reside in a separate colony provided under a government scheme which has its own water connections therefore leading to practice of no discrimination.

In terms of social discrimination, about 90 per cent of the respondents responded that they do not face any kind of social discrimination. However, 5 dalit households in our sample indicated that there are discriminations by non-dalits but do not get reported because dalits accept such discriminations as part of the social relations and therefore do not see anything undesirable in such practices.

In terms of economic discrimination, about 39 per cent of the respondents responded that they face discrimination in one way or other. The existence of economic discrimination is rooted in social exclusion. The discrimination faced are primarily centered on the ability of a dalit to rent a house or put their house on rent, and lack of equal opportunities to get a job involving religious processes. About 97 per cent of respondents feel that they will not be able to get a house on rent like non-dalits. And about 85 per cent of respondents feel that they will not be able to give their

house for rent like non-dalits. Therefore, they face constraints both as the supplier and consumer in the local house-rental market. Further, about 71 per cent of the respondents responded that they do not have same chance of getting a job inside/outside temple and jobs relating temple festivals and functions. This type of discrimination constrains their scope of employability in the local area and restricts them to certain jobs and roles which might have an impact on their upward economic mobility.

9.9.8. Perception of freedom

Table 9.36: Details of Perception of Freedom Sub-index

Details	Number of affirmative responses	Total number of responses	Response rate in affirmative (%)	Assigned score
	A	B	A/B*100	
Questioning	33	50	66	1
Protest against discrimination	31	50	62	1
Free to move	49	50	98	2
Employment opportunities	46	50	92	2
Cultural activities	45	48	93.75	2
Total calculated score				8
Total possible score				10
Sub-Index value				0.8

Note: Scores are assigned on the basis of response rate

In this sub-index, the freedom of dalits in terms of questioning against injustice meted out to them, protest against any discrimination, mobility, employment opportunity and cultural activities are dealt with. Table 9.36 shows that dalits in the sample believe that they enjoy freedom of mobility, employment opportunity and participation in cultural activity as indicated by high response rate to these questions. Here, it must be mentioned that dalits feel that there is not much difference in the employment opportunities in the general job market. This means that they do not perceive the discrimination that they face in getting jobs related to religious place or processes as linked to the general job market. One must here also consider the type and nature of jobs sought by majority of dalits which might not include working in religious positions.

On the other hand, the respondents have responded that they face difficulty in protesting against discrimination and in questioning the injustice meted out to them. The response rate for freedom to question any injustice and freedom to protest is 66 per cent and 62 per centrespectively. The reason for difficulty in protesting against discrimination and in questioning injustice is not known as the questionnaire did not include follow-ups for these questions.

9.9.9. Standard of Living

Table 9.37: Details of Standard of Living Sub-index

Variables	Per centage (SC Household)	Norm (%SC household)	Assigned score
Land holding	17	29	0
Non-Agricultural establishments	6	29	0
Pucca Houses	32	29	2
Electrification	32	29	2
Owning Two Wheeler	37	29	2
Total calculated score			5
Total possible score			10
Sub-Index value			0.6

Note: Scores are assigned on the basis of norm.

The standard of living index takes into account the dalit ownership of non-agricultural establishments, pucca houses and two wheelers, in addition to land

holding by dalit households and the per centage of dalit households with electricity.

Only six per cent of dalit households own non-agricultural establishments such as hotels, retail shops and small business. Only 17 per cent of sample dalit households owned any land holding; this is significantly lower than the expected ownership of land holding among dalits. As a result, the sub-index value is brought down to 0.6 indicating the low performance of dalit households in the standard of living measure.

9.9.10. Gender Dimension (Reproductive Health of Dalit Women)

The gender dimension of dalit development index is primarily focused on the reproductive health of dalit women. This limits the scope of gender relations which can certainly benefit by broadening it to include time use by each gender, decision making and family relations.

Table 9.38: Details of Gender Dimension Sub-index

Details	Number of affirmative responses	Total number of responses	Response rate in affirmative(%)	Assigned score
	A	B	A/B*100	
Rest prior to delivery	27	50	54	1
Rest after delivery	43	50	86	2
Rate of Institutional delivery	42	50	84	2
Rate of Health Assistant Visits	18	50	36	0
Reproductive Health Support	22	50	44	0
Total calculated score				5
Total possible score				10
Sub-Index value				0.5

Note: Scores are assigned on the basis of norm and response rate.

The low value of the sub-index is due to less number of women respondents being able to take rest of 3 months or more prior to delivery, rate of health assistant visits and reproductive health support. Only 54 per cent of the respondents were able to take 3 months or more rests prior to their delivery. Further,13 respondents expressed that the health assistants are not visiting their household as expected of them to do so. Only 36 per cent of the respondents said that the health assistants are visiting at least once a month during their pregnancy period. The 36 per cent rate of health assistant visits in relation to the 100 per cent rate of health assistant coverage of general population indicates negligence in health assistant service to dalit women during their pregnancy period. In terms of reproductive health support, about 44 per cent of the women respondent had received either madilu kit, cash through JananiSurakshaYojane scheme, tablets or injection. 12 respondents said that did not know about any reproductive health support that was offered under government scheme. All of these factors play a significant role in the maternal health and child birth.

9.10. Concluding Remarks

Given the fact that majority of dalit households believe that freedom of mobility, employment opportunity, access to basic facilities, and access to education are the same as non-dalit households, it can be concluded that the constant and conscious effort by the government to remove and discourage discriminatory practices has met with some success. However, there is still a long way to go when it comes to discrimination faced in private and religious domains. Awareness of one's own rights and capability to fight for rights also seems limited among dalits.

While it is important to recognize the fact that the rigors of discrimination has indeed loosened up, it is also important to remember that, as suspected by some dalit respondents themselves, internalization of unequal behaviour and practices could be one reason of the perception regarding absence of discrimination in certain arena. Private space that had always been separated remains separated – in the past it was because of the purity-pollution bound practices that disallowed dalits to live in the same areas where upper caste population lived, now the government is building colonies that are located in separate clusters. The standard of living and access to reproductive health services seem to quiet poor for dalit households, indicating the need for augmentation still remaining there.

Governance

"Good Governance is perhaps the single most important factor in eradicating poverty and promoting development"
- **Kofi Annan,** former UN Secretary General

10.1. Introduction

Governance refers to the exercise of political and administrative authority at all levels to manage a country's affairs. It comprises the mechanisms, processes and institutions through which citizens and groups articulate their interests, exercise their legal rights, meet their obligations and mediate their differences[40]. It includes rules, values, processes through which people attempt to work towards objectives, make decisions, generate authority and exercise power. Democratic governance is 'a process of creating and sustaining an environment for inclusive and responsive political processes and settlements'[41]. The Commission for Human Rights lists five important attributes of good governance: transparency, accountability, participation, responsibility and responsiveness to the needs of the people.

Governance is strongly related to human development as it influences the institutional and human capacities which determine the manner in which the public policies are framed and implemented, strategies are devised and executed towards service delivery without losing focus on issues of equity and diversity, and the need to protect vulnerable population groups and environment. Human development essentially delves into the issues of enjoyment of human rights, growth and expansion of the choices of all sections, especially of the weaker and vulnerable sections of the society. This is important because of the existing gap among different sections of the society. Ensuring an equitable and just society would mean not just improving the choices of the deprived classes but also bridging the gap between the vulnerable sections of society with the rest with respect to growth possibilities and assertion of rights.

Good governance can be referred to as one that results in desired outcomes. The attributes of good governance are crucial for the human development as it leads to expansion of opportunities and eases the access to opportunities. Governance includes administration which includes the rules, institutional processes which would entail the process of decision making leading towards sustainable management of resources and delivery of public services in an equitable manner. Governance also implies ensuring opportunities to citizens, including those who are poor and more vulnerable, to effectively articulate their demands and the assertion of their rights leading to improved public service delivery. Governance also involves the competence and efficiency of institutions and personnel within the system which has a significant bearing on service delivery.

Apart from national and sub national governments, local governments and local governance offer the much needed space and scope for working towards the goals of human development. Local government representatives bring with them an understanding of local needs of various sections of society and the impediments they face. Local governance also offers opportunity to arrive at local solutions.Ensured representation of women and other vulnerable sections of the population in local governments make it more geared towards equitable functioning.

10.2. Local Governance Structure and Processes

Local governments existed in the form of municipalities in town areas and development boards during pre and post independent India for which usually the representation was through nomination from the state governments. This changed when West Bengal passed the Panchayat Raj Act in 1973 and started conducting regular elections for local self government in rural areas as well. Karnataka attempted to provide a legal status

[40] Committee of Experts on Public Administration, Definition of basic concepts and terminologies in governance and public administration (E/C.16/2006/4) (New York, 2006)
[41] United Nations Development Programme, Human Development Report 2011 (New York, 2011)

to the local governments in 1983 by passing an Act in the legislature[42] and was successful in establishing a network of elected bodies throughout the state. The country made an unsuccessful attempt to amend the constitution (64th Constitutional Amendment) in 1989 to confer constitutional status to rural local governments. Finally, in 1992, 73rd and 74thConstitutional Amendments Acts were passed which brought the local government comprising Panchayati Raj Institutions and urban local bodies as a legitimate third tier of government. All the states enacted conformity laws in keeping with the central law to establish local governments and other enabling structures such as State Election Commission (SEC) and State Finance Commission (SFC). The amendments also added 11th and 12th schedules to the Constitution describing the list of 29 and 18 functions that can be performed by PRIs and ULBs respectively.

The local governments thus gained the requisite legal status and authority that did not exist prior to this amendment. The Constitutional Amendment used the words 'shall' and 'may' to indicate the compulsory and optional provisions for the implementation at the state level as local governments was a subject in State List. The salient features of local governments included constitution of PRIs at three levels i.e. district, block/ taluk and village level[43]; elections to be held every five years with reservations to women, scheduled caste (SC) and scheduled tribes (ST) based on the population; constitution of State Election Commission to oversee the electoral process of PRIs and ULBs every five years; constitution of State Finance Commission on the lines of union finance commission every five years to review the finances of PRIs and ULBs and to recommend the basis for devolution of funds to PRIs and ULBs to the state government. The elections to PRIs and ULBs are direct while the election of chairpersons and vice chairpersons of these bodies are by indirect manner. The reservation for the positions of chairperson and vice chairperson was also mandated.The Grama Sabha and Ward Sabha were also introduced to involve people participation in the governance in PRIs and ULBs respectively.

10.3. Panchayat Raj Institutions: Structure and Processes

After the constitutional amendment, Karnataka was the first state to amend the state Panchayat Raj Act on 10 May 1993. Even before the constitutional amendment, Karnataka was seen as a pioneer in decentralization because of the enactment in 1983 followed by local body elections in 1987[44]. Karnataka amended the panchayat raj act in 1993 confirming to the constitutional amendment and moved from a two tier system to three-tier system. The decentralized local governance was accepted as the way forward to improve governance and to address the local priorities suitably. After the amendment, all the 29 functions listed in the 11th schedule were transferred along with the requisite functionaries and fundsto the PRIs. District sector fund allocation and link document budget[45] are special features of the Karnataka budget.

10.3.1. Gram Panchayat

A GP is constituted for a village or group of villages having a population of 5000 to 7000 and members are elected at the rate of one member for every 400 population for a term of five years. Seats are reserved for Scheduled Castes (SC) and Scheduled Tribes (ST) based on the proportion of population in the GP. At least one seat each for SC and ST is a must in GP and if the ST population is non-existent in the GP it has to be filled by SC and vice versa. Every GP has a President and Vice-President elected from among the elected members of the GP. GP has 3 standing committees constituted for the purpose of proper functioning in its area. They are Production committee, Amenities committee and Social Justice Committee. The production committee and amenities committee are chaired by President and social justice committee is chaired by Vice President. Each committee has 5 members including the chair while the social justice

[42] The Karnataka Zilla Parishads, Taluk Panchayat Samitis, Mandal Panchayats and Nyaya Panchayats Act 1983.
[43] States with population less than 20 lakhs can have only 2 tiers.
[44] The Karnataka Zilla Parishads, Taluk Panchayat Samitis, Mandal Panchayats and Nyaya Panchayats Act 1983.
[45] The link document is the part of the budget document that provides links (through account codes) to the amounts that are transferred to the PRIs. This also gives an understanding of the amounts handled by PRIs.

committee has one member belonging to SC or ST and one woman member. The seats of President and Vice President are reserved and are on rotation basis with a period of one year.

Every GP is supported by a Panchayat Development Officer (PDO) and or Secretary who are officials of state government. There are bill collectors, waterman, and helpers who are employees of the GP.

GP has been devolved functions and powers of taxation. It is the only tier with taxation powers. Important sources include the property tax, water charges, sanitation charges, trade license etc. Important functions include provision of water supply and sanitation, construction, repair and maintenance of public streets including lighting, registering births and deaths, ensuring universal immunization of children and universal enrollment of children to primary school and maintain all the community assets. The implementation of development programmes like SGSY, MGNREGA etc are also the responsibility of GP.

Important processes at the GP include the conduct of GramaSabha which is to be conducted at least twice a year. A special GS is also introduced for the implementation of MGNREGA works in the GP. GS has to be presided over by GP president or Vice President in the absence of President. GS is to be convened with at least 10 per cent of its members attending it. GS has to approve the annual plans of GP. It has to generate proposals and priority of schemes and developmental programs to be implemented in its area by GP, TP or ZP. GS is also meant to select the beneficiaries of various schemes. GP has to place the annual statement of accounts of previous financial year, and audit note along with its replies and Jamabandi report for the consideration of GS. Ward Sabha is also conducted on the lines of GS at the ward/village level.

Jamabandi is a formal interface of the public with the GPmembers, officials and also senior officer of State conducted between 16th of August and 15th of September during the year. Members of Grama Sabha can access the records of GP and discuss with the officials and GP elected members. The schedule is fixed by giving a month's advance notice and is communicated to the Gram Panchayat. The schedule is published in the local news papers. Local pamphlets can also be distributed to ensure adequate publicity. The Panchayat Development Officer Secretary should make the arrangements for the conduct of the Jamabandi. All the panchayat members and staff including the engineer concerned should be present at the meeting. The presiding officer is deputed by the Executive Officer of the Taluk Panchayat who in his/her team is assisted by two officials. The Jamabandi team has a kit containing camera, measurement system notebook, pen and a bag.

Jamabandi is conducted on the fixed date and time. Forenoon is meant for inspection of accounts, registers and other relevant records. Afternoon is for inspection of works. A report has to be given by the presiding officer to the E.O. within 2 days of the conduct of the Jamabandi. The 2 officials assisting the presiding officer of Jamabandi visit the panchayat the day before and make a detailed report on the state of affairs with respect to records and accounts of the panchayat in a prescribed format. Any member of the Gram Sabha who wishes to know about the details of a particular work done or property is entitled to have access to the records and inspect the records of the Gram Panchayat.

Every GP receives a fund of about Rs.75 lakh to 100 lakh every year from the state government which includes the grants for development schemes, statutory grant and maintenance grant. Budget is another important process which has to be undertaken by GP every year. The budget for the coming financial year has to be prepared by PDO/Secretary and the GP has to approve with or without changes before 10th March every year. This has to be approved by TP executive officer before the end of March. Every year GP is audited by the officers of the State Accounts Department.

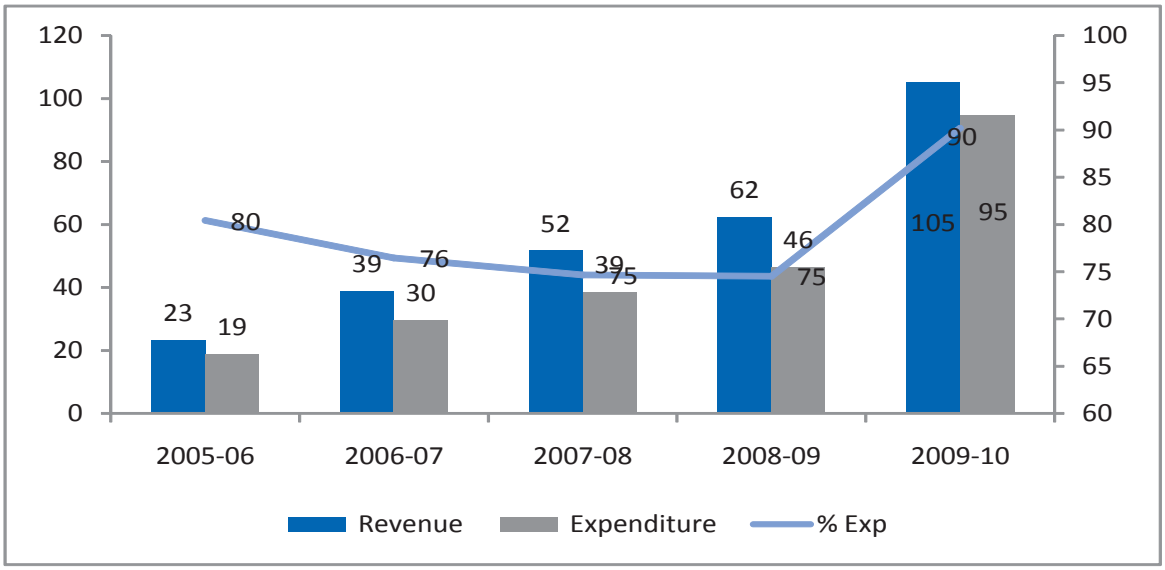
The list of taluk-wise GPs of Bengaluru Rural with their finances is provided in the Table 10.1. The revenues as well as the expenditure have increased over the period of five years. The expenditure as a per centage of revenues was highest in the Hosakote for the entire period while it was lowest in Devanahalli for the years 2007-08 to 2009-10. The average revenue per GP has increased from Rs. 23 lakh in 2005-06 to Rs. 105 lakh in 2009-10 (Figure 10.1).

Table 10.1: Revenue and Expenditure of GPs (Rs in Lakh)

Year	Revenue / Expenditure	Devanahalli	Doddaballapur	Hosakote	Nelamangala	Bengaluru Rural
2005-2006	Revenue	558.33	639.31	524.06	576.09	2,297.79
	Expenditure	456.80	510.63	436.45	444.43	1,848.31
	Expenditure (% of Revenue)	81.81	79.87	83.28	77.15	80.44
2006-2007	Revenue	855.89	1142.98	904.70	911.96	3,815.53
	Expenditure	662.97	833.02	743.67	677.72	2,917.39
	Expenditure (% of Revenue)	77.46	72.88	82.20	74.31	76.46
2007-2008	Revenue	1,173.15	1,482.73	1074.33	1,337.18	5,067.38
	Expenditure	767.42	1,081.11	877.24	1,058.76	3,784.52
	Expenditure (% of Revenue)	65.42	72.91	81.65	79.18	74.68
2008-2009	Revenue	1,703.69	1,594.23	1343.19	1,464.68	6,105.79
	Expenditure	1,170.34	1,275.71	1028.70	1,076.77	4,551.52
	Expenditure (% of Revenue)	68.69	80.02	76.59	73.52	74.54
2009-2010	Revenue	2,591.63	2,090.98	2,986.90	2,638.15	10,307.67
	Expenditure	2,214.03	1,865.70	2,794.21	2,424.34	9,298.28
	Expenditure (% of Revenue)	85.43	89.23	93.55	91.90	90.21

Source: Data from Decentralization Analysis cell, RDPR, Government of Karnataka

Figure 10.1: Average Revenue and Expenditure of GPs in Bengaluru Rural District



Source: Data from Decentralization Analysis cell, RDPR, Government of Karnataka

The average expenditure per GP has also increased from Rs. 19 lakh to Rs. 95 lakh during the same period. The expenditure as per centage of revenue had dropped from 80 per cent druing2005-2006 to 75 per cent during 2007-2008 before moving up to 90 per cent during 2009-2010.

10.3.2. Taluk Panchayat

TalukPanchayat (TP) is the middle tier of the PRIs. TP is constituted by elected members at the rate of one member per 10,000 populations with reservations to SC and ST on the basis of proportion of their population. At least one seat each has to be reservedfor SC and ST. Other Backward Classes (OBC) are also provided with reservation. Apart from directly elected members, TP includes the members of House of People, Legislative Assembly, Council of States and Legislative Council whose constituencies lie within the taluk. One fifth of the GP Presidents (on rotation basis every year) are also members of the TP. Elected members of TP elect President and Vice President from among them. President of TP is the executive head of TP. TP has 3 standing committees, namely, General Standing Committee, Finance Audit and Planning Committee and Social Justice Committee. Each standing committee has 6 members. The General Standing Committee functions relating to establishment matters, buildings, rural housing, water supply and residuary matters. The Finance Audit and Planning Committee perform functions related to finance, framing of budgets, examination of revenue and expenditure statements and consideration of proposals affecting the finances of TP. President is the ex-officio president of the Finance Audit and Planning Committee. The Social Justice Committee performs functions relating to promotion of education, social, economic, cultural and other interests of the SC and ST and OBC along with securing social justice. TP is assisted by the state government officials to ensure smooth functioning of TP. The functions of TP include implementation of schemes of State and Union Government, performing supervisory function related to water supply in GPs, reporting the half yearly progress of GPs to State Government, providing adequate number of class rooms and maintenance of school buildings. TP does not have taxation powers but it can raise money through the rents of its buildings and spaces, and through few fees. Money received from the state government largely forms the revenues of TP. Table 10.2 shows the revenues and expenditure of the TPs in Bengaluru Rural district.

Table 10.2: Revenue and Expenditure of TPs (Rs in lakhs)

Year	Revenue / Expenditure	Devanahalli	Doddaballapur	Hosakote	Nelamangala	Bengaluru Rural
2005-2006	Revenue	558.33	639.31	524.06	576.09	2,297.79
	Expenditure	456.80	510.63	436.45	444.43	1,848.31
	Expenditure (% of Revenue)	81.81	79.87	83.28	77.15	80.44
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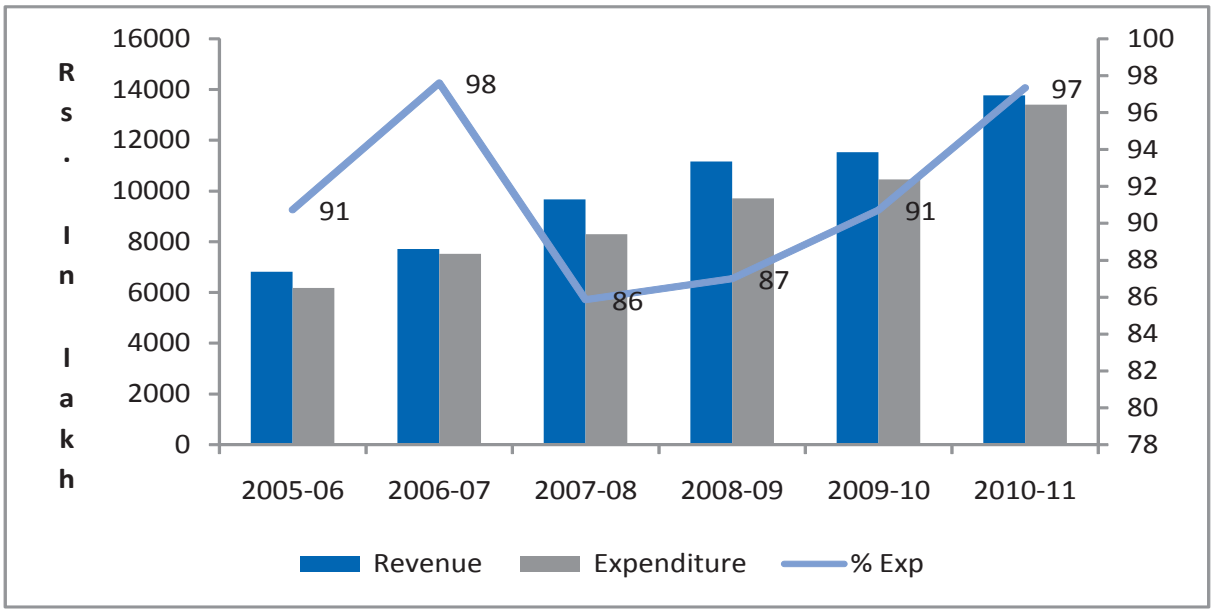
	Expenditure (% of Revenue)	85.43	89.23	93.55	91.90	90.21

Source: Data from Decentralization Analysis cell, RDPR, Government of Karnataka

Figure 10.2: Average Revenue and Expenditure of TPs in Bengaluru Rural District



Source: Data from Decentralization Analysis cell, RDPR, Government of Karnataka

The revenues and expenditure of the TPs have doubled from the year 2005-06 to the year 2010-11. The utilisation of funds received from the State Government is lowest in Hosakote while it was highest in Nelamangala. The utilisation for all taluks put together wash highest during 2006-07 and 2010-11 at 97 per cent while it was around 86 per cent during 2007-08 and 2008-09.

10.3.3. Zilla Panchayat

ZillaPanchayat (ZP) is constituted at district level and it consists of directly elected members at the rate of one member for every 40000 population with reservations to SC and ST on the basis of proportion of their population. One third of the seats are reserved for Other Backward Classes (OBC).Apart from directly elected members, ZP includes the members of House of People, Legislative Assembly, Council of States and Legislative Council whose constituencies lie within the taluk and TP Presidents. Elected members of ZP elect President and Vice President from among them. President of ZP is the executive head of ZP and also the chairperson of the District Planning Committee (DPC). The ZP has five Standing Committees with each consisting of seven members including the chairperson and they are:

1. General Standing Committee
2. Finance Audit and Planning Committee

3. Social Justice Committee

4. Education and Health Committee

5. Agriculture and Industries Committee

The President of ZP is the ex officio President of the Finance Audit and Planning Committee and Vice president of ZP is the ex officio President of the General Standing Committee. The ZP has Chief Executive Officer (CEO) who is not below the rank of Deputy Commissioner in the district. The State Government also appoints Chief Accounts Officer, Chief Planning Officer and Deputy Directors for the ZP. The ZP conducts meeting once a month (also referred to as Karnataka Development Programme (KDP) meeting) to oversee the progress of implementation of various development schemes and functioning of departments under ZP. The State Government also posts required number of officers and officials for ZP. ZP is dependent on the State Government for its revenue and it does not have any other sources of revenue (except for few fees/rent from its own buildings). The ZP accounts are audited by the Comptroller and Auditor General (CAG) office in the State. The receipts and expenditure of the Bengaluru Rural ZillaPanchayat is presented in Table 10.3. It can be seen from the table that the utilisation has improved significantly over the years.

Table 10.3: Revenue and Expenditure of Zilla Panchayats (Rs in Lakhs)

Year	Total Receipt	Total Expenditure	% utilisation
2008-2009	14,284.40	11,783.47	82.49
2009-2010	25,621.21	24,440.51	95.39
2010-2011	15,474.26	15,392.09	99.47

Source: Data from Decentralization Analysis cell, RDPR, Government of Karnataka

Since all the departments in the district level and below are brought under ZP and TP, the salary component forms the significant portion of the receipts of ZP and TP. Though the District Planning Committee is set up, it is only on paper with no efforts to consolidate the plans of the district from both PRIs and ULBs.

10.4. Urban Local Bodies: Structure and Processes

Urban Local Bodies (ULBs) are the statutory urban areas with elected local body to govern as per the 74th Constitutional Amendment. Karnataka state had The Karnataka Municipal Corporations Act of 1976 and The Karnataka Municipalities Act 1964 both of which was amended after Constitutional Amendment and came to effect from 1st of June 1994. The 18 functions listed under 12th schedule may be performed by the ULBs. Municipal Areas are specified based on the population, density of population, revenuegenerated, economic importance and such other viability.

There are five categories of ULBs in Karnataka:

1. The City Municipal Corporation- Population of 3 lakh and above (30-99 corporators)
2. The City Municipal Councils- Population of 50000 to 3 lakhs (31-35 councilors)
3. Town Municipal Councils- Population of 20000 to 50000(23 -27 councilors)
4. Town Panchayats- Population of 10000 to 20000
5. Notified Area Committees- specified areas where municipal services are required to be provided.

Municipalities also have members not exceeding five in number who are nominated from the State Government who reside in the municipal limits. 1/3rd seats are reserved for SCs/STs depending on their population. One-thrid of the seats is reserved for the BCs and also for women. The seats are reserved for the posts of the heads ofthe municipalities too. There are four Town Municipal Councils and One City Municipal Council in Bengaluru Rural district.

The State has devolved 12 of the 18 functions specified by the 12th Schedule of the Constitutionto the ULBs. Municipalities discharge obligatoryfunctions like (a) supply of drinking water (b) providing and maintaining drainage andsewage systems (c) public street lighting (d) maintaining sanitation and hygiene of publicplaces (e) construction and maintenance of bus terminals, roads, culverts and bridges (f)maintenance of public parks and gardens (g) ensuring systematic/planned urban growth(h) regulation of building construction (i)

licensing of Trade activities as well as (j) maintenanceof Birth and Death records. In addition, certain discretionary functions can also be taken upwhich could include educational, health, community and recreational services dependingupon each ULBs resources. Municipalities are involved in implementation of special programmes for employment and poverty alleviation like SwarnaJayanthiSahariRozgarYojna (SJSRY), Slum Development Programme and others. ULBs also implement the town development programmes like the Urban Infrastructure Development Scheme for Small and Medium Towns (UIDSSMT), Chief Minister's Small and Medium Towns Development Project (CMSMTDP) and Corporations Project.

Ward Committees and Ward Sabhas are also urban governance mechanisms introduced bythe Corporation and the Municipality Act. Ward Committee are constituted in cities withmore than three lakhs or more population, with the Councilors of the Corporation as membersand five knowledgeable persons of the area as nominated members. Ward Committees and Ward Sabhas form important forums which seek citizen's participation. Resident Welfare Associations are also formed to enhance the citizen participation in the governance.

The Budget process in municipalities includes two rounds of public consultations. First round of public consultation include the publicizing of Annual Performance Report of the previous financial year which includes the Budget variance statement and explanations for the deviations of Budget actual with that of the estimates exceeding over 15 per cent. The first round of consultations enables the municipality to subject itself to the public scrutiny and receive comments and feedback. The second round of public consultations is held with draft budget for the coming financial year which would take suggestions and feedback from the public and incorporate the same before presenting the budget in February or March.

Government of Karnataka introduced a series of reforms to improve the municipal governance. A dedicated cell called Municipal Reforms Cell (www.mrc.gov.in) has been created under the Municipal Administration department to oversee the reforms and streamlining the same. Large scale computerization of ULBs were undertaken to achieve the activities that facilitates and improves the municipal governance. They are to:

1. create e-governance platform for improving the governance of ULBs;
2. create GIS based property tax information system and to enhance tax collection;
3. bring web based modern accounting system in municipal governance;
4. computerize birth and death registration and certification;
5. enable Public Grievance Redressal (PGR) through citizen friendly registration process with a tracking system through complaint ID;
6. enable citizens and the other stake holders to have information about the town /city and to plan constructively and participate in the governance of ULBs; and
7. create and interface for public to retrieve certain useful information

Now all of the ULBs have websites[46] which display the basic information of the town, the people (elected body and the staff), the financial reports, the reports to be available to public under public disclosure law and Right to Information Act, Annual Performance Reports and other related information. The ULBs in the State are tracked for their performance related to the provision of services to the citizens along with the resource mobilization. The Karnataka Service level benchmarking has been introduced to track the progress and is used to rank the ULBs for their performance on a consistent basis (http://municipaladmin.gov.in/SLB/) by looking into progress in terms of providing public services as well as maintenance of records and thereby improving the decision making, strengthening of accountability and transparency as well as to prioritize the development activities. Many of these initiatives have brought laurels to the department and fetched awards at the national level. An analysis of the performance of ULBs based on various indicators of municipal services and finances

are discussed in the next chapter that focuses on urban issues in the district.

10.5. Improving Service Delivery Mechanisms: E-initiatives, Capacity Building and Good Governance Practices

As a part of improving service delivery mechanisms, several initiatives have been initiated in the State.

10.5.1. Bhoomi Project

This is computerization of land records in the state. The computerized Records of Tenancy and Cultivation (RTCs) are available now with kiosks at the taluk and sub taluk level. The dependency on the Village accountant and the tampering of land records has come down significantly. Citizen centres: Payment for services like electricity, water supply, telephone, property tax etc under one roof along with ticket reservations for bus transport.

10.5.2. Sakala

This is the latest of the governance intervention which promises on delivering the services in a stipulated time by enacting the Karnataka Guarantee of Services to Citizens Act, 2011 or GSC Act also called Sakala. This stipulates the time within which the services that are provided to the citizens upon the request through application.This has a penalty clause for the official responsible for service delivery for causing the unnecessary delay in providing the services beyond the stipulated time.The services and departments that are brought under SAKALA is increasing every year. The applications are tracked on a daily basis to oversee the progress district-wise and taluk-wise as well as by departments[47]. The number of applications received in Bengaluru Rural under Sakala or GSC for the year 2012 is provided in Table 10.4.The disposal rate of over 97 per cent indicate that the applications received are attended to in stipulated time.

Table 10.4: Applications Received and Disposed under SAKALA during 2012

Taluk / District	No. of receipts	No. of disposals	% disposal
Devanahalli	48,307	47,578	98.49
Doddaballapur	70,754	68,454	96.75
Hosakote	40,710	39,789	97.74
Nelamangala	71,525	69,778	97.56
Bengaluru Rural	231,296	225,599	97.54

Source: Retrieved from http://www.sakala.kar.nic.in/ on 03June 2014

10.5.3. Yashaswini

The insurance scheme for poor was phenomenal success that offers the premium health care services at nominal cost by way of their membership in rural and urban co-operative societies.

10.5.4. Capacity Building

This is one of the important components essential to achieve success in the governance practices. The key stake holders such as elected representatives and officials are engaged in capacity building activities so that the institutions of service delivery functions better and improve along with the aspirations of the citizenry. Series of trainings are planned and provided by training institutes of Government on the areas of computerization, updating of records, public grievance redressal, understanding the rule of law issues, conduct of business in local governments and etc.

10.6. NGOs and Voluntary Groups

These are playing an important role in improving the governance at all levels both in rural and urban set up. The conduct of social audit under MGNREGA is entrusted to the NGOs. NGOs which are working for specific purposes are demanding greater accountability and proper delivery of public services. NGOs and voluntary organizations are acting like watch dogs and are using the information available in the public domain to hold the institutions of governance to provide

[46] www.devanahallitown.gov.in; www.hosakotetown.gov.in; www.nelamangalatown.gov.in; www.vijayapuratown.gov.in and www.doddaballpurcity.gov.in

[47] http://www.sakala.kar.nic.in/

explanations for the deviations. These organizations who are working with poor and marginalized sections are also coordinating with the governance institutions to help them target the services more effectively. As already mentioned, the Department of Public Instructions has engaged a number of NGOs and private institutions in managing some programmes for Out of School Children.

10.7. Representation of Women and Marginalized Sections of Society in Governance

The representation of women and social and economically marginalized sections in governance institutions bringthem directly in the decision making role. They are expected to have better understanding of how and why certain interventions work or fail given the insights they have by being one among them. The representation of women and SC/ST in the PRIs and ULBs in Bengaluru Rural is given in the Table 10.5.

Table 10.5: Per centage of Women and SC/ST in PRIs and ULBs (2011-2012)

Taluk / District	Total		SC/ST		Total Women		SC/ST %		Total Women %	
	ULB	PRI	ULB	PRI	ULB	PRI	ULB	PRI	ULB	PRI
Devanahalli	46	360	9	141	18	169	19.57	39.17	39.13	46.94
Doddaballapur	31	520	5	170	12	241	16.13	32.69	38.71	46.35
Hosakote	23	501	4	154	9	219	17.39	30.74	39.13	43.71
Nelamangala	23	357	4	107	9	156	17.39	29.97	39.13	43.70
Bengaluru Rural	123	1,738	22	572	48	785	17.89	32.91	39.02	45.17

Source: District at a Glance, Bengaluru Rural district

The representation in PRIs and ULBs as enforced by the Act has resulted in the substantial number of marginalized sections and women getting into the power corridors so that they can make or initiate changes in the governance that would become better by every day in terms of providing inclusive governance.

10.8. Conclusion

The Governance is a complex phenomenon which comprises various components. Certain institutionalized good practices coupled with the active involvement of people in the governance institutions define good governance. District specific examples of making governance more people centric are not visible in Bengaluru Rural but a number of State led institutional measures have indeed improved the delivery of services to people. An important fact about the district is related to the very identity of the district. There is no district head-quarter per se; the ZP office is located in Bengaluru city, which falls under Bengaluru Urban district. This makes the governance even more complex in this district.

Urban Issues in Human Development

"The art of progress is to preserve order amid change, and to preserve change amid order"– Alfred North Whitehead (Mathematician and Philosopher)

11.1. Introduction

Economists, sociologists and governments have attempted to define what urban area means as a location and what the process of urbanisation is. These definitions vary but help in understanding what urbanisation is and what issues exist in urban areas. Economic development, relatively larger presence of and dependence on industries, businesses and services and large numbers of people become permanently concentrated in relatively small areas are considered some of the important and common features of urban areas.[48] In this process the number of people living in cities increases compared with the number of people living in rural areas (Long 1998). Urbanisation produces important social consequences among people: impersonality and anonymity in everyday life, loss of trust among people, and various forms of social disorganization as in higher rates of crime than in rural areas.[49]

Urban areas are considered engines of economic growth with their increasing contribution to the GDP. In 2010, the share of urban sector in the India's GDP was 62 per cent. Urbanization is central to India's strategy of achieving faster and inclusive growth (Planning Commission 2013). According to the census 2011, the urban population in India grew by 31.8 per cent in the last decade reaching the figure of 37.7 crore. Some estimates suggest that the urban population would increase to 59 crore by the end of year 2030. Indian cities are expected to generate 70 per cent of the jobs and contribute more than 70 per cent of the GDP, which would transform into a near fourfold increase in the incomes of the people of the country (McKinsey Global Institute 2010).

However, Indian urbanization can be termed as pseudo-urbanization (McGee, 1967) for its character of reaching tertiarisation from primary occupation without going through the secondary sector or manufacturing which is common in industrialized countries. This could result in a more complex urbanization process leading to problems like higher concentration of unorganized labour, higher disparity among the incomes of working population, mushrooming of slums to cater to unorganized sector and land use planning largely guided by the tertiary activities which are heterogeneous in nature (Sastry 2009). However, this very lack of dependence on manufacturing gave India in general and Karnataka in particular an edge during the recent global recession.

In India, an area is declared as City Corporation, Municipal Council and Town Panchayat, and referred to as Statutory Towns under the provisions of the Municipal Act based on the following criteria: number of people living in urban areas with a specified density; degree (proportion) of non-agricultural activity and employment; revenue generated from the area and economic importance of the area. The Census of India also classifies a settlement as urban, referred to as Census Town, if it has a population of over 5000 and with a population density of 400 persons per square kilometer and 75 per cent of its male workforce is engaged in non-agricultural sector. Urban population therefore as referred by the census includes the population of both statutory towns and census towns. The increase in the urban population is due to natural increase, net rural- urban classification and net rural-urban migration.

[48] Please refer to
1. http://water.tkk.fi/wr/tutkimus/glob/publications/Haapala/pdf-files/URBANIZATION.pdf;
2. http://siteresources.worldbank.org/EXTPREMNET/Resources/489960-1338997241035/Growth_Commission_Vol1_Urbanization_Growth_Ch1_Urbanization_Growth_Setting_Context.pdf;
3. http://public.econ.duke.edu/Econ/Faculty/Users//cbecker_files/papers/IHDE_urbanization_and_migration_ch_35_becker.pdf

[49] http://www.sagepub.com/oswmedia3e/study/chapters/handbooks/handbook15.2.pdf

The urbanization in Karnataka is characterized by its concentration in the state's capital, Bengaluru city. Unlike the neighboring state Tamil Nadu which has several cities such as Coimbatore and Madurai along with the capital city Chennai that provide significant employment it is only Bengaluru city in Karnataka that provides the highest employment. The cities of Mysuru and Hubballi-Dharwad do not add much to the employment (World Bank, 2013). The focus on large cities have resulted lopsided development, and small and medium towns have become less important because of their poor infrastructure and their low ability to promote and sustain growth opportunities.

Favorable land and tax policies, coupled with the investment in higher education, especially in engineering colleges and technical institutes, resulted in the development of IT sector in a rapid manner in Bengaluru. This has led to fast expansion of the urban space around Bengaluru with people from different parts of the country coming to Bengaluru as employees of the IT sector and its ancillary. This was reflected in the high growth of city's income: Bengaluru city's income was 24 per cent more than the national average in 1998 and 70 per cent more than the national average in 2005 (World Bank 2013).Even in the recent post-recession phase, Karnataka has been able to increase its revenue collection at a much higher rate than national average or other similar states due to the fact that IT has not been as severely affected as manufacturing sector.

The urban development policy of Karnataka (2009) raises concerns about greater focus on Bengaluru city leading to lopsided development rather than focusing on development of larger number of medium and small towns that promote more sustainable development. The next city after Bengaluru is one-sixth the population of Bengaluru. It also noted that the rural to urban migration has meant that urban poverty levels are higher than rural poverty levels in the state. Bengaluru, a small town that has now been converted into a major city is experiencing severe shortfall in urban infrastructure and services like housing, transport, water supply, sanitation and waste disposal. Bengaluru Rural, the neighboring district surrounding Bengaluru city is also bearing the brunt.

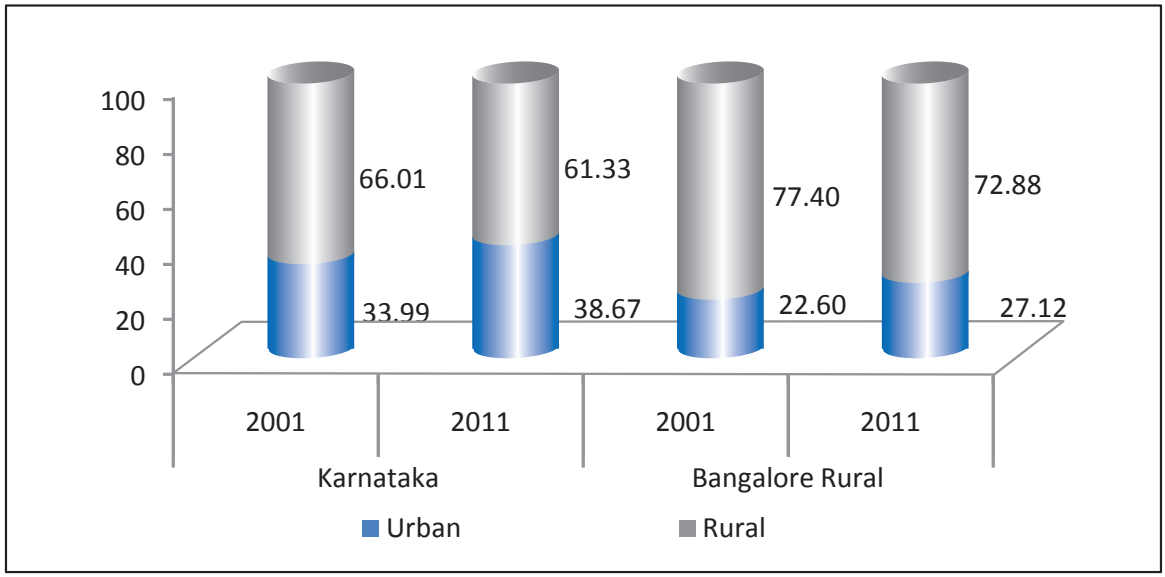
This chapter discusses the urban issues by focusing on the urbanization in Bengaluru Rural district. Urbanization and its pattern, access to services by citizenry, delivery of urban services and the performance of the ULBs against the benchmarks are discussed here. This chapter also delves into the issues related to changes in land use and transport facilities which are critical aspects of urban life.

11.2. Urbanization Pattern

Between 2001 and 2011, urban population grew by 9.1 crore while the rural population grew by 9.0 crore. For the first time since independence the absolute growth in urban population was greater than the absolute growth in rural population (Bhagat 2011). The level of urbanization in the country increased from 26.5 per cent in 1991 to 27.7 per cent in 2001 and 31.2 per cent in 2011 indicating a higher growth during the period 2001-2011. While the contribution of net rural-urban classification and rural-urban migration increased from 38 per cent in 1991 to 56 per cent in 2011, the contribution by way of natural increase in urban population has decreased from 62 per cent to 44 per cent during the same period (Bhagat 2011). Of the states that are urbanizing fast, Karnataka stands 4th in the country after Tamil Nadu, Gujarat and Maharashtra. The share of urban population in Karnataka increased from 33.99 per cent in 2001 to 38.67 per cent in 2011 (Figure 11.1).

[50] The urban population includes population of 2 census towns along with the statutory towns or ULBs.
[51] Karnataka Industrial Policy 2009-2014.

Figure 11.1: Share of Urban Population in Bengaluru Rural District and Karnataka



Source: Census of India

According to census 2011, the population of Bengaluru Rural district was 9.9 lakh of which urban population was 2.69 lakh[50] accounting for 27.12 per cent of the total population of the district. The growth rate of urban population in the district for the period 2001-2011 at 39.73 per cent is higher than the state average of 31.54 per cent and stands third in the state after Udupi and Bengaluru Urban district. The share of urban population in the district increased from 22.6 per cent in 2001 to 27.12 per cent in 2011.

As mentioned earlier, Bengaluru Rural district has 5 Urban Local Bodies (ULBs) of which Doddaballapur is a City Municipal Council (CMC) while the other four are Town Municipal Councils (TMCs). Except for Vijayapura which is in Devanahalli, the others are the taluk headquarters. Doddaballapur CMC and Vijayapura TMC are 40-45 kms and the other three ULBs are less than 35 kmsaway from Bengaluru city. People travel daily to Bengaluru and back for work, education and other purposes. All the four taluks of the districts are classified as industrially forward taluks housing industrial units[51]. The Bengaluru International Airport is close to Devanahalli town. Special Economic Zones related to information technology and textile exists in the district. This has propelled the district to urbanize faster than the other districts of the state. The total area of ULBs has shown an increase of 35.02 per cent during the period 2001- 2011. The area as well as the population growth during the period was higher in the ULBs of Doddaballapur, Hosakote and Nelamangala (Table 11.1).

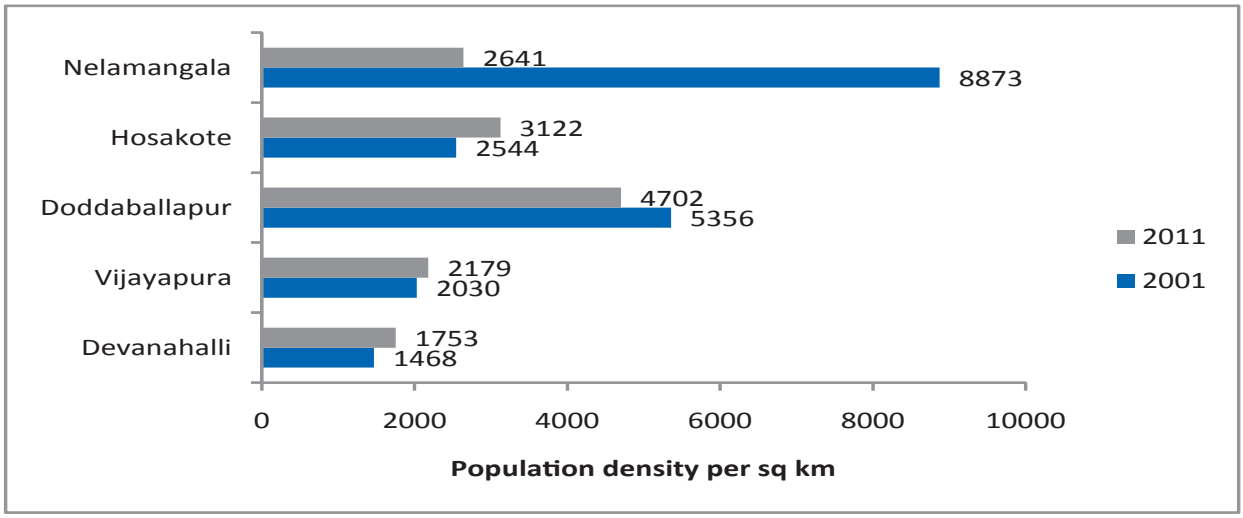
Table 11.1: Area and Population of the ULBs of Bengaluru Rural district

ULBs	2001		2011		% change over 2001	
	Area	Population	Area	Population	Area	Population
Devanahalli	15.94	23,406	16.00	28,051	0.38	19.85
Vijayapura	14.55	29,540	16.00	34,866	9.97	18.03
Doddaballapur	13.37	71,606	18.00	84,642	34.63	18.21
Hosakote	14.28	36,323	18.25	56,980	27.80	56.87
Nelamangala	2.85	25,287	14.10	37,232	394.74	47.24
Total	60.99	186,162	82.35	241,771	35.02	29.87

Note: Units of Area – Square Kilometers.

Source: Census of India

Figure 11.2: Population Density across ULBs of Bengaluru Rural district



Source: Census of India

The population density decreased in Doddaballapur and Nelamangala because of the increase in area under the respective ULBs while it increased in Hosakote despite the fact that the ULB area was increased here as well.The number of urban households[52] in the district increased from 37654 to 57718 registering a growth of 53.3 per cent. The high growth in the number of households in Hosakote, Nelamangala and Doddaballapur could also be due to the increase in the area of these ULBs during the period (Table 11.2).

Table 11.2: Households in ULBs of Bengaluru Rural District

ULBs	Households		
	2001	2011	% change
Devanahalli	4,584	5,969	30.2
Vijayapura	5,850	7,924	35.5
Doddaballapur	14,756	21,937	48.7
Hosakote	7,267	13,091	80.1
Nelamangala	5,197	8,797	69.3
All ULBs	37,654	57,718	53.3

Source: Census of India

The urbanization process entails the changes in the land use and the land area surrounding the urban sprawl becomes the target for urbanization. Increasing pressure on the urban area due to influx of population for jobs, education, trade and other purposes result in continuous expansion of urban areas impacting the land use in the surrounding areas. The use of land for agriculture gets especially influenced by the land market and the real estate business. Government has an important role in steering the investments, providing the necessary infrastructure and policy atmosphere for growth and regulating the practices that can have undesirable impact on vulnerable sections. As an area gets urbanized, the process of urbanization affects the livelihoods of people in the peri-urban areas. The effects are not always equal. While some get benefitted in the process, some become more vulnerable. Policies of economic development which focuses on the growth alone and incentivizes the use of land in peri-urban areas for formation of industrial parks or zonescan result in the loss of prime agricultural land and livelihoods of those who live on the margin.

The areas close to mega cities attracts all kinds of public and private investments triggered by the ever increasing need for more and more land, growing population and expansion of amenities. The case of Bengaluru Rural illustrates this well. Four thousand six hundred acre land was acquired by Karnataka Industrial Areas Development Board (KIADB - the institution

[52] Households referred to in housing tables exclude institutional households. The number of households is higher than the one in the Primary Census Abstract (PCA) for all taluks except in case of Doddaballapur for the year 2011 which includes outgrowth.

for land acquisition) in Bengaluru Rural district (in all 4 taluks) for purpose of creation of industrial areas.[53] Industrial estates were developed in Doddaballapur and Hosakote, and new industrial areas are being developed in Hosakote and Nelamangala. Pockets of land are also acquired through notification by the state Government leading to formation of Land Banks.[54] In Bengaluru Rural district 4038 acres of land has been acquired under land bank.[55] With the formation of Kempegowda International Airport, Bengaluru (formerly known as Bengaluru International Airport Limited, BIAL) near Devanahalli, the area surrounding the airport has become further more attractive for investments. The Government of Karnataka has planned several investments around the KIAL and the process of acquiring the land for the same has started. It is proposed to Information Technology Investment Region (ITIR) in an area of 10,500 acres to be completed in phases[56]. KIADB is raising a loan of Rs. 1,000 crore for this purpose.[57] As a result, the land use pattern shows dramatic shifts between 2002-03 and 2010-11 in Bengaluru Rural district.

Table 11.3: Changes in Land Utilization Pattern in Bengaluru Rural District (Area in Hectares)

Taluk / District	Total Geographical Area	Forest	Non-Agriculture	Barren	Un-cultivated*	Fallow land	Net cultivated
	2002-2003						
Devanahalli	44,935	2,275	5,764	1477	7,121	8,749	19,549
Doddaballapur	78,760	3,895	9,526	5063	8,440	13,656	38,180
Hosakote	54,857	3,444	9,492	1049	7,679	5,456	27,737
Nelamangala	50,967	1,708	9,306	3535	3,698	5,894	26,826
Bengaluru Rural	229,519	11,322	34,088	11124	26,938	33,755	112,292
	2010-2011						
Devanahalli	44,935	2,275	8,793	1477	5,741	5,712	20,937
Doddaballapur	78,760	3,895	9,526	5063	8,042	10,649	41,585
Hosakote	54,857	3,444	10,942	1049	2,438	2,651	34,333
Nelamangala	50,967	1,708	10,717	3535	4,054	2,038	28,915
Bengaluru Rural	229,519	11,322	39,978	11124	20,275	21,050	125,770
Absolute change in Bengaluru Rural over the time period	0	0	5,890	0	-6,663	-12,705	13,478

Note: *includes cultivable waste, permanent pasture, Trees and groves

Source: District at a Glance (Bengaluru Rural) 2003-04 and 2011-12

This dramatic shift becomes clearer when one sees the GIS maps; these are very helpful in these matters in understanding the changes as well as to quantify them accurately. This has greater advantage in terms of helping the stake holders to visualize the situation. Mayur et.al.(2013) looked into the KIAL area and compared the maps for the

[53] http://dcmsme.gov.in/dips/Bengaluru%20Rural%20Dist-final%20-%20Copy.pdf

[54] The Government of Karnataka has created Land Banks for the purpose of providing the lands to investors in all the districts of the state. These land banks are land that are acquired and offered to the investors.

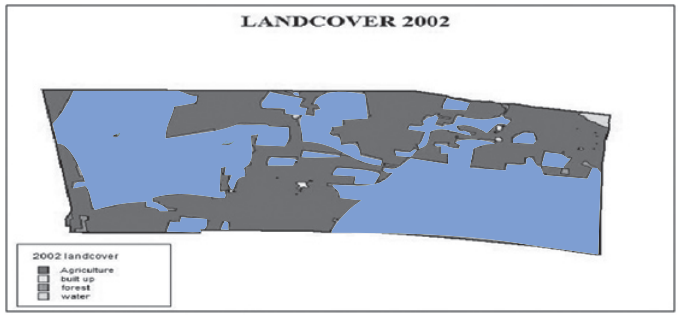
[55] http://www.pppinindia.com/pdf/karnataka/District%20Profiles/Bengaluru%20Rural.pdf and http://www.kiadb.in/images/stories/LAND%20BANK%20DETAILS.pdf

[56] http://timesofindia.indiatimes.com/city/mangalore/Karnataka-expediting-setting-up-of-Information-Technology-Investment-Region-near-Bengaluru-International-Airport/articleshow/22172549.cms

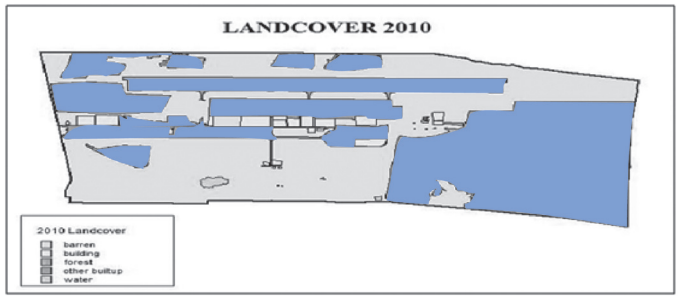
[57] http://www.deccanherald.com/content/345688/kiadb-raise-rs-1000-crore.html

year 2002 and 2010.The land area of KIAL was taken at 3949.57 acres and the changes were compared for the total area. The major changes included decrease in the land under cultivation from 43 per cent of the total area (1720 acres) to zero, decrease of area under water bodies by 52.83 per cent and decrease in forest cover by 37.32 per cent (820 acres). Conversely, the built up area and excavated/disturbed area increased to 16.35 per cent and 48.29 per cent respectively

Figure 11.3: KIAL Land Use in 2002 and 2010



Source: From Mayur et al (2013)



Source: From Mayur et al (2013)

The study indicated the decrease in forest cover reduced both quantitatively and qualitatively with high value tree species being lost. The study points out that this also had effect on the fauna of the region which were dependent on the forest cover also had undergone a turnover making way to fauna that could survive on monoculture plantations like Acacia and Eucalyptus species thereby reducing the rich natural diversity of both flora and fauna. A good body of literature exists on severe adverse impact of such shifts on nutrition, health and environment in per-urban areas[58].

A study in Bengaluru Rural on the use of Bhoomi software as a part of the study on use of Information and Communication Technologies for Development by Indian Institute of Information Technology Bengaluru (IIITB, 2005) for providing the computerized land record details (Record of Tenancy and Cultivation, RTC) for the land holder for a nominal fee found that computerization and centralization of land records has made it more expensive and less efficient for poorer people to access and use the land records. This process seemed to reinforce the processes that benefited the non-local groups and large land holders at the cost of small and marginal land holders.

While urbanization seems to be an inevitable process, it is imperative for the governments at all levels to have sound policy and institutional measures to protect any negative social, economic or environmental fallout. The decision making process needs to take all these aspects into account and also have space for voice of the most marginalised. The Bengaluru Rural's experience does not indicate towards the presence of any such mechanism. For instance, though KIADB is supposed to acquire preferably non-agricultural land for the purpose of IT investment, the lands proposed to be acquired for ITIR includes irrigated area according to KIADB officials[59]. Small farmers often get to know about land acquisition decisions only when the process begins. Their voices are often unheard and unscrupulous middlemen take advantage of the process to make money. Lands to be acquired are purchased at low rates compared to that of the rates at which the notified lands would be bought by the Government. The lands surrounding the areas notified are targeted by the real estate players who invest early to make money out of the increased land value at a later date. (SAS 3).

11.3. Provisioning of Urban Services

The coverage and quality of urban services is a very important indicator of the quality of urbanization. Urban services are not just about infrastructure but also about people, including those who are at the margin. Provisioning of services necessarily takessustainable

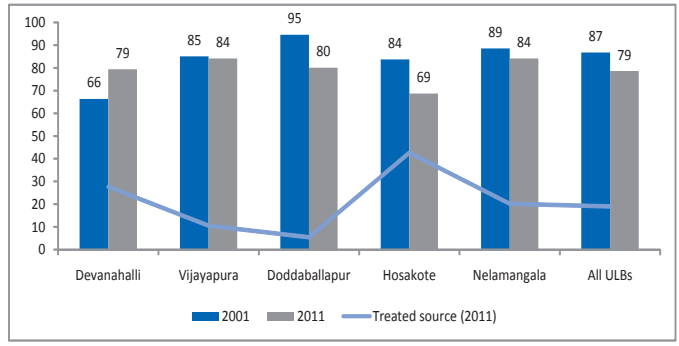
[58] Refer to: Small study on land Use in Bengaluru Rural (Annexure 3)
[59] http://www.livemint.com/Companies/t39AQppVx6YNRVKUVoDnjM/Karnataka-govt-notifies-land-to-set-up-IT-park.html

management of resources and affordability issues into account. Provision of services in a sustainable manner involves the process of ensuring efficient cost recovery which also demands stakeholders' cooperation that comes only through improved governance process. The High Power Executive Committee of Government of India report (HPEC, 2011) on urban infrastructure and services indicated that the cities and towns are deficient in the quality of services provided to the existing population. This is due to a number of factors: poor planning, low capacities, inappropriate technology and low levels of income of ULBs.

The nature of urban services in India varies with their size. Access to basic services is best in larger cities and steadily decreases with the size of the town falling to worst levels in rural areas (World Bank 2013). For instance, the cities with population more than 50000, 60-70 per cent of population have access to drinking water in their premises while this proportion declines to less than 50 per cent in smaller towns,. The access pattern is not uniform across the town/city with higher levels of access in the core and almost negligible levels of services in the periphery.

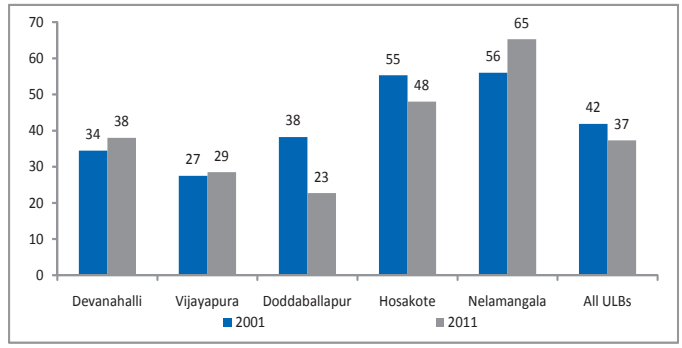
Census data was used to evaluate the access to services like water supply, drainage and sewerage systems in Bengaluru Rural district and the data from the ULBs was used for assessing the provisioning of services like roads, street lights, water supply and solid waste management. Access to clean water is crucial for good health and hygiene. In absence of surface water in the district, the dependency on ground water is high in the district. According to census 2011, the number of households with access to tap water increased in absolute numbers in all the ULBs, the per centage of households with access to tap water showed a decreasing trend except for Devanahalli. Access to tap water from treated source was found to be highest in Hosakote ULB while it was lowest in Doddaballapur[60].

Figure 11.4: Households with Access to Tap Water (%)



Source: Census of India

Figure 11.5: Households with Water Sources near its Premise (%)



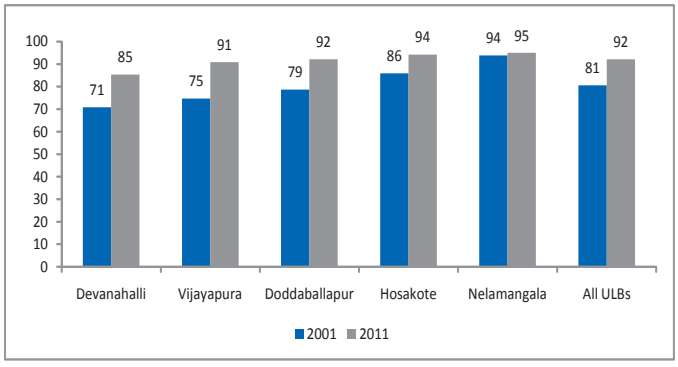
Source: Census of India

The access to water near the premises (within 100 meters) was found to be highest in Nelamangala while it was lowest in Doddaballapur. Devanahalli, Vijayapura and Nelamangala have recorded an increase in the share of households who are accessing water near their premises. Though 80 per cent of the households have access to tap water (2011) in Doddaballapur, only 23 per cent of them have access to water near premises[61] and only 5 per cent of households have access to water from treated source. Hosakote, on the other hand, has 69 per cent of households having access to tap water (2011) which is lowest among the ULBs but has 48 per cent of households getting water near their premisesand 43 per cent of households having access to treated water source.

[60] Access to tap water from treated source is not available for year 2011.
[61] Near the premises means water source within 100 meters.

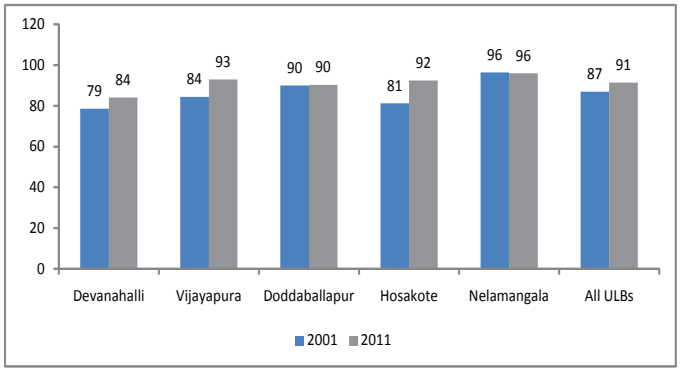
The number of households with bathroom facility within residence as a per cent to total households has shown increase in all the ULBs. While the increase was highest in Hosakote, it was lowest in Nelamangala. The number of households having drainage facility as a per cent to total number of households also has shown improvement during the period 2001-2011. The number of households with latrine facility has also shown improvement during the period 2001-2011 (Figure 11.6 and Figure 11.7).

Figure 11.6: Per centage of Households with Bathroom Facility



Source: Census of India

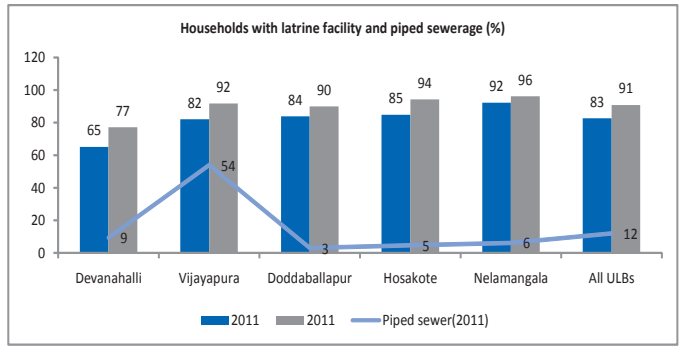
Figure 11.7: Per centage of Households with Drainage Facility



Source: Census of India

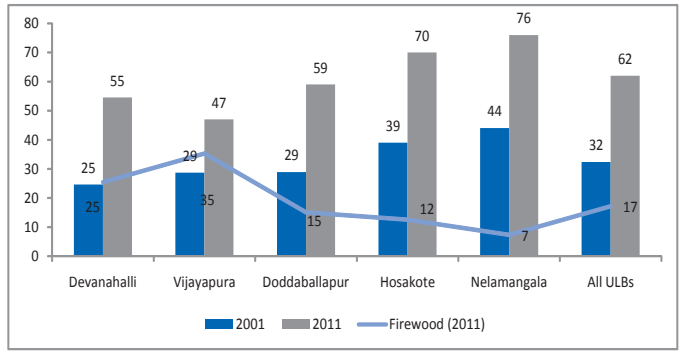
The sewer network is poor in the district with only Vijayapura having a proper sewer network. Vijayapura has 54 per cent of households having sewer connection as against 3 per cent in Doddaballapur which has a population of over 85000. Not having a sewer system means there always exist a potential danger for contamination of the groundwater sources in the town. However, the need for sewerage system is not as vocal and articulated as for instance it is for the water supply in most cases. This puts the responsibility for a more planned and concerted efforts by the ULB to put sewerage system in place. There is significant increase in the use of modern fuel for cooking purposes. However, the use of firewood for cooking is still at the higher side in Vijayapura and Devanahalli towns.

Figure 11.8: Per centage of Households with Latrine Facility



Source: Census of India

Figure 11.9: Per centage of Households using Modern Fuel for Cooking



Source: Census of India

Table 11.4: Roads, Roadside drains and Streetlights in ULBs of Bengaluru Rural District (2011)

ULB	Area (Sq Km)	Road length (Km)	Per centage of All weather roads	Length of drains (Km)	Street lights (No.)	Road length (Km) / Area (Sq Km)	Street lights per km of road	Road side drains (% of road length)1
Devanahalli	16.00	62	77	110	2,679	3.88	43	177
Vijayapura	16.00	73	75	75	3,978	4.56	54	103
Doddaballapur	18.00	186	59	218	7,015	10.33	38	117
Hosakote	18.25	75	73	110	3,643	4.11	49	147
Nelamangala	14.10	53	30	85	3,155	3.74	60	161
All ULBs	82.35	449	63	598	2,0470	26.62	46	133

Note: 1 – Road side drains (per cent of road length): The maximum per centage that can be attained is 200 per cent. The reason being that road side drains are expected on both sides of the road. Source: Census of India

The road length per square kilometer of ULB area is around 4 kilometer for all ULBs except for Doddaballapur town which has over 10 km of road length per square km of area. The share of all-weather roads to total roads is lowest in Nelamangala while it is highest in Devanahalli. The benchmark indicator for roads suggests all roads should be all-weather roads. The length of road side drains which has to be 140 per cent of road length according to the benchmark is satisfied in all ULBs except for Vijayapura and Doddaballapur towns. The number of streetlights per kilometer of road in all ULBs is also higher than the prescribed benchmark, 29 lights per kilometer of road.

Access to well-provided for and affordable public transport is important in all urban areas but more so in Bengaluru Rural because of its proximity and heavy dependence on Bengaluru city for access to educational institutions, market and employment sites. A small survey-based studyon two sites in the district brought out that fact that large number of commuters travel to Bengaluru city on a daily basis and use both public and private transport services. The accessibility and quality of transport services appeared to be high though there is high scope for improvement (SAS 4).

11.4. Water supply and Solid Waste Management

The water supply in all the ULBs of the district is sourced from ground water. The Central Ground Water Board Report (2013) indicates that all the taluks of the district are under over exploited category. Still, no ULB in Bengaluru Rural is able to reach even half of the prescribed benchmark for water supply, i.e., 142 LPCDindicating towards the scarcity of the drinking water. The monthly water charges in all ULBs are flat rates fixed for both domestic and commercial purposes at Rs 80 and Rs 160 except for Doddaballapur which is Rs. 120 and Rs 240 respectively. The number of individual connections was the highest in Doddaballapur town while it was lowest in Vijayapura. The revenue from water supply against the demand for the years 2009-10 to 2011-12[62] was the highest in Devanahalli.

Table 11.5: Water Supply in the ULBs of Bengaluru Rural District (2011-2012)

ULB	MLD	LPCD[63]	No. of HHs	No of individual connections	Public Stand posts	Frequency
Devanahalli	3.45	70	5,969	1,496	25	Drinking water -4 days once and non potable water every alternate day
Vijayapura	1.89	57	7,924	1,768	683	2 days per week:60 minutes
Doddaballapur	4.84	57	21,937	9,984	1,050	2 days per week: 45 minutes
Hosakote	2.70	35	13,091	4,404	50	3 days per week: 60 minutes
Nelamangala	1.30	65	8,797	2947	100	4 days per week: 60 minutes
All ULBs	14.18	57	57,718	20,599	1,908	

Note: LPCD: Liters per capita Daily, MLD: Million Liters per Day, HHs: Households
Source: District Urban Development Cell, Bengaluru Rural district

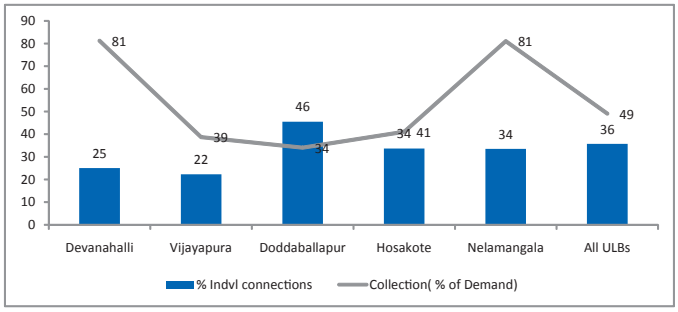
[62] Three year average was considered.
[63] LPCD is as provided in the websites and no details of calculation available.

Table 11.6: Average Water Charges (2009-2012)

ULB	Demand (Rs. In Lakhs)	Collection (Rs. In Lakhs)
Devanahalli	14.11	12.84
Vijayapura	9.00	3.78
Doddaballapur	52.22	19.81
Hosakote	25.00	10.10
Nelamangala	19.97	12.48
All ULBs	120.30	59.01

Source: District Urban Development Cell, Bengaluru Rural district

Figure 11.10: Per centage of Individual Water Connections and Collection Efficiency (2011-2012)



Source: District Urban Development Cell, Bengaluru Rural district

Solid Waste Management in all the ULBs of the district is confined to street sweeping, collection of wastes from dustbins and door to door collection of waste. Roads are categorized into A, B and C depending upon the frequency of sweeping required with 'A' being the more frequently swept. The street sweeping activity is tendered out to an agency for either entire ULB or in parts.

The solid waste is transported to landfill site outside the town limits. Not all the solid waste generated is collected and there is no scientific processing of the same in any of the ULBs. Segregation of solid waste at household level is done in only 3 ULBs of which Devanahalli has higher proportion of households segregating the household solid waste. Twenty per cent of the solid waste generated is not transported to landfill site (Table 11.7). The Under Ground Drainage/ sewer system is present only in Vijayapura town. There are no sewerage treatment plants and scientific disposal of liquid waste is yet to begin.

Table 11.7: Solid Waste Management in ULBs of Bengaluru Rural District (2011-2012)

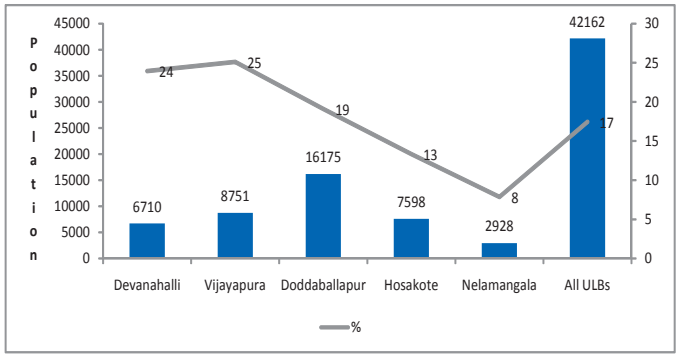
ULB	Solid waste (Tons per day)		Landfill site	No of HHs segregating Solid Waste
	Generated	Collected		
Devanahalli	14	12	Yes	4,165
Vijayapura	14	12	No	1,200
Doddaballapur	38	30	Yes	7,000
Hosakote	20	14	Yes	0
Nelamangala	14	12	Yes	0
All ULBs	100	80		12,365

Note: In Devanahalli and Hosakote, the landfill sites were allotted but objections to the operationalization of these sites was raised Pollution Control Board (PCB), Government of Karnataka. Hence, these sites are not in operation.
Source: DUDC Bengaluru Rural district

The municipal services in the slum are also monitored as a measure of the working of ULBs towards ensuring equity of municipal services among its citizenry. About 42,000 people live in slums in the district accounting for 17 per cent of the ULB population in the district with highest number living in Doddaballapur and lowest in Nelamangala town (Figure 11.11). The data (Table 11.8) on population and the services in slum is very sketchy and ambiguous[64], and through the data on individual water connections, roads, drains, and individual toilets in slums are available they are so internally inconsistent that they could not be analysed[65].

[64] Often contradicts to information in other pages of website and other documents. Though the data on area of slums and households are present they are internally inconsistent.
[65] For instance, the number of public stand posts is higher than the total in the ULBs which is impossibility.

Figure 11.11: Slum Population and its Share in ULBs (2011-2012)



Source: DUDC Bengaluru Rural district

Table 11.8: Details on Municipal Services in Slum Areas of ULBs (2011-2012)

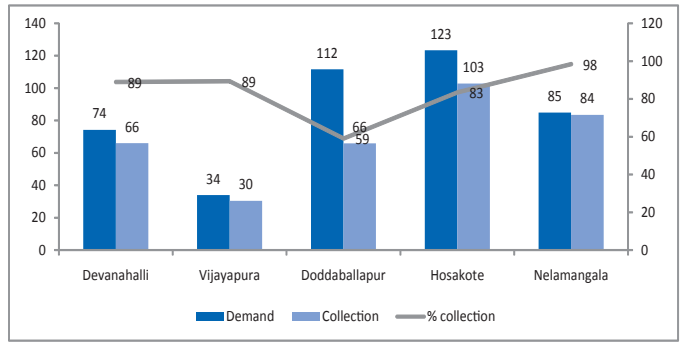
ULB	Water connections (No)	Public taps (No)	Road length (kms)	Toilets (No.)
Devanahalli	22	591	NA	412
Vijayapura	65	1,031	NA	398
Doddaballapur	600	450	20	90
Hosakote	NA	38	6	123
Nelamangala	250	160	NA	100
All ULBs	937	2,270	26	1,123

Source: DUDC Bengaluru Rural district

Apart from providing the municipal services, the ULBs are also supposed to focus on the generation of the local taxes and fees efficiently. The state of finances of municipalities is an important factor influencing the provision of urban services in ULBs. As per the calculations of the Thirteenth Finance Commission (TFC), municipalities in India spend 1.24 per cent of GDP on provision of urban services while their revenues including grants from state and union government stands at 1.16 per cent of GDP. The TFC recommended the performance grants of Rs 8,000 crore to states linking it to the important measures for improving the urban development scenario in the country, such as the audit of municipalities under the technical guidance and supervision of Comptroller and Auditor General (CAG); placing the audit report in the legislature; enable efficient collection of property tax through constitution of property tax board[66] at state level; and putting in place standards for delivery of all essential services (water supply, sewerage, storm water drainage and solid waste management) by local bodies. While the TFC grants to municipalities are crucial, their availability is restricted to statutory towns and does not include the census towns which are about 3900 in number and constitute 10-12 per cent of urban population of the country which have the potential of becoming slums if their growth and development is not regulated by laws applicable to towns (Mathur 2013).

The benchmark for property tax indicates a collection efficiency of 90 per cent at the minimum. An analysis of 3 year data on property tax reveals that only Nelamangala meets the criterion and Vijayapura and Devanahalli are close to benchmark while Hosakote and Doddaballapur need to improve the collection efficiency substantially (Figure 11.12). The other important municipal finance indicator used to for benchmarking is the utilisation of funds meant for SC and ST (15 per cent for SC and 7.75 per cent for ST totaling to 22.75 per cent of ULB budget). The district performs badly here as an analysis of the 3 year data indicates that 42 per centof the SCand ST funds is unspent taking all ULBs together (Figure 11.13). The utilisation was lowest in Hosakote while it was highest in Doddaballapur town.

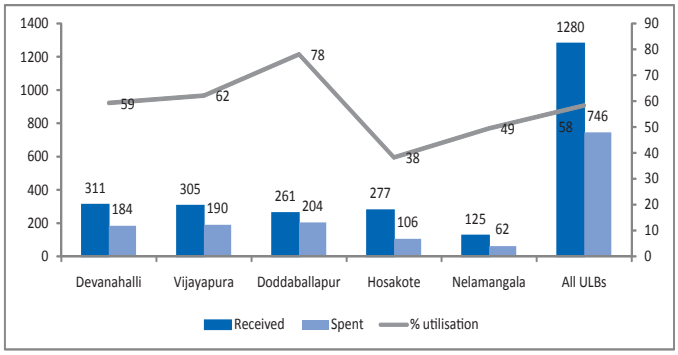
Figure 11.12: Demand and Collection of Property Tax in ULBs (2011-2012)



Source: DUDC Bengaluru Rural district

[66] The property tax board is expected to assist municipalities in establishing independent and transparent procedure for assessment of tax.

Figure 11.13: Utilization of Funds for SC/ST in ULBs (2011-2012)



Source: DUDC Bengaluru Rural district

As discussed earlier, the ULBs in the state are ranked for their performance. The indicators of water supply, waste water management, solid waste management, roads, streetlights, municipal finance are considered for ranking purpose and the performance of ULBs against the SLB is considered for ranking.The ranking for the ULBs of the district (among the 213 ULBs of the state) available for the year 2008-09 and 2009-10 are presented here[67]. Whilethe ULBs of Devanahalli, Hosakote and Doddaballapur have shown a fall in their respective ranks, Vijayapura and Nelamangala towns have improved their ranks.

Table 11.9: Ranks of ULBs of Bengaluru Rural District

ULBs	2008-2009	2009-2010	Change in Rank
Devanahalli	94	199	-105
Vijayapura	117	47	70
Doddaballapur	149	184	-35
Hosakote	57	127	-70
Nelamangala	153	78	75

Source: DUDC Bengaluru Rural district

11.5. Conclusion

The common problems that haunt the small and medium towns are finances and lack of planning capacity. Municipalities are caught in a vicious cycle of low capability, poor planning and poor quality services leading to lower collection of taxes and fees which further affects the services (Kalpana Sharma 2012). In such a situation, the people affected most are the poor who include SC, women and vulnerable sections of society, who neither have the awareness about the availability of schemes nor the wherewithal to deal with the processes and mechanisms to access the urban services. Bengaluru Rural is no different in this respect though a number of its woes are also linked with its proximity to Bengaluru city.

Proximity to Bengaluru city leading highly industrialized taluks and ever expanding urban areas, the ULBs in the district are facing undue pressures to provide for ad-hoc provisioning of urban services rather than looking for sustainable urban development measures. There is a need for greater research on the small and medium towns for turning them into ecologically sustainable urban areas. The smaller towns are of the right size to assess the issues and ideal to experiment interventions in the municipal services like solid waste management, water supply and so on (Kalpana Sharma 2012). This is even more relevant for Bengaluru Rural; the district needs to plan for its urban areas in a way that it maximizes the potential and minimizes the risks that arise from being close to an emerging mega city. The district also needs to foresee the problems that could arise in future and start planning for that rather than waiting for the problem to fully blow first[68]. The process of urbanization is going to be faster for Bengaluru Rural as compared to similar sized districts and hence requires greater preparation. In this context, both civil society and State has a responsibility for improving the awareness, capacities and preparedness of both the government and the people.

[67] he details of the scores obtained by ULBs with respect of each of the indicators are presented in Annexure 3.
[68] The issue of Waste disposal in Bengaluru city is a case in example. The city is experiencing a serious crisis as more and more adjacent peri-urban areas are resisting being a dumping ground for the city waste. If Bengaluru Rural does not plan for this well in advance it may face similar crisis in future.

SAS 3 - Land Use Changes in Bengaluru Rural District:

Introduction

Land use is defined differently in various contexts of development. Land use is purpose to which the land is used or made of or could be made use of. Land use in India is largely classified based on the recommendation of technical committee on coordination of agricultural statistics, constituted by Ministry of Food and Agriculture, Government of India in the year 1948. The nine-fold classification recommended by the technical committee is:

1 Forests
2. Barren and uncultivable land
3. Permanent pastures and grazing lands
4. Miscellaneous tree crops and groves
5. Culturable waste/Cultivable wastelands
6. Fallow land
7. Current fallows
8. Net sown area
9. Area under non agricultural uses

The planning authorities who regulate the land use under their jurisdiction classify the land use in more utilitarian manner into residential, commercial, industrial, public and semi-public, public utilities, open spaces, transport and communication and agriculture uses. This classification is also termed as zoning and this is predominantly used in the process of regulating or directing urbanization.

The urbanization process entails the changes in the land use and the land area surrounding the urban sprawl becomes the target for urbanization. Increasing pressure on the urban area due to influx of population for jobs, education, trade and other purposes result in continuous expansion of urban areas. Land use in the area surrounding the urban sprawl is strongly influenced by continuous expansion of the urban space. The agricultural land is especially influenced by the land market and the real estate business. Any large scale investment in these pockets of land can potentially alter the land use and land markets in the near vicinity. Government has an important role in steering the investments, providing the necessary infrastructure and policy atmosphere for growth. The effect of rapid and unplanned urbanization especially in the developing countries has implications for people's quality of life. The effects of these urbanization reach beyond the limits of the urban area into the periphery or the peri-urban area.

As an area gets urbanized, the process of urbanization affects the livelihoods of people in the peri-urban areas. The effects are not always equal. While some get benefitted in the process, some become more vulnerable. The peri-urban area is neither rural nor urban but an interface where there is less provision of various urban services compared to urban areas and less provision of ecological services when compared to rural areas. Policies of economic development which focus on the growth tend to subsidize the lands in the peri-urban area for formation of industrial parks or zones. This can result in the loss of prime agricultural land or inefficient land use.

Bengaluru Rural district is a case in point. The district is in the periphery of Bengaluru Urban district surrounding it in the northern part. The taluks of Bengaluru Rural district are close to the centre of Bengaluru city and are well connected by both roads and railway network. The current small study focuses on:

Issues of changes in land use and its impact- How does the land use changes happen, the role of State, big and small players and etc.

View point of the farm land owners who are stake holders and get influenced by the land use change as well as the changes in agrarian labour market.

While existing literature and secondary information is used to understand the issues of land use changes, Focus Group Discussions were used to understand the views of the small and marginal farmersfrom the villages of Savakanahalli and Kodimanchenahalli in Devanahalli taluk.

Issues of Changes in Land Use and its Impact

The expansion of Bengaluru city by addition of 8 ULBs and 115 villages around the city to form Bruhat Bengaluru MahanagaraPalike (BBMP) illustrates the urbanization trend and its spread into peri-urban areas of the city. The two ULBs developed to be satellite towns (Yelahanka CMC and Kengeri TMC) are now merged with BBMP. Bengaluru Metropolitan Region Development Authority (BMRDA) was created to oversee the development under the metropolitan region with an area of 8,005 sq. kms[69]. Apart from urbanization, the investments leading to creation of jobs and market also influences the land use changes in the peri-urban area.

KarnatakaIndustrialAreas Development Board (KIADB- the institution for land acquisition) acquired the 4600 acres land in Bengaluru Rural district (in all 4 taluks) for the purpose of creation of industrial areas.[70] In Doddaballapur and Hosakote industrial estates which were developed earlier are being expanded while in Nelamangala new industrial areas are being developed. Pockets of land are acquired through notification by the state Government leading to formation of Land Banks.[71] In Bengaluru Rural district 4,038 acres of land has been acquired under land bank.[72] With the formation of Kempegowda International Airport limited (KIAL), Bengaluru (formerly known as Bengaluru International Airport Limited (BIAL) near Devanahalli, the area surrounding the Airport has become very attractive for investments. Government of Karnataka has planned several investments around the KIAL and the process of acquiring the land for the same has already started. It is proposed to build Information Technology Investment Region (ITIR) in an area of 10,500 acres to be completed in phases[73]. KIADB is raising a loan of Rs. 1,000 crore for this purpose.[74]

The Bengaluru International Airport Area Planning Authority (BIAAPA) which is under Bengaluru Metropolitan Region Development Authority (BMRDA) regulates the land use planning in the area surrounding the Kempegowda International Airport. This BIAAPA was constituted in January 1996 and area covers 214 villages of Devanahallitaluk, 67 villages of Doddaballapurtaluk and 66 villages of Bengaluru North taluk. All land development or changes in the land use need approval of the authority. All this influences the land use even in the area surrounding such facilities.

The land use during the year 2002-2003 and 2010-2011 in Bengaluru Rural district was compared to see the changes in the land use.

It can be seen from Table 11.10 that there is an increase in the cultivated area and also the non-agricultural area while the uncultivated area and fallow land have shown significant decrease. The data on area of agricultural land holdings which include the fallow, barren and cultivable waste land shows the changes very clearly.

Table 11.10: Changes in Land Utilization Pattern in Bengaluru Rural District (Area in Hectares)

Taluk/District	Devanahalli		Doddaballapur		Hosakote		Nelamangala		Bengaluru Rural		
Year	2002-03	2010-11	2002-03	2010-11	2002-03	2010-11	2002-03	2010-11	2002-03	2010-11	Change
Geographical Area (total)	44,935	44,935	78,760	78,760	54,857	54,857	50,967	50,967	2,29,519	2,29,519	
Forest	2,275	2,275	3,895	3,895	3,444	3,444	1,708	1,708	11,322	11,322	
Non-Agriculture	5,764	8,793	9,526	9,526	9,492	10,942	9,306	10,717	34,088	39,978	5,890
Barren	1,477	1,477	5,063	5,063	1,049	1,049	3,535	3,535	11,124	11,124	
Un-cultivated*	7,121	5,741	8,440	8,042	7,679	2,438	3,698	4,054	26,938	20,275	-6,663
Fallow land	8,749	5,712	13,656	10,649	5,456	2,651	5,894	2,038	33,755	21,050	-12,705
Net cultivated	19,549	20,937	38,180	41,585	27,737	34,333	26,826	28,915	1,12,292	1,25,770	13,478

Note: *includes cultivable waste, permanent pasture, Trees and groves

Source: District at a Glance (Bengaluru Rural) 2003-04 and 2011-12

[69] http://www.bmrda.kar.nic.in/

Table 11.11: Changes in the Area of Land Holdings in Bengaluru Rural district by Social Category (Area in Hectares)

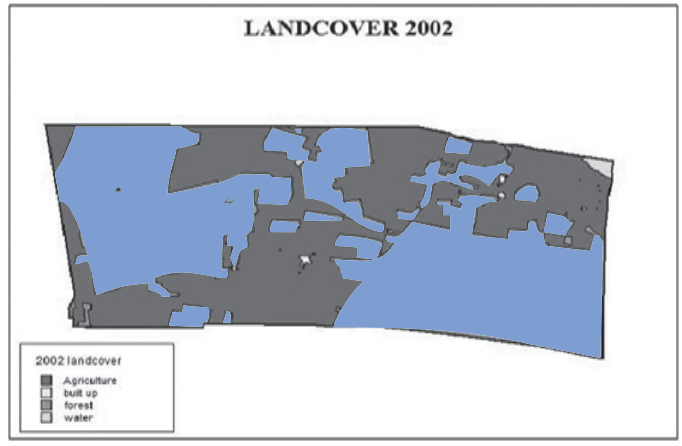
Category	SC		ST		Others		Total	
Year	2005-06	2010-11	2005-06	2010-11	2005-06	2010-11	2005-06	2010-11
Devanahalli	2,959	2,080	1,891	1,963	24,633	24,101	29,542	28,160
Doddaballapur	5,288	5,005	2,049	1,858	42,722	44,638	50,161	51,541
Hosakote	4,338	2,812	602	387	37,536	32,882	42,563	36,103
Nelamangala	3,468	3,496	905	689	33,764	32,041	38,217	36,230
Bengaluru Rural	16,053	13,393	5,447	4,897	1,38,655	1,33,662	1,60,483	1,52,034
Change		2,660		550		4,993		8,449
% change		-16.57		-10.1		-3.6		-5.26

Source: District at a Glance (Bengaluru Rural) 2008-09 and 2011-12

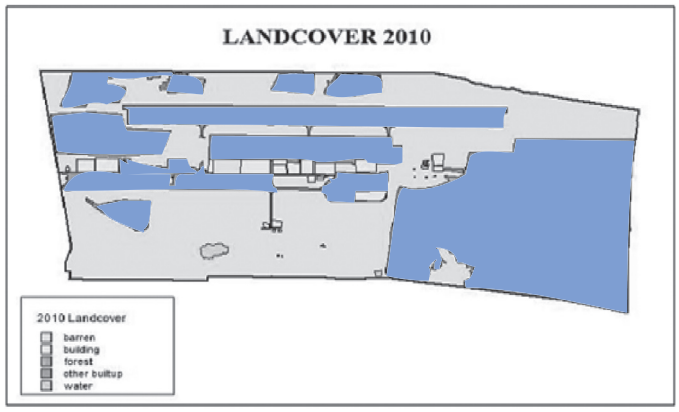
The area under land holdings for the two periods 2005-2006 and 2010-2011 during which the agricultural census was conducted is presented in the Table 11.11.This shows that around 8,450 hectares of land was diverted from agricultural use to non-agricultural purposes. All population groups lost the land. The reduction in the land holding area was higher for SC and ST categories as compared to that for the 'others' category. This may also point towards the targeting of SC/ST lands for non-agricultural purposes; these are often marginal lands with lower productivity, and owned by those who do have much information about land markets.

It is not very easy to find out the land use changes without authenticated data on land area as well as the changes in the use of land. GIS maps are very helpful in these matters in understanding the changes as well as to quantify them accurately (Figure 11.14). This has greater advantage in terms of helping the stake holders to visualize the situation. Mayur et.al.(2013) looked into the KIAL area and compared the maps for the year 2002 and 2010.The major changes included decrease in the land under cultivation from 43 per cent of the total area (1720 acres) to zero, decrease of area under water bodies by 52.83 per cent and decrease in forest cover by 37.32 per cent (820 acres). Conversely, the built up area and excavated/disturbed area increased to 16.35 per cent and 48.29 per cent respectively.

Figure 11.14: KIAL Land Use in 2002 and 2010



[70] http://dcmsme.gov.in/dips/Bengaluru%20Rural%20Dist-final%20-%20Copy.pdf
[71] The Government of Karnataka has purchased lands to create a Land Bank for the purpose of providing the lands to investors in all the districts of the state.
[72] http://www.pppinindia.com/pdf/karnataka/District%20Profiles/Bangalore%20Rural.pdf;http://www.kiadb.in/images/stories/LAND%2 BANK%20DETAILS.pdf
[73] http://timesofindia.indiatimes.com/city/mangalore/Karnataka-expediting-setting-up-of-Information-Technology-Investment-Region-near-Bangalore-International-Airport/articleshow/22172549.cms
[74] http://www.deccanherald.com/content/345688/kiadb-raise-rs-1000-crore.html

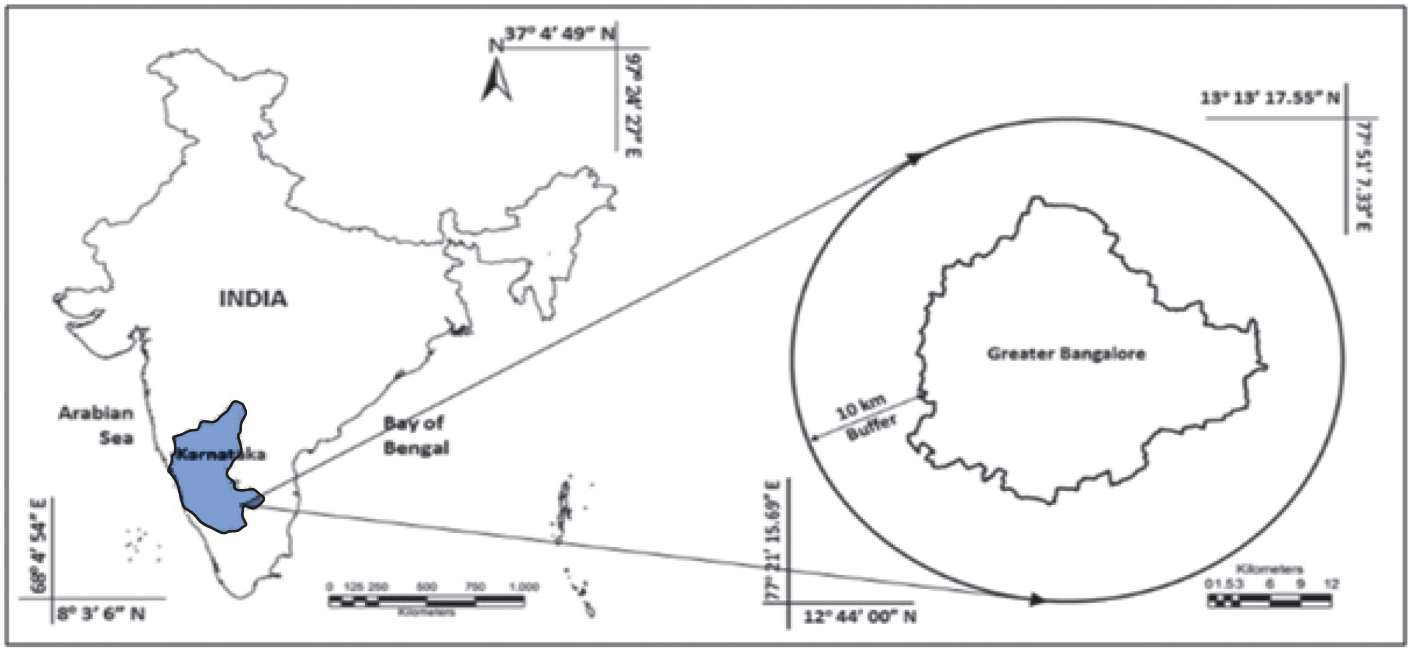


Source: From Mayur et al (2013)

The study also indicated the decrease in forest cover reduced both quantitatively and qualitatively with high value tree species being lost. The study points out that this also had effect on the fauna of the region; The plants and trees dependent on the diverse forest covermade way to fauna that could survive on monoculture plantations like Acacia and Eucalyptus species thereby reducing the rich natural diversity of both flora and fauna.

Another method of estimating the land use changes was used in the study by Indian Institute of Science, Bengaluru which predicted the land use dynamics using land change modeller. Bharat et al (2013), predicted the land use changes in 10 kilometer area (2,290 sq.kms) surrounding the greater Bengaluru (BBMP) in the year 2020 (Figure 11.15). The model was checked for by predicting the land use for the year 2012 and comparing with the actual land use changes. The study suggested that urban area would expand by 108 per cent from the reference year 2012 while the reduction of green space to 7 per cent from 33.68 per cent is expected. The visualized growth would provide the insights for effective and sustainable urban planning.

Figure 11.15: Estimated Area of Urbanization by 2020



Source: Bharat et. al (2013)

Many studies reflect upon the impact of land use changes in the peri urban area. Kaufman et al (2007) studied climate in the Pearl River delta in China which indicated that the changes in the land use have resulted in changing the physical properties of soil, reduced percolation of rain water into soil and thereby slowed down of soil water transfer to atmosphere leading to reduced winter rainfall. This could be true in Bengaluru Rural district as well. For the marginalized who have no lands or those who have lost their lands are prone to

health hazards because of living in unhealthy conditions. A study by Chadha et. al (1997) in peri-urban Bengaluru found that 35 per cent of children under the age of four years were affected by malnutrition. Chronic energy deficiency was documented in women residing in peri-urban areas of Kolkata.

While the impact of the land use changes from the view point of sustainability and natural diversity are discouraging, urbanization is an inevitable process. In this context it becomes important to examine how and for whose interest the decisions are taken. What emerges from the examination in Bengaluru Rural is not very encouraging: the process is centralized in the hands of senior politicians and bureaucrats in Bengaluru, and appears to be influenced by vested interests. The land use plans regulated by the planning authorities are often revised[75] benefiting the real estate market. For instance, according to KIADB officials, though KIADB is supposed to acquire preferably non-agricultural land for the purpose of investment in IT sector, the lands proposed to be acquired for ITIR often includes irrigated area.[76] Many of these land acquisition decisions and the land use planning information is not made available to small and marginal land holders on time. They often get to know about the acquisition only when the process begins and their voices remain unheard. Middlemen take advantage; lands likely to be acquired are purchased at low rates compared to that of the rates at which the notified lands would be bought by the Government. The lands surrounding the areas notified are targeted by the real estate players who invest early to make money out of the increased land value at a later date.

The land acquisition for KIAL, is an example. It is argued that more lands were acquired at the cost of small and marginal farmers. Though a technical committee recommended the land area of 2,500 acresfor Airport, the land acquired for the Airport was 4,009 acres.[77] Only 400 acres belonged to the Government, nearly 2,593 acres was acquired from individuals and the remaining 1,000 acres came from forest land. Around 12 villages and 1,500 land owners were affected by the acquisition and that land was not used for any activity by KIAL[78]. Forestland becomes soft targets for acquisition by the Government and also encroachments because of the high land value. Bengaluru Rural district has 45,000 acres under forest which also faces this threat[79]. These forest lands not only possess diversified flora but is also home to small animals such as pangolins, barking deer, rabbits, porcupines, wild boars, birds and reptiles.

Process of Change in Land Use at Farm Level

Land use change from agriculture to non-agriculture happens in 3 ways.

1. Acquisition by the Government for purposes of industries/technology parks etc-KIADB
2. District land acquisition officer does the acquisitions for road/street widening (under Deputy Commissioner of the district)
3. Conversions of individual lands by owners/ developers who buy land from farmers.

The Deputy Commissioner is the authority to permit the land use change in the district. Application is given in triplicate with enclosures of Record of Tenancy and Cultivation, Encumbrance Certificate of 13 years, sketch and other documents (photo, tax paid receipts). One copy is sent to Tahsildar (taluk) for verification and examination of violations (grant lands for SC and ST and others). One copy is sent to Development Authority (BMRDA) or BIAAPA for verification. Development authority verifies the area to be converted with reference to the Zonal regulations and gives it opinion (to reject/to permit). After considering the opinion of development authority and Tahsildar's report permission is granted for change of

[75] http://timesofindia.indiatimes.com/city/bangalore/New-master-plan-for-outer-Bangalore-soon-Siddaramaiah/articleshow/21145819.cms
[76] http://www.livemint.com/Companies/t39AQppVx6YNRVKUVoDnjM/Karnataka-govt-notifies-land-to-set-up-IT-park.html
[77] http://www.deccanherald.com/content/350772/more-land-acquired-b039lore-airport.html
[78] Pain without Gain? : Land Assembly and Acquisition for Infrastructure Mega Projects : The Indian experience with the Bengaluru International Airport Kalpana Gopalan Doctoral Candidate, Centre for Public Policy, IIM Bengaluru
[79] http://www.daijiworld.com/news/news_disp.asp?n_id=50122&n_tit=Bangalore%92s+Hunger+for+Land+Threatens+Forest+Patches+too

land use. Then developer/individuals can approach the planning authority to pay the development charges and get the planning approved. The local government will give Khata and enter the change in its book.

Impact at the Farm level

The Focus Group Discussions (FGDs) at Savakanahalli and Kodimanchenahalli (Devanahalli taluk) focused on the issues of what type of land gets converted first? How do land use changes happen? How does it impact the farm land owners? What are the prospects and consequences of the land use changes felt by these land owners? Who get affected most? What happens to the people who loose land to these investment zones and private land buyers? What do they feel about the entire process?

The type of lands that is likely to be subjected to change of land use include

a. The land likely to be acquired by Government for expansion of road,
b. The land that involves disputes
c. The land that faces obstruction because of the adjacent land being sold to land developers
d. The land close to roads for high process for investment elsewhere

Once the land is converted /sold for conversion, there is pressure for acquiring the adjacent lands by the land developer. The pressure comesin form of advice as well as threat.

The availability of agricultural labour has been reduced and the daily wages have gone up to Rs 400 for male (works from 6 am to 1 pm) and Rs. 250-300 for female labourers. Mechanization has increased for activities like ploughing, digging of trenches and pits, harvesting and transportation. Agriculture has become more capital intensive as labour costs have shot up significantly. Ensuring the timely availability of tractors and tillers for agriculture has also become difficult. Most of the agricultural operations are delayed by 4-5 days/week for want of agricultural labour. Labourexchange (one farmer goes to other farmer's work on a day and the other farmercomes to the first farmer'swork some other day as per the requirement) has increased. Family labour is decreased as the children are doing their studies.

The critical input like water has become scarcer. The rainfall has reduced over the years and tanks have not filled up in recent past. The ground water yields havedecreased. Bore-wells which were used be at the depth of 350-400 feet earlier are now being dug in the range of 1000-1100 feet deep. Accordingly, the cost of a bore-well also has increased from Rs 1 lakh to Rs. 2.5/ 3 lakh.Farmers who have only dry land and less land (1-2 acre) are worst affected. The cost of cultivation is very high and has become unaffordable for them and they have become agricultural labourers. A number of the land owners have kept their land fallow and are fully dependent on agricultural labour for income.

Few farmers (small and medium) who have enough family labour available (3-4 labourers) have improved significantly in this changed scenario. The improved access to market has become a boon for them. They have switched to vegetables and flower crops from the traditional cereal crops in the irrigated area. They need not depend on the hired agricultural labour and explicit costs are confined to material inputs leading to higher profit margin.

The big farmers who have more lands use the irrigated lands to grow vegetables and flowers while the dry lands are used for growing Ragi and Jowar for the purpose of fodder to the cattle. These people have better market information and make profits. However their profit margins are low owing to hiring of agricultural labour. Some of the big farmers have sold their land partly to buy land close to road and are involved in middlemen activities for real estate developers. Some big farmers have bought tractors/tillers on loan for renting out and this forms a source of regular income to them. The costs of cultivation of vegetables and flowers have increased significantlybut depending upon the market prices and market informationfarmers gets the price. Losses are rare.

Some land owners who sold their lands (small plots of 1-2 acres) at lower prices and have become agricultural

labourersare now repenting. Some have moved to Devanahalli and Doddaballapur towns in search of non-agricultural employment. Some have managed to start small business and feel that they are better off considering their inability to fund the increasing cost of agricultural labour.

Older farmers are generally very apprehensive and disapproving about the changes. They feel saddened by the fact that cattle rearing, an integral part of agriculture has become almost extinct because of the high cost of fodder and unaffordability of engaging labour for grazing. Given the rain fall trends and the groundwater situation, they feel that they are heading towards major disaster. They suspect that with loss of land, one day they will be forced to pay for everything including water. The youth's apathy towards agriculture is also a major concern.

Regarding the issue of acquisition of lands by Government, they felt that they are not aware of the facts in its entirety and are not involved in the process as legitimate stake holders. They felt that they are at the receiving end and since the impact (loss of diversity, changes in costs of cultivation, etc.) cannot be quantified and be realized only at a later date, they are not able to negotiate. These farmers also have a firm opinion that their lands are far more valuable than the current market prices in terms of sustaining livelihood. They argue that food has to be grown and water has to be available for us to survive and only land has the potential to offer it. They also speculate that people would realize the consequences of moving away from agriculture only after severe damage to agricultural lands and experiencing severe shortages of food and water.

Given that the urbanization would become more predominant in all the 4 taluks of Bengaluru Rural district, there is a need to see that it is planned and all stakeholders are involved in the process at the right juncture to make it more sustainable. For the issues like what kind of approach would be really sustainable, what kind of agriculture would promote the sustainable development and the like few people have started searching and seeking solutions for the same[80].

[80] http://www.navadarshanam.org/mission.html

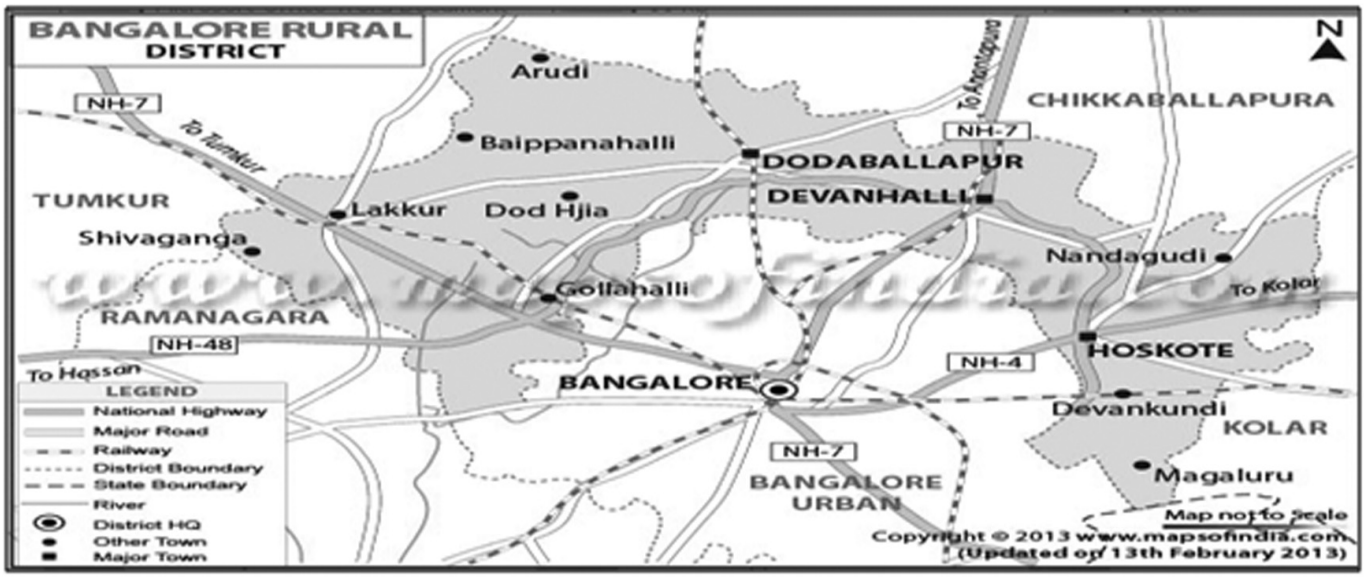
SAS 4 – Access and Quality of Bus Services from Bengaluru Rural to Bengaluru city

Introduction

The city of Bengaluru is considered the Silicon Valley of India. It hosts international companies, reputed educational institutions, health, and entertainment facilities. As a result, people gravitate towards Bengaluru city on regular basis to benefit from existing opportunities and to avail its facilities. During our field survey, our interactions with students revealed that presence of renowned educational facilities and exposure to big city environment are main factors for the attraction of Bengaluru city. Further, a recent study[81] to identify the skills-gaps in the districts of Karnataka finds that students and employees from Bengaluru Rural prefer to work in Bengaluru due to educational and career advantages respectively[82].

In terms of geography, Bengaluru Rural district is located right above the district of Bengaluru Urban. The four taluks of Bengaluru Rural are spread out in such a way that it covers the entire northern side of Bengaluru Urban. And each taluk is closer to Bengaluru city in comparison to the distance between the taluks itself. For example, the distance from Nelamangala to Bengaluru city is about 30 kms relatively lesser to the distance from Nelamangala to Hosakote which is about 54 kms[83].

Figure 11.16: Bengaluru Rural District Map



Given the presence of established basic infrastructure linking Bengaluru Rural and Bengaluru Urban, it is important to have a transportation policy in place which enhances the travel quality and improves the availability of transportation services. This in turn would enable the residents of Bengaluru Rural to benefit from opportunities and facilities available in Bengaluru city.

In this study, we explore the role of bus services as a connector or facilitator to enable the population of Devanahalli and Hosakotetaluks in Bengaluru Rural in commuting to Bengaluru city. In particular, we look into the accessibility and quality of bus services available to the daily commuters of Bengaluru Rural. We measure accessibility using cost of travel and number of transportation modes each commuter has to take to

[81] District wise skill gap study for the State of Karnataka (2013), National Skill Development Corporation
[82] These are just few examples which provide a snapshot of the attraction of Bengaluru city for the residents of Bengaluru Rural.
[83] The distances are sourced from google maps and it only provides an approximate distance between two places.

reach the destination. These indicators of accessibility measure the economic and physical ease of travel. Interestingly, we find majority of respondents access public bus services because they find cost-saving ticketing schemes by public buses attractive despite the fact that private buses reach their destinations faster than public buses.

Next, we measure quality of bus services by exploring the ease of bus service availability and factors that would impact the travel experience of commuters. The factors that are used to measure quality of bus services include responsiveness of conductor/driver, availability of space and frequency of bus services. We find that irregularity of bus timings causes a major problem for commuters since they have to wait for lon g time periods at bus stops. And this problem gets further accentuated by the distance that needs to be covered to reach the destination.

Literature Review

Cities are centers of economic activity. In general, it has been observed that labor and land intensive industries tend to cluster around the periphery of a city. Industries with heavy dependence on educated labor supply and capital requirements have tendency to cluster at the center. In urban theory, the phenomenon of firms clustering in a spatial location and deriving benefits by locating in close proximity to each other is referred to as economics of agglomeration.Duraton and Puga (2004) attribute existence of urban agglomeration economies to efficient sharing of local infrastructure facilities, efficient supplier interactions, availability of large pool of specialized labor, greater opportunity for better matching between employers and employees (buyers and suppliers), knowledge spillovers and adoption of efficient business practices and technological innovations[84].

The impact of agglomeration economies on productivity has been well observed and studied extensively. The first significant study to quantify productivity impact of agglomeration economies was by Leo (1975) who uses output per worker as a measure of labor productivity to show that labor productivity increases by 6 per cent by doubling the population of a city. However, there exists an upward bias in using output per worker as a measure of labor productivity due to the possibility of intensive use of capital in agglomeration economies. Henderson (2003) accounts for this potential bias by using plant-level data in high-tech and manufacturing industries in United States and finds significant individual productivity effects of cities in high tech industries but not in machinery industries after accounting for unobserved heterogeneity by including city-time fixed effects in his estimation[85].

These study findings explain the nature of economic activity of an agglomeration economy such as Bengaluru city and economic advantages that arises due to its existence. It is evident that actual benefits of agglomeration economies lie at the center of the city and these benefits are extremely localized. Yan Liu et al (2011) use Chinese county-level data and find that the impact of big cities on economic growth of the surrounding county is very weak indicating spatial deprivation.

The magnitude of agglomeration economy benefits can be increased by making significant investments in transportation infrastructure. Veneables (2004) developed a theoretical model to show that investments on improving transportation infrastructure and services will result in wider economic benefits to the economy. However, transport literature stresses on the careful examination of the transportation initiatives and mechanisms through which it impacts the transport prices, connectivity and others. Without proper understanding of these mechanisms, the changes in transportation services might lead to unintended effects.

A study examining the relationship between transport investment, transport intensity and economic growth by SACTRA (Standing Committee on Trunk Road Assessment) lists the following mechanisms through

[84] For a detailed discussion refer Puga (2009)

[85] Estimation of productivity effects due to agglomeration economies suffer from (a) identification problem – the greater output might be due to existence of larger firms and new larger firm entering the market due to its market size; (b) variation in labor quality across regions.

which transportation investment can have an impact.

a. Transport investment may broaden the job density and increase the access to specialized labor pool for employers.

b. It may increase the employment opportunities and choices for the local population.

c. It may facilitate expansion of markets for goods and services by improving the mobility of factors to move within and between markets

d. It may unlock lands for development purposes by connecting new areas to urban/developed centers. This spillover effect will have an impact on the growth of the city and thereby labor productivity in general.

Improvements in transportation infrastructure may attract inward, footloose investments that may have a positive impact on the level of economic activity and growth.

Further, accessibility to transport is essential for children from low-income families— even though the children are entitled to free transport. In absence of favorable access to transport services the choices of schools for the children to enroll might get limited to schools situated in close areas. Marmot Review (2010) found a strong causal link between social position and health levels. They find that social inequalities lead to health inequalities. They also find that lack of efficient public transport facilities results in difficulties in accessing specialized health facilities in their local area. Moreover, benefits such as reduction in traffic congestion, pollution level and carbon footprint are the primary motivators for promoting the need for efficient public transport.

Survey Method

The survey was conducted at the main bus stops of Devanahalli and Hosakote between 8am to 12 pm to understand the accessibility and quality of transport available to daily commuters of Bengaluru Rural commuting to Bengaluru city. The selection of bus stops was based on the suggestion of officials of Bengaluru Rural Education Department and Bengaluru Rural ZillaPanchayat.

Each interviewer was instructed to randomly approach any commuter waiting at the two bus stops during the survey time period[86]. The interviews were carried out by a male and a female interviewer in order to reduce the selection bias that might arise due to the interviewer's gender. Therefore, any person (male/female) commuting to Bengaluru city during the survey time period has a statistical probability of being sampled. A person who commutes to Bengaluru city from Bengaluru Rural, using bus services, more frequently/regularly has a higher likelihood of being sampled in comparison to a person who commutes less frequently. Therefore, the data is implicitly weighted by the frequency of trips.

Data

Sample data include a wide variety of demographic and socio-economic characteristics such as gender, age, religion, marital status, education qualification, occupation, total members in the household, working members in the household, income and expenditure of the respondent as well as household. Further, we collected information on the purpose and frequency of travel, number of mode of transport taken to reach the destination, travel expense, time duration, safety, travel experience and satisfaction. It is important to understand that this survey data describes the characteristics and experiences of bus commuters from Bengaluru Rural to Bengaluru city, and does not describe the general characteristics and experiences of commuters.

For the purpose of this study, we consider only the respondents who were able to complete the questionnaire. Hence, the final data contains information from 81 respondents out of the 96 who were interviewed. Out of the 81 respondents, 34 respondents were interviewed at Devanahalli bus stop and 47 respondents were interviewed at Hosakote bus stop. Table 11.12 and Table 11.13 provide the demographic and socio-economic

[86] Each interviewer was instructed to verify with the commuter, waiting at the bus stops, whether he/she is travelling to Bengaluru city. This verification process was to ensure that the questions are asked to commuters who are travelling from Bengaluru Rural to Bengaluru city.

profile of the respondent. Majority of our sample is Single (70.37 per cent), Male (69.14 per cent), Literate (95.53 per cent), Hindu (96.29 per cent), and Employed in government or private organizations (53.09 per cent). We interviewed 18 students in Hosakote, 10 more in comparison to the number of students interviewed (8) in Devanahalli.

The average income of the Hosakote respondents is 33 per cent lower than the income reported by the respondents in Devanahalli. In terms of expenditure, Devanahalli and Hosakote respondents appear to spend similar proportion, approx. 46 per cent, of their monthly income. We find a similar pattern with respect to monthly household income and expenditure. However, in this case, Hosakote respondents' monthly household income is 11 per cent higher, on average, than the reported monthly household income of Devanahalli respondents. Further, we find a consistent pattern of 2 working members per household across the two taluks while the average number of members in a household is 4 and 5 in Devanahalli and Hosakote respectively.

Table 11.12: Profile of Respondents

Items	Place of Interview		
	Devanahalli	Hosakote	Total
Total	34	47	81
Male	24	32	56
Female	10	15	25
Literate	33	46	79
Destination			
Bengaluru	29	47	76
Others	5	0	5
Religion			
Hindu	32	46	78
Others	2	1	3
Marital Status			
Single	17	40	57
Married	17	7	24
Occupation			
Student	8	18	26
Employee	20	23	43
Employer (Self-employed)	4	2	6
Others	2	4	6

Note:
1. Employees include both private and government employees.
2. Others include Daily wage earners and others.
Source: Primary Data collected by CBPS

Table 11.13: Income and Expenditure Details of Respondents

Items	Place of Interview		
	Devanahalli	Hosakote	Total
Average income of the respondent (per month)	14,749[15,405]	9,930[15,152]	11,978[15,351]
Average expenditure of the respondent (per month)	7,137[8,258]	4,297[6,714]	5,489[7,486]
Average income of the household (per month)	28,894[25,597]	32,584[60,252]	31,035[48,591]
Average expenditure of the household (per month)	14,809[14,850]	16,345[30,742]	15,684[25,040]
Average number of members in the household	4[2]	5[3]	5[3]
Average number of working members in the HH	2[1]	2[1]	2[1]

Note: Standard deviations are provided in parentheses .

Source: Primary Data collected by CBPS

Table 11.14: Purpose of Travel

Purpose of travel	Devanahalli	Hosakote	Total
Work	18 (52.94)	24 (51.06)	42 (51.85)
Business	4 (11.76)	2 (4.26)	6 (7.41)
Education	6 (17.65)	18 (38.30)	24 (29.63)
Health-related	1(2.94)	0 (0.00)	1 (1.23)
Others	5 (14.71)	3 (6.38)	8 (9.88)

Note: Per centages provided are column per centages
Source: Primary Data collected by CBPS

Majority of our sample consists of employees (51.85 per cent) and students (29.63 per cent) commuting to Bengaluru city on average 5 times a week for work and education purposes respectively. The employees commute to Bengaluru city due to high salary and better career movements. On the other hand, students responded that better educational facilities, exposure to big city and availability of entertainment facilities are the main driving force to access colleges in Bengaluru city. Further, they prefer to work in Bengaluru city after completion of their education irrespective of the travel demands. Therefore, we explore the accessibility and quality of bus services from Devanahalli and Hosakote to Bengaluru city motivated by the benefits of accessing urban centers.

Results

We examine the role of bus services as a connector or facilitator to enable the population of Devanahalli and Hosakotetaluks in Bengaluru Rural to pursue economic opportunities and access educational and health facilities by commuting to Bengaluru city.

Accessibility to Bus Services

The accessibility to bus services from the two taluks of Bengaluru Rural to Bengaluru city is evaluated using type of transportation services availed, number of modes taken to reach the destination and affordability of bus tickets available. The type of transportation services availed looks into whether commuters prefer public or private bus services. The number of modes a commuter has to take in order to reach the destination is inversely proportional to the accessibility of bus services. Since more number of modes in a single trip will increase the burden of travelling and reduce the willingness of people to commute to Bengaluru city. Further, it might drive more people to take private transportation and thereby resulting in higher social cost. The second measure, cost of commuting, is inversely proportional to accessibility and has similar impact on the decision to travel to Bengaluru city. Table 11.15 provides the summary statistics of the two measures discussed above.

Table 11.15: Accessibility from Devanahalli and Hosakote to Bengaluru City

Indicators	Devanahalli	Hosakote	Total
Average distance travelled per trip (kms)	41.88[17.79]	29.79[16.43]	34.86[17.94]
One mode of transportation	11(35.48)	20(64.52)	31
Two modes of transportation	11(37.93)	18(62.07)	29
Three modes of transportation	6(46.15)	7(53.85)	13
Four modes of transportation	1(33.33)	2(66.67)	3
Number of people accessing public transportation only	15(28.85)	37(71.15)	52
Number of people accessing private transportation only	10(71.43)	4(28.57)	14
Number of people accessing both private and public	4(40.00)	6(60.00)	10
Average cost of transportation (Rs per month)	980.74[757.73]	783.74[766.30]	866.43[764.23]

Note:
1. Per centages are row per centages. The total sample size of the survey is 76
2. Per centages are provided in brackets ().
3. Standard deviations are provided in parentheses [].
Source: Primary Data collected by CBPS

The average distance travelled by a commuter from Devanahalli is approx. 42 kms to reach Bengaluru city while commuters travel only for approx. 30 kms from Hosakote. The results show that approx 79 per cent of the commuters take two bus services to reach their destination. Even though, commuters from Devanahalli had to cover longer distance (42 kms) in comparison to the distance covered (30 kms) by Hosakote commuters.

We also find that a higher per centage of commuters' access public bus services to reach their destination. The difference between usage of public and private transportation is striking in Hosakote with 78.72 per cent of the commuters opting to travel by public bus. And only 4 from a total of 47 respondents in our sample from Hosakote make use of private transportation (private buses). On the other hand, the difference between usage of public and private bus in Devanahalli is about 17.24 per cent. Most of the respondents from Devanahalli answered that more frequent bus services at regular intervals and along with increased seat capacity is required to improve the travel quality. Further, BMTC provides Volvo bus services from Hosakote to Bengaluru city which acts as an incentive for people, who can afford it, to travel by public bus.

In terms of average ticket expenditure per month, commuters from Devanahalli spend Rs 980.74 (approx) in comparison to commuters from Hosakote (Rs 783.74). But Devanahalli commuters spend 20.09 per cent lesser than Hosakote commuters in terms of cost of transport per km (per month)[87]. Further, the ticket expenditure of Devanahalli commuters in proportion to their total expenditure is 6.78 per cent in comparison to 10.33 per cent for Hosakote commuters. Thus, Devanahalli commuters enjoy a better price advantage due to the amount of distance and availability of various types of passes[88].

The above results show that daily commuters from Bengaluru Rural to Bengaluru city face no difficulty in accessing bus services. However, the commuters have to take more than one mode of transportation in order to reach their destination due to the long waiting period. Most respondents postulated that introduction of direct buses from Devanahalli to Bengaluru city would improve the movement of people to pursue economic, education, health and other facilities available in Bengaluru.

Quality of Bus Services

Improvement in quality of bus services deals with factors such as reduction in waiting time period and travel duration, increase in seats availability, regular and frequent bus services etc. In this section, we explore the quality of bus service from Devanahalli and Hosakote to Bengaluru city.

The quality of bus services is measured in such a way that it captures the ease with which bus services are available and the experience during the travel to reach the destination (Table 11.16). The average waiting time period per trip and frequency of bus services is categorized under the ease of availability of bus service. And factors such as travel duration per trip, availability of seats and space to stand, behavior of conductor and traffic congestion fall under the category of experience of commuters during the travel. These factors are important not only because it enhances the quality of bus service but also motivates the commutes to avail bus services rather than use their private transports, thereby preventing the high social cost.

In terms of quality, lack of seating capacity and crowded buses are the major problems faced by the daily commuters. The problem gets accentuated in proportion to the distance travelled by a daily commuter. Most respondents pointed out the irregularity of bus timings and existence of traffic congestion drives commuters to enter a bus irrespective of availability of seats or space to stand. This is true in both Devanahalli and Hosakote even though the latter enjoys better frequency of bus services relative to Devanahalli.

[87] The cost of transport per km is calculated using the formula =Average ticket expenditure per month/ (Average distance travelled per trip*2*20). Since we had captured distance travelled trip, we multiply the average number of trips a commuter makes in a month (20) and further assuming that a person who travels by bus in the morning will use the same mode of transport to get back home.

[88] Thus, Devanahalli commuters spend Rs 0.59 per km per month and Hosakote commuters spend Rs 0.66 per km per month. It should be noted that approximately 96% of our commuters use either day or monthly pass in order to reduce the cost of travel to and fro from Bengaluru city.

In general, the respondents answered that the quality of service is lower in comparison to Bengaluru city, due to high frequency of buses. The quality of bus service, thereby the travel experience, can be increased tremendously if investments are made to ensure that there are enough seating capacity, regulated bus timings, increased frequency of buses and measures to monitor traffic to control level of congestion.

Table 11.16: Quality of Bus Service

Indicators	Devanahalli	Hosakote	Total
Average waiting time period per trip (minutes)	28 [28]	17 [10]	21 [20]
Average travel duration per trip (minutes)	111 [68]	89 [56]	98 [62]
Frequency of bus			
High	14 (36.84)	24 (63.16)	38
Moderate	13 (43.33)	17 (56.67)	30
Low	2 (28.57)	5 (71.43)	7
Availability of seats			
Yes	7 (28.00)	18 (72.00)	25
No	8 (44.44)	10 (55.56)	18
Not always	14 (42.42)	19 (57.58)	33
Availability of space to stand			
Yes	23 (37.71)	38 (62.29)	61
No	3 (42.86)	4 (57.14)	7
Not always	3 (50.00)	3 (50.00)	6
Road Traffic			
Very congested	13 (37.14)	22 (62.86)	35
Congested	13 (46.43)	15 (53.57)	28
Not congested	3 (27.27)	8 (72.73)	11
Responsiveness of Conductor/Driver			
Very Responsive	4 (66.67)	2 (33.33)	6
Responsive	21 (36.21)	37 (63.79)	58
Not Responsive	3 (27.27)	8 (72.73)	11

Note:
1. Per centages provided are row per centages. The total sample size of the survey is 76
2. Per centages are provided in brackets ().
3. Standard deviations are provided in parentheses [].

Source: Primary Data collected by CBPS

Conclusion

The closeness of Bengaluru city and availability of well-connected roads is a major pull factor for Bengaluru city. However, any investments in transportation should aim at improving the transportation services within the district itself as well as the travel from Bengaluru Rural to Bengaluru city. The need to ensure efficient transportation services within the district will promote the growth and development of Bengaluru Rural. In addition, it should enable people to explore opportunities and pursue their interests by moving outside of the district as well.

First, the results show that daily commuters face no difficulty in terms of accessing bus services to commute to Bengaluru city. However, the requirements of commuters vary directly with the distance that needs to be travelled. Commuters from Devanahalli demanded for more number of direct bus services connecting Devanahalli and Bengaluru thereby resulting in reduction of travel time. On the other hand, commuters

from Hosakote demanded for more number of Volvo bus services at a reduced cost to make it affordable.

Second, the quality of bus services especially seating capacity, bus timings and traffic congestion requires in-depth studies and effective initiative to improve the quality in order to incentivize the public to opt for public transportation. Further, it is recommended that a limit on the number of passengers a bus, both public and private, can carry during a trip is fixed by the government. Additionally, it is imperative to have standardized bus timings to ensure that commuters do not have any uncertainty over frequency of buses and the limit on passengers per bus being effective. This might prevent the problem of over-crowding during the peak hours.

Another area which needs to be explored is the mobility of female population of Bengaluru Rural district. We find that majority of respondents in our sample is male which raises the question of the range of mobility of women. A developing economy such as India has to ensure that the benefit of economic growth trickles down to all sections of the society.

In terms of transportation policy, it needs to be balanced such that both short and long term demands of the public are considered. It must be stressed that policies need to take a holistic approach to understand the impact of initiatives on related and unrelated factors. It also requires better co-ordination and understanding between several government agencies. For instance, if a decision is taken to expand the metro services to the four taluks of Bengaluru Rural linking Bengaluru city; the government then must consider the potential explosion of property values in Bengaluru Rural and large number of floating population in Bengaluru city due to increased mobility. These factors needs to be considered to derive the intended, and true, benefits of a well-developed transportation policy.

Further, studies have to be undertaken to analyze the cost and revenue of BMTC and KSRTC plying these specific routes that link Bengaluru Rural and Bengaluru city. In addition, the transportation policy needs to look into potential alternative transportation services that can be made available to the public which reducethe travel time.

The Way Forward

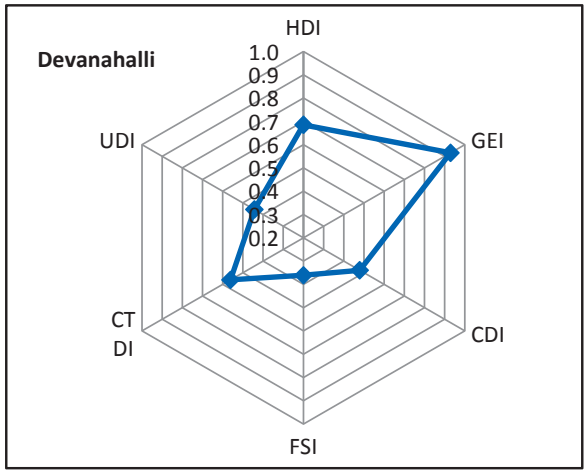
Bengaluru Rural district presents a mixed picture in terms of human development. The most important feature of the district that helps in the analysis and in understanding the trends is the fact that it is situated next to a fast evolving mega city, Bengaluru. This determines and influences almost all aspects of life in this district to the extent that it at times makes the analysis of Bengaluru Rural in isolation of Bengaluru Urban district difficult. Nevertheless, a separate analysis of the district is important to highlight the specific issues of the taluks that constitute Bengaluru Rural.As mentioned in the beginning, the district also underwent reformulation in 2007 after which Bengaluru Rural became a much smaller district with only four taluks: Devanahalli, Doddaballapur, Hosakote and Nelamangala. Inter-taluk differences are sharp in terms of the indices computed for the purpose of this report but no taluk emerges as clear winner on all fronts. The radar analysis of four taluks across six indices makes it abundantly clear.

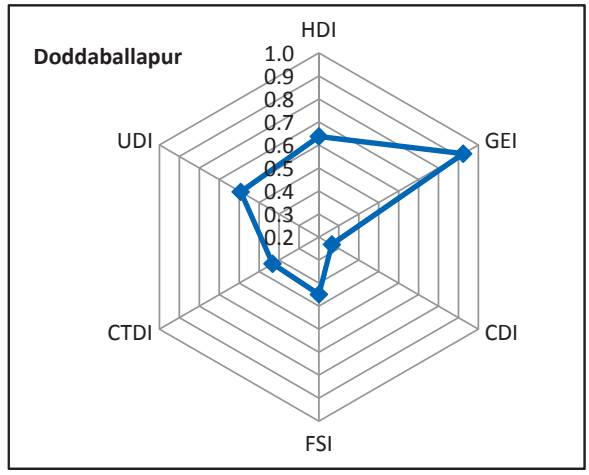
12.1. Bengaluru Rural: Intra district Differences in the Indices

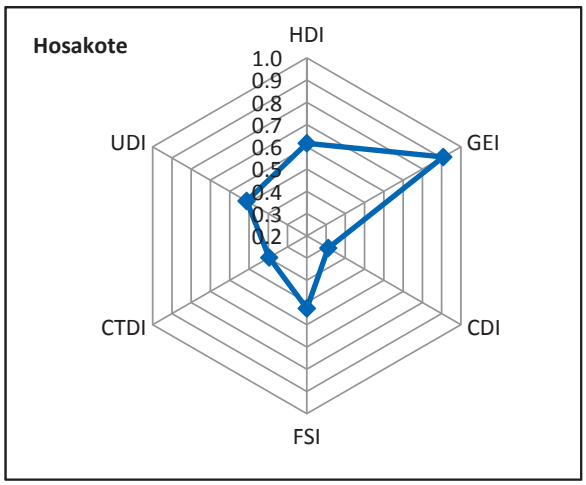
Nelamangala with highest HDI, CDI, FSI and CTDI values has third position in GII, and has lowest values for UDI. However, it still emerges as most consistent among all four taluks where the performances across indices are much more uneven. Devanahalli, which is next in terms of HDI, GII and CDI values, has the very low FSI and UDI values. Doddaballapur and Hosakote, with lowest HDI, GII and CDI have relatively better FSI and UDI values. Inter taluk variations are the least for GII values indicating similar level of gender parity for indicators included in the index, and highest for CDI values indicating taluks's positions are severely different from each other for the indicators included in CDI. Variations are also large for UDI indicating varying positions of urban services.

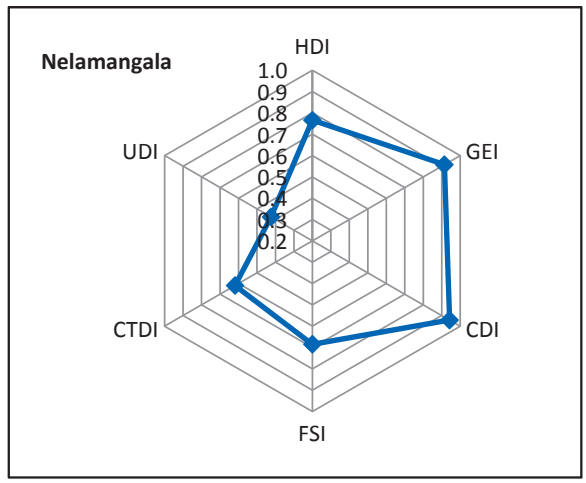
While it is important to note the high degree of inter-taluk variations, it is also important to point out that the very definitions and constructions of the indices could be partly the reason for the variations. While HDI follows the standard definition and the variations can be indicative of real differences in any one or two or all three areas: education, health and standard of living, the same cannot be said of GII or GEI. Since the GEI captures the difference between men and women, and uses the range of maximum and minimum values from the district itself for the purpose of normalisation, the variations are bound to be low.

Figure 12.1: Taluk wise Radar Analysis of Individual Indices (2011)









Note: GEI = 1- GII; UDI (Devanahalli) = Average (UDI (Devanahalli-CMC): UDI(Vijayapura-CMC))

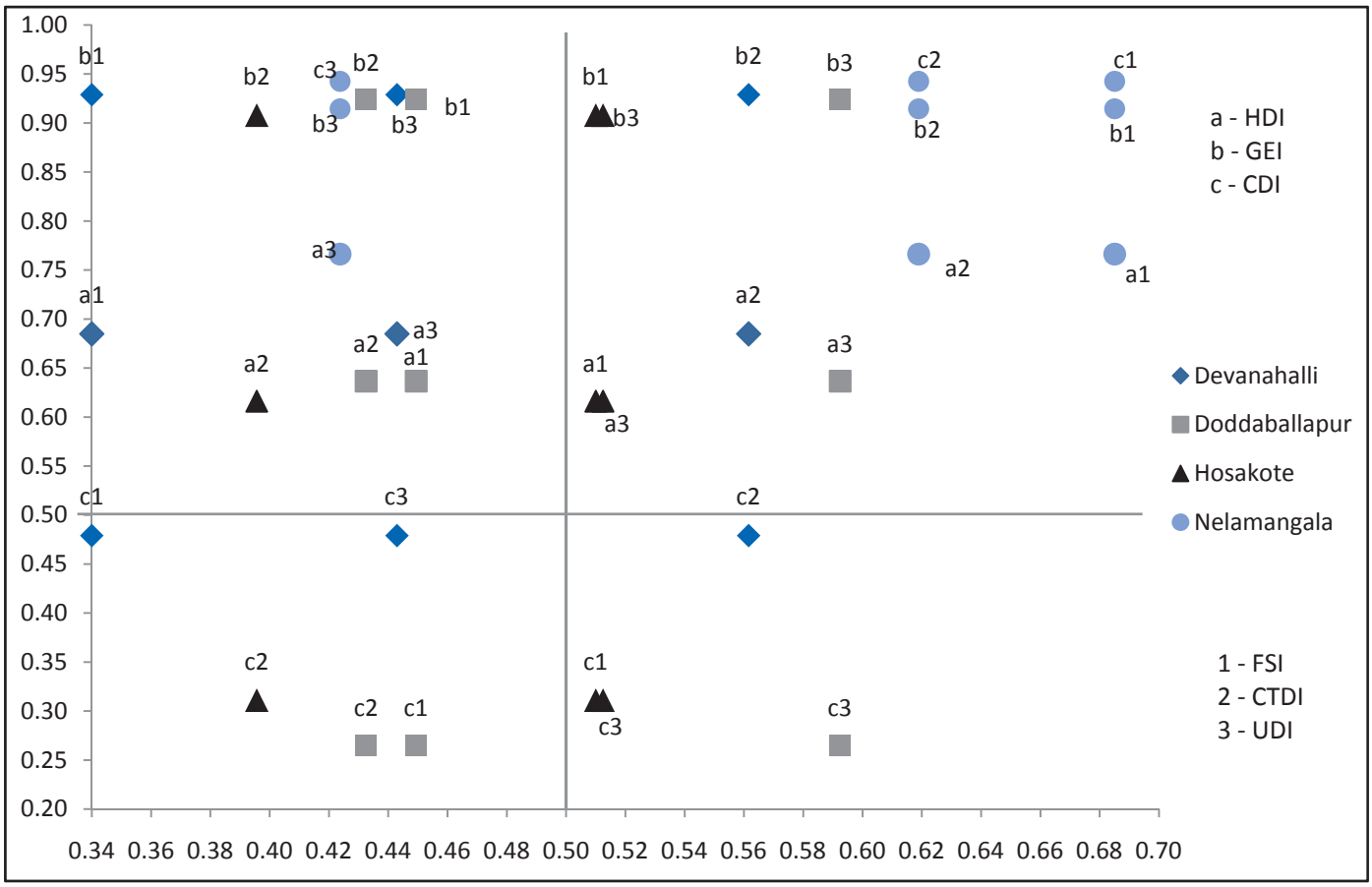
It is also important to remember that GII or GEI is not an equality or inequality index; it is more a parity or disparity index. At most, it is an index of formal equality, not substantive equality. To elaborate, it captures only a limited range of indicators and views it from the perspective of whether these are same for men and women. Equality is a wider notion and would require certain proxies of women's agency and control, with parity being an important subset of that. The choice of variables plays an important role in determining what kind of equality one is referring to. For health, inclusion of only reproductive health indicators is indicative of limiting women's health to the womb. When the indicators are of the kind that they could offset each other (as discussed earlier – high institutional delivery and high MMR as visible in this district), it further makes it difficult to detect the disparity. In case of labour market, the indicator of workers in agriculture or non-agriculture could have been made closer to the real situation if it also allowed the concentration of men and women in low paying jobs whether in agriculture or non-agriculture. HDI too could have been made closer to reality by separating schooling participation rates for primary and secondary levels; at present it uses a combined participation rate.

While CDI reveals the real difference between taluks, and therefore low CDI values in three out of four taluks should be taken seriously, this too does not fully represent the development opportunities and status for children, especially for very young children. Adding IMR and the per centage of children covered by pre-school facilities could have made it a stronger index. The on-going work on child poverty could also inform the formation of this index.

The scope for improvement exists for FSI as well. First of all, at present it includes accessibility, availability and absorption together where the chances of negating each other remain high. Since it is a security index, it could focus only on availability and accessibility, and for that inclusion of provisions made in response to the Right to Food movement would be important. It includes coverage by anganwadi, hot midday meal and PDS uptake on one hand, and livelihood security interventions such as access to and use of MGNREGA kind of schemes on the other. Also, inclusion of agriculture under food crops and related indicators can give a distorted picture when seen for a small geographical area, especially in a district such as Bengaluru Rural. Import of food is common and therefore needs to be taken into consideration.

The nature of UDI, CTDI and FSI indices is enabling or facilitative while that of HDI, GII/GEI and CDI is that of outcome or end result. One would expect some strong association between enabling and outcome indices. However, that is not visible if one tries to plot them together (Figure 12.2). The concentration of points in the right upper and left lower quadrants should have been highest if there was a clear association between enabling and outcome indicators but that is not the case. While Nelamangala shows some association of all outcome indicators with CTDI and FSI, the same is not true for UDI. Doddaballapur shows some correlation between outcome indicators HDI and GII with enabling indicators of CTDI and FSI. The relationships are even weaker for the other two taluks.

Figure 12.2: Taluk wise Mapping of Indices (2011)



Note: Gender Equality Index (GEI) = 1 – GII; UDI (Devanahalli) = Average (UDI (Devanahalli-CMC): UDI(Vijayapura-CMC))

The weak association could have two interpretations. One, the best and the worst performers show some relationship while the other two are in transition and therefore do not show clear linkages. And two, the construction of enabling indicators is such that they include the outcome indicators as well, and therefore do not reveal very clear picture. For instance, CTDI includes all kinds of indicators with varying nature and therefore in the end does not tell much about anything. Also important will be to see whether the construction of these indices and the choice of variable are biased towards particular kind of policy choices without taking into account if it necessarily leads to human development or not. For instance, fast pace of industrialisation based on acquisition of irrigated agricultural land without full and proper communication with people, as reported in some parts of Bengaluru Rural, may be promoting 'richness of economy' but may not be very conducive for promoting human development in terms of 'richness of human life'.

12.2. Bengaluru Rural: Beyond Indices

From the perspective of human development paradigm and the aspects covered in this report, Bengaluru Rural presents a set of encouraging and uplifting news alongside a set of challenges. Some of these need re-examination as it may be based on partial analysis – as mentioned earlier, unless seen in conjunction with Bengaluru Urban, certain trends viewed in Bengaluru Rural could be misleading. Nevertheless, it is important to present as they appear.

The district presents an encouraging trend for developments in literacy and elementary education. Literacy rates have improved and the absolute number of illiterates has gone down between 2001 and 2011. The gross and net enrolment ratios at elementary level are high and do not show any gender disparity. However, the issues of quality still prevail. At secondary

level, despite improvement, the enrolment ratios are still not very high though no gender disparity is visible. Pass per centages have improved for grade 10th level. Gender disparity suddenly emerges and is very much visible at higher level, especially in polytechnics and engineering colleges. An important concern is the fast spread of fee-charging private institutions at secondary and tertiary levels with, as suggested by existing evidences, potential for somewhat negative impact on participation of girls in general both boys and girls from poorer households. Public expenditure on education has witnessed a decline in real terms in the recent past, which is not an encouraging sign.

In the context of health, Bengaluru Rural presents a mixed picture: high level of immunisation and relatively low IMR coexisting with high level of institutional deliveries and high MMR, good coverage of public health facilities and personnel with high increase in both communicable and non-communicable diseases are some of the examples. Nelamangala, with highest HDI, has the highest MMR at 150. The presence of high MMR despite high level of institutional deliveries and ANM coverage – almost 97 per cent – raises questions about the quality of services associated with institutional delivery. Also, the small survey in Hosakote suggested poor coverage of dalit households by such services.

The district has no district hospital, as there is no district headquarters. This means people are forced to come to Bengaluru Urban for hospital services where private hospitals could be charging high fee because of the high demand and relatively higher paying capacity. Public health insurance schemes meant for poor households are yet to take off in a significant manner. Public expenditure on health has also declined in real terms in recent past, which is indeed not a good sign. Education and health is the key to human development and in view of the remaining challenges that the district faces, declining public spending in these two areas is a cause of concern.

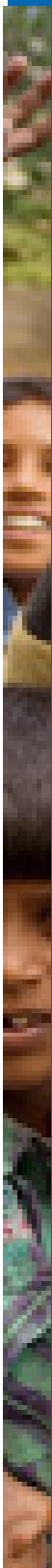
With a big service sector contributing about half of the total district's income and a fast expanding manufacturing sector, the district has a higher per capita NDP as compared to Karnataka. Agriculture is experiencing a decline in terms of its contribution to the district's income but continues to employ more than 70 per cent of working population. The proportion of people living below the Poverty Line is low at around 10 per cent and even lower in rural areas at less than 6 per cent, as against 29 and 32 per cents in Karnataka. The urban poverty levels are relatively higher. Labour productivity is high and has been increasing consistently. Wage rates have also gone up. But the work participation rates of women are only two-thirds that of men in the District. Less than one-fifth of the land holding is owned by women and they are concentrated around low-paid wage work in agriculture in rural areas and household industry in urban areas. Female unemployment rate is also very high in urban areas. The gap in wage rates paid to men and women is also very high and needs attention.

The standard of living as expressed in terms of ownership of assets and access to services such as water and sanitation is relatively better in Bengaluru Rural district. This is especially true for rural areas of the district; the district is much better placed as compared to rural areas of a number of other districts. Backed by enthusiastic district administration, a large number of panchayats have taken total sanitation campaign seriously and made good progress in this respect. The district has also achieved improvement in terms of quality of drinking water; the level of contamination has reduced. A good number of panchayats have also started solid waste management initiatives. On the downside is the fact that SC and ST households', especially SCs', access to water and sanitations services is still much lower than that of other population groups. Female headed households also have relatively less access to water, latrine, electricity and clean fuel as compared to others. High level of urbanisation has put pressure on demand for land and as a result some taluks are facing the paucity of sites for housing. Urban areas in the district are facing the pressure of high population growth and the resultant demand for water and sanitation, the situation is particularly of concern in Doddaballapur and Devanahalli.

The district has experienced high degree of land acquisition and land alienation. A close examination of land holdings statistics reveal that dalits have lost substantial area of holdings though the decline in the number of land holdings lost is not as significant. This was especially true for Hosakote and Doddaballapur. Given that SC lands in Devanahalli and Hosakote have decreased significantly and the same sized area belonging to 'others' category increased by 25 per cent, it appears that the SC lands were bought by the 'others' category in small patches for real estate purposes.Given the pressures of real estate sector the possibility of violation of the Karnataka Scheduled Castes and Scheduled Tribes (Prohibition of Transfer of Certain lands) Act, 1978 also cannot be ruled out. The Act prevents sale of land provided to SC and ST households by State.

The government has acquired huge areas of agricultural land for the purposes of industrialisation and for building the international airport. This has adversely impacted the forest cover and biodiversity of the region. A good number of small farmers have become wage workers on losing the land while those with bigger farms have benefitted by turning to growing vegetables, fruits and flowers. Small farmers are often not well-informed about impending land acquisition and other such plans, and hence become the target of real estate players. Here, there is scope for improving governance by creating more channels for providing information well in advance and having more open dialogues with citizens on impending changes. One of the indicators of urban governance is the capacity to generate revenue, and three out of five Municipal bodies in the district shows high property tax efficiency. However, the district performs badly when it comes to spending money for SC and ST related schemes: 42 per centof the SC and ST funds is unspent taking all ULBs together. The utilisation was lowest in Hosakote while it was highest in Doddaballapur town.The small study based on survey of dalit households in Hosakote showed that the rigours of discrimination has loosened up but private space that had always been separated remains separatedeven now.

The process of urbanization is fast in Bengaluru Rural as compared to other places because of the proximity to Bengaluru city. It is important that the city develops its own identity, has its own headquarters and develops a plan taking civil society as a partner so that it can negotiate the development process in a manner that it contributes to the real human development of all sections of society and reduces the disparities that exist between sexes and between social or economic groups.



Annexures

1 : Note on Process of Bengaluru Rural Human Development Report Preparation

1.1. Introduction:

The Government of Karnataka encouraged by the successful publication of District Human Development Reports (DHDRs) for four districts viz. Kalaburagi, Mysuru, Udupi and Vijayapura, had decided to extend the exercise to all the districts in Karnataka. Accordingly universities and research organizations were identified and entrusted with the task of preparing the DHDRs. The task of preparing the Bengaluru Rural District Human Development Report was entrusted to Centre for Budget and Policy Studies (CBPS) for which a Memorandum of Understanding with the state government was signed on 15 November 2012. Human Development Division (HDD), Planning, Programme Monitoring and Statistics Department supervised and monitored the progress of the report.

The preparation of the report, spread over two-years, involved training, stakeholder workshops, data collection and validation, consultation with department officials and subject experts, primary surveys for Small Area Studies (SAS) and review of draft report culminating in the final Report.

1.2. Training and Workshops

1.2.1. Training

The DHDR preparation process was initiated by an introductory training programme organized by HDD at Administrative Training Institute, Mysuru (26–29 December 2012). The four-day training focussed on concepts of human development and its dimensions such as education, health and nutrition, livelihood, housing, urbanization, sanitation and water supply etc. Following this, another training session was organized on July 16-17 2013 to delve into the technical aspects of the methods adopted to calculate the Human Development Index (HDI) and other indices such as GII, CTDI, CDI, CDDI, UDI and FSI. The six month gap between the introductory and technical training was provided to enable the lead agencies to collect the necessary data which was then to be used at the technical training. This was done to assist the lead agencies and district officials in understanding the data and how data values impact the final indices value and its interpretation. However, the technical training was carried out using the Census data (2010) due to difficulties faced in data collection by majority of the lead agencies.

These training sessions were crucial as they provided a platform for lead agencies, district officials, academicians and practitioners to discuss issues regarding data collection, variables, methods and other related to human development. This opportunity made possible sharing of experiences regarding data collection which prompted participants to instances of methods adopted by them to collect the data. For example: When a few lead agencies put forth the problem in collecting data for the past time period, the participants representing Bengaluru Rural suggested the proper use of District at a Glance Reports which have been published on a yearly basis by every Zilla Panchayat office in addition to other external sources such as NSS, IHDS and DLHS.

In addition, the structure of the report regarding the plan for chapters, level of analysis, tables, figures, boxes and annexure were discussed in detail to ensure that the DHDRs of all the thirty districts were prepared based on a standardized format. This exercise was carried out to enable comparisons across districts which would enable in providing a comprehensive picture of the state.

1.2.2. Workshops:

The lead agency, CBPS, along with the Bengaluru Rural Zilla Panchayat officials conducted four taluk-level and one district level workshop as part of dissemination efforts to transfer knowledge and inform the local officials, policy makers, activists, NGOs,

The universities and research organizations which were entrusted the task of preparing the DHDRs were referred as Lead Agency in all official communication as well as in this report.

students, media and others about the concepts of human development and its various aspects. The four taluka-level workshops were conducted during July 24th-25th, 2013 at the respective taluka headquarters and the district workshop was conducted on September 4th, 2013 at the Bengaluru Rural Zilla Panchayat office . The workshops focussed on the philosophy behind the concept of human development and quantitative approach adopted to calculate the indices. This generated lively discussions during the Q&A session about the potential use, future refinements/improvements and limitations of HDI, GII and other indices.

With respect to the use of report, it was emphasized that DHDRs are capsules of information which shine light on magnitude and direction of investment undertaken by the government to improve the living standards of people. And also that it would enable the interested parties such as policy makers, officials, activists, NGOs and others to participate in the development of future strategies to improve the quality of life in the district.

1.3. Data Collection and Validation:

1.3.1. Data Collection:

After the introductory training during December 2012, a District Core Committee was constituted and the first meeting was held on January 31st, 2013 with the Chief Executive Officer (CEO) of Bengaluru Rural Zilla Panchayat as the chair to facilitate the data collection process. The DCC constituted of Chief Executive Officer (CEO), Chief Planning Officer (CPO), Deputy Project Officer (DPO), Department Heads, District Officials and Quality Management Group (QMG) member. In the first DCC meeting, the concept of human development and its various aspects, and the objectives of the report were introduced to the DCC members to ensure that all concerned parties understood the scope of the project. It was followed by a presentation of the data format, prepared by the CBPS team, containing tables of all the variables required to construct the HDI, GII and other indices. The subsequent discussion facilitated in understanding the extent of data availability and also the need for inclusion of other variables to enrich the analysis in the report.

As a result, the data format was revised in accordance with the suggestions provided by the district and department officials. And the revised format was then provided to each department head for the data collection process. Few departments such as education, agriculture, women and child, police and ULB assigned a contact person to assist the lead agency in the data collection process.

Bengaluru Rural district was a unique case as it was reconstituted in 2007-08, when the number of taluks that constitute the district was reduced to four from eight. The taluks that presently constitute Bengaluru Rural district are Devanahalli, Dodballapura, Hosakote and Nelamangala. Therefore, the department heads were requested to re-work the data for the time period 2001-2008 in order to enable decadal comparison of variables at both the taluk and district level. Each department was requested to submit the data in the format provided to them. In the case of constructed variable such as MMR, IMR, NER and so on, the departments were requested to furnish both the final constructed variable and the underlying variables that were used to calculate the final variable.

The data collection process took up to a year to be completed, even though only a four-month time period was allocated to complete this process in the initial plan of action. One of the reasons for this was the fact that the first set of data submitted by the departments was found to be internally inconsistent. This meant that the Lead Agency had to undertake different levels of data checks to ensure that the final data to be used in the report depicted the true picture of Bengaluru Rural district. Due to internally inconsistent data furnished from the district sources, the CBPS team had to resort to using the data provided by the HDD who had sourced the same information from various departments at the state-level. Where there was lack of credible data, the estimates from data sets such as NSS and IHDS were used for the analysis. The limitation with the use of such external datasets was that only district-level estimation was possible. This restricted the analysis and subsequent discussions to the district-level and not the taluk-level analysis as envisaged. It may be mentioned that the majority of inconsistencies were found in data provided by the education and health department. The

problem was aggravated further due to lack of any credible data source for taluk-level information for both education and health indicators. Therefore, the analysis and discussions using data furnished by the education and health department should be taken with care.

Another constraint faced during the data collection process was the change of department heads, especially of health and education departments, which resulted in co-ordination problems. The problem was that new department heads felt little accountability towards projects begun under the previous heads which diluted the intensity of engagement which impeded the progress.

Besides the data collection for each chapter, primary data was collected for the four small area studies simultaneously. This process involved development of questionnaires and piloting, training of field investigators, translation of questionnaires, and cleaning of collected data. Field visits for the small area studies were facilitated by the Zilla Panchayat officials in addition to assistance during the visits as well. For the study on Sanitation Campaign, the Zilla Panchayat officials organized consultations and provided data on the progress of sanitation campaign and its impact on the livelihood of people through awareness campaigns on hygienic practices. A focus group discussion was held with the agriculture land owners, especially cash crops, to understand the impact of changes in land use due to Bengaluru Rural proximity to Bengaluru city.

For the study on Quality of bus transport from Bengaluru Rural to Bengaluru city, the Transport Department and Banaglore Metropolitan Transport Corporation, Government of Karnataka were approached for data on revenue and expenditure, frequency of buses, and kinds of bus services available plying to and fro Bengaluru Rural and Bengaluru city. Despite several attempts, adequate information was not furnished due to which the discussion was restricted to analysis using primary survey data.

1.3.2. Validation:

The validation process was carried out as soon as a particular set of data was received by the lead agency. The process involved checks for internal validity as it determined the accuracy of inferences drawn using the furnished data. This process included calculating the growth rate to check any sudden spikes in growth rate or reversal of trend for a particular variable. The second step was to check whether the relationship between variables held true using the data provided by the department. For example, Net Enrolment Rate (NER) of primary school and Out of School Children (OoSC) in the age group 6 – 13 years has a negative relationship. Therefore, the data was checked to test whether the OoSC drops during the years when an increase in NER was reported.

The next step involved discussion with the concerned officials about the gaps in the data. This was carried out to find out the reasons for a sudden spike or trend reversal or change in relationship between two variables. It was a necessary to understand whether the gaps identified are valid due to the unique scenarios experienced in Bangalore Rural district. If not, then such variables were referred back to be calculated again.

At the end of this process, it was found that education and health variables do not reflect the true picture of the ground reality. It was decided to source additional data from secondary sources especially for the chapter on Health such as DLHS, NSS and Economic Survey conducted by Government of Karnataka. And data provided by HDD was used for the analysis wherever possible. Further, it was found that the data provided by the department to be inadequate for a proper discussion of Income and Employment chapter. Resultantly, NSS 66th round was used to calculate the Gini coefficient, incidence of property, employment and unemployment rate for Bangalore Rural district and Karnataka.

1.4. Report Writing:

Consultation with subject experts such as Prof. Vinod Vyasulu, Dr. Sreelakshmi Gururaj, Dr. Srijit Mishra, Dr. Hippu Salk Kristle Nathan, Prof. Vani and Prof. James were held simultaneously during the year 2013 to get clarity about each topic that was dealt with in this report. Once the data was finalized in January 2014, CBPS team comprising six members took about

four months to complete the drafts of chapters and small area studies. There were two layers of review process which was established to ensure the quality of the report. In the first stage of review process, each completed draft was peer reviewed by the Director and Advisor or by a fellow research advisor/senior research associate. This was done to iron-out and correct any issues in each chapter.

In the next stage, the revised drafts of each chapter were submitted to external consultants of CBPS to highlight any issues which would be included to improve the analysis and discussions. The preparation of the final draft to be submitted to the HDD was undertaken only after the completion of revisions as suggested by our external consultants. The revised drafts were then taken to prepare the final version of the report which was then submitted to the HDD. The submitted report was again submitted to a reviewer assigned by the HDD to review the report and suggest changes/ revisions if any. The changes/revisions suggested by the peer reviewer were carried out to bring out the final report.

1.5. Concluding Remarks:

The entire process of preparation of this report took about two-years to be completed. A major portion of period was taken up by data collection. The entire process would have been completed earlier if the data collection process was handled by the HDD which is what happened at the end. The lead agencies can check the data validity and inform the HDD about the necessary revisions that had to be carried out.

It was also found that the data maintained at the district level was not reconciled in a systematic manner. The failure to do so had resulted in collection of data which does not represent the true picture at all. Another reason for lack of internal validation of data was the lack of application of the collected data by the local district/sub-district officials. The local officials should be encouraged to analyse the data as it would then highlight the differences that exist in data and reality. And we hope that identification of such differences would result in correction as well, which when done periodically would result in an accurate data bank. Such good practices needs to be followed since it impacts the policy-making and facilitates development of future strategies to improve the standard of living.

In summary, future DHDRs may benefit if a state-level authority is entrusted with the data collection as it could enable the lead agencies to probe into district-specific issues and determine the level of development attained.

2 : Details of Workshop Conducted

The Taluk and District level workshops were conducted in all the four taluks of Bengaluru Rural district. The objective of the workshop was to sensitise the local people on the issues of human development, seek co-operation from the local officials in the process of data collection and validation and to discuss the uses of the development of Human Development Index as well as other various indices in policy making, programme implementation and planning purposes. The content for the workshop was finalized in consultation with the ZP.

The taluk workshops were conducted on 24th and 25th of July 2013 and the district workshop was conducted on 4th September 2013. The workshops were conducted in Kannada using a power point presentation. All the participants were given a copy of presentation as well as an introductory note describing the efforts of preparation of DHDR in all the 30 districts of the state, its need, usefulness and timelines for preparation of DHDR.

The presentation focused on the concept of HDI, its relevance as well as its uses. It also focused on the HDI as measure of development, its origin and preparation of HD reports at various levels including the efforts of Karnataka state. The importance of data, the role of officials in providing it, updation and validation of data was highlighted in the presentation. The presentation also stressed on the small area studies and the different indices that are being computed as a part of the DHDR exercise.

The taluk level officials, PDOs and secretaries of GPs, elected representatives of TP, GP were present in the workshop. The representatives from NGOs, Media, college as well as the general public participated in the workshop. The ZP member representing the area was also present. The Deputy Secretary from ZP, Executive officer of TP, president and vice presidents of TP also spoke about the need for the DHDR exercise. The officers from ZP, the chief planning officer, deputy director were present in all workshops. The chief planning officer gave a brief introduction of the purpose of workshop and this was followed by the presentation by CBPS. The interactive presentation was followed by a session focusing on questions, clarifications, comments regarding the DHDR preparation. This was followed by summing up and thanking the participants by CBPS.

The participants actively participated in discussions in all the 4 taluks. In Hosakote, there were clarifications sought regarding the use of HDI at the district level and below. In Devanahalli, there was discussion about the data being filled up in the last minute by the officers at the lower level which would be a cause for the inaccurate data. The discussion also deviated a bit owing to the vice president's remarks on the NREGS implementation and non-payment of bills for certain works. The discussion was very good in Doddaballapur. GP members including the officials of the area were very much involved in the discussion. There were clarifications sought regarding the methodology and use of different indicators. There were comments on the use of indicators as well. One of the GP members discussed the use of expenditure data as well as the timelines of expenditure as indicators. In Nelamangala too, a good discussion followed the presentation. The discussion focused on the use of the indices and the role of elected representatives and officials in the use of these indices.

The list of participants is given below:

Table 2.1-A: Details of Workshop Participants

Sl. No	Name	Designation	Place
1	Priyanka H	Assistant Horticulture Officer	Hosakote
2	Shakuntala	Vice President	Vagata G.P
3	Alamshad	President	Kajihosahalli
4	Farhana Riyaz	Member, Taluk Panchayat	Hosakote
5	Chinnaswamy Gowda	Officer, Education Department	Hosakote
6	Honnagangappa	ADPI	Hosakote
7	Manjuladevi N	Assistant Director of Sericulture	Hosakote
8	Venkatesha		
9	Nikhilesh H. A	Secretary	Anugondahalli GP
10	M. Kempanna	PDO	B.N. Pura GP
11	Ankugowda	PDO	Kamlipura
12	Amaranarayana swamy	PDO	Ganagalu
13	Srinivas murthy	PDO	Khajihosahalli GP
14	Trifal sharief	PDO	Tavarekere GP
15	Ayesha	PDO	Jadigenahalli GP
16	Pushpalatha	PDO	Nandagudi
17	Chaitra	PDO	Doddaaralagere GP
18	Jayaprakash N.	PDO	Devanagudi GP
19	Krishnappa H. M.	PDO	
20	Rajanna M	Secretary	Mutsandra GP
21	Nomesh Kumar	PDO	Vagata and Mutsandra
22	Ramesha	Secretary	Doddahullur GP
23	Munigangaiah	Secretary	Nandagudi GP
24	Sreenivasa H M	Assistant Agriculture Officer	Hosakote
25	Ramesh K. M.	GP Member	Samethanahalli GP
26	Nagaraja B.	AAO	Hosakote
27	Harish B	MIS Coordinator	Hosakote
28	Manjula B	Range Forest Officer	Hosakote
29	Krishnamurthy B V	AEE	PRED Hosakote
30	Sadiq	CDPO	Hosakote
31	Madhuram	CPO	Bengaluru Rural ZP
32	Siddoji rao	Deputy Director	Bengaluru Rural ZP
33	Shankaramma	PDO	
34	Munivenkatappa	Vice President	TP Hosakote
35	Manjula venkatesh	Member TP	Hosakote
36	Manjunatha	Member	TP Hosakote
37	Pushpa Bai	President	Kamblihalli GP
38	Varalakshamma	President	Lakkundahalli GP
39	Umadevi	Officer	TP Devanahalli
40	Ashwattamma	CDPO	Devanahalli
41	Shankuntala	Member	TP Devanahalli
42	Priyalatha	THO	Devanahalli
43	Amaravathi	President GP	

Sl. No	Name	Designation	Place
44	Munirajamma	Member	TP Devanahalli
45	Gayatri	Member	TP Devanahalli
46	Narayanaswamy	GP member	
47	Venkatesh	Superintendent	BCM hostel
48	Gayatri S S	FDA	TP Devanahalli
49	Munikrishnappa	Member	TP Devanahalli
50	Pillappa B	Member	TP Devanahalli
51	Narayanaswamy	Member	TP Devanahalli
52	Chikkanarasaiah	Assistant Director	Devanahalli
53	Nagaraja K N	Manager	BEO office
54	Chiranjeevi gowda	SDA	BEO office
55	Krishnappa	PDO	Nallur GP
56	Meenakshi	Member	TP Devanahalli
57	Bagewadi B V	Assistant Director - Sericulture	Devanahalli
58	Saujanya	Assistant Director - Horticulture	Devanahalli
59	Kempegowda	Member	TP Devanahalli
60	Padmavathi P	Member	TP Devanahalli
60	Munivenkatappa	GP Member	Koramangala
61	Srinivas murthy	PDO	Kannamangala GP
62	k. Ananda Kumar	PDO	Yeliuur GP
63	Thimmegowda	PDO	Chowdappanahalli
64	Venkatesh	PDO	Avathi GP
65	Shivakumar	PDO	Venkatagiri kote GP
66	Gopal rao	PDO	Godlumuddenahalli GP
67	Chinnasamy	President	Venkatagirikote GP
68	Ramitha	PDO	Channahalli GP
69	Kemparaju	PDO	Koramangala GP
70	Kumar	PDO	Anneshwara GP
71	Chandrashekar	PDO	Budigere GP
72	Krishnappa	PDO	Nallur GP
73	Babu	PDO	Bettakote GP
74	C A Sridhar	AEE	PRED Devanahalli
75	Muniraju	BEO	Devanahalli
76	Radhika Tyagaraj	President TP	Devnahalli
77	Patalappa	Vice President TP	Devanahalli
78	Timmaiah	Member	TP Devanahalli
79	Anjanappa M	Member	TP Devanahalli
80	Chandrappa	Nodal officer	TP Devnahalli
81	Mumtaz pasha	Manager TMC	Devanahalli
82	S.M. Joshi	AEE	PRED Doddaballapur
83	KHS Jayadevi	CDPO	Dept of women & child
84	Deepa	TP Member	Doddaballapur
85	K. Ramarao	TP Member	Doddaballapur
86	SR Nagesha	TPS	Doddaballapur

Sl. No	Name	Designation	Place
87	P. channegowda	TPS	Doddaballapur
88	K.S. Somappa Reddy	TW Do	Watershed
89	PV Venketesh	PDO	Doddaballapur
90	TK Muralidhara	FOA	AGri Dept
91	D. Ramakrishna	AE	PRED
92	G. Sudheer	JE	PRED
93	HM Govindappa	President	Bashety halli
94	DC Shashidhara	GP President	Doddaballapur
95	Gangamma	President	Channadevi agrahara GP
96	E. Bhuvanashwari	President	Rajamma GP
97	Lakshamma	President	Mehikete GP
98	Ashwathamma	President	Kestur GP
99	N. Ramakrishnappa	PDO	Hulikunte GP
100	L. Krishnaiah	PDO	RDPR
101	Pushpalatha	President	Kuntanakunte
102	Renukamma	President	Aralumallige
103	KS Chandrashekar	PDO	Kantahakunte
104	K. Narayanaswamy	PDO	Baktarahally GP
105	C. Mudalagiaiyappa	CDO	ARCS
106	S. Sadashivaiah	RFO	Forestry
107	Vijay Kumar	FDA President	Doddaballapur
108	Naika	GP Member	
109	Suresh kumar	PDO	Haladanahalli
110	Revathi	PDO	Doddabalapur
111	S. Nandini	PDO	Thippuru GO
112	Shashidhar KS	PDO	Doddabelavangala
113	Niranjan MC	PDO	Hosahalli
114	K. Mallesh	PDO	Sakkare gollarahalli
115	Basavarajaiah	PDO	Tobagere
116	DB Gangabairappa	PDO	Malekose
117	Raghu K	PDO	Hanabe
118	Lakshmi Narayanswamy	GP office	Doddabalapur
119	Shivanand. M	PDO	RDPR
120	Gayathari		ERS
121	D. Hannmanthyia	ADA	AGri Dept
122	Hariesh		RDPR
123	Rangadhamai	Secretary	RDPR
124	KS Hanumantha	Secretary	Social welfare
125	KB Nanda kumar	PDO	RDPR
126	CM Munikrishna	PDO	RDPR
127	G. Mangala	Secretary	RDPR
128	TK Ramesh	PDO	RDPR
129	S. Purushotham	AE	PRED
130	S. Kumar	JE	PRED & TP

Sl. No	Name	Designation	Place
131	Raja Ramani	AE (Tech)	BESCOM
132	S. Susheelamma	Secretary	RDPR
133	BK Kariyappa	Sr. HI	THO II
134	Narasimha murthy	BHEO	THO II
135	G. Chowdappa	PDO	RDPR
136	M. Muniraj	PDO	RDPR
137	CM Papanna	PDO	RDPR
138	VM Inamdar	PDO	RDPR
139	Lakkgowda	PDO	RDPR
140	Timmegehai	BEO	Edu
141	PV Venkatesh	PDO	RDPR
142	TK Muralidhara	FOA	AGri Dept
143	Ravindra kumar	President	Hadripura
144	Subbamma	Member	Kodigihalli
145	Chandrakala	President	Kodigehalli
146	Prema R	President	Sasalu
147	G. Rajanna	TP member	Saklcave halli
148	R. Manjunath	District Social Co-ordinator	Bengaluru Rural Zilla Panchayat
149	NM Nataraj	MGNREGA	Prajavani press
150	CM Ranga	AD	Taluk panchayat
151	Timmaiah	ASO	Rural ZP b'lore
152	HM Dyamappa	EOTP	Doddabalapur
153	M Siddoji Rao	PAEO ZP Bengaluru Rural	ZP Bengaluru rural
154	D. Nagaraju	President	Doddabalapur
155	Madhuram	Chief Register	ZP
156	K. Revanappa	Program Director ZP	
157	Dr. Hemavathi	I /C THO	Health and family welfare
158	Suma	Panchyat member	Nelamangala
159	Prathip L	JHAM	Health Dept
160	Paresh T	Vice president	Veeshpura panchayat
161	Norjan	Vishwai mandal panchayat member	Nelamangala
162	Syed shanozan	Member GP	Arishinakunta
163	Shubha TV	Member GP	Nelamangala
164	Nalina kaginella	CDPO	Women and child Dept
165	Vijayalakshmi N	Backward class ext officer	Backward class welfare dept
166	MA Srinajan	TSWO	SW Dept
167	Chandramma s	Supervisor CDP office	Women and child dept
168	BK Prakash	Assistant Director	Akshara dasoha Taluk panchayat
169	Rajanna	member	VV pura
170	Shruthigowda	PDO	Basavanahalli
171	Rekha G	PDO	Visweshwarapura GP
172	BHA Gowda	EO	Nelamangala
173	HT Narayana	SDO	TP
174	S. Sathesh kumar	PDO	Manne

Sl. No	Name	Designation	Place
175	Neleree	Secretary	Soladevana halli
176	V. Kariiyappa	FD	Food and civil supplies
177	Manjunath gowda	Panchayat Member	
178	Allamgmesh	Officer	Animal husbandary
179	T. Srinivas murthy		Sericulture dept
180	BN Mayanava gowda	GP member	T. Begar
181	Shankarappa	GP member	
182	Rajanna	GP member	
183	Muniyappa	GP member	
184	Shilpa BS	Student	GJC Nelemangala
185	Nagarani SL	Student	GJC Nelemangala
186	Thimmaiah	Assistant Statistical Officer	B,lore rural ZP
187	Ravindra SV	PDO	Thyamagondlu GP
188	Ramakrishnaiah	Member	Hasiruvalli
189	Maimeshewar	Member	Hasirunahalli
190	Hanumanthraju	Member	Kodigehalli
191	V. Chandrashekar	Member	Manne
192	KR Remikaraj	Secretary	Srinivaspura GP
193	Mohan kumar	PDO	Yentagana halli
194	Jaipal D	PDO	RDPR
195	Sreenivasamurthy	Secretary	RDPR
196	Padanabh DM	PDO	RDPR
197	K. Muniramagowda	PDO	RDPR
198	Shajauddin	Member	VV pura Nelemangala
199	Bailappa	Member	Kuluvana halli
200	S. Kemparaj	Ex President	Visweshwarapura
201	Abdul Rajak	Ex president	Visweshwarapura
202	skaradamma	Vice President	Kuluvanahalli
203	Kailas LR	Member	Kuluvanahalli
204	Parmesh D	Member	Kuluvanahalli
205	S. Madhusudhan	SDA	Nelemangala ADA
206	Nanjundaswamy	JE	PW ptlwTD
207	BK lathamai	Member	Kuluvanahalli
208	Lalitha	Member	Kuluvanahalli
209	N. Srinivasa	TP Vice President	Nelamangala
210	Madhu rao N	CPO	Bengaluru Rural Zilla Panchayat
211	M. Sidhappa		Bengaluru Rural Zilla Panchayat
212	Roopa CR	President	Hasiruvalli (p)
213	K. Siddarajaiah	Member	Hasiruvalli
214	M. Bylappa	Member	Nelemalanga
215	G. Gangaraju	Lecturer	SSFGR, Nelamangala

3 : Statistical Tables

Table 3.1a-A: Indicators used to compute the HDI, GII, CDI, FSI and CTDI (2011)

Sl. No	Indicators	Taluk/District				
		Devanahalli	Doddaballapur	Hosakote	Nelamangala	Bengaluru Rural
Indicators for Human Development Index (HDI)						
1	Per centage of HHs having access to Modern Cooking Fuel	34.65	32.21	37.18	40.09	35.76
2	Per centage of HHs having access to Toilet	82.91	76.07	78.35	84.45	79.91
3	Per centage of HHs having access to Water	80.23	76.47	75.85	89.18	79.89
4	Per centage of HHs having access to Electricity	94.04	94.47	96.63	96.17	95.33
5	Per centage of HHs having Pucca Houses (Pucca House: Good House as per Census Definition)	69.00	72.95	68.08	73.09	70.91
6	Per centage of Non agricultural workers (main + marginal)	47.21	53.61	54.70	60.69	53.93
7	Per-capita Income (2008)	40092.81	76080.68	75749.04	78875.85	68730.89
8	Child Mortality Rate - CMR	25.00	36.00	37.00	26.00	31.00
9	Maternal Mortality Rate (MMR)	126.00	101.00	102.00	150.00	119.75
10	Literacy Rate	76.76	78.00	77.98	78.91	77.93
11	Gross Enrolment Rate (Primary and Secondary)	90.11	85.74	84.02	89.13	86.97
11a	GER (Primary)	95.23	96.42	92.11	93.79	94.39
11b	GER (Upper Primary)	95.72	81.68	90.97	96.91	90.37
11c	GER (Secondary)	72.69	71.23	61.23	69.79	68.26
Indicators for Gender Inequality Index (GII)						
12	Maternal Mortality Rate	126.00	101.00	102.00	150.00	119.75
13	Share of Institutional deliveries	99.65	97.99	91.43	98.00	96.94
14	Share of Pregnant Women with Anaemia - ANE - (Excluding Normal)	21.63	57.06	63.25	27.21	42.29
15	Share of female elected representatives in PRIs and ULBs	46.06	45.92	43.51	43.42	44.76
16	Share of male elected representatives in PRIs and ULBs	53.94	54.08	56.49	56.58	55.24
17	Share of female children in the age group 0-6 years	49.24	48.91	48.20	48.61	48.71
18	Share of male children in the age group 0-6 years	50.76	51.09	51.80	51.39	51.29
19	Share of female literacy	69.24	70.44	71.01	71.79	70.63
20	Share of male literacy	83.84	85.18	84.45	85.76	84.82
21	Share of Female WPR	36.94	38.64	29.08	28.88	33.61
22	Share of Male WPR	69.45	70.08	69.29	68.76	69.45

Sl. No	Indicators	Taluk/District				
		Devanahalli	Doddaballapur	Hosakote	Nelamangala	Bengaluru Rural
23	Share of female workers in the non agricultural sector to Total Female workers	41.00	43.09	46.02	53.56	45.23
24	Share of male workers in the non agricultural sector to Total Male workers	50.31	59.13	58.09	63.58	57.91
25	Female Agricultural wage rate	150.00	135.00	200.00	175.00	175.00
26	Male Agricultural wage rate	250.00	200.00	300.00	300.00	275.00
Indicators for Child Development Index (CDI)						
27	Child Mortality Rate - CMR	25.00	36.00	37.00	26.00	31.00
28a	Per centage of Malnourished children	26.16	24.95	27.08	19.97	24.54
28b	Per cent of children born under weight	13.50	9.85	12.18	8.10	10.91
29	Per centage of Drop-out Children Mainstreamed (Primary + Secondary)	65.96	65.37	66.12	66.01	65.87
29a	Per centage of Dropout mainstreamed - Primary	75.84	75.68	75.69	75.73	75.68
29b	Per centage of Dropout mainstreamed - Secondary	60.00	60.11	60.13	60.04	60.14
Indicators for Food Security Index (FSI)						
30	Cropping Intensity	105.82	103.04	105.99	101.05	103.85
31	Per centage Change in NSA(Net Sown Area) over the years (2001 – 2011)	2.69	19.44	26.51	3.39	9.00
32	Per capita food grain production (in Kgs)	145.72	203.80	124.79	173.55	163.48
33	Per centage of forest cover to total geographical area	5.06	4.95	6.28	3.35	4.93
34	Irrigation Intensity	113.51	112.00	131.91	106.70	115.93
35	Per centage of area degraded (cultivable waste) to Total Geographical Area	3.21	1.63	0.91	1.33	1.70
36	Per centage of leguminous (area under pulses) crops in the Gross Cropped Area	7.36	4.74	6.17	5.96	5.86
37	Per centage of BPL Card holders to Total Card holders	85.59	81.06	77.20	83.57	81.53
38	Per capita income	40092.81	76080.68	75749.04	78875.85	68730.89
39	Per centage of Non-agricultural workers to total workers	47.21	53.61	54.70	60.69	53.93
40	Average size of holdings	0.82	0.94	0.75	0.87	0.85
41	Per centage of Agricultural labourers to total workers	22.38	18.51	18.49	13.26	18.29
42	Per centage of villages having PDS outlets within the village	29.44	20.44	29.43	35.80	27.88

Sl. No	Indicators	Taluk/District				
		Devanahalli	Doddaballapur	Hosakote	Nelamangala	Bengaluru Rural
43	Child Mortality Rate (CMR)	25.00	36.00	37.00	26.00	31.00
44	Per centage of HHs with access to Water	80.23	76.47	75.85	89.18	79.89
45	Per centage of pregnant women with Anaemia (all grades put together excluding normal)	21.63	57.06	63.25	27.21	42.29
46a	Per centage of Malnourished children (Excluding Normal)	26.16	24.95	27.08	19.97	24.54
46b	Per cent of children born under weight	13.50	9.85	12.18	8.10	10.91
47	Female Literacy Rate	69.24	70.44	71.01	71.79	70.63
Indicators for Composite Taluk Development Index (CTDI)						
48	Decadal population growth rate	13.11	11.65	21.75	20.59	16.45
49	Population Density	486.36	385.08	497.83	416.78	438.66
50	Sex ratio	943.79	951.41	930.29	970.12	946.15
51	Per centage of Slum Population in the taluk to Total population in the taluk	7.38	5.40	2.81	1.39	4.25
52	Per centage of Population in the age group of 0-6	10.98	10.24	11.46	10.60	10.80
53	Child sex ratio	970.03	957.37	930.56	946.02	949.84
54	Infant Mortality Rate - IMR (0-1 years)	16.00	32.00	33.00	26.00	26.75
55	Child Mortality Rate - CMR (0-5 years)	25.00	36.00	37.00	26.00	31.00
56	Maternal Mortality Rate (MMR)	126.00	101.00	102.00	150.00	120.00
57	Per centage of women headed households	12.77	14.69	11.03	15.70	13.57
58	Per centage of BPL Cards issued to Total Ration Cards	85.59	81.06	77.20	83.57	81.53
59	Cropping Intensity	105.82	103.04	105.99	101.05	103.85
60	Irrigation Intensity	113.51	112.00	131.91	106.70	115.93
61	Per centage of Households provided employment to total number of households registered under MGNREGS	21.03	23.55	27.03	9.55	20.56
62	Ratio of average agricultural wage to Minimum wages prescribed by the State	1.03	0.86	1.28	1.22	1.15
63	Work Participation Rate (WPR)	53.69	54.76	49.92	49.19	52.03
64	Decadal Growth rate of Employment	13.17	15.19	17.63	18.79	16.07
65	Per centage of Cultivators to Total workers	30.41	27.87	26.81	26.05	27.78
66	Per centage of main workers to total workers	84.46	82.47	86.82	86.27	84.80

Sl. No	Indicators	Taluk/District				
		Devanahalli	Doddaballapur	Hosakote	Nelamangala	Bengaluru Rural
67	Per centage of workers in Household Industries	3.03	6.44	2.74	3.94	4.23
68	Per centage of Agriculture labourers to Total workers	22.38	18.51	18.49	13.26	18.29
67	Per centage of Households with Pucca houses	69.00	72.95	68.08	73.09	70.91
68	Per centage of Site less Households	8.89	5.80	14.60	24.39	12.87
69	Per centage of Households provided with house sites	0.00	0.00	0.42	0.54	0.35
70	Per centage of Houses constructed for houseless poor families	41.56	79.20	65.38	77.97	66.28
71	Per centage of households with cycles	48.51	40.28	46.58	32.16	41.78
72	Per centage of households with two-wheelers	36.63	24.62	36.97	26.51	30.70
73	Per centage of HHs with no Assets:	8.71	14.16	7.37	10.79	10.53
74a	Per centage of HHs with Telephones/Mobile Phones	76.15	66.98	79.56	73.91	73.68
74b	Per centage of HHs with TVs	72.91	64.16	74.49	69.57	69.84
74c	Per centage of HHs with Computers/Laptop	8.12	6.81	7.48	8.36	7.59
74d	Per centage of HHs with four wheelers	6.69	2.67	5.49	4.48	4.62
75	Per centage of Households with electricity	94.04	94.47	96.63	96.17	95.33
76	Per centage of HHs having access to Modern Cooking Fuel	34.65	32.21	37.18	40.09	35.76
77	Per centage of women elected representatives in rural local bodies	46.94	46.35	43.71	43.70	45.17
78	Per centage of elected SC/ST representatives in rural local bodies	39.17	32.69	30.74	29.97	32.91
79	Per centage of women elected representatives in urban local bodies	39.13	38.71	39.13	39.13	39.02
80	Per centage of elected SC/ST representatives in urban local bodies	19.57	16.13	17.39	17.39	17.89
81	Per centage of active SHGs	90.66	95.74	97.81	95.46	94.86
82	Per centage of pregnant women receiving full ANC	95.35	89.04	95.75	92.52	92.84
83	Per centage of Pregnant Women with Anemia (Excluding normal)	21.63	57.06	63.25	27.21	42.29
84	Per centage of Institutional deliveries	99.65	97.99	91.43	98.00	96.94
85	Per centage of children fully Immunized	100.00	100.00	92.68	95.99	100.00

Sl. No	Indicators	Taluk/District				
		Devanahalli	Doddaballapur	Hosakote	Nelamangala	Bengaluru Rural
87	Per centage of Mal-nourished Children (Excluding Normal)	26.16	24.95	27.08	19.97	24.54
88	Per centage of people affected by major communicable diseases	6.66	4.10	35.84	29.40	18.70
89	Average Population served by sub-centres	3667.63	3365.19	4276.76	3261.80	3629.04
90	Average Population served by Primary Health Centres (PHCs)	13336.82	12409.13	21383.80	18121.11	15699.54
91	Availability of Doctors per 1,000 population	0.16	0.12	0.11	0.13	0.13
92	Availability of nurses per 1000 population	0.13	0.10	0.08	0.08	0.10
93	Average population served by Anganwadi centres	101.99	241.64	122.47	73.99	142.18
94	Per centage of villages having Anganwadi within a km. distance	100.00	100.00	100.00	100.00	100.00
95	Per centage of couples protected by any contraceptive method	19.98	23.80	40.71	20.00	26.33
96	Per capita Health Expenditure	166.65	162.48	191.79	161.67	171.20
97	Per centage of Gram Panchayats Selected for Nirmal Gram Puraskar Awards to Total number of Gram Panchayats	66.67	51.72	42.31	59.09	54.08
98	Per centage of Households with toilets	82.91	76.07	78.35	84.45	79.91
99	Per centage of Households with drainage facility	77.17	76.70	72.47	75.20	75.35
100	Per centage of HHs provided with Drinking Water	80.23	76.47	75.85	89.18	79.89
101	Per centage of Literacy	76.76	78.00	77.98	78.91	77.93
102	Gross Enrolment rate – Elementary School	95.42	90.16	91.68	94.93	92.82
103	Net Enrolment rate – Elementary School	91.34	86.82	89.15	91.21	89.32
104	Dropout rate in Elementary education	3.77	4.46	4.26	4.05	4.15
105	Per centage of Drop-out Children Mainstreamed (Primary + Secondary)	65.97	65.37	66.12	66.01	65.87
106	Per centage of Dropout mainstreamed - Primary	75.84	75.68	75.69	75.73	75.68
107	Per centage of Dropout mainstreamed - Secondary	60.00	60.11	60.13	60.04	60.14
108	Student – Teacher ratio for elementary education	0.67	0.63	0.67	0.58	0.67
109	Secondary school Gross Enrolment Rate (15-16 years)	72.67	71.20	63.41	69.76	68.38

Sl. No	Indicators	Taluk/District				
		Devanahalli	Doddaballapur	Hosakote	Nelamangala	Bengaluru Rural
110	Drop-out rate in secondary education	6.16	7.89	7.09	7.13	7.07
111	SSLC pass per centage	79.52	82.88	81.31	86.80	82.23
112	Student - Teacher ratio for secondary education	39:1	39:1	33:1	30:1	32:1
113	PUC pass per centage	56.93	63.10	59.47	59.85	60.17
114	School Infrastructure Index	0.86	0.92	0.92	0.93	0.91
115	Per capita Education Expenditure	833.17	963.90	812.25	1067.94	916.94
116	Per centage of villages having a Primary School within 1 km. distance	97.15	97.12	96.97	96.77	97.00

Source: Department of Public Instructions, Health Department, Agriculture Department, Zilla Panchayat, Women and Child Development Department, Police Department (Bengaluru Rural district), Census of India - 2011 and 2001.

Table 3.1b-A: Indicators used to compute UDI (2011)

Sl. No	Indicators	Urban Local Bodies				
		Devanahalli	Vijayapura	Doddaballapur	Hosakote	Nelamangala
1	Per centage of ULB population to total population in the taluk	13.38	16.63	28.25	21.04	17.65
2	Per centage of Households without Own Houses	2.01	4.00	15.50	2.42	39.35
3	Per centage of Slum Population to Total ULB Population	23.92	25.10	19.11	13.33	7.86
4	Per centage of HHs with Tap water connection	79.38	84.11	80.10	68.73	84.18
5	Per centage of HHs Sewerage and Drainage	84.05	92.90	90.31	92.43	95.98
6	No. of Hospital Beds per 1000 population in urban area	2	2	1	15	4
7	Per centage of Own Resource Mobilization to Total Receipts	39.57	43.84	27.46	76.92	9.25
8	Per capita expenditure on Development Works	2076.72	1115.16	366.78	650.53	1586.48
9	Length of Roads in Kms per Sq. Km of geographical area	3.88	4.56	10.33	4.11	3.74
10	Crime Rate per 10000 Population	252	204	176	401	403
11	Road accidents per 10000 population	252	58	39	142	158

Source: DUDC and Department of Police – Banglaore Rural; and Census of India

Table 3.2-A: Total Population, Population Under 6 Years and Population Above 7 Years

Taluk / District / State	Total / Rural / Urban	2001			2011		
		Total Population	Population under 6 years	Population above 7 years	Total Population	Population under 6 years	Population above 7 years
Devanahalli	Total	185,326	23,440	161,886	209,622	23,010	186,612
	Rural	132,380	16,447	115,933	146,705	15,827	130,878
	Urban	52,946	6,993	45,953	62,917	7,183	55,734
Doddaballapur	Total	268,332	34,152	234,180	299,594	30,672	268,922
	Rural	190,554	24,095	166,459	198,546	20,210	178,336
	Urban	77,778	10,057	67,721	101,048	10,462	90,586
Hosakote	Total	222,430	29,047	193,383	270,818	31,028	239,790
	Rural	186,107	24,378	161,729	213,838	24,203	189,635
	Urban	36,323	4,669	31,654	56,980	6,825	50,155
Nelamangala	Total	174,880	20,662	154,218	210,889	22,352	188,537
	Rural	149,593	17,744	131,849	163,090	17,165	145,925
	Urban	25,287	2,918	22,369	47,799	5,187	42,612
Bengaluru Rural	Total	850,968	107,301	743,667	990,923	107,062	883,861
	Rural	658,634	82,664	575,970	722,179	77,405	644,774
	Urban	192,334	24,637	167,697	268,744	29,657	239,087
Karnataka	Total	52,850,562	7,182,100	45,668,462	61,095,297	7,161,033	53,934,264
	Rural	34,889,033	4,935,380	29,953,653	37,469,335	4,517,645	32,951,690
	Urban	17,961,529	2,246,720	15,714,809	23,625,962	2,643,388	20,982,574

Source: Census of India

Table 3.3-A: Sex-wise Categorization of Population by Residence – Bengaluru Rural District and Karnataka

Taluk / District / State	Total / Rural / Urban	2001			2011		
		Total	Male	Female	Total	Male	Female
Devanahalli	Total	185,326	95,288	90,038	209,622	107,842	101,780
	Rural	132,380	67,946	64,434	146,705	75,798	70,907
	Urban	52,946	27,342	25,604	62,917	32,044	30,873
Doddaballapur	Total	268,332	137,541	130,791	299,594	153,527	146,067
	Rural	190,554	97,344	93,210	198,546	101,291	97,255
	Urban	77,778	40,197	37,581	101,048	52,236	48,812
Hosakote	Total	222,430	115,187	107,243	270,818	140,299	130,519
	Rural	186,107	96,325	89,782	213,838	111,038	102,800
	Urban	36,323	18,862	17,461	56,980	29,261	27,719
Nelamangala	Total	174,880	89,473	85,407	210,889	107,504	103,385
	Rural	149,593	76,350	73,243	163,090	83,242	79,848
	Urban	25,287	13,123	12,164	47,799	24,262	23,537
Bengaluru Rural	Total	850,968	437,489	413,479	990,923	509,172	481,751
	Rural	658,634	337,965	320,669	722,179	371,369	350,810
	Urban	192,334	99,524	92,810	268,744	137,803	130,941
Karnataka	Total	52,850,562	26,898,918	25,951,644	61,095,297	30,966,657	30,128,640
	Rural	34,889,033	17,648,958	17,240,075	37,469,335	18,929,354	18,539,981
	Urban	17,961,529	9,249,960	8,711,569	23,625,962	12,037,303	11,588,659

Source: Census of India

Table 3.4-A: Decadal Growth Rate (%) by Residence

Taluk / District / State	Total / Rural / Urban	Decadal Growth Rate (%)		
		Total	Male	Female
Devanahalli	Total	13.11	13.17	13.04
	Rural	10.82	11.56	10.05
	Urban	18.83	17.20	20.58
Doddaballapur	Total	11.65	11.62	11.68
	Rural	4.19	4.05	4.34
	Urban	29.92	29.95	29.88
Hosakote	Total	21.75	21.80	21.70
	Rural	14.90	15.27	14.50
	Urban	56.87	55.13	58.75
Nelamangala	Total	20.59	20.15	21.05
	Rural	9.02	9.03	9.02
	Urban	89.03	84.88	93.50
Bengaluru Rural	Total	16.45	16.39	16.51
	Rural	9.65	9.88	9.40
	Urban	39.73	38.46	41.09
Karnataka	Total	15.60	15.12	16.10
	Rural	7.40	7.25	7.54
	Urban	31.54	30.13	33.03

Source: Census of India

Table 3.5-A: Number of Children Population in the Age Group 6-10 Years by Sex

Taluk / District	2004			2011		
	Male	Female	Total	Male	Female	Total
Devanahalli	8,253	7,914	16,167	8,759	8,013	16,772
Doddaballapur	12,298	11,517	23,815	11,660	10,835	22,495
Hosakote	10,698	9,968	20,666	11,318	10,570	21,888
Nelamangala	7,882	7,103	14,985	8,346	8,107	16,453
Bengaluru Rural	39,131	36,502	75,633	40,083	37,525	77,608

Source: Department of Public Instruction, Bengaluru Rural district

Table 3.6-A: Number of Children Population in the Age Group 11-13 Years by Sex

Taluk / District	2004			2011		
	Male	Female	Total	Male	Female	Total
Devanahalli	5,025	4,853	9,878	5,322	4,897	10,219
Doddaballapur	7,503	7,054	14,557	8,712	7,886	16,598
Hosakote	6,532	6,100	12,632	7,085	6,487	13,572
Nelamangala	4,815	4,336	9,151	4,958	4,464	9,422
Bengaluru Rural	23,875	22,343	46,218	26,077	23,734	49,811

Source: Department of Public Instruction, Bengaluru Rural district

Table 3.7-A: Number of Students Enrolled in Grade 1-5 by Sex

Taluk / District	2004			2011		
	Male	Female	Total	Male	Female	Total
Devanahalli	7,088	6,767	13,855	8,249	7,723	15,972
Doddaballapur	9,516	9,242	18,758	11,166	10,524	21,690
Hosakote	9,549	9,103	18,652	10,399	9,762	20,161
Nelamangala	6,859	6,654	13,513	7,910	7,521	15,431
Bengaluru Rural	33,012	31,766	64,778	37,724	35,530	73,254

Source: Department of Public Instruction, Bengaluru Rural district

Table 3.8-A: Number of Students Enrolled in Grade 1-5 and in the Age Group 6-10 Years by Sex

Taluk / District	2004			2011		
	Male	Female	Total	Male	Female	Total
Devanahalli	6,800	6,550	13,350	7,884	7,386	15,270
Doddaballapur	9,320	9,050	18,370	10,452	10,180	20,632
Hosakote	9,250	8,910	18,160	10,100	9,450	19,550
Nelamangala	6,650	6,400	13,050	7,604	7,311	14,915
Bengaluru Rural	32,020	30,910	62,930	36,040	34,327	70,367

Source: Department of Public Instruction, Bengaluru Rural district

Table 3.9-A: Number of Students Enrolled in Grade 6-8 by Sex

Taluk / District	2004			2011		
	Male	Female	Total	Male	Female	Total
Devanahalli	3,547	3,502	7,049	5,033	4,749	9,782
Doddaballapur	4,925	4,936	9,861	6,874	6,684	13,558
Hosakote	4,835	4,528	9,363	6,276	6,071	12,347
Nelamangala	3,478	3,346	6,824	4,758	4,373	9,131
Bengaluru Rural	16,785	16,312	33,097	23,074	21,940	45,014

Source: Department of Public Instruction, Bengaluru Rural district

Table 3.10-A: Number of Students Enrolled in Grade 6-8 and in the Age Group 11-13 Years by Sex

Taluk / District	2004			2011		
	Male	Female	Total	Male	Female	Total
Devanahalli	3,325	3,087	6,412	4,833	4,550	9,383
Doddaballapur	5,042	4,880	9,922	6,768	6,540	13,308
Hosakote	4,735	4,487	9,222	6,176	5,887	12,063
Nelamangala	3,265	2,987	6,252	4,586	4,100	8,686
Bengaluru Rural	19,892	18,930	38,822	22,363	21,077	43,440

Source: Department of Public Instruction, Bengaluru Rural district

Table 3.11-A: Primary Level - Gross Enrolment Rate by Sex

Taluk / District	2004			2011		
	Male	Female	Total	Male	Female	Total
Devanahalli	85.88	85.51	94.18	96.38	4,550	9,383
Doddaballapur	77.38	80.25	95.76	97.13	6,540	13,308
Hosakote	89.26	91.32	91.88	92.36	5,887	12,063
Nelamangala	87.02	93.68	94.78	92.77	4,100	8,686
Bengaluru Rural	84.36	87.03	94.11	94.68	21,077	43,440

Source: Department of Public Instruction, Bengaluru Rural district

Table 3.12-A: Primary Level – Net Enrolment Rate by Sex

Taluk / District	2004			2011		
	Male	Female	Total	Male	Female	Total
Devanahalli	82.39	82.76	90.01	92.18	4,550	9,383
Doddaballapur	75.78	78.58	89.64	93.95	6,540	13,308
Hosakote	86.46	89.39	89.24	89.40	5,887	12,063
Nelamangala	84.37	90.10	91.11	90.18	4,100	8,686
Bengaluru Rural	81.83	84.68	89.91	91.48	21,077	43,440

Source: Department of Public Instruction, Bengaluru Rural district

Table 3.13-A: Upper Primary Level - Gross Enrolment Rate by Sex

Taluk / District	2004			2011		
	Male	Female	Total	Male	Female	Total
Devanahalli	70.59	72.16	94.57	96.98	4,550	9,383
Doddaballapur	65.64	69.97	78.90	84.76	6,540	13,308
Hosakote	74.02	74.23	88.58	93.59	5,887	12,063
Nelamangala	72.23	77.17	95.97	97.96	4,100	8,686
Bengaluru Rural	70.30	73.01	88.48	92.44	21,077	43,440

Source: Department of Public Instruction, Bengaluru Rural district

Table 3.14-A: Upper Primary Level – Net Enrolment Rate by Sex

Taluk / District	2004			2011		
	Male	Female	Total	Male	Female	Total
Devanahalli	66.17	63.61	90.81	92.91	4,550	9,383
Doddaballapur	67.20	69.18	77.69	82.93	6,540	13,308
Hosakote	72.49	73.56	87.17	90.75	5,887	12,063
Nelamangala	67.81	68.89	92.50	91.85	4,100	8,686
Bengaluru Rural	83.32	84.72	85.76	88.81	21,077	43,440

Source: Department of Public Instruction, Bengaluru Rural district

Table 3.15-A: Caste-wise Categorization of Out of School Children

Taluk / District	2005				2011			
	Others	SC	ST	Total	Others	SC	ST	Total
Devanahalli	139	103	46	288	0	0	0	0
Doddaballapur	324	212	49	585	19	6	3	28
Hosakote	75	31	1	107	24	11	2	37
Nelamangala	97	42	8	147	163	76	5	244
Bengaluru Rural	635	388	104	1,127	206	93	10	309

Source: Department of Public Instruction, Bengaluru Rural district

Table 3.16-A: Sex-wise Categorization of Out of School Children in the Age Group 6-10 Years

Taluk / District	2005				2011			
	Male	Female	Total	Male	Female	Total	ST	Total
Devanahalli	145	143	288	0	0	0	0	0
Doddaballapur	297	288	585	22	6	28	3	28
Hosakote	54	53	107	16	21	37	2	37
Nelamangala	82	65	147	134	110	244	5	244
Bengaluru Rural	578	549	1,127	172	137	309	10	309

Source: Department of Public Instruction, Bengaluru Rural district

Table 3.17-A: Caste-wise Categorization of Mainstreamed Out of School Children in the Age Group 6-10 Years

Taluk / District	2005				2011			
	Others	SC	ST	Total	Others	SC	ST	Total
Devanahalli	105	79	32	216	0	0	0	0
Doddaballapur	208	198	32	438	16	5	2	23
Hosakote	57	28	1	86	21	8	2	31
Nelamangala	77	38	7	122	158	68	5	231
Bengaluru Rural	447	343	72	862	195	81	9	285

Source: Department of Public Instruction, Bengaluru Rural district

Table 3.18-A: Sex-wise Categorization of Mainstreamed Out of School Children in the Age Group 6-10 Years

Taluk / District	2005				2011			
	Male	Female	Total	Male	Female	Total	ST	Total
Devanahalli	112	104	216	0	0	0	0	0
Doddaballapur	214	224	438	18	5	23	3	28
Hosakote	45	41	86	14	17	31	2	37
Nelamangala	68	54	122	127	104	231	5	244
Bengaluru Rural	439	423	862	159	126	285	10	309

Source: Department of Public Instruction, Bengaluru Rural district

Table 3.19-A: Caste-wise Categorization of Out of School Children in the Age Group 11-13 Years

Taluk / District	2005				2011			
	Others	SC	ST	Total	Others	SC	ST	Total
Devanahalli	79	58	27	164	0	0	0	0
Doddaballapur	182	120	28	330	6	3	0	9
Hosakote	44	18	0	62	10	6	2	18
Nelamangala	56	24	5	85	16	8	1	25
Bengaluru Rural	361	220	60	641	32	17	3	52

Source: Department of Public Instruction, Bengaluru Rural district

Table 3.20-A: Sex-wise Categorization of Out of School Children in the Age Group 11-13 Years

Taluk / District	2005			2011				
	Male	Female	Total	Male	Female	Total	ST	Total
Devanahalli	83	81	164	0	0	0	0	0
Doddaballapur	168	162	330	8	1	9	3	28
Hosakote	31	31	62	13	5	18	2	37
Nelamangala	47	38	85	11	14	25	5	244
Bengaluru Rural	329	312	641	32	20	52	10	309

Source: Department of Public Instruction, Bengaluru Rural district

Table 3.21-A: Caste-wise Categorization of Mainstreamed Out of School Children in the Age Group 11-13 Years

Taluk / District	2005				2011			
	Others	SC	ST	Total	Others	SC	ST	Total
Devanahalli	78	54	26	158	11	0	0	11
Doddaballapur	175	118	26	319	6	3	0	9
Hosakote	39	17	0	56	10	6	2	18
Nelamangala	52	22	4	78	16	8	1	25
Bengaluru Rural	344	211	56	611	43	17	3	63

Source: Department of Public Instruction, Bengaluru Rural district

Table 3.22-A: Sex-wise Categorization of Mainstreamed Out of School Children in the Age Group 11-13 Years

Taluk / District	2005			2011				
	Male	Female	Total	Male	Female	Total	ST	Total
Devanahalli	80	78	158	7	4	11	0	0
Doddaballapur	160	159	319	8	1	9	3	28
Hosakote	29	27	56	13	5	18	2	37
Nelamangala	44	34	78	11	14	25	5	244
Bengaluru Rural	313	298	611	39	24	63	10	309

Source: Department of Public Instruction, Bengaluru Rural district

Table 3.23-A: Sex-wise Categorization of Out of School Children in the Age Group 14-16 Years

Taluk / District	2010			2011				
	Male	Female	Total	Male	Female	Total	ST	Total
Devanahalli	38	32	70	26	22	48	0	11
Doddaballapur	54	38	92	47	30	77	0	9
Hosakote	46	40	86	38	32	70	2	18
Nelamangala	56	44	100	48	38	86	1	25
Bengaluru Rural	194	154	348	159	122	281	3	63

Source: Department of Public Instruction, Bengaluru Rural district

Table 3.24-A: Sex-wise Categorization of Mainstreamed Out of School Children in the Age Group 14-16 Years

Taluk / District	2010			2011				
	Male	Female	Total	Male	Female	Total	ST	Total
Devanahalli	30	28	58	19	17	36	0	0
Doddaballapur	46	31	77	36	22	58	3	28
Hosakote	37	33	70	30	18	48	2	37
Nelamangala	45	36	81	39	31	70	5	244
Bengaluru Rural	158	128	286	124	88	212	10	309

Source: Department of Public Instruction, Bengaluru Rural district

Table 3.25-A: Transition Rate from Primary to Upper Primary Levels by Sex

Taluk / District	2001		2011	
	Male	Female	Male	Female
Devanahalli	97.82	97.30	100.00	100.00
Doddaballapur	97.99	97.50	100.00	100.00
Hosakote	97.55	97.65	100.00	100.00
Nelamangala	97.65	97.20	100.00	100.00
Total	97.75	97.41	100.00	100.00

Source: Department of Public Instruction, Bengaluru Rural district

Table 3.26-A: Transition Rate from Upper Primary to Secondary Levels by Sex

Taluk / District	2001		2011	
	Male	Female	Male	Female
Devanahalli	95.89	95.10	93.99	93.69
Doddaballapur	95.58	94.95	91.06	93.17
Hosakote	94.74	94.68	92.96	92.86
Nelamangala	94.77	95.46	94.00	91.74
Total	95.24	95.05	93.00	92.87

Source: Department of Public Instruction, Bengaluru Rural district

Table 3.27-A: Primary Completion Rate by Sex

Taluk / District	2001		2011	
	Male	Female	Male	Female
Devanahalli	96.25	96.42	96.54	96.14
Doddaballapur	96.10	96.87	96.63	96.25
Hosakote	95.90	96.00	95.90	95.76
Nelamangala	96.01	96.05	96.25	96.36
Total	96.07	96.34	96.33	96.13

Source: Department of Public Instruction, Bengaluru Rural district

Table 3.28-A: Upper Primary Completion Rate by Sex

Taluk / District	2001		2011	
	Male	Female	Male	Female
Devanahalli	94.12	94.14	92.88	92.01
Doddaballapur	94.41	94.05	90.12	92.23
Hosakote	93.72	93.74	91.77	91.78
Nelamangala	93.47	94.39	93.00	90.63
Total	93.93	94.08	91.94	91.66

Source: Department of Public Instruction, Bengaluru Rural district

Table 3.29-A: Details of PUC Pass Rate

Taluk / District	Type of students	2010			2013		
		Appeared	Passed	Per centage	Appeared	Passed	Per centage
Devanahalli	Freshers	1,077	668	62.02	1,093	778	71.18
	Repeaters	555	118	21.26	244	60	24.59
	Private	177	23	12.99	119	32	26.89
	Total	1,809	809	44.72	1,456	870	59.75
Doddaballapur	Freshers	1,821	1,194	65.57	1,814	1,316	72.55
	Repeaters	719	166	23.09	264	78	29.55
	Private	181	35	19.34	112	29	25.89
	Total	2,721	1,395	51.27	2,190	1,423	64.98
Hosakote	Freshers	883	575	65.12	1,171	853	72.84
	Repeaters	584	157	26.88	235	49	20.85
	Private	185	22	11.89	148	26	17.57
	Total	1,652	754	45.64	1,554	928	59.72
Nelamangala	Freshers	1,358	966	71.13	1,475	1,115	75.59
	Repeaters	465	115	24.73	274	63	22.99
	Private	159	32	20.13	114	32	28.07
	Total	1,982	1,113	56.16	1,863	1,210	64.95
Bengaluru Rural	Freshers	5,139	3,403	66.22	5,553	4,062	73.15
	Repeaters	2,323	556	23.93	1,017	250	24.58
	Private	702	112	15.95	493	119	24.14
	Total	8,164	3,981	48.76	7,063	3,981	56.36

Note:Per centage – (Number of students who passed *100)/(Number of students who appeared)

Source: PUC Board

Table 3.30-A: SSLC Pass Rate

Taluk / District	2009-2010	2010-2011	2011-2012	2012-2013
Devanahalli	83.25	82.85	79.52	84.20
Doddaballapur	78.97	89.27	82.88	83.20
Hosakote	78.34	85.61	81.31	80.88
Nelamangala	82.69	90.24	86.80	89.42
Bengaluru Rural	80.81	86.99	82.23	83.84

Source: Department of Public Instruction, Bengaluru Rural district

Table 3.31-A: Source of Lighting – Bengaluru Rural District (2011)

Taluk / District/ State	Total / Rural / Urban	2011						
		Total HHs	Electricity	Kerosene	Solar Energy	Other oil	Any other	No lighting
Devanahalli	Total	45,070	42,385	2,421	53	73	27	111
	%		94.04	5.37	0.12	0.16	0.06	0.25
	Rural	31,177	29,120	1,863	41	46	23	84
	%		93.40	5.98	0.13	0.15	0.07	0.27
	Urban	13,893	13,265	558	12	27	4	27
	%		95.48	4.02	0.09	0.19	0.03	0.19
Doddaballapur	Total	70,464	66,569	3,518	51	116	32	178
	%		94.47	4.99	0.07	0.16	0.05	0.25
	Rural	46,488	43,479	2,733	25	102	16	133
	%		93.53	5.88	0.05	0.22	0.03	0.29
	Urban	23,976	23,090	785	26	14	16	45
	%		96.30	3.27	0.11	0.06	0.07	0.19
Hosakote	Total	59,236	57,237	1,728	67	45	27	132
	%		96.63	2.92	0.11	0.08	0.05	0.22
	Rural	46,145	44,440	1,460	61	40	18	126
	%		96.31	3.16	0.13	0.09	0.04	0.27
	Urban	13,091	12,797	268	6	5	9	6
	%		97.75	2.05	0.05	0.04	0.07	0.05
Nelamangala	Total	49,975	48,062	1,702	19	69	28	95
	%		96.17	3.41	0.04	0.14	0.06	0.19
	Rural	38,588	36,905	1,511	19	65	25	63
	%		95.64	3.92	0.05	0.17	0.06	0.16
	Urban	11,387	11,157	191	-	4	3	32
	%		97.98	1.68	0.00	0.04	0.03	0.28
Bengaluru Rural	Total	224,745	214,253	9,369	190	303	114	516
	%		95.33	4.17	0.08	0.13	0.05	0.23
	Rural	162,398	153,944	7,567	146	253	82	406
	%		94.79	4.66	0.09	0.16	0.05	0.25
	Urban	62,347	60,309	1,802	44	50	32	110
	%		96.73	2.89	0.07	0.08	0.05	0.18
Karnataka	Total	13,179,911	11,945,467	1,128,659	25,080	8,188	8,753	53,764
	%		90.63	8.56	0.19	0.14	0.07	0.41
	Rural	7,864,196	6,819,812	965,641	19,187	13,426	5,244	40,886
	%		86.72	12.28	0.24	0.17	0.07	0.52
	Urban	5,315,715	5,125,655	163,018	5,893	4,762	3,509	12,878
	%		96.42	3.07	0.11	0.09	0.07	0.24

Source: Census of India

Table 3.32-A: Details of Clean Cooking Fuel (2011 and 2001)

Taluk / District / State	Total / Rural / Urban	Total Household	Clean Cooking Fuel	Traditional Cooking Fuel	Total Households	Clean Cooking Fuel	Traditional cooking fuel
Devanahalli	Total	35,299	4,826	30,399	45,070	15,618	29,311
	%		13.67	86.12		34.65	65.03
	Rural	24,865	2,016	22,803	31,177	8,638	22,451
	%		8.11	91.71		27.71	72.01
	Urban	10,434	2,810	7,596	13,893	6,980	6,860
	%		26.93	72.8		50.24	49.38
Doddaballapur	Total	55,131	6,619	48,387	70,464	22,699	47,540
	%		12.01	87.77		32.21	67.47
	Rural	39,002	2,098	36,828	46,488	8,573	37,816
	%		5.38	94.43		18.44	81.35
	Urban	16,129	4,521	11,559	23,976	14,126	9,724
	%		28.03	71.67		58.92	40.56
Hosakote	Total	41,296	5,221	35,961	59,236	22,024	36,916
	%		12.64	87.08		37.18	62.32
	Rural	34,029	2,385	31,568	46,145	12,858	33,048
	%		7.01	92.77		27.86	71.62
	Urban	7,267	2,836	4,393	13,091	9,166	3,868
	%		39.03	60.45		70.02	29.55
Nelamangala	Total	35,951	4,385	31,494	49,975	20,037	29,761
	%		12.2	87.6		40.09	59.55
	Rural	30,754	2,095	28,611	38,588	11,374	27,109
	%		6.81	93.03		29.48	70.25
	Urban	5,197	2,290	2,883	11,387	8,663	2,652
	%		44.06	55.47		76.08	23.29
Bengaluru Rural	Total	167,677	21,051	146,241	224,745	80,378	143,528
	%		12.55	87.22		35.76	63.86
	Rural	128,650	8,594	119,810	162,398	41,443	120,424
	%		6.68	93.13		25.52	74.15
	Urban	39,027	12,457	26,431	62,347	38,935	23,104
	%		31.92	67.72		62.45	37.06
Karnataka	Total	10,232,133	2,043,508	8,155,455	13,179,911	4,418,131	8,717,185
	%		19.97	79.7		33.52	66.14
	Rural	6,675,173	423,443	6,239,886	7,864,196	945,003	6,902,460
	%		6.34	93.48		12.02	87.77
	Urban	3,556,960	1,620,065	1,915,569	5,315,715	3,473,128	1,814,725
	%		45.55	53.85		65.34	34.14

Source: Census of India

Table 3.33-A: Total Workers by Sex and Residence

Taluk / District / State	Total / Rural/ Urban	2001			2011			Decadal Growth Rate (%)	
		Total	Male	Female	Total	Male	Female	Male	Female
Devanahalli	Total	88,533	57,342	31,191	100,193	66,780	33,413	16.46	7.12
	Rural	67,918	41,335	26,583	74,538	47,660	26,878	15.30	1.11
	Urban	20,615	16,007	4,608	25,655	19,120	6,535	19.45	41.82
Doddaballapur	Total	127,843	83,632	44,211	147,261	96,612	50,649	15.52	14.56
	Rural	97,212	58,861	38,351	104,319	64,428	39,891	9.46	4.02
	Urban	30,631	24,771	5,860	42,942	32,184	10,758	29.93	83.58
Hosakote	Total	101,754	68,005	33,749	119,692	86,082	33,610	26.58	-0.41
	Rural	88,457	57,303	31,154	97,751	68,774	28,977	20.02	-6.99
	Urban	13,297	10,702	2,595	21,941	17,308	4,633	61.73	78.54
Nelamangala	Total	78,078	51,791	26,287	92,745	66,025	26,720	27.48	1.65
	Rural	69,228	44,652	24,576	74,013	51,706	22,307	15.80	-9.23
	Urban	8,850	7,139	1,711	18,732	14,319	4,413	100.57	157.92
Bengaluru Rural District	Total	396,208	260,770	135,438	459,891	315,499	144,392	20.99	6.61
	Rural	322,815	202,151	120,664	350,621	232,568	118,053	15.05	-2.16
	Urban	73,393	58,619	14,774	109,270	82,931	26,339	41.47	78.28
Karnataka	Total	23,534,791	15,235,355	8,299,436	27,872,597	18,270,116	9,602,481	19.92	15.70
	Rural	17,127,803	10,254,252	6,873,551	18,502,230	11,311,426	7,190,804	10.31	4.62
	Urban	6,406,988	4,981,103	1,425,885	9,370,367	6,958,690	2,411,677	39.70	69.14

Source: Census of India

Table 3.34-A: Main Workers by Sex and Residence

Taluk / District / State	Total / Rural/ Urban	2001			2011			Decadal Growth Rate (%)	
		Total	Male	Female	Total	Male	Female	Male	Female
Devanahalli	Total	74,971	52,964	22,007	84,621	59,874	24,747	13.05	12.45
	Rural	55,603	37,613	17,990	61,566	42,393	19,173	12.71	6.58
	Urban	19,368	15,351	4,017	23,055	17,481	5,574	13.88	38.76
Doddaballapur	Total	105,989	77,337	28,652	121,448	85,762	35,686	10.89	24.55
	Rural	76,872	53,240	23,632	83,094	56,124	26,970	5.42	14.12
	Urban	29,117	24,097	5,020	38,354	29,638	8,716	22.99	73.63
Hosakote	Total	86,136	63,002	23,134	103,913	77,405	26,508	22.86	14.58
	Rural	73,392	52,617	20,775	84,918	62,167	22,751	18.15	9.51
	Urban	12,744	10,385	2,359	18,995	15,238	3,757	46.73	59.26
Nelamangala	Total	64,511	46,484	18,027	80,007	59,375	20,632	27.73	14.45
	Rural	56,174	39,652	16,522	62,956	46,198	16,758	16.51	1.43
	Urban	8,337	6,832	1,505	17,051	13,177	3,874	92.87	157.41
Bengaluru Rural District	Total	331,607	239,787	91,820	389,989	282,416	107,573	17.78	17.16
	Rural	262,041	183,122	78,919	292,534	206,882	85,652	12.97	8.53
	Urban	69,566	56,665	12,901	97,455	75,534	21,921	33.30	69.92
Karnataka	Total	19,364,759	13,896,845	5,467,914	23,397,181	16,349,837	7,047,344	17.65	28.89
	Rural	13,462,535	9,194,812	4,267,723	15,060,905	10,003,021	5,057,884	8.79	18.51
	Urban	5,902,224	4,702,033	1,200,191	8,336,276	6,346,816	1,989,460	34.98	65.76

Source: Census of India

Table 3.35-A: Marginal Workers by Sex and Residence

Taluk / District / State	Total / Rural/ Urban	2001			2011			Decadal Growth Rate (%)	
		Total	Male	Female	Total	Male	Female	Male	Female
Devanahalli	Total	13,562	4,378	9,184	15,572	6,906	8,666	57.74	-5.64
	Rural	12,315	3,722	8,593	12,972	5,267	7,705	41.51	-10.33
	Urban	1,247	656	591	2,600	1,639	961	149.85	62.61
Doddaballapur	Total	21,854	6,295	15,559	25,813	10,850	14,963	72.36	-3.83
	Rural	20,340	5,621	14,719	21,225	8,304	12,921	47.73	-12.22
	Urban	1,514	674	840	4,588	2,546	2,042	277.74	143.10
Hosakote	Total	15,618	5,003	10,615	15,779	8,677	7,102	73.44	-33.09
	Rural	15,065	4,686	10,379	12,833	6,607	6,226	40.99	-40.01
	Urban	553	317	236	2,946	2,070	876	553.00	271.19
Nelamangala	Total	13,567	5,307	8,260	12,738	6,650	6,088	25.31	-26.30
	Rural	13,054	5,000	8,054	11,057	5,508	5,549	10.16	-31.10
	Urban	513	307	206	1,681	1,142	539	271.99	161.65
Bengaluru Rural District	Total	64,601	20,983	43,618	69,902	33,083	36,819	57.67	-15.59
	Rural	60,774	19,029	41,745	58,087	25,686	32,401	34.98	-22.38
	Urban	3,827	1,954	1,873	11,815	7,397	4,418	278.56	135.88
Karnataka	Total	4,170,032	1,338,510	2,831,522	4,475,416	1,920,279	2,555,137	43.46	-9.76
	Rural	3,665,268	1,059,440	2,605,828	3,441,325	1,308,405	2,132,920	23.50	-18.15
	Urban	504,764	279,070	225,694	1,034,091	611,874	422,217	119.25	87.07

Source: Census of India

Table 3.36-A: Details of Registration in Employment Exchanges

Taluk / District	2005-2006				2011-2012			
	Below Matriculation	SSLC, PUC passed, B.A., B.Sc., B.Com., and other Degree holders	Diploma Holders, ITI certificate holders and Drivers	Total	Below Matriculation	SSLC, PUC passed, B.A., B.Sc., B.Com., and other Degree holders	Diploma Holders, ITI certificate holders and Drivers	Total
Devanahalli	2,040	12,735	1,878	16,653	1,766	5,797	2,503	10,066
Doddaballapur	1,997	14,085	1,825	17,907	1,830	5,893	2,465	10,188
Hosakote	2,000	13,678	1,522	17,200	2,102	5,740	1,962	9,804
Nelamangala	2,892	14,364	1,793	19,049	1,961	4,660	2,049	8,670
Bengaluru Rural	8,929	54,862	7,018	70,809	7,659	22,090	8,979	38,728

Source: District at a Glance (2005-2006 and 2011-2012), Bengaluru Rural district

Table 3.37-A: Details of Land Utilization (2005-2006)

Details		2005-2006				
		Devanahalli	Doddaballapur	Hosakote	Nelamangala	Bengaluru Rural
Geographical area		44,935	78,760	54,857	50,967	229,519
Forest area		2,275	3,895	3,444	1,708	11,322
Land not available for cultivation	Non-agricultural	7,944	9,526	9,492	9,428	36,390
	Barren	1,477	5,063	1,049	3,535	11,124
	Total	9,421	14,589	10,541	12,963	47,514
Other Uncultivated land	Cultivable waste	1,592	1,280	198	678	3,748
	Permanent pasture	889	2,550	456	300	4,195
	Trees and Groves	4,640	3,269	2,584	2,218	12,711
	Total	7,121	7,099	3,238	3,196	20,654
Fallow land	Current	1,584	2,931	34	1,690	6,239
	Others	360	967	19	634	1,980
	Total	1,944	3,898	53	2,324	8,219
Area Sown	Net	24,174	49,279	37,581	30,776	141,810
	More than once	269	1,235	1,982	339	3,825
	Total	24,443	50,514	39,563	31,115	145,635

Source: District at a Glance (2005-2006), Bengaluru Rural district

Table 3.38-A: Details of Land Utilization (2011-2012)

Details		2011-2012				
		Devanahalli	Doddaballapur	Hosakote	Nelamangala	Bengaluru Rural
Geographical area		44,935	78,760	54,857	50,967	229,519
Forest area		2,275	3,895	3,444	1,708	11,322
Land not available for cultivation	Non-agricultural	8,793	9,526	10,942	10,717	39,978
	Barren	1,477	5,063	1,049	3,535	11,124
	Total	10,270	14,589	11,991	14,252	51,102
Other Uncultivated land	Cultivable waste	1,442	1,280	498	678	3,898
	Permanent pasture	673	2,550	356	300	3,879
	Trees and Groves	3,626	4,212	1,584	3,076	12,498
	Total	5,741	8,042	2,438	4,054	20,275
Fallow land	Current	2,897	4,233	1,585	938	9,653
	Others	2,815	6,416	1,066	1,100	11,397
	Total	5,712	10,649	2,651	2,038	21,050
Area Sown	Net	20,937	41,585	34,333	28,915	125,770
	More than once	1,218	1,266	2,058	303	4,845
	Total	22,155	42,851	36,391	29,218	130,615

Source: District at a Glance (2011-2012), Bengaluru Rural district

Table 3.39-A: Gross and Net Irrigated Area (He) (2011-2012)

Taluk / District	Gross Irrigated area	Net Irrigated area
Devanahalli	7,429	6,545
Doddaballapur	10,108	9,025
Hosakote	7,548	5,722
Nelamangala	4,634	4,343
Bengaluru Rural	29,179	25,635

Source: District at a Glance (2011-2012), Bengaluru Rural district

Table 3.40-A: Details of Chemical Fertilizers Distributed (in Tonnes)

Taluk / District	2005				2011			
	Nitrogen	Phosphorus	Potash	Total	Nitrogen	Phosphorus	Potash	Total
Devanahalli	2,810	1,609	964	5,383	1,593	1,486	720	3,799
Doddaballapur	1,166	693	335	2,194	3,684	3,435	1,331	8,450
Hosakote	2,769	1,945	1,249	5,963	2,190	2,044	861	5,095
Nelamangala	2,231	926	751	3,908	2,489	2,321	957	5,767
Bengaluru Rural	8,976	5,173	3,299	17,448	9,956	9,286	3,869	23,111

Source: District at a Glance (2005-2006 and 2011-2012), Bengaluru Rural district

Table 3.41-A: Details of Seeds Distributed (in Quintals) (2011-2012)

Taluk / District	Maize	Ragi	Tur	Bengal Gram	Ground Nut	Other	Total
Devanahalli	10	193	21	33	50	9	316
Doddaballapur	1,220	275	42	25	62	13	1,637
Hosakote	0	145	42	20	10	0	217
Nelamangala	310	183	24	3	35	2	557
Bengaluru Rural	1,540	796	129	81	157	24	2,727

Source: District at a Glance (2011-2012), Bengaluru Rural district

Table 3.42-A: Equipments Distributed during 2011-2012

Details	Devanahalli	Dodballapura	Hosakote	Nelamangala	Bengaluru Rural
Tiller	3	3	4	2	12
Diesel Pumpset	10	0	10	2	22
Sprinkler	15	126	94	24	259
Earth Worm Units	102	112	106	102	422
Organic manure	23	0	83	20	126
Sprayer	42	26	10	4	82
Rotowater	12	7	11	12	42
Cultiwater	15	40	20	29	104
Fodder cutter	3	1	4	1	9
Green manure seed	10	8	48	8	74
Harvester	1	0	0	0	1
Pesticides	5,209	6,302	6,512	5,993	24,016

Source: District at a Glance (2011-2012), Bengaluru Rural district

Table 3.43-A: Sericulture (2011-2012)

Taluk / District	Area under mulberry (He)	Cocoon Production (in tonnes)	Number of villages engaged on mulberry	Number of farmers engaged in Sericulture			Total	Value of Silk Produced (Rs in Lakhs)	Government Coccon Markets
				SC	ST	Others			
Devanahalli	2,544.21	2,599.882	150	114	259	3,177	3,550	651.77	1
Doddaballapur	327.9	645.049	87	32	28	514	574	129.00	0
Hosakote	2,132.25	2420.7	197	172	85	3,164	3,421	678.32	0
Nelamangala	28.96	20.323	22	1	1	71	73	5.82	0
Bengaluru Rural	5,033.32	5,685.954	456	319	373	6,926	7,618	1464.91	1

Source: District at a Glance (2011-2012), Bengaluru Rural district

Table 3.44-A: Income Earned from Primary Sector (Rs in Lakhs – at 2004-2005 Prices)

Taluk / District / State	Agriculture including animal husbandry	Forestry and Logging	Fishing	Mining and Quarrying	Primary Sector Total
2004-2005					
Devanahalli	11,274	3,356	6	111	14,747
Doddaballapur	12,690	3,650	30	25	16,395
Hosakote	9,500	3,002	211	74	12,787
Nelamangala	6,519	1,964	151	37	8,671
Bengaluru Rural	39,983	11,972	398	246	52,599
Karnataka	2,643,622	410,416	63,005	192,552	3,309,593
2008-2009					
Devanahalli	16,418	3,123	213	182	19,936
Doddaballapur	21,134	3,266	256	41	24,698
Hosakote	7,683	2,701	256	19	10,659
Nelamangala	5,199	1,746	342	29	7,316
Bengaluru Rural	50,434	10,836	1,067	271	62,609
Karnataka	3,254,483	464,365	86,814	278,957	4,084,614

Source: Directorate of Economics and Statistics, Karnataka

Table 3.45-A: Income Earned from Secondary Sector (Rs in Lakhs – 2004-2005 Prices)

Taluk / District / State	Registered (Manufacturing)	Unregistered (Manufacturing)	Construction	Electricity Gas and Water Supply	Secondary sector Total
2004-2005					
Devanahalli	3,370	3,772	234	1,373	8,749
Doddaballapur	43,447	6,448	4,228	3,375	57,498
Hosakote	29,860	5,168	7,670	4,365	47,063
Nelamangala	22,691	5,873	1,785	3,605	33,954
Bengaluru Rural	99,369	21,261	13,917	12,718	147,265
Karnataka	2,377,844	681,774	1,386,515	370,412	4,816,549
2008-2009					
Devanahalli	5,221	4,867	368	1,752	12,208
Doddaballapur	67,315	8,319	6,652	1,907	84,193
Hosakote	46,264	6,668	12,067	2,128	67,127
Nelamangala	35,157	7,578	2,808	2,001	47,544
Bengaluru Rural	153,958	27,432	21,895	7,788	211,073
Karnataka	3,684,111	882,111	2,155,764	324,009	7,045,998

Source: Directorate of Economics and Statistics, Karnataka

Table 3.46-A: Income Earned from Tertiary Sector (Rs in Lakhs – 2004-2005 Prices)

Taluk / District / State	Railway	Transport by other means	Storage	Commu-nication	Trade, Hotels and Restau-rants	Banking and Insur-ance	Real estates, Ownership of dwell-ing and Business services	Public Administra-tion	Other Services	Tertiary sector total
2004-2005										
Devanahalli	749	2,013	0	1,188	12,639	3,014	3,166	1,259	3,743	27,771
Doddaballapur	1,361	2,550	3	843	22,909	2,673	8,550	2,073	5,341	46,303
Hosakote	817	10,401	14	1,287	21,045	2,704	5,400	1,231	4,723	47,622
Nelamangala	1,565	3,017	0	1,741	18,722	4,411	4,514	3,470	4,080	41,520
Bengaluru Rural	4,492	17,981	17	5,059	75,315	12,802	21,630	8,033	17,887	163,216
Karnataka	100,264	735,580	2,976	320,290	2,313,663	1,021,206	2,159,483	661,552	1,191,384	8,506,403
2008-2009										
Devanahalli	984	5,557	0	2,380	13,261	3,088	4,638	1,404	5,053	36,365
Doddaballapur	1,788	5,404	4	1,689	36,246	1,953	11,523	2,311	6,782	67,700
Hosakote	1,073	12,889	20	2,578	30,936	2,007	8,059	1,373	5,915	64,849
Nelamangala	2,058	9,040	0	3,488	25,274	3,790	7,195	3,870	5,671	60,386
Bengaluru Rural	5,903	32,890	24	10,135	105,717	10,838	31,415	8,958	23,421	229,301
Karnataka	131,779	1,026,833	3,924	590,303	3,276,221	1,944,778	3,494,307	940,579	1,645,811	13,054,535

Source: Directorate of Economics and Statistics, Karnataka

Table 3.47-A: Sectoral Shares of Gross Domestic District Product (at 2004-2005 Prices)

Taluk / District / State	Primary Sector (%)	Secondary sector (%)	Tertiary sector (%)	Taluk Domestic Product (Rs in lakhs)
2004-2005				
Devanahalli	28.76	17.07	54.17	51,267
Doddaballapur	13.64	47.84	38.52	120,197
Hosakote	11.90	43.79	44.31	107,471
Nelamangala	10.30	40.35	49.34	84,145
Bengaluru Rural	14.49	40.56	44.95	363,080
Karnataka	19.90	28.96	51.14	16,632,548
2008-2009				
Devanahalli	29.10	17.82	53.08	68,510
Doddaballapur	13.99	47.68	38.34	176,592
Hosakote	7.47	47.06	45.47	142,635
Nelamangala	6.35	41.25	52.40	115,246
Bengaluru Rural	12.45	41.96	45.59	502,983
Karnataka	16.89	29.13	53.98	24,185,153

Source: Directorate of Economics and Statistics, Karnataka

Table 3.48-A: Urban Area, Population and Density of Urban Local Bodies in Bengaluru Rural District

ULBs	2001			2011		
	Area (Sq. Kms)	Population	Density(per sq Kms)	Area (Sq. Kms)	Population	Density(per sq Kms)
Devanahalli	15.94	23,406	1,468	16.00	28,051	1,753
Vijayapura	14.55	29,540	2,030	16.00	34,866	2,179
Doddaballapur	13.37	71,606	5,356	18.00	84,642	4,702
Hosakote	14.28	36,323	2,544	18.25	56,980	3,122
Nelamangala	2.85	25,287	8,873	14.10	37,232	2,641
ALL ULBs	60.99	186,162	3,052	82.35	241,771	2,936

Source: DUDC, Bengaluru Rural

Table 3.49-A: Number of Households in Urban Local Bodies in Bengaluru Rural District

ULBs	2001	2011	% change
Devanahalli	4,584	5,969	30.21
Vijayapura	5,850	7,924	35.45
Doddaballapur	14,756	21,937	48.66
Hosakote	7,267	13,091	80.14
Nelamangala	5,197	8,797	69.27
All ULBs	37,654	57,718	53.29

Source: DUDC, Bengaluru Rural

Table 3.50-A: Per centage of Households in ULBs with Access to Tap Water

ULBs	2001	2011	Treated source (2011)
Devanahalli	66.34	79.38	27.71
Vijayapura	85.09	84.11	10.56
Doddaballapur	94.55	80.10	5.47
Hosakote	83.71	68.73	42.70
Nelamangala	88.59	84.18	20.19
All ULBs	86.73	78.62	19.16

Source: Census of India

Table 3.51-A: Per centage of Households in ULBs with Access to Water near their Premises

ULBs	2001	2011
Devanahalli	34.49	38.01
Vijayapura	27.49	28.51
Doddaballapur	38.24	22.74
Hosakote	55.33	48.02
Nelamangala	55.99	65.29
All ULBs	41.86	37.33

Source: Census of India

Table 3.52-A: Number and Per centage of Households in ULBs with Bathroom Facility

ULBs	2001			2011		
	Households	HH with bathroom facility	Per centage of HHs with bathroom facility	Households	HH with bathroom facility	Per centage of HHs with bathroom facility
Devanahalli	4,584	3,245	70.79	5,969	5,094	85.34
Vijayapura	5,850	4,372	74.74	7,924	7,202	90.89
Doddaballapur	14,756	11,606	78.65	21,937	20,213	92.14
Hosakote	7,267	6,241	85.88	13,091	12,331	94.19
Nelamangala	5,197	4,879	93.88	8,797	8,362	95.06
All ULBs	37,654	30,343	80.58	57,718	53,202	92.18

Source: Census of India

Table 3.53-A: Number and Per centage of Households in ULBs with Drainage Facility

ULBs	2001			2011		
	Households	HH with drainage facility	Per centage of HHs with drainage facility	Households	HH with drainage facility	Per centage of HHs with drainage facility
Devanahalli	4,584	3,602	78.58	5,969	5,017	84.05
Vijayapura	5,850	4,937	84.39	7,924	7,361	92.90
Doddaballapur	14,756	13,282	90.01	21,937	19,812	90.31
Hosakote	7,267	5,901	81.20	13,091	12,100	92.43
Nelamangala	5,197	5,010	96.40	8,797	8,443	95.98
All ULBs	37,654	32,732	86.93	57,718	52,733	91.36

Source: Census of India

Table 3.54-A: Number and Per centage of Households in ULBs with Latrine Facility

ULB	2001			2011		
	Households	HH with latrine facility	Per centage of HHs with latrine facility	Households	HH with latrine facility	Per centage of HHs with latrine facility
Devanahalli	4,584	2,983	65.07	5,969	4,608	77.20
Vijayapura	5,850	4,804	82.12	7,924	7,269	91.73
Doddaballapur	14,756	12,379	83.89	21,937	19,745	90.01
Hosakote	7,267	6,160	84.77	13,091	12,338	94.25
Nelamangala	5,197	4,792	92.21	8,797	8,460	96.17
All ULBs	37,654	31,118	82.64	57,718	52,420	90.82

Source: Census of India

Table 3.55-A: Number and Per centage of Households in ULBs using Modern Fuel and Firewood for Cooking Purposes

ULBs	Households	HHs using modern fuel for cooking purposes	Per centage of HHs using modern fuel for cooking purposes	HHs using firewood for cooking purposes	Per centage of HHs using firewood for cooking purposes
2001					
Devanahalli	4,584	1,129	24.63	2,453	53.51
Vijayapura	5,850	1,681	28.74	3,092	52.85
Doddaballapur	14,756	4,261	28.88	3,283	22.25
Hosakote	7,267	2,836	39.03	2,035	28.00
Nelamangala	5,197	2,290	44.06	1,033	19.88
ALL ULBs	37,654	12,197	32.39	11,896	31.59
2011					
Devanahalli	5,969	3,255	54.53	1,519	25.45
Vijayapura	7,924	3,725	47.01	2,793	35.25
Doddaballapur	21,937	12,957	59.06	3,292	15.01
Hosakote	13,091	9,166	70.02	1,636	12.50
Nelamangala	8,797	6,688	76.03	643	7.31
ALL ULBs	57,718	35,791	62.01	9,883	17.12

Source: Census of India

Table 3.56-A: District-wise Number of Cases Pending, Disposed and Convicted under PoA 1989

District/ State	2011						2012						2013	AAC in
	PC	CR	TD	CV (%)	A (%)	O (%)	PC	CR	TD	CV (%)	A (%)	O (%)	PC	Pending cases (%)
Bagalkote	39	24	26	11.54	88.46	0.00	37	34	18	0.00	94.44	5.56	53	19.06
Bengaluru Rural	97	70	87	4.60	93.10	2.30	80	75	31	3.23	29.03	67.74	124	18.74
Bengaluru Urban	81	51	33	0.00	87.88	12.12	99	40	38	0.00	89.47	10.53	101	12.12
Belagavi	68	89	83	6.02	89.16	4.82	74	51	44	9.09	90.91	0.00	81	9.14
Ballari	78	34	68	16.18	82.35	1.47	44	43	46	19.57	63.04	17.39	41	-25.2
Bidar	27	23	26	3.85	76.92	19.23	24	24	33	9.09	84.85	6.06	15	-24.31
Vijayapura	169	35	87	1.15	94.25	4.60	117	33	56	3.57	96.43	0.00	94	-25.21
Chamaraja Nagar	35	23	20	25.00	75.00	0.00	38	29	24	4.17	95.83	0.00	43	10.86
Chikballapur	113	55	23	4.35	95.65	0.00	145	68	15	0.00	100.00	0.00	198	32.44
Chikkamagaluru	103	47	37	8.11	81.08	10.81	113	24	55	1.82	96.36	1.82	82	-8.86
Chitradurga	43	27	20	10.00	60.00	30.00	50	38	10	20.00	80.00	0.00	78	36.14
D K	56	35	16	12.50	81.25	6.25	75	29	37	2.70	94.59	2.70	67	11.63
Davanagere	65	16	31	6.45	80.65	12.90	50	18	14	7.14	78.57	14.29	54	-7.54
Dharwad	32	35	19	0.00	84.21	15.79	48	44	31	0.00	96.77	3.23	61	38.54
Gadag	22	19	2	0.00	50.00	50.00	39	11	15	6.67	86.67	6.67	35	33.51
Kalaburagi	83	80	48	29.17	62.50	8.33	115	30	23	26.09	69.57	4.35	122	22.32
Hassan	114	61	25	4.00	96.00	0.00	150	41	57	5.26	94.74	0.00	134	10.46
Haveri	83	22	12	0.00	58.33	41.67	93	27	12	8.33	83.33	8.33	108	14.09
Kodagu	107	19	18	5.56	94.44	0.00	108	20	57	3.51	66.67	29.82	71	-16.66
Kolar	40	57	39	0.00	100.00	0.00	58	75	13	15.38	84.62	0.00	120	75.95
Koppal	26	24	29	13.79	68.97	17.24	21	19	19	0.00	94.74	5.26	21	-9.62
Mandya	86	70	41	7.32	82.93	9.76	115	60	75	13.33	82.67	4.00	100	10.34
Mysuru	102	53	108	4.63	91.67	3.70	47	62	46	6.52	82.61	10.87	63	-9.94
Raichur	68	72	35	0.00	97.14	2.86	105	62	43	0.00	95.35	4.65	124	36.25
Ramanagar	275	35	64	0.00	87.50	12.50	246	39	73	6.85	93.15	0.00	212	-12.18
Shivamoga	80	35	43	0.00	90.70	9.30	72	56	44	0.00	93.18	6.82	84	3.33
Tumakuru	104	79	106	0.00	91.51	8.49	77	97	47	6.38	91.49	2.13	127	19.49
Udupi	21	10	9	11.11	66.67	22.22	22	25	6	16.67	50.00	33.33	41	45.56
UK (Karwar)	39	16	14	0.00	85.71	14.29	41	5	16	6.25	87.50	6.25	30	-10.85
Yadgiri	97	46	49	18.37	79.59	2.04	94	59	43	23.26	76.74	0.00	110	6.96

Note: PC – Pending cases as on January 1st of respective year; CR – Case registered during that year; TD – Total cases disposed during that year; CV (%) – Convicted cases as a per cent of Total disposed cases; A (%) – Acquitted cases as a per cent of Total disposed cases; O (%) – Otherwise disposed cases as a per centage of total disposed cases; AAGR – Average Annual Growth Rate of Pending cases. Total Cases = Pending Cases + Total disposed cases.

Source: CommitteeMonitoring and Strengthening SC/ST (PoA) Act in Karnataka (CMASK) report to CM, Karnataka

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