International Institute of Health Management and Research

Draft Report of Dissertation Project

Topic: Assessment of composite health index tool for High Priority Districts

Name of Organization: MSG Strategic Consulting Pvt.Ltd

Submitted to	Submitted by
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Certificate of Approval

The following dissertation titled "Assessment of Composite Health Index toll for High priority Districts" at "MSG Strategic Consulting Pvt.Ltd" is hereby approved as a certified study in management carried out and presented in a manner satisfactorily to warrant its acceptance as a prerequisite for the award of Post Graduate Diploma in Health and Hospital Management for which it has been submitted. It is understood that by this approval the undersigned do not necessarily endorse or approve any statement made, opinion expressed or conclusion drawn therein but approve the dissertation only for the purpose it is submitted.

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Name of the Student: Dr. Mrinalini Dixit

Dissertation Organization: MSG Strategic Consulting Pvt. Ltd

Area of Dissertation: Health development department

Attendance: Regular

Objectives achieved: Yes

Deliverables: Report on Assessment of Composite Health Index Tool for High Priority Districts

Strengths:

Eagerly pursues new knowledge, skills, and methods. She has grown in the last few months by giving promising result through a steady performance. The growth path is definitely positive.

Suggestions for Improvement:

Needs better industry knowledge; this could be achieved with work experience and exposure to various forums.

Signature of the Organization Mentor (Dissertation)

Date: 10/5/2016

Place: Delhi

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(Completion of Dissertation from respective organization)

The certificate is awarded to

Name – Dr. Mrinalini Dixit

In recognition of having successfully completed her Internship in the department of

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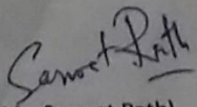And has successfully completed her Project on

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Date- 10/5/2016

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She comes across as a committed, sincere & diligent person who has a strong drive & zeal for learning

We wish him/her all the best for future endeavors
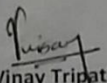
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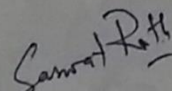A-280, (LGF) NEW
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Certificate from Dissertation Advisory Committee

This is to certify that Dr. Mrinalini Dixit, a graduate student of the Post- Graduate Diploma in Health and Hospital Management has worked under our guidance and supervision. He/ She is submitting this dissertation titled **"Assessment of Composite Health Index Tool For High Priority Districts"** at **"MSG Strategic Consulting Pvt.Ltd"** in partial fulfillment of the requirements for the award of the Post-Graduate Diploma in Health and Hospital Management.

This dissertation has the requisite standard and to the best of our knowledge no part of it has been reproduced from any other dissertation, monograph, report or book.

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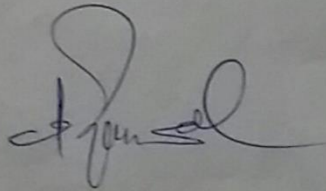
TO WHOMSOEVER IT MAY CONCERN

This is to certify that Dr. Mrinalini Dixit student of Post Graduate Diploma in Hospital and Health Management (PGDHM) from International Institute of Health Management Research, New Delhi has undergone internship training at MSG strategic consultancy Pvt. Ltd. From...8 Feb 2016...To...13th May 2016

The Candidate has successfully carried out the study designated to him during internship training and his approach to the study has been sincere, scientific and analytical.
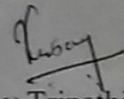
The Internship is in fulfilment of the course requirements.

I wish him all success in all his future endeavours.

Dr. A.K. Agarwal

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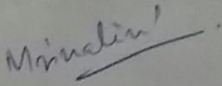
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This is to certify that the dissertation titled **Assessment of Composite Health Index tool for High Priority Districts** and submitted by **Dr. Mrinalini Dixit** Enrollment No. PG/14/036 under the supervision of Dr. Vinay Tripathi for award of Postgraduate Diploma in Hospital and Health Management of the Institute carried out during the period from 8th **February 2016** to 13th **May 2016** embodies my original work and has not formed the basis for the award of any degree, diploma associate ship, fellowship, titles in this or any other Institute or other similar institution of higher learning.

Mrinalini

Signature

Abstract

Evidence suggests that social and economic factors are important determinants of health. Ever-increasing evidence suggests that the health of a population is greatly determined by the social and economic circumstances of that population, as well as its access to health care services. Measuring health as the individual would be creating a bias of the development of the area. Measuring health and socioeconomic factors will be essential for seeking the intersectoral coordination. Selection of high priority districts over the parameters of only health disregards the above statement. High priority districts should be selected after taking into account all the factors affecting the health i.e. Social as well as the economic status of the district.

Objective: This study attempts at presenting the high priority districts taking into consideration all the three factors of development social, economic and health.

Materials and methods: Two states selected (convenience sampling) with calculation and ranking of districts in composite health index. Calculation of social and economic index from District level human development index. Generation of priority index which complies all the three indicators and comparison between the high priority districts from CHI and high priority districts from.

Conclusion: There is a change in the ranking of the states on new index which shows that when districts measured in social and economic status along with health result in a change in the picture in the requirements of the districts.

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Abbreviations

CHI- Composite Health Index

HDI- Human Development Index

PI- Priority Index

GOI- Government ofIndia

MoHFW- Ministry of Health And Family Welfare

RMNCH+A- Reproductive, Maternal, Newborn, Child, and Adolescent Health

NHM- National Health Mission

HPD- High Priority Districts

MMR- Maternal Mortality Ratio

IMR- Infant Mortality Rate

TFR- Total Fertility Rate

DLHS- District Level Household Survey

AHS- Annual Health Survey

HDR- Human Development Report

SHDR- State Human Development Report

DHDR- District Human Development Report

GER- Gross Enrollment Rate

Introduction of the organization

Incorporated in 1994, MSG Strategic Consulting Pvt. Ltd. (MSG) is a well-established management consulting company (http://www.msg.net.in) with experience of working:

- With international agenciessuch as USAID, DFID, World Bank, UNICEF and UNFPA

- With local, national and international NGOs and community based structures

- With public sector companies, public utilities and government departments

- With private sector companies ranging from small-scale units to some of India's largest business groups and multinational corporations

- In a wide range of sectors including health, rural & urban development, water & sanitation, environment and industry

- In South Asia – most states in India, Nepal, and Zambia.

- In collaboration with leading international consulting companies from Denmark, UK, Netherlands and USA.

Scope of services

Services offered by MSG include:

- Management of development projects

  - Sector wide approach

  - Project identification

  - Project formulation including log frame analysis

  - Preparation of project document and action plan

  - Economic and financial including sensitivity analyses

- Project monitoring including identification of project indicators and MIS

- Impact assessment including social, economic, environmental etc.

- Evaluation of projects including gender screening

- Governance including training

  - Policy and legislation

  - Institutional arrangements including role of NGOs, CBOs, etc.

  - Institutional development: organization structure and manning levels; job descriptions including basis for performance appraisal and person specifications, job evaluation, authority limits

  - Management of training including training needs assessment and development of training packages

- Economic studies and corporate strategy

  - Estimation of present and future demand and supply

  - Assessment of government policies

  - Cost benefit analysis

  - Requirement of land, building, equipment and manpower

  - Project cost/ working capital requirements

  - Alternative sources of finance

  - Cash flow, profitability projections and calculation of expected rates of return

  - Assessment of risk and sensitivity analyses

1. INTRODUCTION

The GOI is committed to protecting the lives and health of women, adolescents, and children. At the Global Child Survival Call to Action: A Promise to Keep in 2012, India's Honorable Minister for Health and Family Welfare assured the audience that India would remain at the forefront of the global war against maternal and child mortality. Eight months after the event, the Government of India held its own historic Summit on the Call to Action for Child Survival, where it launched "A Strategic Approach to Reproductive, Maternal, Newborn, Child, and Adolescent Health (RMNCH+A) in India." Since that time, RMNCH+A has become the heart of the GOI's flagship public health program, the National Health Mission (NHM)[i]

1.1 RMNCH+A

REPRODUCTIVE AND CHILD HEALTH PROGRAMME

Reproductive and Child Health Programme" (RCH) main objective was to bring about a change in the three critical health indicators of Maternal Mortality Ratio (MMR), Infant Mortality Rate (IMR) and Total Fertility Rate (TFR), consistent with the health goals of the National Population Policy 2000, the National Health Policy-2002, the Millennium Development Goals (MDGs), and the 12th Five Year Plan. [ii]

To accelerate progress towards attainment of MDGs 4 and 5, and to reduce under-five mortality, Government of India has initiated a strategic Approach to Reproductive, Maternal, Newborn, Child and Adolescent Health (RMNCH+A) that embodies it's vision for comprehensive and integrated health services, most importantly for adolescents,

mothers and children. This has resulted in an ever-growing and dynamic list of interventions and service packages across the reproductive, maternal and child health spectrum. [ii]

The Reproductive, Maternal, Newborn, Child and Adolescent Health (RMNCH+A) Strategy is at the heart of GOI's flagship public health program – the National Health Mission. The strategy is based on provision of comprehensive care through five pillars, or thematic areas--reproductive, maternal, newborn, child, and adolescent health--and is guided by central tenets of equity, universal care, entitlement and accountability.[iii]

MAIN FEATURES OF THE PROGRAMME

The core components of the RCH Programme are Maternal Health, Child Health, Family Planning, Adolescent Health, and Pre-Conception & Pre-Natal Diagnostics Techniques (PC-PNDT).

The Programme aimswas to improve the performance of NHM by reducing maternal and infant morbidity and mortality and unwanted pregnancies, leading to stabilization of population growth. It has been re-oriented and re-vitalized to give it a pro-outcome and pro-poor focus. The RCH Programme was being implemented around the key principles of:

- Adoption of a sector - wide approach, which effectively extends the Programme's reach beyond RCH to the entire Family Welfare sector.
- Building State /UT ownership by involving States and UTs from the outset in developing the Programme and decentralizing to the district and State levels through development of need-based plans with a flexible programming approach.

- Capacity building at the district, State and Central levels to ensure improved programme implementation.

- Adoption of the Logical Framework as a programme management tool to support an outcome-driven approach.

- Performance-based funding to ensure adherence to programme objectives, reward good performance and support weak performers through enhance technical assistance.

- Convergence, both inter-sectoral and intra-sectoral to optimize utilization of resources and infrastructure facilities.

In the last years the Reproductive and Child Health Programme have provided the flexibility and opportunity to introduce new interventions and to pilot and scale up innovative service delivery mechanisms. This has resulted in a growing list of interventions and service packages across the reproductive, maternal and child health spectrum. With the expansion of the health infrastructure, additional managerial capacity and financial resources, it is being felt that the service packages are implemented and managed in independent units and with a focus on achieving a certain health goal or a set of indicators[iv]

GOI has taken important steps to introduce and support RMNCH+A implementation such as[v]

1. Inter-linkages between different interventions at various stages of the life cycle

2. Linking child survival to other inventions such as reproductive health, family planning, maternal health

3. Sharper focus on adolescents

4. Recognizing nurses as 'pivots' for service delivery

5. Expanding focus on child development and quality of life

6. **Intensification of activities in High Priority Districts (HPD)**

1.2 High priority districts

With the agenda of ''reaching the unreached'' the Ministry of Health and Family welfare introduced the concept of **High focus districts**. High focus districts are decided on the basis of parameters like the maternal mortality ratio, infant mortality rate, institutional deliveries, malnourished children, immunization and fertility rate.[v]

They were focused onto the RCH indicators to achieve MDG goal 4 and 5. From the data of DLHS-3(2007-08) districts in states were identified as high focus districts. These districts had the most vulnerable and tribal population to which the health action of the states where directed depending unto the requirement of the district.

In order to further accelerate the decline in maternal and child mortality and galvanize unified efforts of all stakeholders a 'Call to Action: For Every Child in India' summit was organized 7-9 February 2013 in Mahabalipuram, Tamil Nadu. The summit was led by the Ministry of Health and Family Welfare with participation from Department of the Women and Child Development, and diverse set of stakeholders including civil society, UN agencies, development partners, global experts, private sector and media.[vi]

Following the Summit, discussions were held in the Ministry regarding intensification of efforts across the country. Based on a **composite health index**, relative ranking of districts was done within a State and bottom 25% of the districts as well as those affected by Left Wing Extremism were selected across 29 states. These are designated as High Priority Districts (HPDs) The high focused district were renamed to High priority districts and the

districts were computed on the indicators selected, where attention must be focused and integrated planning and monitoring of RMNCH+A interventions should be undertaken.[v]

<u>Identification of HPD</u>

Under National Rural Health Mission, earlier 264 districts were identified as high focus districts based on DLHS-3 (2007-08) data. Now, 184 priority districts have been identified based on the results of recently released Annual Health survey in Nine Empowered Action group (EAG) States and available DLHS 3 data. The priority districts have been identified by their relative rankings within a state. [vii]

Uniform and clearly defined criteria have been used for defining the identification of High Priority Districts. Relative ranking of districts has been done within a State (based on a composite index) and bottom 25% of the districts be selected as High Priority Districts for that State. It was decided that for the 9 EAG States & Assam, AHS data may be used and for the remaining States /UTs, DLHS-3 data may be used.[v]

The following 6 indicators are to be used for 9 AHS States, (Assam, Bihar, Chhattisgarh, Jharkhand, Madhya Pradesh, Odisha, Rajasthan, Uttar Pradesh and Uttarakhand) covering one impact and one outcome indicator representing each of the areas of maternal health, child health and family planning:

Composite Health Index[3]

- Maternal Mortality Ratio (MMR)   ⎫ maternal health
- **%** of Safe Deliveries   ⎭

- Infant Mortality Rate (IMR)
- % of Children 12-23 months fully immunized

child health

- Total Fertility Rate (TFR)
- Contraceptive Prevalence Rate (CPR) – Modern Method

family planning

For the remaining 26 non-AHS States / UTs, for which data on impact indicators is not available from AHS, 2 process / outcome indicators will be selected covering each of the three areas namely, maternal health, child health and family planning. It was decided to have following 6 indicators for non-AHS States:

- % of mothers received at least 3 ANC visits   maternal health
- % of Safe Deliveries

- % of Children 12-23 months fully immunized
- % of Children aged 6 months and above exclusively breastfed

child health

- % of births of order 3 and above   family planning
- Contraceptive Prevalence Rate (CPR) – Modern Method

The ranking of the districts was done independently within each State and a list of the bottom 25% districts so identified was prepared. LWE and tribal districts falling in the bottom 50% districts were also included in the list. The districts included in the list will be called "High Priority Districts". High priority districts must receive at least 30% more budget per capita compared to the other districts.

184 districts are identified as High Priority District.[viii]

1.3 Human Development Index

The Human Development Index is a composite index comprising of levels of human development in education, longevity or health, and in access to opportunities measured in per capita incomes. Generated and computed by UNDP to measure the development of the humans residing in a nation. It started as a country level exercise.[ix]

It measured the human development on equality on three parameters namely education, health and standard of living.

District level HDI

Initiated in 1999 with the project **Capacity Building for preparation of State level Human Development Reports (1999-2005),** this collaboration was followed by the second project on **Strengthening State plans for Human Development (2004-2009)**. In the first phase, the focus was on developing local capacities for preparation of State HDRs. Twenty one Indian States have prepared their HDRs in this phase. The second project focused on mainstreaming human development in State planning with activities spread across 15 States focusing on preparation of district level HDRs, engendering planning, strengthening statistical systems, and capacity development for human development and providing options for financing human development.[x]

In the present phase of decentralized planning in Indiadistrict planning has assumed a great deal of importance. For agreater development and improvement of the districts the process of preparation of District HDRs has in many States been linked to district planning. The Planning Commission has recommended preparation of DHDRs for all districts.

The Ministry of Home Affairs has recommended DHDR template for preparation of District Gazetteers. The DHDRs are recognized as the ultimate source of district data and analysis. The process of preparation of SHDRs has brought to light gaps in district level data systems. District HDRs present disaggregated data at the sub-district level.

Tracking of the performance at the state, district level becomes more appropriate with the presence of appropriate database development, and availability of relevant data at appropriate time makes it more crucial. The world's first State HDR was published in Madhya Pradesh in 1995 and included the computation of the State's HDI as well as HDI for all the districts in the State. Madhya Pradesh followed up its first HDR by releasing three more HDRs in 1998, 2002 and 2007. A similar independent process of preparing a State HDR in Karnataka was initiated in 1997 and the report was released in 1999[xi]. In given time more stated are been enrolled in this activity for generation of human development report in states as well as district level HDI report. 21 States are involved in computation of states and district level HDI reports.

Methodology of HDI computation for district level

There are two set of methodology that has been proposed for computation of HDI of districts. They are NHDR methodology suggested by planning commission of INDIA and other is on the basis of UNDP HDI methodology (1999). States can select one between two methodology states above. Indicator taken in account for both the methodologies are

Attainments	UNDP Indicators	NHDR Indicators
Health	Life expectancy at birth	Life expectancy at age 1 IMR
Education	Adult literacy rate Gross enrolment ratio	Literacy rate 7+ Intensity of formal education
Income/Standard of living	Real GDP per capita in PPP$	Per capita real consumption expenditure adjusted for

		inequality

Majority of the States employ the UNDP methodology(1999) of HDI[ix] to calculate the HDI value for the state and district level because of ease of data availability(stated by state reports methodology).   However due to lack of information for computing health index at district level the States have employed a mixed bag of indicators for calculating health value for HDI.

1.4 Rationale

Health is a multi-factorial and complex subject that is influence by a number of factors that are intrinsic and extrinsic. Over the developing years emphasis has been made on the intrinsic factors such as health habits, nutrition but the extrinsic factors are not in relation to health still need the required attention. In this study we try and present the importance to have extrinsic factors to be studied simultaneously with health for an all round development of the district.

1.5 Research Question

To study and assess the criteria's/indicators in composite health index employed to identifying high priority districts in selected states of India

1.6 Objective

1. To study the criteria /indicators in composite health index

2. To assess the present criteria/indicators and the development of the districts on the indicators selected.

2. <u>Review of literature</u>

Few of the articles pertaining to the assessment of the health index are mentioned below

a) Using Composite Health Status Measures to Assess the Nation's Health.

Erickson, Pennifer MS; Kendall, E Allen MS; Anderson, John P. PhD; Kaplan, Robert M. PhD

Research in progress at the National Center for Health Statistics for evaluating the usefulness of composite measures of health status for assessing the nation's health is described. Three measures suitable for use in the general population, the Health Insurance Experiment-Functional Limitations (HIE-FL), the Health Utility Index (HUI), and the Quality of Well-being (QWB) scale, have been mapped to data collected in the 1980 National Health Interview Survey (NHIS). Analysis using current algorithms for making composite function status measures according to the QWB methods suggests that traditional single indicators of health tend to overestimate the level of health by about 10%. When symptoms and problems are added to the composite function score, the overestimate as measured by the single indicator is at least 50%.

b) A Data-Level Fusion Model for Developing Composite Health Indices for Degradation Modeling and Prognostic Analysis

Kaibo Liu; H. Milton Stewart School of Industrial and Systems Engineering, Georgia Institute of Technology, Atlanta, GA, USA ; Nagi Z. Gebraeel ; Jianjun Shi

In this paper, we present a methodology for constructing a composite health index for characterizing the performance of a system through the fusion of multiple degradation-based sensor data. This methodology includes data selection, data processing, and data fusion steps that lead to an improved degradation-based prognostic model. Our goal is that the composite health index provides a much better characterization of the condition of a system compared to relying solely on data from an individual sensor. Our methodology was evaluated through a case study involving a degradation dataset of an aircraft gas turbine engine that was generated by the Commercial Modular Aero-Propulsion System Simulation (C-MAPSS).

c) Health status: types of validity and the index of well-being.

R M Kaplan, J W Bush, and C C Berry

The concept of validity as it applies to measures of health and health status is examined in the context of a set of standard, widely accepted definitions of validity. Criterion validity is shown to be irrelevant to health status measures because of the lack of a single specific, directly observable measure of health for use as a criterion. To overcome this problem, the Index of Well-being has been constructed to fulfill the definition of content validity by including all levels of function and symptom/problem complexes, a clearly defined relation to the death state, and consumer ratings of the relative desirability of the function levels. Data from a two-wave household interview survey Discriminant evidence of construct validity is demonstrated by predicted differences in correlation between concurrent Index of Well-being scores and self-assessed overall health status, and between the Index of Well-being scores and self-rated well-being on different days. A simple method of estimating a currently usable comprehensive population index of health status, the Weighted Life Expectancy, is described.

3. **<u>Methodology</u>**

- Sample size- Two states selected (convenience sampling)with high priority districts

- Data collection tool: DLHS-IV, Annual performance report of individual states to NHM, Publishes reports, publishes articles. HDR of the state

- Method of data collection: Secondary Research data collection

- Tools - Assessment and Interpretation of the indicators in graphical, tabulator form using Microsoft excel.
  - Analytical tool :
    - Correlation analysis between different components of indices

- Health situation or scenario of the districts of the selected study states is studies in detail and is noted as part I of the project. The composite health index is computed to identify the high priority districts of a state and ranked according value achieved by the districts on three RCH parameters namely Maternal health, Child health and family planning. It is calculated with a vision of better and fast development along with decentralized and easy gap identification at district level.

- The individual state was studies on the district level and the CHI value and ranking is studied and generated in the study.

- Detailed secondary study of the human development of the selected states in done through various articles reports and publishing. The reports publish by the state of Maharashtra and Karnataka is studied on all the parameters on education, health and standard of living.

- All the districts of the state is studied in a details manner on both the indices and the correlation value of each indicator with indices is generated to know the effect individual effect of them on the health development and human development.

- Individual district is computed on the parameters/indicators and contribution factor is identified for the districts showing the maximum and the minimum or negative growth

- For authentication of the use of CHI and HDI they are calculated individually in the study using the authentic and approved data source (CHI- DLHS III, DLHS IV) (HDI- data available in state published Human development reports) for both the states at district level for two reference year.

  - Maharashtra – CHI- DLHS 4 and DLHS 3

    HDI- data available for 2011 and 2001

  - Karnataka – CHI – DLH 3 and DLHS 4

    HDI- data available for year 2001 and 1991

Data analysis method: Correlation and Regression analysis

3.1 <u>Study of Composite Health Index in selected study states</u>

Maharashtra and Karnataka both are non EAG states they employee the six process /outcome indicators.

> - **Maternal health**:
>   - Percentage of women received at least three ANC
>   - Percentage of women having safe delivery
> - **Child heath:**
>   - Percentage of children 12-23months fully immunization
>   - Percentage of Children aged 6 months and above exclusively breastfed
> - **Family planning**:
>   - Percentage of women having 3+ birth order and above
>   - Contraceptive Prevalence Rate (CPR) – Modern Method

The 35 districts of Maharashtra and 27 districts of Karnataka were studied on these process/outcome indicators and composite health index was calculated for each of the districts utilizing the data from DLHS2, DLHS-3 and DLHS-4.

The formula applied in calculation of the composite score to each indicator followed by the final index score or composite heath index score.[i]

$$\text{Index Value} = \frac{X_{i\,d} - Min(X_{id})}{(Max(X_{id}) - Min(X_{id}))}$$

Where,

XB1dB - The percentage of population in the selected indicator in the dth district

Max (X_{id}) - Max value of the indicator among the districts of the selected state

Min (Xid) - Minimum value of the selected indicator among the districts of the selected state

The index value ranges between 1 and 0

After calculating the value of each six indicator listed above. The entire individual indicator are added up and divided by six to have an average index value i.e. Composite health index

Composite health Index value $= \dfrac{IV_{ANC}+IV_{SD}+IV_{BF}+IV_{Imm.}+IV_{3+BO}+IV_{CPR}}{6}$

$$Xd= 1/6\sum_{i=1}^{6} Xid$$

Where,

IV $_{ANC}$- Index value of ANC

IV $_{SD}$- Index value safe delivery

IV$_{BF}$- Index value exclusive breastfeeding

IV$_{Imm}$- Index value if 12-23months of children fully immunized

IV $_{3+BO}$- Index value of 3+and above birth order

IV$_{CPR}$- Index value of CPR

The indicators employed in the assessment of the composite health indicator were studied in detail and their effect with change in the ranking of districts among each other. The indicators correlation with the CHI was studied on the yearly basis that they were computed from DLHS and AHS data.

3.2 <u>Study of District level Human Development Index on selected study states</u>

Human development index is developed by UNDP to measure the development of residents of the national upon three parameters – education level, life expectancy and standard of living of the residents of the nation. These indicators are observed at the level of nation and state level development to study the district level development of citizens in a state a modified or changed criteria was developed by UNDP that takes account:

Attainments	UNDP Indicators	NHDR Indicators
Health	Life expectancy at birth	Life expectancy at age 1 IMR
Education	Adult literacy rate Gross enrolment ratio	Literacy rate 7+ Intensity of formal education
Income/Standard of living	Real GDP per capita in PPP$	Per capita real consumption expenditure adjusted for inequality

The formula applied in calculation of the composite score to each indicator followed by the final index score or human development score.[xii]

$$\text{INDEX} = \frac{\text{Actual Xi value - minimum Xi value}}{\text{Maximum Xi Value - minimum Xi value}}$$

For calculation of standard of living:

$$\text{Index} = \frac{\log(Xi_d) - \log(\min X_{id})}{\log(\text{Max} Xi_d) - \log(\text{Min } X_{id})}$$

For Maharashtra

The HDI is a composite index, consisting of three indicators: longevity as measured by Infant Survival rate(ISR); education attainment as measured by a combination of literacy rate (UNDP adopts adult literacy rate) with two-third weight and combined primary and secondary enrolment ratio with one-third weight(whereas UNDP uses combined enrolment ratio of primary, secondary and tertiary education levels) and standard of living as measured by the real DP per capita expressed as PPP$ (in Purchasing Power Parity dollars).

The Goalpost selected for the same are

Dimension	Maximum	Minimum
ISR (1000- IMR)	1000	0
Literacy Rate	100	0
GER	100	0
Per CapitaDomestic Product (Rupees at constant prices)	1,50,000	10,000

Finally, an aggregate HDI for a given district has been calculated as a simple arithmetic mean of the normalized scores for the three dimensions.

For Karnataka

The HDI is a composite index, consisting of three indicators: longevity as measured by life expectancy at birth(LEB); education attainment as measured by a combination of literacy rate (UNDP adopts adult literacy rate) with two-third weight and combined primary and secondary enrolment ratio with one-third weight(whereas UNDP uses combined enrolment

ratio of primary, secondary and tertiary education levels) and standard of living as measured by the real GDP per capita expressed as PPP$ (in Purchasing Power Parity dollars). For the construction of the index, minimum and maximum values have been fixed for each of these indicators and they are as follow

Dimension	Maximum	Minimum
Life expectancy	85yrs	25yrs
Literacy Rate	100	0
GER	100	0
Per Capita Domestic Product (Rupees at constant prices)	$40,000	$100

Finally, an aggregate HDI for a given district has been calculated as a simple arithmetic mean of the normalized scores for the three dimensions.

The districts are ranked according to the score achieved by them in respect to each other.

3.3 Study of districts on Priority Index

HDI and CHI both employ the same formulae of computation of the value for the index.

Both the indices compared and studied together.

Composite health index	Index Value$= \dfrac{X_{i\,d} - Min(X_{id})}{(Max(X_{id}) - Min(X_{id}))}$

Human Development Index (education and income)	Index $= \dfrac{\text{Actual Xi value - minimum Xi value}}{\text{Max Xi Value - min Xi value}}$

The best and the worst performing districts were indentified from both the indices. The districts were evaluated on the graph to measure the difference between them.

Health index indicators were replaced by the composite health index value and the movement of districts among themselves along with the relationship of CHI with HDI is noted.

The new modified HDI is studied and if present any substantial change in the ranking and relation of the districts is studied in detail.

4. Data analysis and Results

The data was collected and processed in Microsoft excel (see in annexure). The index calculation and correlation and regression analysis were performed in the excel sheets that are attached in the annexure of the report.

4.1 Study of districts of composite health index

Using the formula of index calculation and the data from DLHS 3 and DLHS4 the performance of districts of Maharashtra on the criteria of Ministry of Health and Family welfare and they were ranked according the value identifying the High priority Districts (Table 4.1.1a and Exhibit 4.1.1a)

MAHARASHTRA

Table 4.1.1a: District wise ranking of Maharashtra on composite health index		
Districts	Rank (2007)	Rank (2012)
Ahmadnagar	11	22
Akola	21	11
Amravati	13	7
Aurangabad	**33**	**27**
Bhandara	7	12
Bid	**29**	**29**
Buldana	23	26
Chandarpur	6	9
Dhule	**32**	19
Gadchiroli	**31**	8
Gondiya	12	**30**
Hingoli	**34**	24
Jalgaon	**30**	**35**
Jalna	**28**	25
Kolhapur	9	3
Latur	26	**28**

Exhibit 4.1.1a

List of previous High Priority Districts

From DLHS 3 Data HPD are:

27. Nanded
28. Bid
29. Jalgaon
30. Dhule
31. Aurangabad
32. Jalna
33. Gadhiroli
34. Hingoli
35. Nandurbar

From DLHS 4 data HPD are

27. Aurangabad
28. Latur
29. Bid
30. Gondiya
31. Nanded
32. Nandurbad
33. Thane
34. Parbhani
35. Jalgaon

Mumbai	16	2
Mumbai (Suburban)	10	18
Nagpur	5	15
Nanded	**27**	**31**
Nandurbar	**35**	**32**
Nashik	24	20
Osmanabad	14	17
Parbhani	25	**34**
Pune	2	1
Raigarh	20	6
Ratnagiri	22	16
Sangli	8	21
Satara	3	4
Sindhudurg	4	10
Solapur	15	5
Thane	17	**33**
Wardha	1	14
Washim	19	23
Yavatmal	18	13

There is change in the ranking list of High priority districts.

New HPD	Movement out of HPD
• Gondiya • Parbhani • Thane • Latur	• Hingoli • Jalna • Dhule • Gadchiroli

Graphs 4.1.1(a): District Performance in CHI
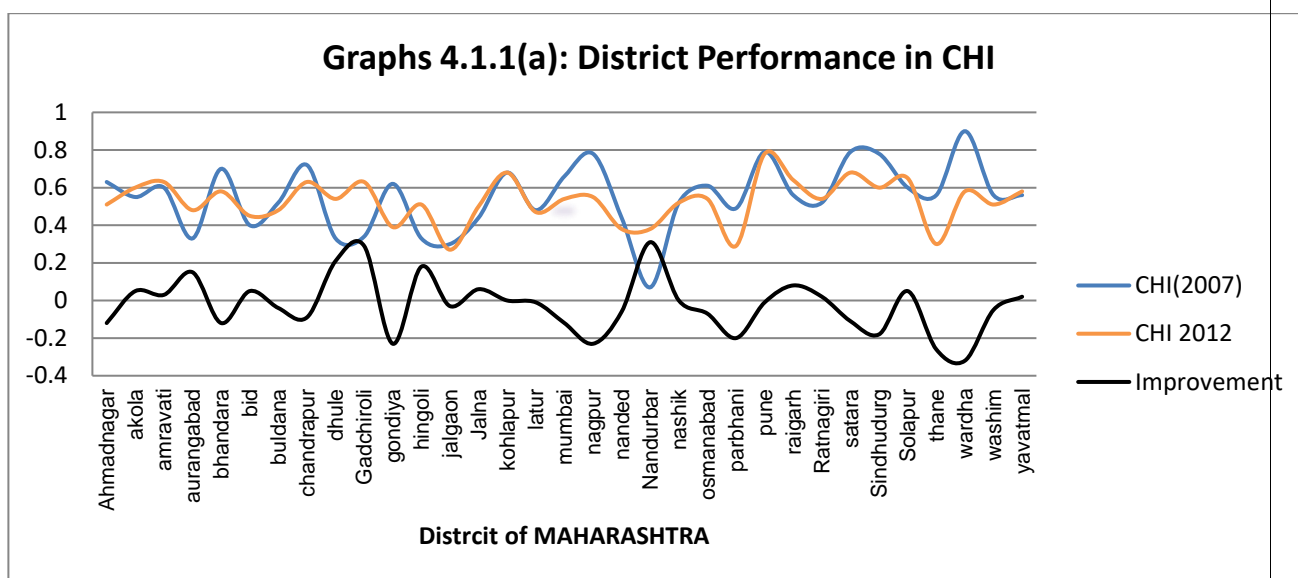
Gadchiroli district has shown an overall improvement of 62% with major contribution by the better family planning indicator by 30%. It is followed by Hingoli district of Maharashtra showing a 59% of improvement in indicators with 34% in maternal health and 23% in child health indicator. Nandurbar even though still in the list of High priority list is showing marked improvement of 49% (42% child health) and a shift in the ranking from 35th to 32nd position.

Wardha has shown the most negative growth of 95% decreased growth with downward movement of the district from 1st rank to 14th rank in the new list of HPD. Latur has reentered into districts of high priority as it has shown no significant development over the years and child health is reduced by 6%. Thane has a downfall (72%) from 20th to 33rd due to reduced maternal health (50%) and family planning practices (20%).

Graph 4.1.1(b) showing relationship of Child health with health performance of districts Maharashtra
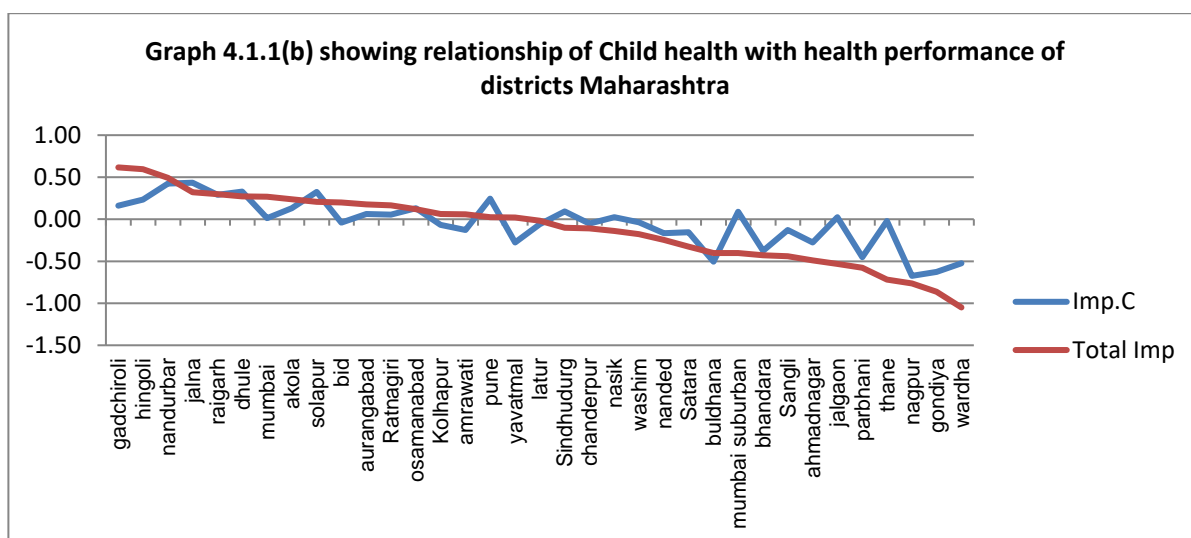
Rank of Correlation of indicators and CHI

The correlation of the indicators were studied with the CHI value for the year 2007-08(DLHS3) and year 2012-13(DLHS 4) [Table 4.1.1(b)]

Table 4.1.1b				
Year 2007	*Maternal health*	*Child heath*	*Family Planning*	*CHI*
Maternal health	1			
Child heath	0.7828 (.014)	1		
Family Planning	0.3794 (0.024)	0.5110 (0.0016)	1	
CHI	**0.8652 (0.000)**	**0.9065 (0.00)**	**0.7471 (0.000)**	**1**

Year 2012	*Maternal health*	*Child health*	*Family planning*	*CHI*
Maternal health	1			
Child health	0.0007 (0.009)	1		
Family planning	0.3207 (0.006)	-0.2913 (0.0089)	1	
CHI	**0.7386 (0.000)**	**0.3726 (0.026)**	**0.6343 (0.000)**	**1**

The Coefficient of correlation has changed from the year 2007 to year 2012.

- The Cof. Of Correlation has drastically decreased for child health from 0.9065 to 0.3726

- The Cof of correlation for maternal health and family planning is also reduced.

Child health indicator correlation to the CHI used to rank highest in 2007 has reduced to the lowest in 2012 derived calculations. In 2012 the major correlation effect on the CHI is seen due to maternal health followed by the family planning indicators change. This reflects that the child health needs to be taken into consideration for the calculation of the CHI that reflects the health condition of the district

Karnataka

Ranking of the districts

Table 4.1.2a: District wise ranking of Karnataka on composite health index		
DISTRICTS	Rank (2002)	Rank (2005)
Bagalkot	23	21
Bangalore	6	4
Bangalore Rural	7	9
Belgaum	14	18
Bellary	24	22
Bidar	19	24
Bijapur	22	23
Chamarajanagar	8	11
Chikmagalur	3	8
Chitradurga	20	17
Dakshina Kannada	10	15
Davangere	17	16
Dharwad	16	14
Gadag	21	19

Exhibit 4.1.2a

List of previous High Priority Districts

From DLHS 3 Data HPD are:

21. Gadag
22. Bijapur
23. Bagalkot
24. Bellary
25. Koppal
26. Gulbarga
27. Raichur
28. Yadgir (from Gulbarga)

From DLHS 2 data HPD are

21. Bagalkot
22. Bellary
23. Bijapur
24. Bidar
25. Koppal
26. Raichur
27. Gulbarga

Gulbarga	26	27
Hassan	2	2
Haveri	15	20
Kodagu	5	6
Kolar	18	13
Koppal	25	25
Mandya	1	1
Mysore	4	7
Raichur	27	26
Shimoga	11	10
Tumkur	9	12
Udupi	12	3
Uttara Kannada	13	5
Yadgir	#	#

There is change in the ranking along with addition and deletion of few districts into the list of High priority districts.

New HPD	Movement out of HPD
• Gadag • Yadgir (parent district Gulbarga)	• Bidar • Haveri

Graph 4.1.2(a): Districts Performance of Karnataka on CHI
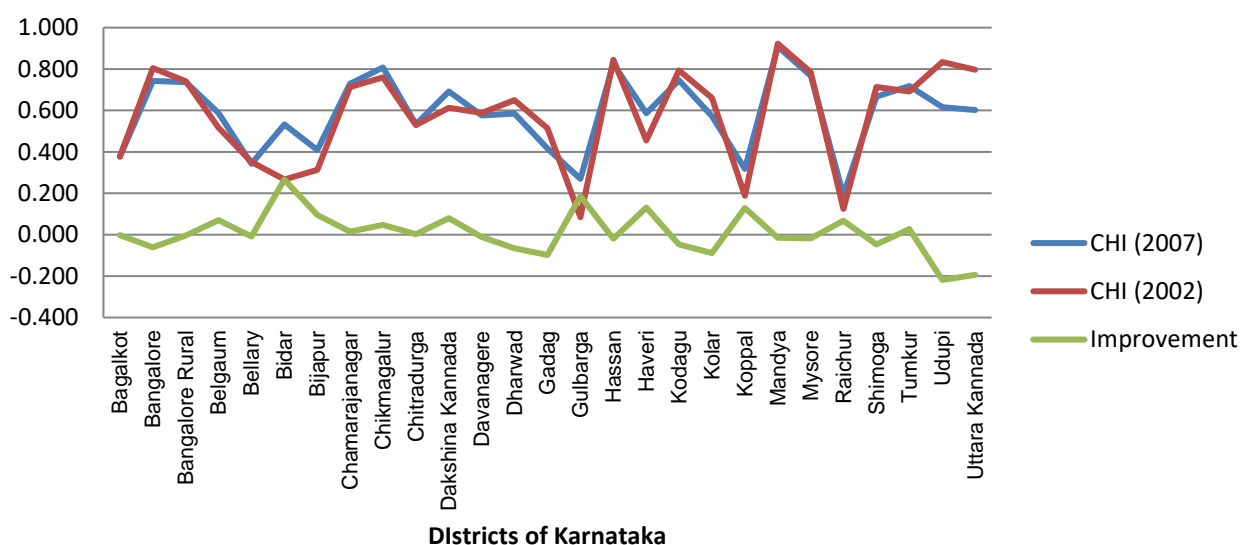
Bidar district of Karnataka moved out of list of high priority districts from 24th rank to 19th has maximum development of 80% contributed by a 43% improvement in child health followed by maternal health and family planning. Followed by Haveri which also became a non HPD by having an overall improvement of 39% (33% child health) but an decline in family planning practices. Gulbarga still as HPD has achieved a progress of 56% (25% FP practices) and has stepped up to 26th position.

Gadag gas entered the list of HPD in the year of 2007 as it has a negative growth of 30%(26% FP practices). Slipping to a position of HPD from 19th rank. Udupi district has shown the least development in the study years with a 66% downfall max reduction in FP practices with 43% and coming down to 12th rank from 3rd.Most of the districts which have fallen behind in the development are due to reduced family planning and child health practices.

Graph4.1.2(b) showing relationship of FP with health performance of Districts of Karnataka
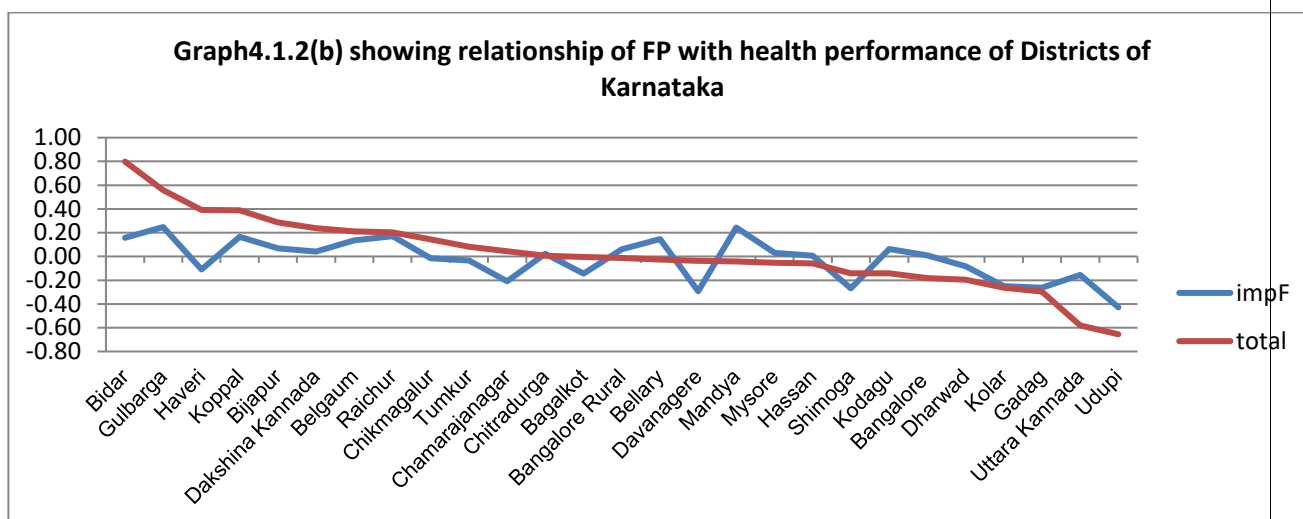
Rank of correlation of indicators and CHI

Table 4.1.2b				
DLHS 2	*Maternal Health*	*Child Health*	*Family Planning*	*CHI*
Maternal Health	1.000			
Child Health	0.584 (.00140)	1.000		
Family Planning	0.832 (0.000)	0.675 (.0013)	1.000	
CHI	**0.911 (0.000)**	**0.819 (.041)**	**0.947 (0.000)**	**1.000**

DLHS 3	*Maternal Health*	*Child Health*	*Family Planning*	*CHI*
Maternal Health	1.000			
Child Health	0.392 (.001)	1.000		
Family Planning	0.685	0.178	1.000	

	(0.000)	(.002)		
CHI	**0.916**	**0.508**	**0.876**	**1.000**
	(0.000)	**(.006)**	**(0.000)**	

The coefficient of correlation has changed from the year 2002 to year 2007

- The Cof. Of Correlation has drastically decreased for child health from [r=0.819 to 0.508]

- The Cof of correlation for maternal health and family planning is also reduced.

Child health indicator correlation to the CHI in 2002 has reduced to the lowest in 2007 derived calculations. In 2007 the major correlation effect on the CHI is seen due to maternal health followed by the family planning indicators change. This reflects that the child health needs to be taken into consideration for the calculation of the CHI that reflects the health condition of the district.

Inference from study of composite health index

After studying the parameters and indicators of both the states and district it can be seen there is a constant fall in the contribution and correlation of child health in the noted CHI which needs to be addressed. As child health in now treated to be an important part of the health programme along with the allocation of budget is sensitive to the performance of districts on the composite health index.

The most fundamental causes of health disparities are socioeconomic disparities.[xiii] Socioeconomic status has traditionally been defined by education, income, and occupation. Each component provides different resources, displays different relationships to various health outcomes.Eliminating health disparities will require attention to socioeconomic factors components and the pathways by which they influence health.

This is a compelling fact that give rise to the question is the composite health index enough to select districts of high priority without taking into the consideration thesocioeconomic activity of the districts on the other parameters which affect the health of the district such as the health seeking behavior and factor affecting health. Factors such as economic background and education status of the district are high influential factor that should be taken into consideration to take into account the need of the district.

In the following part we study on the districts over the HDI parameter to assess the approximation of CHI to the development of the district.

4.2 <u>Study of districts on Human Development Index</u>

Using the formula of index calculation and the data from published human development reports of state the performance of districts of Maharashtra and Karnataka the district level HDI is calculated and the districts are ranked according the value identifying the high performing and low performing districts

Maharashtra

The district value for each of the HDI indicator was taken from the SHDR and the index calculation formula was applied to the districts to have the value and rank of the districts on best and least performing indicators. The district performance is calculayed for the two years[2001 and 2011]with data availability and the growth of each district is studied

Table 4.2.1a: District wise ranking of Maharashtra on human development index				
	Low	Medium	High	Very high
Districts (2001)	Nandurbar, Gadchiroli, Jalna, Washim, Nanded, Hingoli, Buldana, Parbhani, Dhule	Osmanabad , Yavatmal, Latur, Beed, Gondiya, Bhandara, Jalgaon, Solapur	Ahmednagar, Ratnagiri Akola, Amravati Wardha, Chanderpur Aurangabad, Nasik	Satara , Sindhudurg , Sangli , Kolhapur , Nagpur , Raigarh Nagpur , Thane , Pune, Mumbai
Districts (2011)	Nandurbar, Gadchiroli , Washim , Hingoli , Jalna , Latur , Dhule, Nanded	Beed, Parbhani, Buldana, Yavatmal, Gondiya, Amravati, , Bhandara, Chanderpur	Ahmednagar, Akola, Wardha, Jalgaon, Aurangabad, Solapur, Ratnagiri, Satara	Sangli, Nasik, Sindhudurg, Raigarh, Kolhapur, Thane, Pune, Mumbai

between those two years of comparison.

Exhibit 4.2.1a

Change in districts over 10 years of performance

New low performing districts	Moved out of low performing districts
• Latur • Osamanabad	• Buldhana • Parbhani

Graph 4.2.1(a): Performance of Districts on HDI
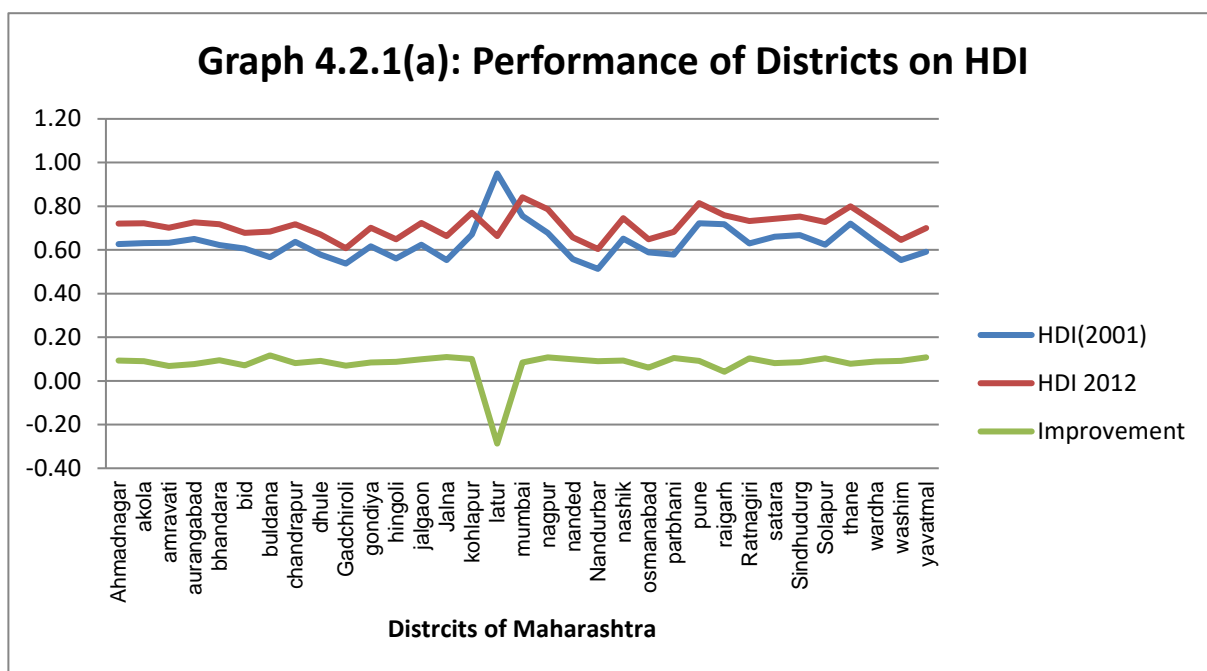
The best performing district in terms of improvement in the indicators over 10 years on the HDI in Maharashtra is Buldana with 35% of growth with most contribution from income level that increased to 22% along with education and least contribution from health indicator that resulted a movement towards medium performing district. Parbhani also moved out of the low performing districts as its increase of 31 %(21% by income) and a negative growth in health indicator. Nasik, Raigarhand Thane having a good position and growth in income level sustain their place in top 10 performing districts even though their health and education indicator conclude vice versa.

Latur and Osamanabad have negative growth in health indicators which have a greater influence on the income and education together pushes them into low performing indicator.

It can be seen that HDI is influenced by income index of Maharashtra.

Graph 4.2.1(b): Relationship of Income with HDI
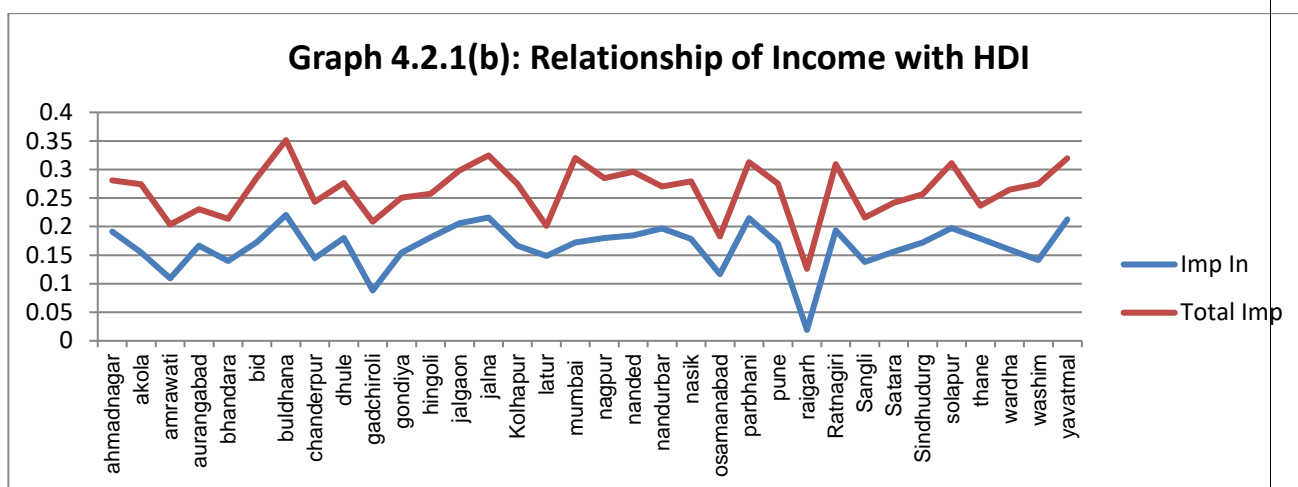
Correlation analysis of HDI with its components (Maharashtra)

Table 4.2.1b				
2001				
Index	*Literacy*	*Infant Survival Rate*	*Income*	*HDI*
Literacy	1.0000			
Infant Survival Rate	0.4301 (0.0111)	1.0000		
Income	0.6632 (0.0000)	0.5098 (0.0021	1.0000	
HDI	**0.8181 (0.0000)**	**0.5719 (0.0004)**	**0.9708 (0.0000)**	**1.0000**
2011				
Literacy	1.000			
Infant Survival Rate	.3809 (0.0263)	1.000		
Income	0.550 (0.0006)	0.4943 (0.0030)	1.000	
HDI	**0.7537 (0.000)**	**0.5785 (0.0003)**	**0.9614 (0.0000)**	**1.000**

The coefficient of correlation has changed from the year 2001 to year 2011

- The Cof. Of Correlation for income is high for both 2001 and 2011 (.9708 - .9614) which has the maximum effect in HDI movement.

- The Cof of correlation for Literacy index has reduced by 6.4% and health influence in human development has remained fairly same

Income indicator correlation to the HDI is highest in both the years which by a large percentage from literacy and health showing the income has the most effect on the HDI value of the district in Maharashtra which can show an elevated or increased mean value and that may show a proxy display of overall development of the district.

Health has the least correlation value to the HDI. With income to health having approx. 50% of correlation and education to health 40% of correlation in Maharashtr

Karnataka

The value of HDI is calculated taking the index value of education, health and income index available in the SHDR due to limitation of the data availability. The indices are not calculated from the indicator values. The districts are arranged into low, medium, high and very high performing districts.

Table 4.2.2a: District wise ranking of Karnataka on human development index				
	Low	**Medium**	**High**	**Very high**
Districts 1991	Raichur, Koppal, Gulbarga, Chamarajnagar, Bidar, Haveri	Kolar, Hassan, Gadag, Bellary, Mandya, Bagalkot, Bijapur	Davangere, Belgaum, Banglore rural, Dharawad, Tumkur, Chitradurga, Mysore	Dakshina Kannada, Udupi, Kodagu, Banglore, Shimoga, Uttar Kannada, Chikmalgur
Districts 2001	Bagalkot, Bijapur, Koppal, Chamarajnagar, Gulbarga, Raichur	Tumkur, Chitradurga, Kolar, Bellary, Mandaya, Haveri, Bidar,	Belgam, Chikmalgur, Dharawad, Hassan, Davangere, Gadag, Mysore	Banglore, Dakshina Kannada, Udupi, Kodagu, Shimoga, Banglore rural , Uttar Kannada

Graph 4.2.2(a): Performance on HDI
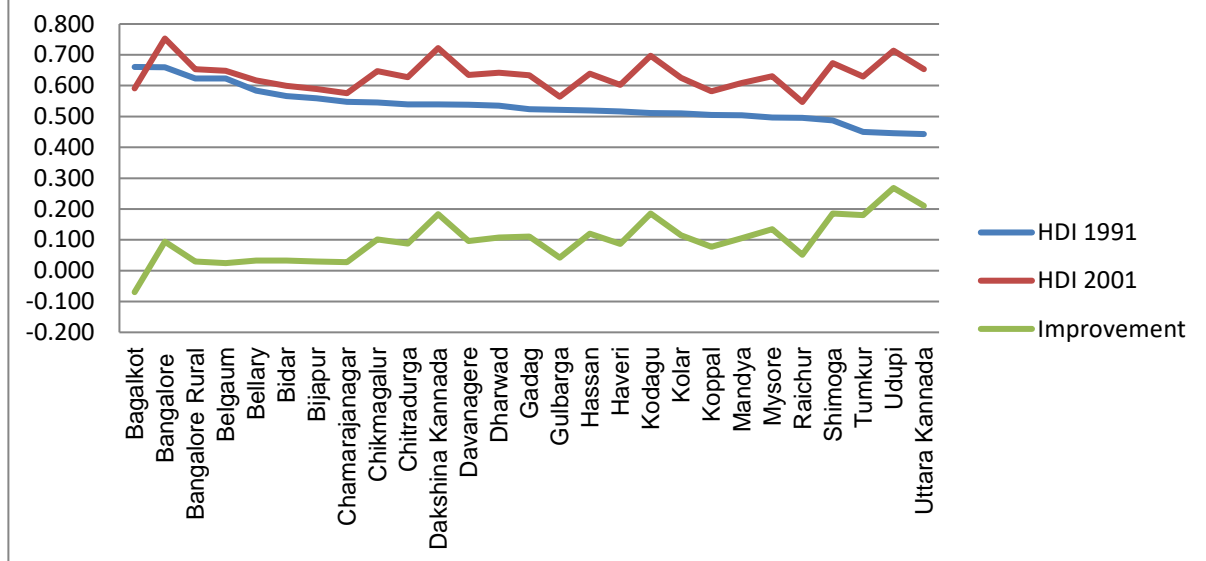
Highest improvement is seen in the district of Kolar of Karnataka with 41% improvement contributed by education and income status equally by 14% each. It is followed by Banglore Urban (39%) with a sharp increase in the income level of the district (22%) which resulted in the 1st rank of the district from 4th. Bidar and Haveri have moved out of low performing districts by achieving a growth of 31% and 25% which are influenced by the education and income indicator.

Least improvement is seen in Uttar Kannada (17%) and Tumkur districts (18%) as they have no significant improvement in the education and health sector. There income has increased by 14% but that has failed to generate the effect on human development.

When a graph is drawn between HDI improvement and education index improvement

Graph 4.2.2(b): Relationship of Education with HDI
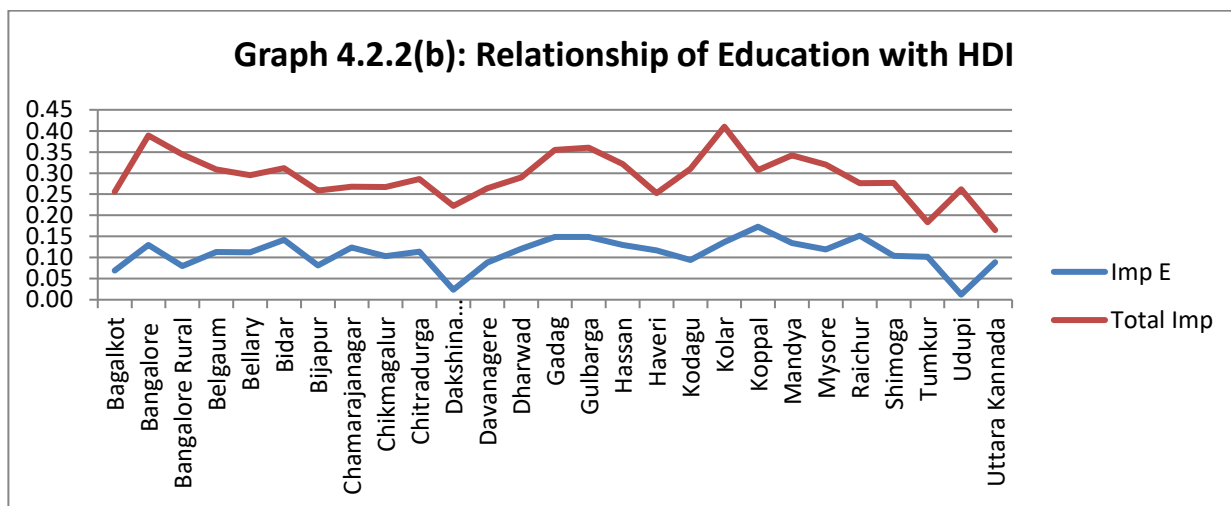
Correlation analysis of HDI with its components (Karnataka)

Table 4.2.2b				
1991				
Index	*Literacy*	*Life expectancy*	*Income*	*HDI*
Literacy	1.0000			
Life expectancy	0.5049 ((.007)	1.0000		
Income	0.7381 (0.0000)	0.4178 (0.030)	1.0000	
HDI	**0.9473 (0.0000)**	**0.6670 (0.0001)**	**0.8575 (0.0000)**	**1.0000**
2001				
Literacy	1.000			
Life expectancy	0.4147 (0.0263)	1.000		
Income	0.6679 (0.0006)	0.4973 (0.0030)	1.000	
HDI	**0.9274 (0.000)**	**0.6392 (0.0007)**	**0.8589 (0.0000)**	**1.000**

As seen in the graph as well as in the correlation there is higher weight age of education to other indicator when Karnataka is studied on the HDI parameters. With income and health been followed in this correlation.

Key issues

As it can be observed that different states employ different indicators for determination of health index the uniformity and comparative value of thus computed HDI for districts is questionable. Due to irregularity in selection of the health indicators across the selected states of HDI computation there is a need to identify the indicators for district level with no gaps and lack of information. For this study and to study the socioeconomic factor there is a requirement of uniformity among studied indicator.

As composite health index is calculated on the district basis and is uniform for all the districts in India Composite health index will be taken as the health index and will replace the existing health indicator n HDI methodology to generate result which are uniform and comparative. Taking the education and health index of Maharashtra and Karnataka as computed.

4.3 <u>Study of districts on Priority Index</u>

Five indices are used by the Human Development Reports to measure progress on human development. The first Human Development Report in 1990 introduced a new way of measuring development by combining indicators of life expectancy, educational attainment and income into a composite human development index, the HDI. The components are measured by four variables: GDP per capita, (PPP USD), literary rates (%), combined gross enrollment ratio, (%) and life expectancy at birth (years).

The composite index results in a figure between 0 and 1, of which 1 indicates high level of human development and 0 being no level of human development. Countries are consequently given a specific rank dependent on their success in achieving HD, presented yearly in the Global HDRs.[xiv]

Ministry of Health and family welfare has formulated CHI as the index which represents the health of the district.

To study the influence of the socioeconomic indicators on the priority districts and the irregularity in health indicators among the states for calculation of Human development index for this exercise for setting priority districts we take up the economic and education indicator from the human development report and formulate a **Priority Index (PI).**Having same methodology of index calculation there will be no issues in addition and comparability of data. PIis computed adding the value of pre-calculated CHI value for each district of the states and change in the districts ranking along with the correlation is studied.

Education and income index with CHI for Priority Index

To study the effect of socioeconomic indicators onto the HPD (identified by composite health indicator) the education and income index calculated in district level HDI are summed up to to formulate a priority index for this study.

After computation of the PI the districts will ranked and categorized as the best and least performing districts. Then these are compared with the HPD identified by the Ministry of Health and Family Welfare and observed for change in the values and ranking of the district

Ranking of districts on HPD and PI

MAHARASHTRA (Table 4.2.3a)

The districts were ranked after calculation of Priority index of Maharashtra. They were ranked on the values calculated the highest to lowest attained value.

Top performing districts		Low performing districts	
High performing PI 2011	High performing (MoHFW 12)	PI 2011	HPD (MoHFW 12)
1. Pune	1. Pune	26. Osamanabad	26. Aurangabad
2. Mumbai	2. Mumbai	27. Gadchiroli	27. Latur
3. Kolhapur	3. Kolhapur	28. Latur	28. Bid
4. Raigarh	4. Satara	29. Hingoli	29. Gondiya
5. Nagpur	5. Solapur	30. Washim	30. Nanded
6. Satara	6. Raigarh	31. Jalgaon	31. Nandurbar
7. Sindhudurg	7. Amrawati	32. Parbhani	32. Thane
8. Solapur	8. Gadchiroli	33. Nanded	33. Parbhani
9. Chanderpur	9. Chanderpur	34. Nandurbar	34. Jalgaon

Top performing districts		Low performing districts	
High performing PI 2011	High performing (MoHFW 07)	PI 2001	HPD (MoHFW 07)
1. Pune	1. Wardha	26. Osamanabad	26. Nanded
2. Nagpur	2. Nagpur	27. Washim	27. Jalgaon
3. Wardha	3. Satara	28. Parbhani	28. Dhule
4. Mumbai	4. Pune	29. Dhule	29. Gadchiroli
5. Satara	5. Bhandara	30. Nanded	30. Aurangabad
6. Thane	6. Ahmadnagar	31. Jalna	31. Jalna
7. Kolhapur	7. Gondiya	32. Gadchiroli	32. Bid
8. Raigarh	8. Mumbai	33. Hingoli	33. Hingoli
9. Sangli	9. Chandarpur	34. Nandurbar	34. Nandurbar

Table 4.2.3b				
Priority Index 2011				
	Education Index	CHI	Income index	PI
Education Index	1.000			
CHI	0.3648 (.0338)	1.000		
Income index	0.5576 (0.0006)	0.2824 (0.1055)	1.000	
PI	0.7155 (0.000)	0.7600 (0.000)	0.8146 (0.000)	1.000

The addition of socioeconomic indicator to the priority index present a noticeable change in the ranking of the districts that in relation change the districts in high and low performing. The correlation of each of the indicator has been fairly equal and the income correlation has decreased.

This has changed the ranking of the districts by 45% change in the districts in low performing or the districts which need the priority on all the three parameters namely education development, health development and standard of living development.

Graph 4.3.1(a): Rank difference on Indices
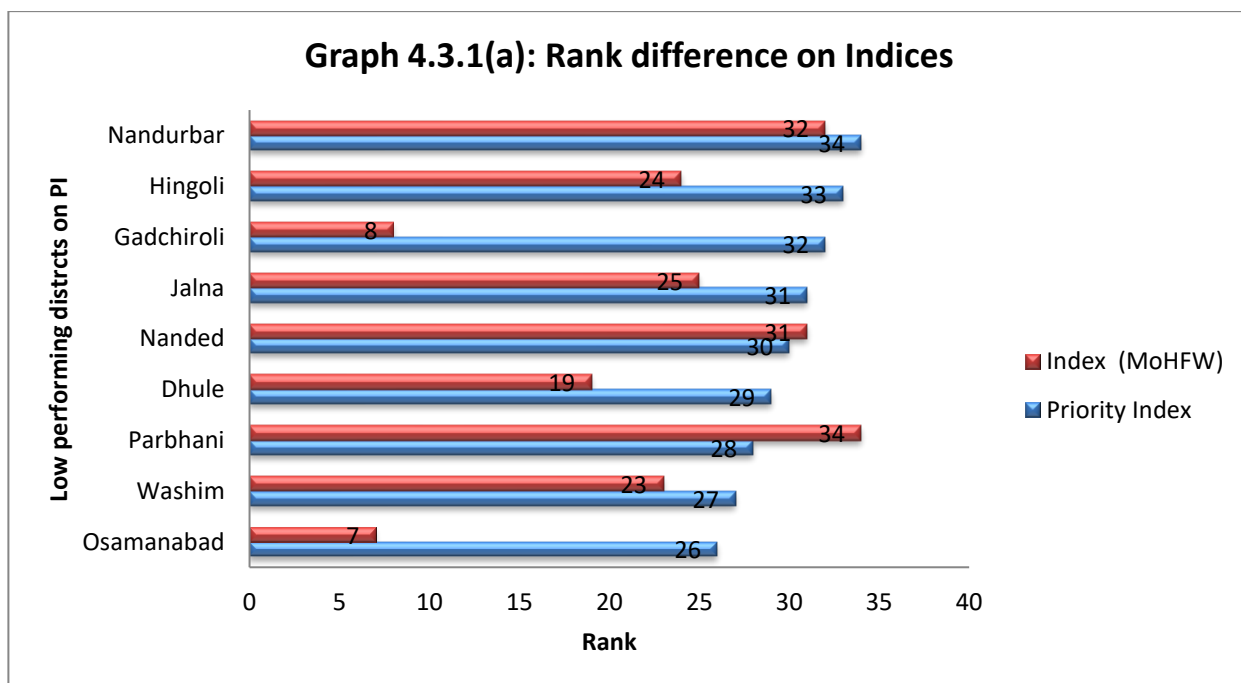
The reason for the change can be majorly because the earlier HDI was sensitive towards the change of income with a Coefficient of correlation [r=0.9614 p =0.000].

This sensitivity was reduced when the composite health index was added to socioeconomic parameters referring to the fact that the development of health is an integral part of the human development.

KARNATAKA (Table 4.3.2a)

Karnataka districts were ranked as high and low performing districts after calculating the PI. The priority index was calculated and the districts were listed from highest and lowest ranking districts.

High performing districts		Low performing districts	
High performing PI 2001	**High performing (MoHFW- 2007)**	Low performing Priority Index 2001	**HPD (MoHFW 07)**
1. Bangalore	1. Mandya	21. Gadag	21. Gadag
2. Kodagu	2. Hassan	22. Bagalkot	22. Bijapur
3. Dakshina Kannada	3. Chikmagalur	23. Bijapur	23. Bagalkot
4. Chikmagalur	4. Mysore	24. Bellary	24. Bellary
5. Mandya	5. Kodagu	25. Koppal	25. Koppal
6. Hassan	6. Bangalore	26. Gulbarga	26. Gulbarga
7. Udupi	7. Bangalore Rural	27. Raichur	27. Raichur

Top performing districts		Low performing districts	
High performing PI 1991	High performing (MoHFW 02)	Low performing Priority Index 1991	HPD (MoHFW 02)
1. Udupi 2. Kodagu 3. Bangalore 4. Dakshina Kannada 5. Uttara Kannada 6. Mandya 7. Chikmagalur	1. Mandya 2. Hassan 3. Udupi 4. Bangalore 5. Uttara Kannada 6. Kodagu 7. Mysore	21. Bagalkot 22. Bellary 23. Bijapur 24. Bidar 25. Koppal 26. Raichur 27. Gulbarga	21. Bagalkot 22. Bellary 23. Bijapur 24. Bidar 25. Koppal 26. Raichur 27. Gulbarga

Table 4.3.2b				
Priority Index 2001				
	Education Index	*CHI*	*Income index*	*PI*
Education Index	1.000			
CHI	0.5583 (0.002)	1.000		
Income index	0.6679 (0.000)	0.4435 (0.0204)	1.000	
PI	**0.8128 (0.000)**	**0.9247 (0.000)**	**0.6879 (0.000)**	**1.000**

A change in the ranking is seen in the best and low performing districts stating that there is an influence in the ranking of the districts. When the socioeconomic parameters are added to composite index the correlation of the health indicator with the PI increases with an effect to reduced correlation between education and income level to human development index.

There is no change observed in the list of low performing districts of Karnataka when socioeconomic parameters are added to health parameter to identify the high priority districts.

There is a positive correlation between the health and education, health and income which makes it important to study the parameters along with health as they have a long term effect on the health condition of an individual.

Karnataka shows no change in the districts one of the reason can be the limitation of the recent data availability. Old data seldom reflect the recent picture of development in the region of Karnataka. Reasons for no change in the districts development need to be carried out that may include conducting a qualitative study to in order to find the factors influencing the districts.

5. <u>Discussion</u>

Both health and socioeconomic status (SES) have many dimensions and can be conceptualized and measured in multiple ways, with measurement often falling far short of the conceptual ideas. This adds to the complexity of synthesizing studies' results relating socioeconomic status, health, and race/ ethnicity. This study there was an attempt made to assess the influence of health determinants to health. The factors identified which influence the health of the community are divided into

The determinants of health include:

- Social and economic environment,

- Physical environment, and

- Person's individual characteristics and behaviors.

SES is thus more than financial well-being as well the educational achievement, which are often used as indicators in empirical work; more broadly, it encompasses a lifetime of access to knowledge, resources, and opportunities. Taking these factors into consideration analysis was done by selecting two states and there socioeconomic indicators were added along with health indicators. While socioeconomic resources affect health throughout the lifecycle. With a strong positive correlation among the socioeconomic and health factors suggests that health cannot not be studied alone to set the priority for the development of the district. Major influencing factors need to be taken into consideration for the health development.

6. <u>Conclusion</u>

A multitude of different social, economic and cultural factors determine a person's health. This means that people living in the same community, or people of the same age, can have vastly different chances of good health. Government of India employs Composite Health Index to identify the health high priority districts and these high priority districts receive 30% more health budget than other districts of the state. There is a need to revisit the criteria to identify the High Priority Districts of a state that will provide an over-all picture which would be helpful in equitable distribution of resources and will in return development of the district.

A strong correlation between health, education and income has previously also presented a note to act upon. A tool such as proposed priority Index will provide an overview of the health, education and income condition of the state and district. Further study on other states will provide clearer scenario of the effect of SES on health that may help to design an index   with   wider   and   complete   vision

Annexure

Calculation of Composite health index

MAHARASHTRA (DLHS 3)

District	Three Or More Antenatal Check-Up	Safe Delivery 1	% Of Children Aged 12-23 Months Fully Immunized	Breast feeding	% Of Births Of Order 3	Contraceptive Prevalence Rate-Any Modern Method	Max Anc	Min Anc	Max Safe Dilevery	Min Safe Delivery	Max Immunization	Min Immunization	Max Breast feeding	Min Breast feeding	Max 3= Order	Min 3+ Birth order	Max Cpr	Min Cpr	Index Anc	Index Safe Delivery	Index Immunization	Index Breast feeding	Index3= Birth Order	Index Cpr	Chi
Ahmadnagar	83.6	87.2	85.3	39.4	18.1	68.5	95.5	38.3	95.3	34	92	17	54.8	16.4	22.3	8.6	78.1	55	0.7919158	0.867863	0.910667	0.598958	0.306569	0.584416	0.676738
Akola	69.1	78.4	72.6	34.3	19.7	65.7	95.5	38.3	95.3	34	92	17	54.8	16.4	22.3	8.6	78.1	55	0.538462	0.724307	0.741333	0.466146	0.189781	0.463203	0.520539
Amravati	77.9	65.9	61.8	42.7	15.5	70.5	95.5	38.3	95.3	34	92	17	54.8	16.4	22.3	8.6	78.1	55	0.692308	0.520392	0.597333	0.684896	0.49635	0.670996	0.610379
Aurangabad	57.2	76	61.8	39.2	19.8	58	95.5	38.3	95.3	34	92	17	54.8	16.4	22.3	8.6	78.1	55	0.330042	0.685155	0.597333	0.59375	0.182482	0.12987	0.419835
Bhandara	84.5	70.3	72.2	47.1	11.2	68.8	95.5	38.3	95.3	34	92	17	54.8	16.4	22.3	8.6	78.1	55	0.807692	0.59217	0.736	0.799479	0.810219	0.597403	0.723827
Bid	61.5	69.7	75.7	25	22.3	61.9	95.5	38.3	95.3	34	92	17	54.8	16.4	22.3	8.6	78.1	55	0.405594	0.582382	0.782667	0.223958	0	0.298701	0.382217
Buldana	66.7	70.4	73.8	49.9	12.9	62	95.5	38.3	95.3	34	92	17	54.8	16.4	22.3	8.6	78.1	55	0.496503	0.593801	0.757333	0.872396	0.686131	0.303303	0.618199
Chandarpur	83.2	59.9	75.4	31.1	6.6	65.7	95.5	38.3	95.3	34	92	17	54.8	16.4	22.3	8.6	78.1	55	0.784965	0.422512	0.778667	0.382813	1.145985	0.463203	0.663024

Dhule	49.5	59.4	35	46.7	15.5	67.4	95.5	38.3	95.3	34	92	17	54.8	16.4	22.3	8.6	78.1	5	0.1958044	0.414356	0.24	0.789063	0.496357	0.536797	0.445395
Gadchiroli	72.5	34.6	46.4	49.1	14.9	58.5	95.5	38.3	95.3	34	92	17	54.8	16.4	22.3	8.6	78.1	5	0.597902	0.009788	0.392	0.851563	0.540146	0.151515	0.423819
Gondiya	83	62.8	87.8	49.7	14.9	65.5	95.5	38.3	95.3	34	92	17	54.8	16.4	22.3	8.6	78.1	5	0.781469	0.469821	0.944	0.867188	0.540146	0.454545	0.676195
Hingoli	69.3	47.3	52.2	21.3	19.7	62.2	95.5	38.3	95.3	34	92	17	54.8	16.4	22.3	8.6	78.1	5	0.541958	0.216966	0.469333	0.127604	0.189781	0.311688	0.309555
Jalgaon	58.2	65.2	52.1	39.9	19	66.6	95.5	38.3	95.3	34	92	17	54.8	16.4	22.3	8.6	78.1	5	0.347902	0.508972	0.468	0.611979	0.240876	0.502165	0.446649
Jalna	69.3	71.5	68.5	22.5	17.2	55.1	95.5	38.3	95.3	34	92	17	54.8	16.4	22.3	8.6	78.1	5	0.541958	0.611746	0.686667	0.158854	0.372263	0.004329	0.395969
Kolhapur	82.8	92.6	76.8	26.1	15.1	70	95.5	38.3	95.3	34	92	17	54.8	16.4	22.3	8.6	78.1	5	0.777972	0.955954	0.797333	0.252604	0.525547	0.649351	0.659794
Latur	76.2	71.4	71.6	24.1	18	63.3	95.5	38.3	95.3	34	92	17	54.8	16.4	22.3	8.6	78.1	5	0.662587	0.610114	0.728	0.200521	0.313869	0.359307	0.479066
Mumbai	92.7	93.5	76.7	37.2	17.1	56.2	95.5	38.3	95.3	34	92	17	54.8	16.4	22.3	8.6	78.1	5	0.951049	0.970636	0.796	0.541667	0.379562	0.051948	0.615144
Mumbai (Suburban)	89.7	95.3	84.7	31.9	12.6	58.3	95.5	38.3	95.3	34	92	17	54.8	16.4	22.3	8.6	78.1	5	0.898601	1	0.902667	0.403646	0.708029	0.142857	0.675967
Nagpur	95.5	84.4	90.5	46.3	14.4	69.9	95.5	38.3	95.3	34	92	17	54.8	16.4	22.3	8.6	78.1	5	1	0.822186	0.98	0.778646	0.576642	0.645022	0.800416
Nanded	76.2	61.4	72.3	29.7	17	59.8	95.5	38.3	95.3	34	92	17	54.8	16.4	22.3	8.6	78.1	5	0.662587	0.446982	0.737333	0.346354	0.386861	0.207792	0.464652
Nandurbar	38.3	34	17	48.7	18.2	58.1	95.5	38.3	95.3	34	92	17	54.8	16.4	22.3	8.6	78.1	5	0	0	0	0.841146	0.299927	0.134199	0.212436
Nashik	71.6	68.8	68	46.2	19.2	68.4	95.5	38.3	95.3	34	92	17	54.8	16.4	22.3	8.6	78.1	5	0.582168	0.5677	0.68	0.776042	0.226277	0.580087	0.568712
Osmanabad	71.9	69.1	66	22	14.5	66.4	95.5	38.3	95.3	34	92	17	54.8	16.4	22.3	8.6	78.1	5	0.58741	0.57259	0.653333	0.145833	0.56934	0.49350	0.50367

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Parbhani	69	70.2	71.6	39.5	17.6	57.1	95.5	38.3	95.3	34	92	17	54.8	16.4	22.3	8.6	78.1	55	0.536713	0.590538	0.728	0.601563	0.343066	0.090909	0.481798
Pune	89	87.9	86.1	34.7	11.1	70.4	95.5	38.3	95.3	34	92	17	54.8	16.4	22.3	8.6	78.1	55	0.886364	0.879282	0.921333	0.476563	0.817518	0.666667	0.774621
Raigarh	83.8	75.1	77.8	29.1	18.3	62.7	95.5	38.3	95.3	34	92	17	54.8	16.4	22.3	8.6	78.1	55	0.795455	0.670473	0.810667	0.330729	0.291971	0.333333	0.538771
Ratnagiri	83.3	76.7	81	16.4	16.1	58.4	95.5	38.3	95.3	34	92	17	54.8	16.4	22.3	8.6	78.1	55	0.786713	0.696574	0.853333	0	0.452555	0.147186	0.489394
Sangli	81.6	78.9	87.5	26	13	69.3	95.5	38.3	95.3	34	92	17	54.8	16.4	22.3	8.6	78.1	55	0.756993	0.732463	0.94	0.25	0.678832	0.619048	0.662889
Satara	92.6	90.9	92	35	13	70.4	95.5	38.3	95.3	34	92	17	54.8	16.4	22.3	8.6	78.1	55	0.949301	0.928222	1	0.484375	0.678832	0.666667	0.784566
Sindhudurg	92.5	94	84.4	22.2	11.7	57	95.5	38.3	95.3	34	92	17	54.8	16.4	22.3	8.6	78.1	55	0.947552	0.978793	0.898667	0.151042	0.773723	0.08658	0.639393
Solapur	86.6	73.4	84	19.2	18.7	73.2	95.5	38.3	95.3	34	92	17	54.8	16.4	22.3	8.6	78.1	55	0.844066	0.642741	0.893333	0.072917	0.262774	0.787879	0.584008
Thane	84.7	73.2	73.6	34.1	15.1	57.4	95.5	38.3	95.3	34	92	17	54.8	16.4	22.3	8.6	78.1	55	0.811189	0.639478	0.754667	0.460938	0.525547	0.103896	0.549286
Wardha	88.6	83.3	84.1	54.8	8.6	78.1	95.5	38.3	95.3	34	92	17	54.8	16.4	22.3	8.6	78.1	55	0.879371	0.804241	0.894667	1	1	1	0.929713
Washim	68.6	72	68.2	33.2	12.8	65.8	95.5	38.3	95.3	34	92	17	54.8	16.4	22.3	8.6	78.1	55	0.52972	0.619902	0.682667	0.4375	0.693431	0.467532	0.571792
Yavatmal	71.5	59.4	68.8	40.7	13.8	66.6	95.5	38.3	95.3	34	92	17	54.8	16.4	22.3	8.6	78.1	55	0.58042	0.414356	0.690667	0.632813	0.620438	0.502165	0.573476

MAHARASHTRA (DLHS 4)

District	% women had 3 ANC	%safe delivires	Breast feeding upto (0-6months)	% full immunization	3+ birth order	% modern contraception	Max value for ANC	Min value for ANC	Max value for safe delivery	Min value safe delivery	Max value breast feeding	Min value breast feeding	Max vaue full immunization	Min value full immunization	Max value for birth 3+	Min value birth 3+	Max value or modern method of conception	Min value for modern conception	INDEX ancs	INDEX SAFE DELIVERY	INDEX BREAST FEEDING	INDEX IMMUNIZATION	INDEX BIRTH ORDER 3=	INDEX CPR MODERN METHOD	FINAL INDEXING
Ahmadnagar	84.5	93.7	66.7	57.7	14.4	64.9	97.3	72.7	99.3	82.6	88.2	44.5	87.3	33.8	26.5	3.4	75.6	56	0.48	0.66	0.51	0.45	0.52	0.45	**0.51**
Akola	94	88.6	80.9	68	23.7	71.3	97.3	72.7	99.3	82.6	88.2	44.5	87.3	33.8	26.5	3.4	75.6	56	0.87	0.36	0.83	0.64	0.12	0.78	**0.60**
Amrawati	94.8	96	55.2	75.7	18.2	69.6	97.3	72.7	99.3	82.6	88.2	44.5	87.3	33.8	26.5	3.4	75.6	56	0.90	0.80	0.24	0.78	0.36	0.69	**0.63**
Aurangabad	89.4	91	65.4	78.4	21.7	59.4	97.3	72.7	99.3	82.6	88.2	44.5	87.3	33.8	26.5	3.4	75.6	56	0.68	0.50	0.48	0.83	0.21	0.17	**0.48**
Bhandara	86.6	94.8	50	69.1	9.7	69.3	97.3	72.7	99.3	82.6	88.2	44.5	87.3	33.8	26.5	3.4	75.6	56	0.57	0.73	0.13	0.66	0.73	0.68	**0.58**
Bid	78	98.7	67.9	54.5	26.5	67.6	97.3	72.7	99.3	82.6	88.2	44.5	87.3	33.8	26.5	3.4	75.6	56	0.22	0.96	0.54	0.39	0.00	0.59	**0.45**
Buldhana	93	93.2	62.5	44.7	20	66.8	97.3	72.7	99.3	82.6	88.2	44.5	87.3	33.8	26.5	3.4	75.6	56	0.83	0.63	0.41	0.20	0.28	0.55	**0.48**
Chanderpur	95.1	89.4	55.6	76.9	11.9	70.7	97.3	72.7	99.3	82.6	88.2	44.5	87.3	33.8	26.5	3.4	75.6	56	0.91	0.41	0.25	0.81	0.63	0.75	**0.63**
Dhule	92.2	84.3	90.8	67.2	21.8	64.5	97.3	72.7	99.3	82.6	88.2	44.5	87.3	33.8	26.5	3.4	75.6	56	0.79	0.10	1.06	0.62	0.20	0.43	**0.54**
Gadchiroli	95	82.6	81.3	72.7	13.2	70.2	97.3	72.7	99.3	82.6	88.2	44.5	87.3	33.8	26.5	3.4	75.6	56	0.91	0.00	0.84	0.73	0.58	0.72	**0.63**
Gondiya	79.9	88.5	68.8	33.8	14.5	68	97.3	72.7	99.3	82.6	88.2	44.5	87.3	33.8	26.5	3.4	75.6	56	0.29	0.35	0.56	0.00	0.52	0.61	**0.39**
Hingoli	91	94.1	71.1	58.1	24.2	64.8	97.3	72.7	99.3	82.6	88.2	44.5	87.3	33.8	26.5	3.4	75.6	56	0.74	0.69	0.61	0.45	0.10	0.45	**0.51**
Jalgaon	72.	86.	73.3	58.7	24	59.8	97	72	99.	82.	88.	44.	87.3	33.8	26	3.	75.6	56	0.	0.22	0.66	0.47	0.0	0.19	**0.27**

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Jalna	89.8	87.7	84.6	76.4	26.5	62	97.3	72.7	99.3	82.6	88.2	44.5	87.3	33.8	26.5	3.4	75.6	56	0.70	0.31	0.92	0.80	0.00	0.31	**0.50**
Kolhapur	88.9	97.4	52.5	72.8	9.3	73.3	97.3	72.7	99.3	82.6	88.2	44.5	87.3	33.8	26.5	3.4	75.6	56	0.66	0.89	0.18	0.73	0.74	0.88	**0.68**
Latur	87	95.5	58.2	60.2	21.5	65	97.3	72.7	99.3	82.6	88.2	44.5	87.3	33.8	26.5	3.4	75.6	56	0.58	0.77	0.31	0.49	0.22	0.46	**0.47**
Mumbai	96.2	99.2	75	69.2	10.4	60.3	97.3	72.7	99.3	82.6	88.2	44.5	87.3	33.8	26.5	3.4	75.6	56	0.96	0.99	0.70	0.66	0.70	0.22	**0.70**
Mumbai suburban	95.4	94.9	78.3	72	24.1	56	97.3	72.7	99.3	82.6	88.2	44.5	87.3	33.8	26.5	3.4	75.6	56	0.92	0.74	0.77	0.71	0.10	0.00	**0.54**
Nagpur	88.5	97	39.4	62	13	71.2	97.3	72.7	99.3	82.6	88.2	44.5	87.3	33.8	26.5	3.4	75.6	56	0.64	0.86	-0.12	0.53	0.58	0.78	**0.55**
Nanded	95.4	87.2	64.8	49.2	26.4	62.7	97.3	72.7	99.3	82.6	88.2	44.5	87.3	33.8	26.5	3.4	75.6	56	0.92	0.28	0.46	0.29	0.00	0.34	**0.38**
Nandurbar	86.4	80.2	81.4	78.9	24.3	57.2	97.3	72.7	99.3	82.6	88.2	44.5	87.3	33.8	26.5	3.4	75.6	56	0.56	-0.14	0.84	0.84	0.10	0.06	**0.38**
Nasik	92.2	87.9	80.4	70.2	24.9	64.8	97.3	72.7	99.3	82.6	88.2	44.5	87.3	33.8	26.5	3.4	75.6	56	0.79	0.32	0.82	0.68	0.07	0.45	**0.52**
Osamanabad	87.7	95.8	70.5	58.8	22	67.8	97.3	72.7	99.3	82.6	88.2	44.5	87.3	33.8	26.5	3.4	75.6	56	0.61	0.79	0.59	0.47	0.19	0.60	**0.54**
Parbhani	82.1	93.8	50	50	28.5	62.7	97.3	72.7	99.3	82.6	88.2	44.5	87.3	33.8	26.5	3.4	75.6	56	0.38	0.67	0.13	0.30	-0.09	0.34	**0.29**
Pune	95.4	95.2	84.8	85.4	12.8	66.6	97.3	72.7	99.3	82.6	88.2	44.5	87.3	33.8	26.5	3.4	75.6	56	0.92	0.75	0.92	0.96	0.59	0.54	**0.78**
Raigarh	94.2	90.3	78.9	84	17.3	63.3	97.3	72.7	99.3	82.6	88.2	44.5	87.3	33.8	26.5	3.4	75.6	56	0.87	0.46	0.79	0.94	0.40	0.37	**0.64**
Ratnagiri	87.7	97.1	44.5	85.5	11.6	59.5	97.3	72.7	99.3	82.6	88.2	44.5	87.3	33.8	26.5	3.4	75.6	56	0.61	0.87	0.00	0.97	0.65	0.18	**0.54**
Sangli	80.5	94	57	68.5	13	67.3	97.3	72.7	99.3	82.6	88.2	44.5	87.3	33.8	26.5	3.4	75.6	56	0.32	0.68	0.29	0.65	0.58	0.58	**0.52**
Satara	87.3	97.8	52.7	86.4	9.6	68.7	97.3	72.7	99.3	82.6	88.2	44.5	87.3	33.8	26.5	3.4	75.6	56	0.59	0.91	0.19	0.98	0.73	0.65	**0.68**
Sindhudurg	87	99.3	54.8	87.3	12.2	59.9	97.3	72.7	99.3	82.6	88.2	44.5	87.3	33.8	26.5	3.4	75.6	56	0.58	1.00	0.24	1.00	0.62	0.20	**0.61**
Solapur	97.3	92.2	85.7	69.8	24.7	68.7	97.3	72.7	99.3	82.6	88.2	44.5	87.3	33.8	26.5	3.4	75.6	56	1.00	0.57	0.94	0.67	0.08	0.65	**0.65**
Thane	66.8	94.4	88.2	42.9	22.7	57.1	97.3	72.7	99.3	82.6	88.2	44.5	87.3	33.8	26.5	3.4	75.6	56	-0.24	0.71	1.00	0.17	0.16	0.06	**0.31**
Wardha	77.	96.	70.8	46.9	12	75.6	97	72	99.	82.	88.	44.	87.3	33.8	26	3.	75.6	56	0.	0.81	0.60	0.24	0.6	1.00	**0.58**

							max value for ANC	min value for ANC	max value for safe delivery	min value safe delivery	max value breast feeding	min value breast feeding			max value for birth 3+	min value birth 3+			INDEX ANCs				INDEX BIRTH ORDER 3=		
	5	1					.3	.7	3	6	2	5			.5	4			20				3		
Washim	93.8	85.6	65.8	63.8	18.2	68.3	97.3	72.7	99.3	82.6	88.2	44.5	87.3	33.8	26.5	3.4	75.6	56	0.86	0.18	0.49	0.56	0.36	0.63	**0.51**
Yavatmal	93.2	89.1	50	68.4	3.4	65.6	97.3	72.7	99.3	82.6	88.2	44.5	87.3	33.8	26.5	3.4	75.6	56	0.83	0.39	0.13	0.65	1.0	0.49	**0.58**

Composite health index

KARNATAKA (DLHS 2)

DISTRICTS	% women had 3 ANC	%safe delivires	*breastfeeding upto (0-4months)	% full immunization	3+ birth order	% modern contraception	max value for ANC	min value for ANC	max value for safe delivery	min value safe delivery	max value breast feeding	min value breast feeding	max vaue full immunization	min value full immunization	max value for birth 3+	min value birth 3+	max value or modern method of conception	min value for modern conception	INDEX ANCs	INDEX SAFE DELIVERY	INDEX BREAST FEEDING	INDEX IMMUNIZATION	INDEX BIRTH ORDER 3=	INDEX CPR MODERN METHOD	FINAL INDEXING
Bagalkot	66.8	64.2	46.0	48.4	35.0	48.6	99.0	50.9	97.5	41.2	55.8	12.6	93.2	45.3	51.1	12.0	70.5	40.3	0.331	0.409	0.772	0.064	0.413	0.276	0.377
Bangalore	93.7	95.7	30.4	93.2	12.2	57.1	99.0	50.9	97.5	41.2	55.8	12.6	93.2	45.3	51.1	12.0	70.5	40.3	0.890	0.967	0.413	1.001	0.996	0.558	0.804
Bangalore Rural	88.3	79.8	31.5	88.2	21.5	67.3	99.0	50.9	97.5	41.2	55.8	12.6	93.2	45.3	51.1	12.0	70.5	40.3	0.779	0.685	0.436	0.895	0.758	0.893	0.741
Belgaum	85.6	75.7	36.2	56.7	32.9	56.0	99.0	50.9	97.5	41.2	55.8	12.6	93.2	45.3	51.1	12.0	70.5	40.3	0.722	0.613	0.546	0.239	0.466	0.520	0.518
Bellary	58.0	43.2	52.0	71.3	41.7	47.3	99.0	50.9	97.5	41.2	55.8	12.6	93.2	45.3	51.1	12.0	70.5	40.3	0.147	0.035	0.912	0.542	0.240	0.233	0.352
Bidar	71.8	57.5	18.4	63.0	45.5	47.2	99.0	50.9	97.5	41.2	55.8	12.6	93.2	45.3	51.1	12.0	70.5	40.3	0.434	0.290	0.135	0.369	0.144	0.229	0.267
Bijapur	63.2	73.5	32.9	49.8	41.6	47.7	99.0	50.9	97.5	41.2	55.8	12.6	93.2	45.3	51.1	12.0	70.5	40.3	0.25	0.574	0.471	0.094	0.242	0.244	0.313

																		6						
Chamarajanagar	90.1	78.9	26.4	82.3	21.8	69.2	99.0	50.9	97.5	41.2	55.8	12.6	93.2	45.3	51.1	12.0	70.5	40.3	0.815	0.670	0.319	0.772	0.751	0.956	0.714
Chikmagalur	92.1	80.3	26.0	85.6	17.5	70.5	99.0	50.9	97.5	41.2	55.8	12.6	93.2	45.3	51.1	12.0	70.5	40.3	0.857	0.694	0.310	0.841	0.858	0.999	0.760
Chitradurga	78.7	69.7	17.7	79.8	26.3	59.0	99.0	50.9	97.5	41.2	55.8	12.6	93.2	45.3	51.1	12.0	70.5	40.3	0.578	0.507	0.118	0.721	0.634	0.620	0.530
Dakshina Kannada	94.7	96.2	12.6	90.1	27.7	48.1	99.0	50.9	97.5	41.2	55.8	12.6	93.2	45.3	51.1	12.0	70.5	40.3	0.910	0.976	0.001	0.935	0.598	0.259	0.613
Davanagere	86.0	66.8	18.3	80.7	24.0	63.8	99.0	50.9	97.5	41.2	55.8	12.6	93.2	45.3	51.1	12.0	70.5	40.3	0.731	0.454	0.131	0.739	0.692	0.780	0.588
Dharwad	83.8	73.2	55.8	70.8	33.8	60.7	99.0	50.9	97.5	41.2	55.8	12.6	93.2	45.3	51.1	12.0	70.5	40.3	0.683	0.569	1.000	0.532	0.443	0.677	0.651
Gadag	67.4	67.4	50.1	73.0	31.2	50.1	99.0	50.9	97.5	41.2	55.8	12.6	93.2	45.3	51.1	12.0	70.5	40.3	0.343	0.465	0.869	0.578	0.508	0.326	0.515
Gulbarga	61.8	41.2	21.9	48.4	51.1	40.3	99.0	50.9	97.5	41.2	55.8	12.6	93.2	45.3	51.1	12.0	70.5	40.3	0.227	0.001	0.215	0.065	0.001	-0.001	0.085
Hassan	91.4	82.9	39.6	89.3	12.0	68.8	99.0	50.9	97.5	41.2	55.8	12.6	93.2	45.3	51.1	12.0	70.5	40.3	0.843	0.740	0.626	0.918	1.000	0.944	0.845
Haveri	80.7	64.4	21.1	69.9	33.4	56.6	99.0	50.9	97.5	41.2	55.8	12.6	93.2	45.3	51.1	12.0	70.5	40.3	0.619	0.412	0.198	0.515	0.452	0.541	0.456
Kodagu	89.8	84.3	46.2	91.6	19.9	59.7	99.0	50.9	97.5	41.2	55.8	12.6	93.2	45.3	51.1	12.0	70.5	40.3	0.810	0.766	0.778	0.967	0.797	0.643	0.794
Kolar	86.9	72.5	29.3	86.9	25.9	63.2	99.0	50.9	97.5	41.2	55.8	12.6	93.2	45.3	51.1	12.0	70.5	40.3	0.748	0.556	0.386	0.869	0.645	0.759	0.661
Koppal	61.4	52.8	35.1	49.9	50.6	42.4	99.0	50.9	97.5	41.2	55.8	12.6	93.2	45.3	51.1	12.0	70.5	40.3	0.218	0.206	0.521	0.095	0.013	0.071	0.187
Mandya	95.3	91.0	50.1	85.0	14.7	73.5	99.0	50.9	97.5	41.2	55.8	12.6	93.2	45.3	51.1	12.0	70.5	40.3	0.892	0.884	0.868	0.829	0.931	1.100	0.923

District	% women had 3 ANC	%safe delivires	Breast feeding upto (0-6months)	% full immunization	3+ birth order	% modern contraception	Max value for ANC	Min value for ANC	Max value for safe delivery	Min value safe delivery	Max value breast feeding	Min value breast feeding	Max vaue full immunization	Min value full immunization	Max value for birth 3+	Min value birth 3+	Max value or modern method of conception	Min value for modern conception	INDEX ancs	INDEX SAFE DELIVERY	INDEX BREAST FEEDING	INDEX IMMUNIZATION	INDEX BIRTH ORDER 3=	INDEX CPR MODERN METHOD	FINAL INDEXING
																									4
Mysore	85.0	69.2	50.3	91.4	19.8	66.5	99.0	50.9	97.5	41.2	55.8	12.6	93.2	45.3	51.1	12.0	70.5	40.3	0.708	0.497	0.874	0.963	0.800	0.869	0.785
Raichur	50.9	47.3	35.5	45.3	48.7	41.7	99.0	50.9	97.5	41.2	55.8	12.6	93.2	45.3	51.1	12.0	70.5	40.3	0.000	0.108	0.529	0.001	0.062	0.045	0.124
Shimoga	90.1	81.3	22.6	87.3	25.7	70.5	99.0	50.9	97.5	41.2	55.8	12.6	93.2	45.3	51.1	12.0	70.5	40.3	0.815	0.712	0.231	0.878	0.649	0.999	0.714
Tumkur	83.6	81.2	29.6	90.8	21.6	60.2	99.0	50.9	97.5	41.2	55.8	12.6	93.2	45.3	51.1	12.0	70.5	40.3	0.679	0.710	0.393	0.950	0.756	0.659	0.691
Udupi	99.0	97.5	32.9	88.9	18.6	64.4	99.0	50.9	97.5	41.2	55.8	12.6	93.2	45.3	51.1	12.0	70.5	40.3	0.999	1.000	0.470	0.909	0.831	0.797	0.834
Uttara Kannada	95.3	85.9	53.7	90.7	26.5	56.4	99.0	50.9	97.5	41.2	55.8	12.6	93.2	45.3	51.1	12.0	70.5	40.3	0.923	0.794	0.952	0.947	0.629	0.533	0.796

DLHS 3

District	% women had 3 ANC	%safe delivires	Breast feeding upto (0-6months)	% full immunization	3+ birth order	% modern contraception	Max value for ANC	Min value for ANC	Max value for safe delivery	Min value safe delivery	Max value breast feeding	Min value breast feeding	Max vaue full immunization	Min value full immunization	Max value for birth 3+	Min value birth 3+	Max value or modern method of conception	Min value for modern conception	INDEX ancs	INDEX SAFE DELIVERY	INDEX BREAST FEEDING	INDEX IMMUNIZATION	INDEX BIRTH ORDER 3=	INDEX CPR MODERN METHOD	FINAL INDEXING
Bagalkot	62.9	62.3	62.0	58.7	21.3	53.7	98.1	55.7	96.4	37.3	62	19.4	96.4	45.2	23.4	11.3	79.2	46.3	0.170	0.423	1.000	0.264	0.174	0.225	0.376
Bangalore	98.1	95.2	22.7	87.5	9.1	59.2	98.1	55.7	96.4	37.3	62	19.4	96.4	45.2	23.4	11.3	79.2	46.3	1.00	0.980	0.077	0.826	1.182	0.392	0.743

																				0					
Bangalore Rural	95.6	86.1	19.4	90.3	11.3	71.7	98.1	55.7	96.4	37.3	62	19.4	96.4	45.2	23.4	11.3	79.2	46.3	0.941	0.826	0.000	0.881	1.000	0.772	0.737
Belgaum	71.5	80.8	49.9	67.9	14.8	64.3	98.1	55.7	96.4	37.3	62	19.4	96.4	45.2	23.4	11.3	79.2	46.3	0.373	0.736	0.716	0.443	0.711	0.547	0.588
Bellary	64.3	54.9	36.3	65.3	17.6	55.7	98.1	55.7	96.4	37.3	62	19.4	96.4	45.2	23.4	11.3	79.2	46.3	0.203	0.298	0.397	0.393	0.479	0.286	0.342
Bidar	81.7	68.8	49.8	78.6	18.7	56.1	98.1	55.7	96.4	37.3	62	19.4	96.4	45.2	23.4	11.3	79.2	46.3	0.613	0.533	0.714	0.652	0.388	0.298	0.533
Bijapur	65.2	70.8	59.2	50.5	19.9	57.3	98.1	55.7	96.4	37.3	62	19.4	96.4	45.2	23.4	11.3	79.2	46.3	0.224	0.567	0.934	0.104	0.289	0.334	0.409
Chamarajanagar	97.4	78.9	42.7	88.5	15.3	66.7	98.1	55.7	96.4	37.3	62	19.4	96.4	45.2	23.4	11.3	79.2	46.3	0.983	0.704	0.547	0.846	0.669	0.620	0.728
Chikmagalur	92.9	87.3	32.0	96.4	11.1	73	98.1	55.7	96.4	37.3	62	19.4	96.4	45.2	23.4	11.3	79.2	46.3	0.887	0.846	0.296	1.000	1.017	0.812	0.808
Chitradurga	81.1	70.6	27.6	72.6	14.5	64.9	98.1	55.7	96.4	37.3	62	19.4	96.4	45.2	23.4	11.3	79.2	46.3	0.599	0.563	0.192	0.535	0.736	0.565	0.532
Dakshina Kannada	97	96.4	35.3	89.5	12	46.3	98.1	55.7	96.4	37.3	62	19.4	96.4	45.2	23.4	11.3	79.2	46.3	0.974	1.000	0.373	0.865	0.942	0.000	0.692
Davanagere	82.9	74.5	46.3	79.3	20	66.2	98.1	55.7	96.4	37.3	62	19.4	96.4	45.2	23.4	11.3	79.2	46.3	0.642	0.629	0.631	0.666	0.281	0.605	0.576
Dharwad	81	75.7	45.3	81.1	17.5	61.7	98.1	55.7	96.4	37.3	62	19.4	96.4	45.2	23.4	11.3	79.2	46.3	0.597	0.650	0.608	0.701	0.488	0.468	0.585
Gadag	80.6	66.1	40.0	77.5	23.4	56.4	98.1	55.7	96.4	37.3	62	19.4	96.4	45.2	23.4	11.3	79.2	46.3	0.587	0.487	0.484	0.631	0.000	0.307	0.416
Gulbarga	65.4	56	28.2	64.5	17.9	47.6	98.1	55.7	96.4	37.3	62	19.4	96.4	45.2	23.4	11.3	79.2	46.3	0.229	0.316	0.207	0.377	0.455	0.040	0.270
Hassan	94	83.3	40.2	87.3	11.8	79.2	98.1	55.7	96.4	37.3	62	19.4	96.4	45.2	23.4	11.3	79.2	46.3	0.903	0.778	0.488	0.822	0.959	1.000	0.825

Haveri	89.4	71.7	52.2	75.9	20.1	62.7	98.1	55.7	96.4	37.3	62	19.4	96.4	45.2	23.4	11.3	79.2	46.3	0.795	0.582	0.770	0.600	0.273	0.498	0.586
Kodagu	94.5	83.3	30.1	94.5	12.3	67.7	98.1	55.7	96.4	37.3	62	19.4	96.4	45.2	23.4	11.3	79.2	46.3	0.915	0.778	0.251	0.963	0.917	0.650	0.746
Kolar	92.5	65.2	28.7	95	20.3	67.6	98.1	55.7	96.4	37.3	62	19.4	96.4	45.2	23.4	11.3	79.2	46.3	0.868	0.472	0.218	0.973	0.256	0.647	0.572
Koppal	65.7	37.3	55.3	66.4	20.7	52.5	98.1	55.7	96.4	37.3	62	19.4	96.4	45.2	23.4	11.3	79.2	46.3	0.236	0.000	0.843	0.414	0.223	0.188	0.317
Mandya	97.2	87.6	31.9	86.6	4.8	78.6	98.1	55.7	96.4	37.3	62	19.4	96.4	45.2	23.4	11.3	79.2	46.3	0.979	0.851	0.293	0.809	1.537	0.982	0.908
Mysore	91.5	82.5	33.0	93.5	11.5	70.9	98.1	55.7	96.4	37.3	62	19.4	96.4	45.2	23.4	11.3	79.2	46.3	0.844	0.765	0.319	0.943	0.983	0.748	0.767
Raichur	55.7	51.5	39.1	45.2	19.1	49.3	98.1	55.7	96.4	37.3	62	19.4	96.4	45.2	23.4	11.3	79.2	46.3	0.000	0.240	0.462	0.000	0.355	0.091	0.192
Shimoga	91.8	75.6	47.3	82.9	18.3	68.9	98.1	55.7	96.4	37.3	62	19.4	96.4	45.2	23.4	11.3	79.2	46.3	0.851	0.648	0.655	0.736	0.421	0.687	0.667
Tumkur	93.9	80.2	39.1	90	16	70.4	98.1	55.7	96.4	37.3	62	19.4	96.4	45.2	23.4	11.3	79.2	46.3	0.901	0.726	0.462	0.875	0.612	0.733	0.718
Udupi	96.4	95.9	26.3	86.8	17.5	55.6	98.1	55.7	96.4	37.3	62	19.4	96.4	45.2	23.4	11.3	79.2	46.3	0.960	0.992	0.162	0.813	0.488	0.283	0.616
Uttara Kannada	91	85	37.6	80.9	18.1	59.9	98.1	55.7	96.4	37.3	62	19.4	96.4	45.2	23.4	11.3	79.2	46.3	0.833	0.807	0.427	0.697	0.438	0.413	0.603

Human Development Index

Maharashtra 2012

Districts	total literacy rate	max literacy	min literacy	Literacy value	Index Literacy	GER	Max GER	Min GER	GER value	GER index	Education Index	IMR	ISR	Max ISR	Min ISR	Health Index	PCDDP	MAX PCDDP	Min PCDDP	Income index	HDI
ahmadnagar	80.2	100	0	0.802	0.534667	87.9	100	0	0.879	0.293	0.8276667	41	959	100	0	0.959	4.437624	5.176091	4	0.3721	0.720
akola	87.6	100	0	0.876	0.584	85.6	100	0	0.856	0.2853333	0.8693333	28	972	100	0	0.972	4.381205	5.176091	4	0.324129	0.722
amrawati	88.2	100	0	0.882	0.588	86	100	0	0.86	0.2866667	0.8746667	59	941	100	0	0.941	4.338536	5.176091	4	0.287849	0.701
aurangabad	80.4	100	0	0.804	0.536	82.2	100	0	0.82	0.274	0.81	44	956	100	0	0.956	4.486997	5.176091	4	0.414081	0.727
bhandara	73.5	100	0	0.735	0.49	90.4	100	0	0.904	0.3013333	0.7913333	33	967	100	0	0.967	4.322488	5.176091	4	0.274203	0.678
bid	85.1	100	0	0.851	0.567333	89.3	100	0	0.893	0.2976667	0.865	60	940	100	0	0.94	4.410524	5.176091	4	0.349058	0.718
buldhana	82.1	100	0	0.821	0.547333	87.6	100	0	0.876	0.292	0.8393333	34	966	100	0	0.966	4.289745	5.176091	4	0.246363	0.684
chanderpur	81.4	100	0	0.814	0.542667	88.9	100	0	0.889	0.2963333	0.839	74	926	100	0	0.926	4.458336	5.176091	4	0.389711	0.718
dhule	74.6	100	0	0.746	0.497333	83.7	100	0	0.837	0.279	0.7763333	44	956	100	0	0.956	4.331265	5.176091	4	0.281666	0.671
gadchiroli	70.6	100	0	0.706	0.470667	80.7	100	0	0.807	0.269	0.7396667	63	937	100	0	0.937	4.173565	5.176091	4	0.147878	0.608
gondiya	85.4	100	0	0.854	0.569333	87.2	100	0	0.872	0.2906667	0.86	67	933	100	0	0.933	4.363443	5.176091	4	0.309026	0.701
hingoli	76	100	0	0.76	0.506667	78.7	100	0	0.787	0.2623333	0.769	50	950	100	0	0.95	4.262119	5.176091	4	0.222873	0.647
jalgaon	79.7	100	0	0.797	0.531333	88.2	100	0	0.882	0.294	0.8253333	48	952	100	0	0.952	4.461484	5.176091	4	0.392388	0.723
jalna	73.6	100	0	0.736	0.490667	83.7	100	0	0.837	0.279	0.7696667	48	952	100	0	0.952	4.313129	5.176091	4	0.266245	0.663
Kolhapur	82.9	100	0	0.829	0.552667	88.4	100	0	0.884	0.2946667	0.8473333	13	987	100	0	0.987	4.558445	5.176091	4	0.474831	0.770
latur	79	100	0	0.79	0.526667	91.1	100	0	0.911	0.3036667	0.8303333	53	947	100	0	0.947	4.247335	5.176091	4	0.210302	0.663
mumbai	90.3	100	0	0.903	0.602	85.5	100	0	0.855	0.285	0.887	18	982	100	0	0.982	4.76951	5.176091	4	0.654295	0.841

nagpur	89.5	100	0	0.895	0.596667	92.6	100	0	0.926	0.308666667	0.905333333	40	960	1000	0	0.96	4.579726	5.176091	4	0.492926	0.786
nanded	76.9	100	0	0.769	0.512667	80.3	100	0	0.803	0.267666667	0.780333333	30	970	1000	0	0.97	4.258996	5.176091	4	0.220218	0.657
nandurbar	63	100	0	0.63	0.42	67.7	100	0	0.677	0.225666667	0.645666667	75	925	1000	0	0.925	4.282305	5.176091	4	0.240036	0.604
nasik	81	100	0	0.81	0.54	82.2	100	0	0.822	0.274	0.814	46	954	1000	0	0.954	4.550779	5.176091	4	0.468313	0.745
osamanabad	76.3	100	0	0.763	0.508667	81.9	100	0	0.819	0.273	0.781666667	50	950	1000	0	0.95	4.251565	5.176091	4	0.213899	0.649
parbhani	75.2	100	0	0.752	0.501333	86.3	100	0	0.863	0.287666667	0.789	51	949	1000	0	0.949	4.364476	5.176091	4	0.309904	0.683
pune	87.2	100	0	0.872	0.581333	88.2	100	0	0.882	0.294	0.875333333	28	972	1000	0	0.972	4.70034	5.176091	4	0.595481	0.814
raigarh	83.9	100	0	0.839	0.559333	88.9	100	0	0.889	0.296333333	0.855666667	35	965	1000	0	0.965	4.536268	5.176091	4	0.455975	0.759
Ratnagiri	82.4	100	0	0.824	0.549333	89	100	0	0.89	0.296666667	0.846	25	975	1000	0	0.975	4.442245	5.176091	4	0.376029	0.732
Sangli	82.6	100	0	0.826	0.550667	87.9	100	0	0.879	0.293	0.843666667	33	967	1000	0	0.967	4.487322	5.176091	4	0.414358	0.742
Satara	84.2	100	0	0.842	0.561333	85.7	100	0	0.857	0.285666667	0.847	27	973	1000	0	0.973	4.475904	5.176091	4	0.404648	0.742
Sindhudurg	86.5	100	0	0.865	0.576667	87.5	100	0	0.875	0.291666667	0.868333333	35	965	1000	0	0.965	4.499178	5.176091	4	0.424438	0.753
solapur	77.7	100	0	0.777	0.518	89.5	100	0	0.895	0.298333333	0.816333333	23	977	1000	0	0.977	4.459815	5.176091	4	0.390968	0.728
thane	86.2	100	0	0.862	0.574667	78.5	100	0	0.785	0.261666667	0.836333333	34	966	1000	0	0.966	4.702499	5.176091	4	0.597317	0.800
wardha	87.2	100	0	0.872	0.581333	87.9	100	0	0.879	0.293	0.874333333	62	938	1000	0	0.938	4.417139	5.176091	4	0.354683	0.722
washim	81.7	100	0	0.817	0.544667	88	100	0	0.88	0.293333333	0.838	46	954	1000	0	0.954	4.172749	5.176091	4	0.146884	0.646
yavatmal	80.7	100	0	0.807	0.538	84	100	0	0.84	0.28	0.818	47	953	1000	0	0.953	4.382341	5.176091	4	0.325095	0.699

Maharashtra 2001

Districts	total literacy rate	max literacy	min literacy	Literacy value	Index Literacy	GER	Max GER	Min GER	GER value	GER index	Education Index	IMR	ISR	Max ISR	Min ISR	Health Index	PCDDP	MAX PCDDP	Min PCDDP	Income index	HDI
ahmadnagar	75.3	100	0	0.753	0.502	71.8	100	0	0.718	0.239	0.741	44	956	1000	0	0.956	4.212481	5.176091	4	0.181	0.626
akola	81.4	100	0	0.814	0.543	67	100	0	0.67	0.223	0.766	44	956	1000	0	0.956	4.199261	5.176091	4	0.169	0.630
amrawati	82.5	100	0	0.825	0.550	69.7	100	0	0.697	0.232	0.782	61	939	1000	0	0.939	4.20981	5.176091	4	0.178	0.633
aurangabad	72.9	100	0	0.729	0.486	80.1	100	0	0.801	0.267	0.753	51	949	1000	0	0.949	4.290902	5.176091	4	0.247	0.650
bhandara	68	100	0	0.68	0.453	82.2	100	0	0.822	0.274	0.727	43	957	1000	0	0.957	4.158302	5.176091	4	0.135	0.606
bid	78.5	100	0	0.785	0.523	71	100	0	0.71	0.237	0.760	68	932	1000	0	0.932	4.207096	5.176091	4	0.176	0.623
buldhana	75.8	100	0	0.758	0.505	65.4	100	0	0.654	0.218	0.723	49	951	1000	0	0.951	4.030559	5.176091	4	0.026	0.567
chanderpur	73.2	100	0	0.732	0.488	73.6	100	0	0.736	0.245	0.733	67	933	1000	0	0.933	4.287981	5.176091	4	0.245	0.637
dhule	71.7	100	0	0.717	0.478	64.2	100	0	0.642	0.214	0.692	56	944	1000	0	0.944	4.119454	5.176091	4	0.102	0.579
gadchiroli	60.1	100	0	0.601	0.401	69.1	100	0	0.691	0.230	0.631	75	925	1000	0	0.925	4.069853	5.176091	4	0.059	0.538
gondiya	78.5	100	0	0.785	0.523	73.8	100	0	0.738	0.246	0.769	73	927	1000	0	0.927	4.182158	5.176091	4	0.155	0.617
hingoli	66.3	100	0	0.663	0.442	76.4	100	0	0.764	0.255	0.697	54	946	1000	0	0.946	4.049334	5.176091	4	0.042	0.562

District																					
jalgaon	75.4	100	0	0.754	0.503	69.7	100	0	0.697	0.232	0.735	50	950	100	0	0.95	4.219585	5.176091	4	0.187	0.624
jalna	64.4	100	0	0.644	0.429	71.9	100	0	0.719	0.240	0.669	56	944	100	0	0.944	4.059109	5.176091	4	0.050	0.554
Kolhapur	76.9	100	0	0.769	0.513	75.4	100	0	0.754	0.251	0.764	38	962	100	0	0.962	4.362709	5.176091	4	0.308	0.678
latur	71.5	100	0	0.715	0.477	89.4	100	0	0.894	0.298	0.775	50	950	100	0	0.95	4.072287	5.176091	4	0.061	0.595
mumbai	77	100	0	0.77	0.513	74.4	100	0	0.744	0.248	0.761	40	960	100	0	0.96	4.566826	5.176091	4	0.482	0.734
nagpur	84	100	0	0.84	0.560	76.5	100	0	0.765	0.255	0.815	54	946	100	0	0.946	4.367784	5.176091	4	0.313	0.691
nanded	67.8	100	0	0.678	0.452	73	100	0	0.73	0.243	0.695	57	943	100	0	0.943	4.04226	5.176091	4	0.036	0.558
nandurbar	55.8	100	0	0.558	0.372	55.8	100	0	0.558	0.186	0.558	61	939	100	0	0.939	4.051075	5.176091	4	0.043	0.513
nasik	74.4	100	0	0.744	0.496	66.6	100	0	0.666	0.222	0.718	51	949	100	0	0.949	4.340979	5.176091	4	0.290	0.652
osamanabad	69	100	0	0.69	0.460	75.7	100	0	0.757	0.252	0.712	47	953	100	0	0.953	4.114311	5.176091	4	0.097	0.588
parbhani	66.1	100	0	0.661	0.441	74.8	100	0	0.748	0.249	0.690	50	950	100	0	0.95	4.111733	5.176091	4	0.095	0.578
pune	80.5	100	0	0.805	0.537	71.3	100	0	0.713	0.238	0.774	32	968	100	0	0.968	4.500017	5.176091	4	0.425	0.722
raigarh	77	100	0	0.77	0.513	72.7	100	0	0.727	0.242	0.756	42	958	100	0	0.958	4.513896	5.176091	4	0.437	0.717
Ratnagiri	75.1	100	0	0.751	0.501	72.4	100	0	0.724	0.241	0.742	37	963	100	0	0.963	4.214526	5.176091	4	0.182	0.629
Sangli	76.6	100	0	0.766	0.511	76.2	100	0	0.762	0.254	0.765	32	968	100	0	0.968	4.325249	5.176091	4	0.277	0.670

												8								
Satara	78.2	100	0	0.782	0.521	73.5	100	0	0.735	0.245	0.766	32	968	1000	0	0.968	4.292478	5.176091	4	0.249	0.661
Sindhudurg	80.3	100	0	0.803	0.535	74.6	100	0	0.746	0.249	0.784	35	965	1000	0	0.965	4.296534	5.176091	4	0.252	0.667
solapur	71.3	100	0	0.713	0.475	74.1	100	0	0.741	0.247	0.722	43	957	1000	0	0.957	4.227655	5.176091	4	0.194	0.624
thane	80.7	100	0	0.807	0.538	73.7	100	0	0.737	0.246	0.784	39	961	1000	0	0.961	4.492215	5.176091	4	0.419	0.721
wardha	80.1	100	0	0.801	0.534	67.3	100	0	0.673	0.224	0.758	51	949	1000	0	0.949	4.229298	5.176091	4	0.195	0.634
washim	73.4	100	0	0.734	0.489	66.3	100	0	0.663	0.221	0.710	52	948	1000	0	0.948	4.006552	5.176091	4	0.006	0.555
yavatmal	73.6	100	0	0.736	0.491	70.3	100	0	0.703	0.234	0.725	61	939	1000	0	0.939	4.132324	5.176091	4	0.113	0.592

Karnataka 1991

District	Health index	Education	income	HDI
Bagalkot	0.567	0.567	0.38	0.505
Bangalore	0.663	0.757	0.449	0.623
Bangalore Rural	0.657	0.582	0.378	0.539
Belgaum	0.657	0.586	0.393	0.545
Bellary	0.63	0.506	0.399	0.512
Bidar	0.6	0.547	0.34	0.496
Bijapur	0.57	0.561	0.381	0.504
Chamarajanagar	0.625	0.446	0.392	0.488
Chikmagalur	0.585	0.639	0.454	0.559
Chitradurga	0.63	0.59	0.384	0.535
Dakshina Kannada	0.683	0.799	0.5	0.661
Davanagere	0.633	0.623	0.388	0.548
Dharwad	0.568	0.637	0.412	0.539
Gadag	0.583	0.601	0.364	0.516
Gulbarga	0.575	0.423	0.352	0.450
Hassan	0.575	0.599	0.384	0.519
Haveri	0.577	0.582	0.331	0.497
Kodagu	0.6	0.739	0.531	0.623
Kolar	0.617	0.576	0.372	0.522
Koppal	0.583	0.403	0.351	0.446
Mandya	0.598	0.548	0.386	0.511
Mysore	0.632	0.55	0.389	0.524
Raichur	0.59	0.372	0.367	0.443
Shimoga	0.68	0.662	0.41	0.584
Tumkur	0.633	0.612	0.37	0.538
Udupi	0.685	0.83	0.463	0.659
Uttara Kannada	0.598	0.692	0.41	0.567

Karnataka 2001

District	Health index	Education	income	HDI
Bagalkot	0.592	0.636	0.539	0.591
Bangalore	0.705	0.887	0.666	0.753
Bangalore Rural	0.692	0.662	0.605	0.653
Belgaum	0.712	0.699	0.532	0.648
Bellary	0.658	0.618	0.549	0.617
Bidar	0.638	0.689	0.470	0.599
Bijapur	0.627	0.642	0.499	0.589
Chamarajanagar	0.642	0.570	0.518	0.576
Chikmagalur	0.637	0.742	0.563	0.647
Chitradurga	0.66	0.704	0.517	0.627
Dakshina Kannada	0.707	0.823	0.636	0.722
Davanagere	0.68	0.711	0.515	0.635
Dharwad	0.615	0.758	0.530	0.642
Gadag	0.628	0.750	0.525	0.634
Gulbarga	0.632	0.572	0.490	0.564
Hassan	0.67	0.729	0.519	0.639
Haveri	0.62	0.699	0.491	0.603
Kodagu	0.638	0.833	0.621	0.697
Kolar	0.653	0.713	0.508	0.625
Koppal	0.642	0.576	0.529	0.582
Mandya	0.632	0.682	0.513	0.609
Mysore	0.663	0.669	0.561	0.631
Raichur	0.648	0.524	0.469	0.547
Shimoga	0.707	0.766	0.547	0.673
Tumkur	0.672	0.714	0.505	0.630
Udupi	0.713	0.842	0.588	0.714
Uttara Kannada	0.632	0.781	0.546	0.653

Calculation of Priority Index

Maharashtra 2011

Districts	Education Index	CHI (DLHS4)	Income index	Priority Index
Ahmadnagar	0.828	0.513	0.372	0.571
Akola	0.869	0.600	0.324	0.598
Amrawati	0.875	0.630	0.288	0.598
Aurangabad	0.810	0.479	0.414	0.568
Bhandara	0.791	0.581	0.274	0.549
Bid	0.865	0.449	0.349	0.554
Buldhana	0.839	0.485	0.246	0.523
Chanderpur	0.839	0.627	0.390	0.618
Dhule	0.776	0.536	0.282	0.531
Gadchiroli	0.740	0.629	0.148	0.506
Gondiya	0.860	0.389	0.309	0.519
Hingoli	0.769	0.507	0.223	0.500
Jalgaon	0.825	0.270	0.392	0.496
Jalna	0.770	0.503	0.266	0.513
Kolhapur	0.847	0.681	0.475	0.668
Latur	0.830	0.473	0.210	0.504
Mumbai	0.887	0.704	0.654	0.749
Nagpur	0.905	0.546	0.493	0.648
Nanded	0.780	0.383	0.220	0.461
Nandurbar	0.646	0.376	0.240	0.421
Nasik	0.814	0.522	0.468	0.601
Osamanabad	0.782	0.543	0.214	0.513
Parbhani	0.789	0.289	0.310	0.463
Pune	0.875	0.783	0.595	0.751
Raigarh	0.856	0.639	0.456	0.650
Ratnagiri	0.846	0.545	0.376	0.589
Sangli	0.844	0.516	0.414	0.591
Satara	0.847	0.676	0.405	0.642
Sindhudurg	0.868	0.606	0.424	0.633
Solapur	0.816	0.653	0.391	0.620
Thane	0.836	0.310	0.597	0.581
Wardha	0.874	0.580	0.355	0.603
Washim	0.838	0.512	0.147	0.499
Yavatmal	0.818	0.581	0.325	0.575

Maharashtra 2001

Districts	Education Index	CHI (DLHS3)	Income index	Priority index
ahmadnagar	0.741	0.677	0.181	0.533
akola	0.766	0.521	0.169	0.485
amrawati	0.782	0.610	0.178	0.524
aurangabad	0.753	0.420	0.247	0.473
bhandara	0.727	0.724	0.135	0.529
bid	0.760	0.382	0.176	0.439
buldhana	0.723	0.618	0.026	0.456
chanderpur	0.733	0.663	0.245	0.547
dhule	0.692	0.445	0.102	0.413
gadchiroli	0.631	0.424	0.059	0.371
gondiya	0.769	0.676	0.155	0.533
hingoli	0.697	0.310	0.042	0.349
jalgaon	0.735	0.447	0.187	0.456
jalna	0.669	0.396	0.050	0.372
Kolhapur	0.764	0.660	0.308	0.577
latur	0.775	0.479	0.061	0.438
mumbai	0.761	0.615	0.482	0.619
nagpur	0.815	0.800	0.313	0.643
nanded	0.695	0.465	0.036	0.399
nandurbar	0.558	0.212	0.043	0.271
nasik	0.718	0.569	0.290	0.526
osamanabad	0.712	0.504	0.097	0.438
parbhani	0.690	0.482	0.095	0.422
pune	0.774	0.775	0.425	0.658
raigarh	0.756	0.539	0.437	0.577
Ratnagiri	0.742	0.489	0.182	0.471
Sangli	0.765	0.663	0.277	0.568
Satara	0.766	0.785	0.249	0.600
Sindhudurg	0.784	0.639	0.252	0.559
solapur	0.722	0.584	0.194	0.500
thane	0.784	0.549	0.419	0.584
wardha	0.758	0.930	0.195	0.628
washim	0.710	0.572	0.006	0.429
yavatmal	0.725	0.573	0.113	0.470

Karnataka priority index (1991)

DISTRICTS	CHI	Education	income	PI
Bagalkot	0.377456	0.567	0.38	0.441
Bangalore	0.804098	0.757	0.449	0.670
Bangalore Rural	0.741037	0.582	0.378	0.567
Belgaum	0.517689	0.586	0.393	0.499
Bellary	0.351602	0.506	0.399	0.419
Bidar	0.266897	0.547	0.34	0.385
Bijapur	0.313389	0.561	0.381	0.418
Chamarajanagar	0.713745	0.446	0.392	0.517
Chikmagalur	0.759905	0.639	0.454	0.618
Chitradurga	0.529719	0.59	0.384	0.501
Dakshina Kannada	0.613274	0.799	0.5	0.637
Davanagere	0.587842	0.623	0.388	0.533
Dharwad	0.650599	0.637	0.412	0.567
Gadag	0.51472	0.601	0.364	0.493
Gulbarga	0.084509	0.423	0.352	0.287
Hassan	0.845009	0.599	0.384	0.609
Haveri	0.455992	0.582	0.331	0.456
Kodagu	0.793555	0.739	0.531	0.688
Kolar	0.660539	0.576	0.372	0.536
Koppal	0.187491	0.403	0.351	0.314
Mandya	0.922591	0.548	0.386	0.619
Mysore	0.784969	0.55	0.389	0.575
Raichur	0.124232	0.372	0.367	0.288
Shimoga	0.713986	0.662	0.41	0.595
Tumkur	0.690965	0.612	0.37	0.558
Udupi	0.834493	0.83	0.463	0.709
Uttara Kannada	0.796434	0.692	0.41	0.633

Karnataka 2001

District	CHI	Education	income	mHDI
Bagalkot	0.375829	0.636	0.539	0.517
Bangalore	0.742875	0.887	0.666	0.765
Bangalore Rural	0.736609	0.662	0.605	0.668
Belgaum	0.587643	0.699	0.532	0.606
Bellary	0.342496	0.618	0.549	0.503
Bidar	0.533077	0.689	0.47	0.564
Bijapur	0.408714	0.642	0.499	0.517
Chamarajanagar	0.728253	0.57	0.518	0.605
Chikmagalur	0.807873	0.742	0.563	0.704
Chitradurga	0.53184	0.704	0.517	0.584
Dakshina Kannada	0.692447	0.823	0.636	0.717
Davanagere	0.575713	0.711	0.515	0.601
Dharwad	0.585214	0.758	0.53	0.624
Gadag	0.415999	0.75	0.525	0.564
Gulbarga	0.270462	0.572	0.49	0.444
Hassan	0.825142	0.729	0.519	0.691
Haveri	0.586274	0.699	0.491	0.592
Kodagu	0.745885	0.833	0.621	0.733
Kolar	0.572431	0.713	0.508	0.598
Koppal	0.317371	0.576	0.529	0.474
Mandya	0.908475	0.682	0.513	0.701
Mysore	0.767157	0.669	0.561	0.666
Raichur	0.191545	0.524	0.469	0.395
Shimoga	0.666524	0.766	0.547	0.660
Tumkur	0.718061	0.714	0.505	0.646
Udupi	0.616033	0.842	0.588	0.682
Uttara Kannada	0.60259	0.781	0.546	0.643

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