NABARD RESEARCH STUDY - 19

Sustainable Development Goals for Rural Maharashtra: Achievements & Constraints

Symbiosis School of Economics

आर्थिक विश्लेषण एवं अनुसंधान विभाग
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About NABARD Research Study Series

The NABARD Research Study Series has been started to enable wider dissemination of research conducted/sponsored by NABARD on the thrust areas of Agriculture and Rural Development among researchers and stakeholders. *'Sustainable Development Goals for Rural Maharashtra: Achievements and Constraints*' completed by Symbiosis School of Economics, Pune is the nineteenth in the series. The list of studies in the series is given at the end of this report.

The world adopted the 17 Sustainable Development Goals in 2015. India too, along with the United Nations Member States, embraced the global goals to be achieved in a phased manner by 2030. Maharashtra, the State being undertaken for the present study has great significance as it is not only the second most populated State in India, but would also rank as the 12th most populated in the country (if viewed from the global lens in 2020). The State is known for its highest contribution of 13.9 %of the country's GDP (2018-19), as per the Economic Survey of Maharashtra 2019-20, but has been troubled by high degree of regional disparities.

The study has an objective to assess the status of select Sustainable Development Goals-2030 for thirty-two districts of Maharashtra. The research project is a comprehensive study for the select 32 districts to throw light on seven goals (SDG 1, 2, 3, 4, 6, 8 and 10) and 66 related variables divided into 4 dimensions. The present study is indeed very timely, given the present-day challenges wherein it has become essential to work towards localising SDGs at the grassroot level - 'going local for achieving global successes.'

Hope this and other reports we are sharing would make a good reading and help generate debate on issues of policy relevance. Let us know your feedback.

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PREFACE

The world pledged to fulfil the global goals- 'leaving no one behind' by adopting the 17 Sustainable Development Goals (SDGs) in 2015. India too, along with the United Nations Member States, embraced the global goals to be achieved in a phased manner by 2030. While India ranks 117 on the SDG Index 2020, with the SDG score of 61.9, the country is placed below the regional average for East and South Asia, which stood at 67.2. India fairs poorly with respect to the emerging economies and the neighboring South Asian nations, which have a rank and score of: China (48; 73.89), Vietnam (49; 73.80), Brazil (53; 72.67), Russian Federation (57; 71.92), Sri Lanka (94; 66.88), Indonesia (101; 65.3) and Bangladesh (109; 63.51). There is no doubt that for the SDGs to succeed globally, India-a continental sized nation-will have to succeed for the 2030 agenda. On the global comparative platform, India, in 2020, has achieved some success with respect to SDG 1: No Poverty; SDG 6: Clean Water and Sanitation; SDG 8: Decent Work and Economic Growth; while for SDG 2: Zero Hunger and SDG 3: Good Health and Well-being, have achieved moderate improvement. As regards SDG 4, Quality Education has stagnated, and for SDG 10: Reduced inequalities information has not been available to capture the progress, which is known to be tardy .

The year 2020 witnessed the COVID-19 pandemic, have a devastating and significant negative impact on the global economy, labeling it as the worst crisis since the Great Depression. The global growth being projected at - 4.4 % in October 2020 and an upward revision of 0.8 % since June of the same year, the Indian economy is projected to grow at -10.8 % for 2020 (Gita Gopinath, 2020-October 13). India has the second largest COVID-19 cases in the world, and the State of Maharashtra accounts for more than 20 % of these cases in the country. The focus has naturally shifted towards health and wellbeing of mankind with quality and inclusive growth taking centre stage. It is in this backdrop that the progress of SDGs comes to play a significant role as they throw light on the challenges with respect to the various goals and highlight the importance of providing a livable environment for the 1.38 billion population of the country.

Maharashtra, the State being undertaken for the present study has great significance as it is not onlythe second most populated State in India, but would also rank as the 12th most populated in the country (if viewed from the global lens in 2020). The State is known for its highest contribution of 13.9 %of the country's GDP (2018-19), as per the Economic Survey of Maharashtra 2019-20, but has been troubled by high degree of regional disparities. This has been identified since the 1980s by the Fact-Finding Committee Report (1984), the Indicators and Backlog Committee Report (1997) and more recently by the Report of the High-Level Committee on Balanced Regional Development Issues in Maharashtra (2013). Given this backdrop, in January 2019, National Bank for Agriculture and Rural Development (NABARD) granted the project to Symbiosis School of Economics (SSE), department of the Symbiosis International (Deemed University), Pune, to study the "Sustainable Development Goals for Rural Maharashtra: Achievements and Constraints." The research project is a comprehensive study for the select 32 districts with respect to the four dimensions, throwing light on seven goals (SDG 1, 2, 3, 4, 6, 8 and 10) and examining 66 related variables. The present study is indeed very timely, given the present-day challenges wherein it has become essential to work towards

localising SDGs at the grassroot level - 'going local for achieving global successes.'

The study reveals the relative performances of the 32 districts of the State, excluding Mumbai City and Suburban Mumbai, which are fully urban, and Thane district, which is 77 % urban. The district of Palghar was excluded as it is a newly formed district in 2014, and has limited data for the study. The analysis encompasses the eight administrative divisions- Konkan, Nasik, Pune, Kolhapur, Aurngabad, Nagpur, Latur and Amravati. The composite index is a path breaking work, creating a sound base for all the districts. It can, over the years, be refined when additional variables find a place and data gets updated, helping us demystify the progress at the district level for further action.

It is indeed of prime importance that the development agenda followed by our nation should be closely examined as an academic exercise, with the final objective being to ensure development communication at the grassroot level. This kind of knowledge base at the ground level will enhance local citizens' participation at the district, sub-district and lowest primary administration level of the village, leading to peoples' participation in fulfilling the development agenda. This is the only way to achieve the SDGs within a participatory framework, leading to inclusive growth and development.

I would like to place on record the noteworthy contributions of each member of the team who has contributed tirelessly, giving enormous amount of their time and efforts towards completion of the study. I am sure this study will be a beginning for many more district and block level analysis and evaluation, with the prime objective of ensuring better livability of the citizens at the ground level.

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The study 'Sustainable Development Goals for Rural Maharashtra-2030: Achievements & Constraints" has been carried out by Symbiosis School of Economics (SSE). The objective to undertake the study was to assess the status of select Sustainable Development Goals-2030 for thirty-two districts of Maharashtra. SSE would like to express gratitude towards Department of Economic Analysis and Research (DEAR) - National Bank for Agriculture and Rural Development (NABARD) for trusting our potential and extending financial support for the field research. We would like to express our profound gratitude to Dr. K. J. S. Satyasai, Chief General Manager, NABARD, Department of Economic Analysis and Research (DEAR), and Dr. Uday S. Saha, Ex-Chief General Manager (NABARD, Mumbai) for providing us with the opportunity to undertake the study. The support, cooperation, and valuable inputs received from Shri K.L. Prabhakar, Deputy General Manager (DEAR), Mr. U. D. Shirsalkar, Chief General Manager, Regional Office - Maharashtra, NABARD, Pune, and other officials from NABARD are gracefully acknowledged. We are grateful to Symbiosis International (Deemed University) for giving us opportunity to undertake the project and giving us support with all infrastructure and tools.

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ABBREVIATIONS

AAY	Antyodaya Anna Yojana
ADF	Animal Husbandry, Dairy and Fisheries
AIDS	Acquired Immunodeficiency Syndrome
ANM	Auxiliary Nursing Midwifery
APMC	Agricultural Produce Market Committee
ASS	After School Special
ATPS	Average Teacher Per School
AWC	Anganwadi Center
BF	Percentage of Households with Banking Facility
BMI	Body Mass Index
BPL	Below Poverty Line
BRGF	Backward Regions Grant Fund
BRI	Business Receipts Index
CAGR	Compound Annual Growth Rate
CFC	Households Using Clean Fuel for Cooking
CI	Cropping Intensity
CNS	Children Under 5 Years Who Are Not Stunted (Height-For-Age)
CNSW	Children Under 5 Years Who Are Not Severely Wasted (Weight-For-Height)
CNUW	Children Under 5 Years Who Are Not Underweight
CNW	Children Under 5 Years Who Are Not Wasted (Weight-For-Height)
CPCB	Central Pollution Control Board
CRY	Child Rights and You
CSO	Central Statistics Office
CSR	Corporate Social Responsibility
CSS	Centrally Sponsored Scheme
CUTBOH	Children Under Age 3 Years Breastfed Within One Hour of Birth
DDP	District Domestic Product
DES	Department of Economics and Statistics
DIET	District Institute of Education and Training

DOC	DOC Per 10,000 Population
DW	Households with An Improved Drinking-Water Source
FAMC	Financial Assistance to Mother and Child
FDI	Foreign Direct Investment
FGDs	Focused Group Discussions
FPS	Proportion of Number Of Fair Price Shops to Total Fair Price Shops
GDDP	Gross District Domestic Product
GDP	Gross Domestic Product
GDVA	Gross Domestic Value Added
GI	Gini Inequality
GOI	Government of India
GOM	Government of Maharashtra
GPI	Gender Parity Index
GR	Per Capita Growth Rate
GSDP	Gross State Domestic Product
GST	Goods and Services Tax
HDI	Human Development Index
HH	Homeless Household
HI	Health Insurance
HIV	Human Immunodeficiency Virus
HSHI	Households with Any Usual Member Covered by A Health Scheme or Health Insurance
IB	Institutional Births
IBPF	Institutional Births in Public Facility
ICDS	Integrated Child Development Service
IDW	Households with An Improved Drinking-Water Source
IFA	Iron-Folic Acid
IGSMY	Indira Gandhi Matritva Sahyog Yojna
INR	Indian Rupee
IOS	Households Using Iodized Salt

IPTR	Inverse of Pupil Teacher Ratio
IRDP	Integrated Rural Development Programme
ISCR	Inverse of Student Classroom Ratio
ISF	Households Using Improved Sanitation Facility
JRY	Jawahar Rozgar Yojana
KMO	Kaiser-Meyer-Oklin
KSY	Kishori Shakti Yojana
MCPC	Mother and Child Protection Card
MDG	Millennium Development Goals
MGNREGA	Mahatma Gandhi National Rural Employment Guarantee Act
MHDR	Maharashtra Human Development Report
MMR	Maternal Mortality Ratio
MNBMI	Men Whose BMI Is Normal (BMI < 18.5 Kg/M2)
MNO	Men Who Are Not Overweight or Obese (BMI > 25.0 Kg/M2)
MNREGA	Mahatma Gandhi National Rural Employment. Guarantee Act.
MoSPI	Ministry Of Statistics and Programme Implementation
MPW	Women Age 15-19 Years Who Were Not Already Mothers or Pregnant at The Time of The Survey
MSME	Micro, Small and Medium Enterprises
MSMEM	MSME - Micro
MSMES	MSME - Small
MSRLM-UMED	Maharashtra State Rural Livelihood Mission
MSRTC	Maharashtra State Road Transport Corporation
NABARD	National Bank for Agriculture and Rural Development
NABH	National Accreditation Board for Hospitals & Healthcare
NDP	United Nations Development Programme
NERP	Net Enrolment Ratio (Primary)
NERUP	Net Enrolment Ratio (Upper Primary)
NFHS	National Family Health Survey
NGO	Non-Governmental Organization
NHFS	National Health Financing Scheme

NITI Aayog	National Institution for Transforming India
NMSA	National Mission on Sustainable Agriculture
NURSE	Nurse Per 10,000 Population
NPL	National Poverty Line
NRDWP	National Rural Drinking Water Programme
NRLM	National Rural Livelihood Mission
NSO	National Statistical Office
NSS	National Sample Survey
NSSO	National Sample Survey Office
ODF	Official Development Finance
PBPT	Percentage of Beneficiaries Primary (Textbook)
PBPU	Percentage of Beneficiaries Primary (Uniform)
PBUPT	Percentage of Beneficiaries Upper Primary (Textbook)
PBUPU	Percentage of Beneficiaries Upper Primary (Uniform)
PCA	Principal Component Analysis
PCCE	Per Capita Consumption of Electricity
PCGR	Per Capita Growth Rate
PDS	Public Distribution System
PF	Public Facility
PGRS	Percentage of Government Rural Schools
PHBF	Percentage of Households with Banking Facility
PHH	Priority Household
PMJDY	Prime Minister Jan Dhan Yojana
PMJDYD	PMJDY Deposits - Per Capita PMJDY Deposits
PMJDYO	PMJDY A/C Opened - Percapita PMJDY A/C Opened
PPQTGC	Professionally Qualified Teachers (Government Contractual)
PPQTGR	Percentage of Professionally Qualified Teachers (Government Regular)
PPQTP	Percentage of Professionally Qualified Teachers (Private)
PPS	Percentage of Primary Sector
PSAWR	Percentage of Schools Approachable By Weather Road
PSBW	Percentage of Schools with Boundary Wall

PSCF	Percentage of Schools with Computer Facility
PSDW	Percentage of Schools with Drinking Water
PSE	Percentage of Schools with Electricity
PSGT	Percentage of Schools with Girl's Toilet
PSMDM	Percentage of Schools with Midday Meal
PSP	Percentage of Schools with Playground
PSPTR	Percentage of Schools With PTR<30
PSS	Percentage of Secondary Sector
PSSC	Percentage of Schools with Single Classroom
PTR	Pupil/Teacher Ratio
RMSA	Rashtriya Madhyamik Shiksha Abhiyan
RTE	Right to Free and Compulsory Education Act
SAG	Scheme for Adolescent Girl
SBM	Swachh Bharat Mission
SC	Scheduled Caste
SD	Sustainable Development
SDG	Sustainable Development Goals
SDG-EI	Sustainable Development Goal-Education Index
SDG_GI	Sustainable Development Goal-Growth Index
SDG_PHII	Sustainable Development Poverty Hunger Inequality Index
SDG-HWSI	Sustainable Development Goal-Health Water Sanitation Index
SF	Households Using Improved Sanitation Facility
SFC	Securities and Futures Commission
SHG	Self Help Groups
SHGs	No. Of Self-Help Groups
SPSS	Statistical Package for the Social Sciences
SSA	Sarva Shiksha Abhiyan
ST	Scheduled Tribe
STC	Stunted Children/100
SWSTC	Children Under 5 Years Who Are Not Severely Wasted (Weight-For-Height)
TCP	Total Cereal Productivity in Kgs/Hector

TE	Technical Evaluation
TED	Teacher Education
TFGP	Total Food Grain Productivity in Kgs/Hector
TOP	Total Oilseeds Productivity in Kgs/Hector
TPP	Total Pulses Productivity in Kgs/Hector
TRIPS	Trade-Related Aspects of Intellectual Property Rights
UN	United Nations
UNDP	United Nations Development Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
US	United States
USD	U.S. Dollar
UW	Unit Weight
VSTF	Village Social Transformation Foundation
WASH	Water, Sanitation and Hygiene
WCD	Women and Child Development
WHO	World Health Organization
WMAAge	Women Age 20-24 Years Married After Age 18 Years
WNBMI	Women Whose BMI Is Normal (BMI < 18.5 Kg/M2)
WNO	Women Who Are Not Overweight or Obese (BMI ? 25.0 Kg/M2)
WNP	Women Age 15-19 Years Who Were Not Already Mothers or Pregnant at The Time of The Survey
WSTC	Children Under 5 Years Who Are Not Wasted (Weight-For-Height)
ZP	Zilla Parishad

EXECUTIVE SUMMARY

i) The Government of India (GOI) adopted the new global agenda - the Sustainable Development Goals (SDGs) set by the United Nations General Assembly, on the 1st of January 2016. Globally, there are 17 goals, 169 targets and 231 unique indicators.

ii) According to the SDG Global Dashboard - the countrywise scorecard places Sweden, having a score of 84.72, ranking first among 193 nations. A comparison with emerging economies and select comparable South Asian Economies reveals that, India with a score of 61.92 and a rank of 117, is just ahead of Pakistan and Nigeria - with Bhutan (69.27, 80) - Sri Lanka (66.88, 94), Nepal (65.93, 96), Vietnam (73.80, 49) and Cambodia (64.39, 106) out performing India.

iii) India being home to nearly 139 crore people (17.7% of the world population), needs to lay great emphasis on defining a roadmap for achieving SDGs by 2030, which will require meaningful interventions and action from the 33 States and Union Territories (UTs), including local governance.

iv) The GOI think tank NITI Aayog, monitors the progress of all the States and Union Territories (UT) with respect to the SDGs. The SDG India Index 2019, showcases the progress of the various States encompassing 100 indicators, progressing from the 62 indicators measured in 2018, of which 40 indicators are common over the two years.

v) Maharashtra ranked 9th along with Gujarat, among all the States for both the years (2018 and 2019), with a score of 64, and was behind high achiever States like Kerala with a score of 70, Himachal Pradesh - 69, Andhra Pradesh, Tamil Nadu and Telangana - 67 each, Karnataka - 66, Goa and Sikkim - 65.

vi) Maharashtra is the second most populous State, accounting for nearly 9.3% of the total population of the country and 7.4% of the country's rural population. The rural population in Maharashtra is 6.1 crores. Globally the State will be ranked as the 12th most populated region in 2021. It is also the leading State with respect to Gross State Domestic Product (GSDP), accounting for 13.88% of India's GDP at current prices.

vii) The State comprises of 36 districts functioning under 8 administrative divisions viz. Konkan, Pune, Nashik, Aurangabad, Amravati, Latur, Kolhapur and Nagpur. This includes 355 Talukas, 40,959 inhabited villages (2706) uninhabited , and 534 towns. Further, there are 34 Zilla Parishads, 27,875 Gram Panchayats and 351 Panchayat Samitees (administrative offices).

viii) Maharashtra accounts for 12.3 % of the total net sown area and 11.6 % of the gross cropped areas. The sectoral share of the State in Gross State Value Added (GSVA) - for the year 2018-19 as per the Economic Survey of Maharashtra (2019-20), revealed that Agriculture and Allied Activities accounts for 9.9%, Industry 30.4% and Services 59.7%.

ix) The research project is an attempt to conduct an extensive study in order to explore the achievements and constraints with respect to SDGs for 32 rural districts of Maharashtra.

x) The framework of the study has been organized under four dimensions, seven goals and 66 indicators, with an objective to analyze the status-quo in terms of targets related to specific SDGs for the select districts, and prepare the SDG Composite Index (SDG-CI). The study has taken into account 66 indicators to prepare the composite index whereas the SDG India index developed by NITI Aayog for the same seven goals considers 52 indicators.

xi) The four dimensions include:

- Dimension 1: Sustainable Economic Growth (Goal 8) - SDG-GI
- Dimension 2: No Poverty (Goal 1), Zero Hunger (Goal 2) and Reduced Inequalities (Goal 10) - SDG-PHII
- Dimension 3: Good Health and Well-Being (Goal 3) and Clean Water and Sanitation (Goal 6) - SDG-HWSI
- Dimension 4: Quality Education (Goal 4) - EI

xii) Maharashtra with respect to the select four dimensions was a front runner with respect to SDG 3, 4, 6, 8 and 10, but was labelled as an aspirant State with respect to SDG 1 and 2. Being a leading State in the country, it is imperative that Maharashtra prepares a roadmap to 2030, taking the lead towards improving its performance with respect to achieving the SDG targets, which requires a decisive district wise plan to focus on the existing challenges with respect to poverty, hunger, food security, inequalities, health, water, sanitation, education, infrastructure - which will collectively help the State to move towards inclusive and sustainable growth in the long run.

xiii) The objectives of the study include:

- To assess the status of select SDGs related to economic growth, poverty, inequality, health, and sanitation, as well as education, for the districts of Maharashtra;
- To identify the backward districts for select socio-economic indicators through four specific dimensions with respect to assessable targets within each specified goal;
- To examine the ground reality for two aspirational districts of Maharashtra, Osmanabad and Washim, using primary survey-based data;
- To make policy recommendations to the Government of Maharashtra for inclusive growth and development to achieve SDGs within the specified timeframe.

xv) The Secondary Data Analysis, examines the status of select SDGs in rural districts with the help of SDG Composite Index - SDG-CI, comprising 66 indicators (Classified under 4 dimensions) that throw light on the sustainable rural development of the districts.

- Dimension 1 (Sustainable Economic Growth - SDG 8) : Includes 12 indicators which will enhance growth and help measure the Sustainable Development Goals - Growth Index (SDG-GI). They include: Per Capita Growth Rate of GDDP (PCGR), Percentage of Primary Sector in GDDP (PPS), Percentage of Secondary sector in GDDP (PSS), Percentage of Household with Banking Facility (PHBF), Per Capita PMJDY A/C Opened (PMJDYO), Per Capita PMJDY deposits, (PMJDYD), Proportion of Fair Price Shops in

total Fair Price Shops (FPS), Per Capita Consumption of Electricity (PCCE), Cropping Intensity (CI), No. of Self Help Groups (SHGs), MSME-Micro (MSMEM) and MSME - Small (MSME's)

- Dimension 2 (No Poverty - SDG 1, Zero Hunger - SDG 2 and Reduced Inequality - SDG 10): Includes 12 indicators to address the issues related to poverty, nutritional status, food security , hunger and inequalities and will result in measuring the Sustainable Development Goals - Poverty, Health and Inequality Index (SDG-PHII)- National Poverty Line (NPL), Health Insurance (HI), Mother and Child Protection Card (MCPC), Financial, Financial Assistance to Mother and Child (FACM), Homeless Households/ 10000 (HH), Antodaya Yojna (AAY), Stunted children/ 100 (STC), Total Cereals Productivity (TCP), Total Food Grains Productivity (TFGP), Total Pulses Productivity (TPP), Total Oilseeds Productivity (TOSP) and Gini Inequality (GI).
- Dimension 3 (Good Health - SDG 3, Clean Water and Sanitations - SDG 6): This comprises of 21 indicators, addressing the issues of health facilities, safe drinking water and sanitation viz. Households with Improved Drinking Water Facilities (IDW), Households using Improved Sanitation Facilities (ISF), Households using Iodized Salts (IOS), Household using Clean Fuel for Cooking (CFC), Households with any usual member covered with Health Schemes or Health Insurance (HSHI), Women age 20-24 years married after age 18 years (WMAA), Women age 15-19 who were not Mothers or Pregnant (WNP), Institutional Births (IB), Institutional Births in Public Facility (IBPF), Children Under age of 3 years Breastfed within One Hour of birth (CUTBOH), ST Children under 5 years who are not stunted (STC, Children under 5 years who are not Wasted (WSTC), Children under 5 years who are not Severely Wasted (SWSTC), Children under 5 years who are not underweight (CNUW), Women whose BMI is normal (WNBMI), Men whose BMI is normal (MNBMI), Women who are not overweight or obese (WNO), Men who are not overweight or obese (MNO), Maternal mortality ratio (MMR), Doctor/100000 (DOC), Nurses/100000 (NURSE).
- Dimension 4 (Quality Education - SDG 4): The dimension encompasses the educational quality through a select 21 Indicators which comprises of - Net Enrolment Ratio(Primary) (NERP), Net Enrolment Ratio(Upper Primary) (NERUP), Percentage of Professionally Qualified Teachers (Government Regular) (PPQTGR), Professionally Qualified Teachers (Government Contractual) (PPQTGC), Percentage of Professionally Qualified Teachers (Private) (PPQTP), Percentage of Schools with PTR<30 (PSPTR), Inverse of Pupil Teacher Ratio (IPTR), Inverse of student classroom ratio (ISCR), Percentage of Government Rural Schools (PGRS), Percentage of Schools with Approachable by Weather Road (PSAWR), Percentage of Schools with Playground (PSP), Percentage of Schools with Boundary wall (PSBW), Percentage of Schools with Girl's toilet (PSGT), Percentage of Schools with Drinking Water (PSDW), Percentage of Schools with Midday meal (PSMDM), Percentage of Schools with Electricity (PSE), Percentage of Schools with Computer facility (PSCF), Average Number of Teacher per School (ATPS), Percentage of Beneficiaries Primary Textbook (PBPT), Percentage of

Beneficiaries Upper Primary Textbook (PBUPT), Percentage of Beneficiaries Primary Uniform (PBPU), Percentage of Beneficiaries Upper Primary Uniform (PBUPU).

xvi) The findings from the secondary analysis for the four dimensions reveals the following:

a) Dimension1: SDG-Growth Index (SDG-GI):

- The finding for the growth index, suggests that 14 districts had a higher than the State average performance, with - Pune, Bhandara, Osmanabad, Kolhapur, Jalna, Nashik, Solapur and Aurangabad emerging as the top performing districts, while districts of Washim, Sindhudurg, Nandurbar, Gadchiroli and Hingoli, Ratnagiri, Akola and Dhule have been identified as the laggard districts.
- The district of Pune ranked first and Washim ranked last w.r.t SDG-GI.
- Amongst the eight administrative regions of the State - Pune. Aurangabad and Kolhapur are the better performing regions with the score being higher than the State average for the growth index, while Konkan and Amravati are the worst performing regions.

b) Dimension 2: SDG-Poverty, Hunger and Inequality Index (SDG-PHII):

- The districts of Sindhudurg, Gondia, Kolhapur, Ratnagiri, Pune, Amravati, Nagpur, Wardha were identified as high performing districts, while Parbhani, Yavatmal, Aurangabad, Ahmednagar, Beed, Osmanabad, Nandurbar, Jalna were found to be the worst performing districts in terms of Poverty, Inequality and Hunger.
- The Index showed that 17 out of 32 districts were falling in the range of "Very High - High performance" range, while a total of 15 districts were identified in between the performance range of "Below average and Low".
- With respect to the eight regions of the State, all the districts in Aurangabad region were the worst performing districts as their respective scores were below the State average. On the other hand Konkan, Nagpur, Kolhapur and Amravati administration regions enjoyed an average score above the State average. It was indeed surprising that the Pune region performed below average for the SDG-PHII.

c) Dimension 3: SDG-Health, Water and Sanitation Index (SDG-HWSI):

- The finding for SDG-HWSI, suggests that districts of Bhandara, Wardha, Sindhudurg, Nagpur, Sangli, Pune, Amravati and Gondia emerged as the top performing districts, while the districts of Jalgaon, Parbhani, Dhule, Nashik and Nandurbar have been identified as the worst performing districts.
- All the districts in Nashik region were identified as the worst performers as their respective scores were below the State average. On the other hand, all the districts of Konkan and Kolhapur region were in the performance range of "Very High -High".

d) Dimension 4: SDG-Education Index (SDG-EI):

- The assessment with respect to the SDG-EI, was carried out by taking into account 21 indicators which revealed that 20 out of 32 districts were performing in the range of "Very High -High performance", while a total of 12 districts were identified in between

the performance range of "Below average and Low".

- The districts of Jalgaon, Dhule, Sangli, Ahmednagar, Solapur, Sindhudurg, Bhandara and Nandurbar were identified as High performing districts, while 6 out of 32 districts such as Washim, Nanded, Parbhani, Akola, Beed and Gadchiroli were found to be the worst performing districts
- Nasik, Pune, Kolhapur and Konkan were the above average performing administrative regions, with all the districts of Kolhapur and Pune region falling in the "Very High-High", while all the districts in the Amravati region (except Yavatmal districts) were found to be performing "Below Average and Low".

e) SDG Composite Index (SDG-CI): The Index is a composite index prepared by taking the individual indexes for each dimension.

- The SDG-CI showed that 14 out of 32 were performing in the range of "Very High -High performance", while a total of 18 districts were identified in between the performance range of "Below average and Low".
- The districts such as Bhandara, Pune, Sindhudurg, Nagpur, Wardha, Kolhapur and Sangli were identified as High performing districts, while 8 out of 32 districts namely Nashik, Akola, Jalna, Washim, Parbhani, Gadchiroli, Beed and Nandurbar were found to be the worst performing districts in terms of the four select dimensions of the study.
- The district of Bhandara ranked first in the list with a score of 4.397, while the district of Nandurbar ranked 32nd position in the list with a score of 2. 315 which was 30% less than the State average.

f) A secondary data assessment of the four aspirational districts Osmanabad, Washim, Gadchiroli and Nandurbar was conducted. The study revealed:

- Osmanabad ranked overall at rank 17 in the SDG-CI, performing very highly for SDG-GI at rank 3 and very poorly for SDG-PHII at rank 30. Thus, Osmanabad district needs to pay urgent attention to indicators associated with poverty, hunger and inequality.
- Gadchiroli district performed very poorly in the overall SDG-CI at rank 30. This is despite performing above the State average with respect to SDG-PHII at rank 12 and SDG-HWSI rank 17. However, the district performed very poorly at rank 29- SDG-GI and rank 32 - SDG EI.
- Washim showed very poor performance at rank 32 for SDG-GI and at rank 27 for SDG-EI. However, SDG-PHII, the district showcased a high performance above the State average and stood at rank 15 and at SDG-HWSI at 21. Not surprisingly the district was ranked at 28 for the SDG-CI.
- Nandurbar's performance was very low for SDG-GI (Rank 30), SDG-PHII (Rank 31) and SDG-HWSI (Rank 32). However, it was an outlier with (Rank 8) for SDG-EI but was the worst performing district for the SDG-CI at rank 32.

xvii) The primary study was conducted for two aspirational districts, Osmanabad and Washim. Two tehsils from each of the districts were identified and a survey of five

villages in each of the tehsils was conducted. The primary study was conducted, in order to map and supplement the findings from the secondary study. The findings of the primary study revealed:

- Osmanabad district was found to be relatively better than Washim district, with respect to indicators such as literacy rate, employment, banking facilities, access to PDS and infrastructure.
- Transportation infrastructure and accessibility to transportation to nearby towns was better in Washim compared to Osmanabad district.
- Employment generation and poverty eradication- MGNREGA scheme has been implemented in all the select villages in both the districts. However, other employment schemes were present in only select villages.
- Both the districts were found to be drought prone, while all the villages in Washim were conducting awareness meetings to address issues related with natural disasters and discussed measures to conserve water.
- Education parameters, both Osmanabad and Washim showed a fairly equivalent performance.

xviii) It can be inferred that to attain the SDG's for rural Maharashtra, the Local Government must evaluate the performance of the districts on implementation and impact of various Government schemes. There are schemes to improve economic growth, reduce poverty, Inequality and hunger, and improve the availability of safe drinking water, health, sanitation and Education across the State but monitoring the execution of these schemes needs to be prioritized given the ground realities in rural Maharashtra, the Government must focus on building adequate infrastructure such as roads, 100% electrification of households, water-saving Technologies like micro-irrigation, drip irrigation facilities in rain fed districts and other innovative interventions to improve irrigation potential. Appropriate implementation of PDS, access to APMC mandis is a must evaluate for attaining zero hunger and reduced inequality in the State.

Chapter 1

INTRODUCTION

"Be a global citizen. Act with passion and compassion. Help us make this world safer and more sustainable today and for the generations that will follow us. That is our moral responsibility."

- Ban-Ki Moon, UN Secretary-General.

The Rio Declaration of 1992 has recognized 'development' as a human right. In order to set up a path for sustainable future, the United Nations (UN) held various deliberations, and in September 2000, at the Millennium Summit, adopted the United Nations Millennium Declaration. The Declaration included eight Millennium Development Goals (MDGs) to be achieved by the year 2015 and was signed by 191 UN member States. The eight goals proposed to be achieved included: i) eradicating poverty and hunger, ii) achieving universalization of primary education, iii) promoting gender equality and empowering women, iv) reducing child mortality, v) improving maternal health, vi) eradicating HIV/AIDS, malaria, and other diseases, vii) attaining environmental sustainability and viii) developing a global partnership for development. Global development policies and strategies were formulated to provide the governments of the member countries with a definite target-oriented framework to take key development issues to the forefront. The MDGs over time achieved certain milestones. For example, child mortality was reduced by more than half (since 1990), there was reduction by almost half in the number of out of school children (2000 to 2015), around 40 % reduction in the HIV/AIDS infections (since 2000 to 2015), and more than 1 billion people were lifted out of extreme poverty (since 1990 to 2015). While the success was apparent in certain indicators, there were some failures as well. Furthermore, the success of the goals was uneven across the member countries. For example, in the Indian context, despite the fact that the Children's Right to Free and Compulsory Education Act (RTE) came into effect since April 2010, the quality of education remains a major concern even today. A large number of children, mostly from the rural areas and those from the socio-economically disadvantaged strata, still remain out of school and fail to complete primary education, and the problem is even more unyielding when it comes to the girl child.

In order to take the development agenda forward in a more inclusive manner, the MDGs were replaced by the Sustainable Development Goals (SDGs), the genesis of which was initiated in 2012 at the United Nations Conference on Sustainable Development in Rio de Janeiro. The SDGs prescribed by the United Nations Development Programme (UNDP) were officially adopted on 1st January 2016, which aimed to create a set of worldwide goals that would meet the pressing global challenges pertaining to economy, environment, and equity. In order to catalyse collective transformative action on a global scale, the 2030 Agenda contains a set of 17 SDGs, collectively applicable, interconnected with 169 targets and 230 indicators[5] .

The 17 interconnected goals, for example, highlighted the need for mitigating climate change, preserving the vulnerable natural resources, promoting gender equality, providing better health facilities, eradicating poverty, endorsing peace and equitable communities to minimize inequality and alike. In short, these goals provide us an opportunity to improve people, planet and prosperity, with a pledge to leave no one behind. The SDGs being uniformly applicable to all the

[5] *https://www.undp.org/content/undp/en/home/sustainable-development-goals/background/*

countries globally are more inclusive than the MDGs, by eliminating the "developing" versus "developed" dichotomy. The MDGs were only restricted to the developing world and thus was subject to criticism. Also, under the MDGs, the rich countries expressed their cooperation through providing funds and technological support, and tried to create an effective system of mobilizing the global world to attain important social priorities. Nevertheless, the low-income nations were unable to achieve the targeted goals as the rich countries failed to fulfil the official development assistance (ODI) promised (Sachs, 2012). The SDGs, on the other hand, take a leap forward for further mobilization through specific targets corresponding to each goal, and correct the loopholes in the MDG approach. The SDGs system compared to the MDGs is more integrated as highlighted by Lu et al. (2015), Nakicenovic, Visbeck, and Stevance (2015), as it draws the five priorities for SDGs, which include-devised metrics, monitoring mechanisms, process evaluation, enhancement of infrastructure and standardization and verification of the data. It is, therefore, important to evaluate the goal-specific progress to understand the success of the SDGs in the years ahead. Le Blanc (2015) finds that there exists a network which connects the proposed goals of SDGs through targets. The economy, environment and the society are seen as embedded systems under the SDGs, rather than competing 'pillars.' For example, with respect to the urban areas, the need for water, sanitation and hygiene (WASH), energy, and climate change are all featured prominently, and they are interlinked. A failure in one will lead to a cascading effect, thereby leading to the failure of the entire economy. Therefore, to arrest such an outcome, the governments at all levels-global, national and local- play a crucial role in achieving the SDGs. This calls for a well-integrated and intergenerational approach, essential for mobilizing the entire global population toward the SDGs.

Figure 1.1: Sustainable Development Goals - the 17 interconnected indicators

Source: Retrieved from https://www.un.org/sustainabledevelopment/news/communications-material/, as per the standard guidelines.

The recognized principle of sustainable development has been unanimously accepted globally as an approach to cater to the needs of the present without jeopardizing the availability of natural resources for the future. SDGs have countrywide guidelines for implementation, in line with their agenda for development and environmental challenges (Refer to Figure 1.1), and a designed framework for the Governments of the member countries as highlighted below:

- Country should have a common language and shared purpose for operative communication and policy action;
- Economy should have a long-term agenda for development at the national and sub-national level, irrespective of different political requirement and election processes;
- It should set priorities and initiate goal-based development;
- It should facilitate the restructuring of present government schemes for estimating quantitative results;
- Country should have effective implementation of policies,
- It should set up required institutions and systems to create sustained investment and growth;
- The Government should have a mechanism to bring together all relevant stakeholders, including public-private partnerships, to address the urgent social challenges.

As of 30th April 2020, 7.75 % of total world's population i.e., approximately 600 million people were living under extreme poverty (World Data Lab, 2020), compared with 736 million in 2015- living with less than US$ 1.90 a day, lacking basic food, clean drinking water and sanitation. Rapid growth in countries such as China and India have lifted millions out of poverty, but progress has been uneven (United Nations Development Programme, n.d.). Every year, millions of people lose their lives, with many of them being children, on account of the diseases associated with insufficient and clean supply of WASH. More than half of the world's population is estimated to live in water-stressed areas by 2050, according to the World Health Organization (2015). Since 1990, more than two and a half billion people have gained access to improved sources of drinking water, but 666 million people still have no access. Between 1990 and 2015, the proportion of the world's population using improved sources of drinking water rose from 76% to 91%, but nearly 1000 children die every day from preventable water and sanitation-related diarrheal diseases. While the present-day world has more awareness than ever before, it is yet to address the ultimate goal of leaving no one behind. With respect to global access to quality education, countries have made significant progress in enhancing access to education at all levels, with increasing school enrolment rates and basic literacy skills having significantly improved. Between 1990 and 2016, the literacy rate increased globally among the young people aged 15-24, from 83.2 % to 91.4 %. Primary school completion rates were 89.6 % by 2016, experiencing a fall from 90.7 % in 2012. With respect to all levels of education, gender equality has been attained by a few nations. However, one in five boys, teenagers and young people are still out of school, including 64 million primary school-age children, 61 million lower secondary and 138 million higher secondary. The achievement of equitable and quality education for all reaffirms the idea that

education is one of the most effective vehicles for sustainable development. Thus, Goal 4 ensures that by 2030, it is essential to ensure access to inclusive and equitable quality education, and promote lifelong learning opportunities for all.

India is committed to fulfilment of the defined development agenda and has tried to follow a holistic framework for envisioning the national/sub-national priorities-goals with their corresponding targets and indicators. At national level, the emphasis has been laid down on designing and implementing the national level priorities. Given the federal structure of the country, States are key decisive units to its progress. Local governments play a crucial role in realizing an effective welfare-based programme, having the power to spend 70 % more than the central governments[6]. States have an enormous role to play in the identification of a nodal division for organizing and coordinating the agencies, along with setting up tools for all other stakeholders in planning and developing action plans with short-term targets. Some States have set up SDG cells for coordinating the goals and monitoring the process of implementation[7] . The country is well aware of the prospects that if India does not meet the SDGs, the world will be far from achieving them. The political leadership is cognizant of the responsibility this warrants. To fast-track the progress towards meeting the SDGs, India's development schemes and programmes have been aligned with the Global Goals. To coordinate all the SDG efforts at the national and sub-national levels, NITI Aayog acts as the nodal institution. At the same time, owing to the federal structure of the country, the States/Union Territories (UTs) play a significant role in ensuring the success of the SDG agenda. This report measures the progress achieved and distance to be covered by the States/UTs in their journey towards meeting the targets, using the SDG India Index. The SDG Index is a powerful tool which offers excellent possibilities for the States/UTs to identify prior areas which demand action, facilitate peer learning, highlight data gaps, and promote healthy competition.

In order to succeed with the commitment to the 17 SDGs, it is important that the progress be measured at the grass root level in the three-tier federal structure, which has been framed in accordance with the provisions of the Constitution of India. To understand and measure India's present status on SDGs, NITI Aayog has developed an SDG India Index comprising 62 indicators, which was first uploaded on their dashboard for the year 2018. However, in 2019-20, the set of indicators was enhanced to 100 for the 29 States and 8 Union Territories. This process is led by NITI Aayog and Ministry of Statistics and Programme Implementation (MoSPI), along with the support of the other departments. NITI Aayog has identified the aspirational districts in different indicators of SDGs. It has started monitoring the Centrally Sponsored Schemes (CSS) which is perfectly mapped with the targets of SDGs across sectors and started preparing the 15-year vision, 7-year strategy and 3-year action plan. They have a designed National Indicator Framework consisting of 306 indicators and prepared the national SDG dashboard in collaboration with the United Nations India. The bold and transformative agenda laid out by

[6] *https://plan.maharashtra.gov.in/Sitemap/plan/SDG/SDGs-%20An%20Overview.pdf*
[7] *https://niti.gov.in/sites/default/files/2019-01/NITI-Aayog-SDG-Presentation-to-States.pdf*

SDGs requires collaborative and robust actions nationally and sub-nationally, at macro (policy), meso (institutional) and micro (local) levels, to put people and planet on the resilient path over the next 15 years. India is one of the key emerging economies with a GDP growth rate of 6.5 % in 2017-18. However, the benefits of its growth story have not trickled down to the bottom of the pyramid. Marked by unique development issues, India will play a key role in influencing the achievement of the SDGs at the global level. The Government of India is fully committed to achieving the SDGs as evidenced by various policy Statements from the Honourable Prime Minister at different fora. He drew attention to the fact that we live in "an age of unprecedented prosperity, but also unspeakable deprivation around the world" and pointed out that "much of India's development agenda is mirrored in the Sustainable Development Goals." Mostly, the functions are in the State or Concurrent list of the Schedule VII of the Constitution.

Given this backdrop, the study has been taken up by a team of researchers from the Symbiosis School of Economics (SSE), a constituent of the Symbiosis International (Deemed University). The study has been supported by National Bank for Agriculture and Rural Development (NABARD), with a defined scope to assess the select targets and indicators for the rural districts of Maharashtra.

The objective of the study:

I. To assess the status of select SDGs related to economic growth, poverty, inequality, health, and sanitation, as well as education, for the districts of Maharashtra;

ii. To identify the backward districts for select socio-economic indicators through four specific dimensions with respect to assessable targets within each specified goal;

iii. To examine the ground reality for two aspirational districts of Maharashtra, Osmanabad and Washim, using primary survey-based data;

iv. To make policy recommendations to the Government of Maharashtra for inclusive growth and development to achieve SDGs within the specified timeframe.

On the basis of the framework of the SDGs, the research project has been organized for four dimensions. It aims to analyse the status-quo in terms of targets related to the specific SDGs for the select districts of Maharashtra. The four dimensions are linked to specific goals as under:

i. Dimension 1: Sustainable Economic Growth (Goal 8)

ii. Dimension 2: No Poverty (Goal 1), Zero Hunger (Goal 2) and Reduced Inequalities (Goal 10)

iii. Dimension 3: Good Health and Well-Being (Goal 3) and Clean Water and Sanitation (Goal 6)

iv. Dimension 4: Quality Education (Goal 4)

An assessment of regional economic development at district level, is highly relevant given the widespread regional inequalities in the State of Maharashtra, which needs to be addressed in a balanced manner. As a result, district-specific research provides a basis for local-level policy

prescription and provides a road map for effective policy implementation. In addition, all Indian States have their own State-specific requirements to fulfil their developmental agendas and goals, of which poverty alleviation and infrastructure building command high priority for faster and more inclusive growth. The present study, examines the linkage between the SDGs which have been carefully interwoven through the four dimensions, and helps in analysing the situation, highlighting the achievable targets for each of the districts of Maharashtra.

The study makes an important contribution which can be replicated for other States, thereby examining the districts and their status in terms of physical, institutional, and social infrastructure; this can help identify the investment package required and other initiatives to be undertaken to achieve the SDGs in the defined timeframe.

1.1 Background and context of the Study: Maharashtra Overview

India, with 17.7 % of the world's population, needs to responsibly lay emphasis on the pathway to achieving the global SDGs within the defined time - 2030. Given the multiple challenges faced by the country in the various development sectors like education, health, food, water and sanitation along with inadequate infrastructure, there is a dire need to address the challenges with a proper road map. While, the National Government will strive for the attainment of the SDGs, it is the Sub-National Governments too who have an equally important role in this regard. States and UTs look after the major social indicators as their State subject, for development. Maharashtra is the second largest State in India in terms of population and third largest by extent with a total area of 3, 07,713 sq. kms, comprising 36 districts. These districts are functioning under eight revenue divisions viz. Konkan, Pune, Kolhapur, Nashik, Aurangabad, Latur, Amravati and Nagpur, with effective machinery for planning at the district level. For local self-governance in rural areas, there are 34 Zilla Parishads, 351 Panchayat Samitis and 27,920 Gram Panchayats. The urban areas are governed through 26 Municipal Corporations, 230 Municipal Councils, 111 Nagar Panchayats and seven Cantonment Boards. Maharashtra is one of India's biggest industrial and commercial States, regarded as India's most industrialized, second most urbanized and second wealthiest State if per capita income is regarded as a measure of financial health. There were 43,665 villages in the State during 2015-16, with 93.80 % populated villages, and over 150 cities emerging and developed over the last three decades (Maharashtra Economic Survey 2018-19). As per 2011 census - nearly 54.78% of the total population in Maharshtra resides in rural areas, the State has a rural population of 61,556,074 and there were 12,569,000 cultivators in the State.

Figure 1.2: Map of Maharashtra - the Districts and Towns of the State

Table 1.1: Administrative Setup (in Numbers)

Item	2000-01	2010-11	2015-16	2018-19	2019-20
Districts	35	35	36	36	36
Towns	378	534	534	534	534
Talukas	353	355	355	355	355
Uninhabited villages	2,616	2,707	2,706	2,706	2,706
Inhabited villages	40,095	40,959	40,959	40,959	40,959

Source: Compiled from Economic Survey, Maharashtra, 2000-01, 2010-11, 2015-16, 2018-19 and 2019-2020

Table 1.2: Local Self-Government (Panchayati Raj) Institutions (in Units)

Heads	2000-01	2010-11	2015-16	2018-19	2019-20
Zilla Parishads	33	33	34	34	34
Panchayat Samitees	321	351	351	351	351
Gram Panchayats	27,735	27,913	28,332	27,896	27,875

Source: Compiled from Economic Survey, Maharashtra, 2000-01, 2010-11, 2015-16, 2018-19 and 2019-20.

Tables 1.2 and 1.3 elucidate the administrative and governing framework respectively for the State of Maharashtra. As is evident in Table 1.2, the number of inhabited villages is vast and stagnant, while the number of uninhabited villages is moderately declining. Table 1.3 exhibits the units of the governing bodies in the State. Maharashtra's Economic Survey (2018-19, p. 3) notes that the population of Maharashtra grew from 9.69 crore in 2001 to 11.24 crore in 2011, showing a 16 % growth. Maharashtra is in stage three of the population change process in the four phases (4th SFC, 2014, Maharashtra). The density of population of Maharashtra during the last decade increased from 315 persons per sq. km. to 365 persons per sq. km. as against the all-India average of 382. The percentage of population below the poverty line at 20 % was lower than the all-India average of 29.5 % (Maharashtra Population Census, 2011). A quick comparison of Maharashtra with other States for select demographic (other than what has been mentioned above) indicators would be meaningful at this juncture.

Table 1.3: Comparison of Key Demographic Indicators for 2011

Indicator	Maharashtra	State Rank	Best Performer
Geographical area (lakh sq. kms.)	3.08	2	Rajasthan (3.42)
Population (lakhs)	1123.74	2	Uttar Pradesh (1998.12)
Density of population (per sq. km.)	365	12	Delhi (11320)
State population to all India population (%)	9.28	2	Uttar Pradesh (16.5)
Decennial growth rate of population (%) (2001- 2011)	16	17	Meghalaya (27.95)
Sex ratio	929	18	Kerala (1084)
SC & ST population to total population (%)	21.17	21	Mizoram (94.54)
Female workers' participation rate	31.06	13	Himachal Pradesh (44.82)

Source: State Data Bank, Govt. of Maharashtra;
Note: Rank of Maharashtra is based considering all the States in India.

Table 1.4 indicates Maharashtra's standing amidst all the Indian States based on demographic indicators. Although the second largest populated State in the country, Maharashtra lags behind in terms of advancement based on sex ratio, SC & ST population as a percentage of the aggregate population, and female employment. NITI Aayog has established a Task Force involving membership of Central Ministries & States to regulate and review SDG implementation for the country. According to the 'SDG India Index report: Baseline Report' published by the NITI Aayog, Maharashtra ranks 9th among 29 States of India. It has a score of 64 as against 57 for India. The State's performance has plummeted from the 4th position in 2018 to 9th position in 2019. This fall can be attributed to the poor performance of the State with respect to Goal 1: 'No Poverty'; Goal 2: 'Zero Hunger'; Goal 5: 'Gender Equality'; and Goal 11: 'Sustainable Cities and Communities.'

Table 1.4: SDG India Index (State wise ranks for Select States)

States	Rank 2019	Score 2019	Score 2018
India	-	60	57
Kerala	1	70	69
Himachal Pradesh	2	69	69
Andhra Pradesh	3	67	64
Tamil Nadu	3	67	66
Telangana	3	67	61
Karnataka	6	66	64
Goa	7	65	64
Sikkim	7	65	58
Gujarat	9	64	64
Maharashtra	9	64	64
Uttarakhand	9	64	60
Punjab	12	62	60
West Bengal	13	60	56
Madhya Pradesh	15	58	52
Odisha	15	58	51
Tripura	15	58	55
Haryana	18	57	55
Rajasthan	18	57	59
Uttar Pradesh	23	55	42
Bihar	28	50	48

Authors' Compilation. Original source: https://sdgindiaindex.niti.gov.in/#/ranking, 2020

Table 1.5 shows the rankings and score of the State of Maharashtra, particularly with reference to the SDGs, which comprise the focus for the present study undertaken.

Table 1.5: Dimension-wise Maharashtra's Rank for different SDGs

Maharashtra			Top Performing State			India	
Rank 2019	Score 2019	Score 2018	Top Performing State	Score 2019	Score 2018	Score 2019	Score 2018
			Dimension 1: SDG 8-Sustainable Growth				
11	70	74	Telangana	82	75	64	65
			Dimension 2: SDG 1-No Poverty				
19	47	47	Tamil Nadu	72	76	50	54
			Dimension 2: SDG 2-Zero Hunger				
22	34	47	Goa	76	80	35	48
			Dimension 2: SDG 10-Reduced Inequality				
8	70	76	Telangana	94	100	64	71
			Dimension 3: SDG 3-Good Health				
2	76	60	Kerala	82	92	61	52
			Dimension 3: SDG 6-Water & Sanitation				
3	93	81	Andhra Pradesh	96	59	88	63
			Dimension 4: SDG 4-Quality Education				
10	65	74	Himachal Pradesh	81	82	58	58

Authors' Compilation. Original source: https://sdgindiaindex.niti.gov.in/#/ranking

Table 1.5, highlights the comparative performance of Maharashtra with respect to the select SDGs with the top performing States in the country. It can be observed that for SDG 3 - Good Health and SDG 6 - Water & Sanitation, SDG 4 - Education, SDG 8 - Economic Growth and SDG 10 - Inequality, Maharashtra is a front runner, the State has a long way to progress with respect to SDG 1 and 2 - Poverty and Hunger, where it has been categorised as an aspirant State. Maharashtra has been the top ranking State with respect to Gross State Domestic Product (GSDP) and will have to work towards a defined framework to emerge among the 'achiever' States, in terms of service delivery linked with the other prominent SDG goals.

1.1.1 Sustainable Economic Growth

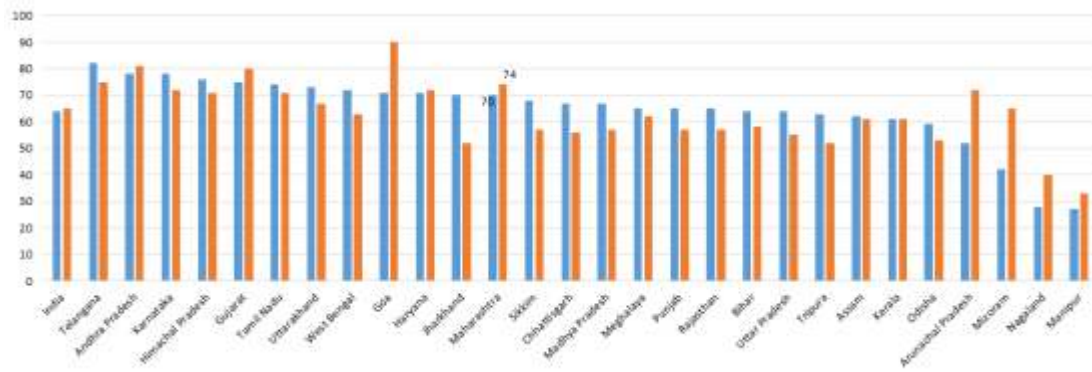
Sustainable growth includes development across agriculture, industry and service sectors of a nation. To assess the social indicators of a State, the Human Development Index (HDI) is considered a reliable source for the first case reference. According to the Maharashtra Human Development Report (MHDR, 2012), the HDI for the State stood at 0.752 and rank 6. The State needs to progressively inch towards a higher HDI like Kerala which has a score of 0.79 and ranks first. Sustainable economic growth requires communities to establish the conditions for quality employment that boost the income and the economy while not harming the environment. During the past three consecutive years (2016-2018), Maharashtra has witnessed low rainfall and drought which has adversely affected its agricultural productivity. According to the Economic Survey of Maharashtra, 2019, average annual growth of the real GSVA (base year 2011-12) of 'Agriculture & allied activities', 'Industry' and 'Services' from 2012-13 to 2018-19 is 2.2 %, 6.2 % and 8.1 % respectively. Further, the decomposed sectoral contribution emphases that the average annual growth of 'Crops' for the period 2012-13 to 2018-19 is 1.3 %. Average annual growth of 'Mining & Quarrying' is 3.3 %, 'Manufacturing' is 7.7 % and 'Construction' is 3.7 %, while the overall service sector stood at 8.1 %. The sectoral share in terms of GSVA for the year 2018-19 for Agriculture and allied activities has slumped from 13.1 % in 2011-12 to 9.9 %, while the share of industry too has declined from 35.8 % to 30.4 % and the share of services has inched up from 51.1% to 59.7 %. Consequently, this leads to wide variations in terms of working conditions, opportunities, productive investments and agricultural differences in respect of soil fertility in different parts, water availability, etc. A review of the per capita nominal Gross Domestic Value Added (GDVA) has been undertaken in various districts and administrative divisions of Maharashtra. For instance, Mumbai in 2018-19 had a per capita nominal GDVA of Rs 3,25,954, while Thane had Rs 2,75,538; the same for Pune district stood at Rs. 2,57,483. If you compare the figures with the aspirational[8] districts of Maharashtra with respect to GDVA, it is observed that Osmanabad (Rs 1,07,058), Gadchiroli (Rs 89,954), Washim (Rs 87,391) and Nandurbar (Rs 85,509), are a reflection of the wide differences in the per capita income at the district level, which is an important measure of economic development. The largest backlog has been found in irrigation at 53 % during the same period.

Despite being one of the top-ranking States in India, Maharashtra faces several challenges, especially the farmers, attributable to the regular occurrence of drought in the State. The inadequate rainfall causes low levels of productivity for major crops, which gets reflected in YOY fluctuations in growth. During the last decade, the YOY growth in the primary sector was negative for nearly 6 years. Furthermore, land resources are of critical concern for agriculture due to continuous degradation and declining soil quality. To add to the woes highlighted, there are inadequate grain storage and food processing units. Maharashtra has only 17 % forest cover and

[8] *Aspirational Districts are the challenged districts in the country with respect to the various socio-economic conditions as identified by Niti Aayog in 2018*

20 % green cover (vegetation) as compared to the norm of just about 33 % forest cover, which poses a serious challenge[9]. Likewise, environmental decay poses an additional constraint. According to 'SDGs-Overview of Maharashtra,[10] while the State is known for overcrowding, unemployment, lack of proper housing, public transport, health services, education, drinking water and sanitation, there are also concerns relating to poverty, hunger, gender equality and sustainability. Figure 3 depicts the sustainable economic growth of Maharashtra compared to the other States in the country; since the progress is definite, decent, but declining, the State has to take rapid strides to reach the outlined targets. The new, comprehensive, and multi-dimensional SDGs assume particular importance in Maharashtra to address possible areas which require priority intervention[11]. Refer to Table 1.5 on Dimension Wise Maharashtra's Rank for Select SDGs.

Figure 1.3: Goal 8: Sustainable Economic Growth



Original source: https://sdgindiaindex.niti.gov.in/#/ranking

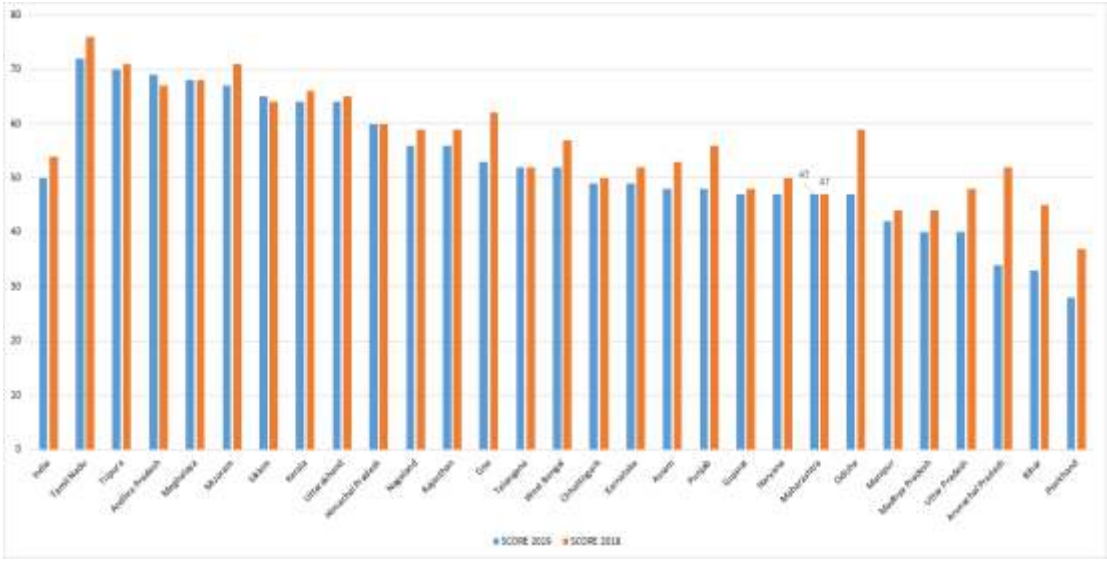
1.1.2 No Poverty, Zero Hunger and Equality

The State of Maharashtra faces enormous socio-economic diversities and disparities. The difference in geographies, living standards, and availability of resources contribute to the State of poverty. There is a marked disparity between districts in terms of the proportion of people living below the poverty line. Apart from the four urbanized districts-Mumbai, Pune, Thane and Nagpur-the rest of Maharashtra is barely better in terms of poverty compared to the low-income States of India. There is a faster structural shift towards the industrial and service sector, as compared to the agricultural sector which employs more than half of the State. Maharashtra is

[9] *https://plan.maharashtra.gov.in/Sitemap/plan/pdf/final_Vision_Eng_Oct2017.pdf*
[10] *https://plan.maharashtra.gov.in/Sitemap/plan/SDG/SDGs-%20An%20Overview.pdf*
[11] *https://www.iipsindia.ac.in/sites/default/files/IIPS_Working_Paper_No13.pdf*

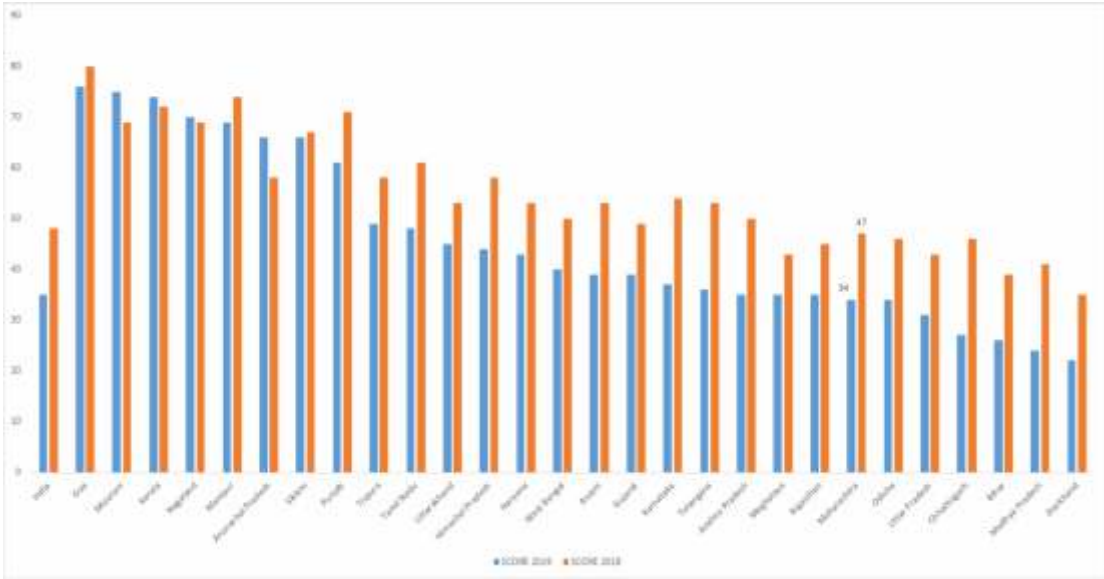
home to 20 million poor (World Bank, 2017). There have been many schemes implemented in Maharashtra for eradication of poverty. Schemes such as Maharashtra Employment Guarantee Scheme, Integrated Rural Development Programme (IRDP) and Allied Programmes, and Jawahar Rozgar Yojana (JRY) are meant for providing employment opportunities to the rural poor. The schemes are jointly sponsored by the State and Centre. The slow trickle-down impact of economic growth on Maharashtra's rural economy is one of the reasons why the poverty rate is relatively high. In addition to the Central Government's support to various poverty alleviation schemes, the State Government has also taken the initiative of introducing new poverty alleviation projects/schemes such as Maharashtra Job Guarantee Scheme, etc. Despite being a leading State in the country, Maharashtra fares poorly with respect to SDG1 and SDG 2. Figure 4 and Figure 5 indicate the State's meagre scores on "no poverty" and "zero hunger," which are far less compared to its progressive counterparts in the country. Also, refer to Table 1.6: Dimension-wise Maharashtra's Rank for Select SDGs.

Figure 1.4: Goal 1: Score of no Poverty



Source: https://sdgindiaindex.niti.gov.in/#/ranking

Figure 1.5: Goal 2: Zero Hunger



Source: https://sdgindiaindex.niti.gov.in/#/ranking

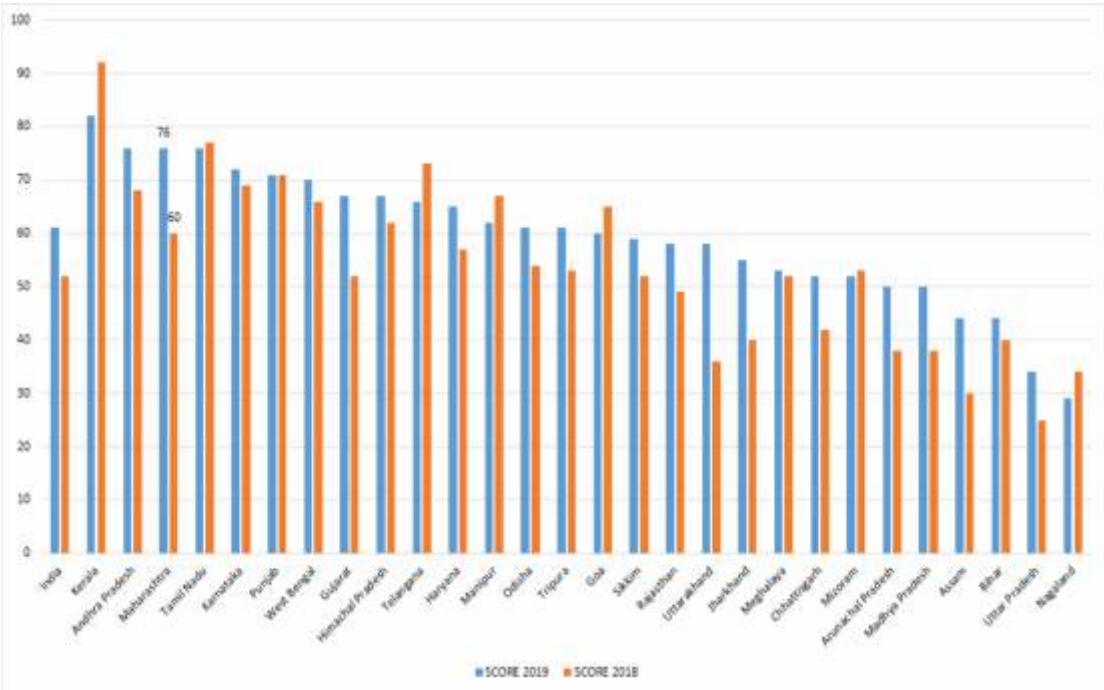
1.1.3 Good Health, Clean Water and Sanitation

With respect to health and sanitation, the State of Maharashtra performs well on the comparative SDG ranking-ranked 2 on SDG 3 and 3 on SDG 6 (Refer to the Table on Dimension-wise Maharashtra's Rank for Select Districts). The Government of Maharashtra (GoM) over the years has undertaken various schemes to improve the standard of living of people through providing health schemes and facilities (Government of Maharashtra [GoM], 2020). These include Integrated Child Development Service (ICDS), which is one of the flagship initiatives that is being implemented in the State by the Women and Child Development Department (WCD). There are a total 553 ICDS projects operational in the State, of which 364 projects are in rural areas, 85 projects are in tribal areas and 104 projects are in urban slum areas. Indira Gandhi Matritva Sahyog Yojna (IGMSY) provides cash incentive as compensation for wage loss to women during pregnancy and lactating period as well as to upgrade their health status and provide nutritious food. After enrolment, pregnant women can avail the financial benefits provided by the government in two instalments for a total sum of Rs 6,000 (the first instalment is at the time of child birth and the second, after the child completes 6 months). Currently the scheme is applicable in the districts of Amravati and Buldhana. Scheme for Adolescent Girls (SAG) is applicable for girls in the age group of 11 to 14 years, who do not attend school. The girls are supported by upgrading their home-based skills, life skills and vocational skills. The main objective is to enrol the out of school adolescent girls into formal/non formal education. Currently, the scheme is applicable to 11 districts in the State. Kishori Shakti Yojana organizes

various programs such as Kishori Melawa Kishori Arogya Shibir which empower the adolescent girls to take charge of their lives. At Anganwadi Centres (AWC), adolescent girls who are found to be anaemic, are supported by providing Iron Folic Acid (IFA) tablets with special training for self-hygiene. Currently, the scheme is applicable in the districts of Ahmednagar, Akola, Aurangabad, Bhandara, Chandrapur, Dhule, Hingoli, Jalgaon, Jalna, Latur, Nandurbar, Osmanabad, Parbhani, Pune, Raigad, Ratnagiri, Sangli, Sindhudurg, Solapur, Thane, Wardha, Washim, and Yavatmal.

Bal Sangopan Yojana (family-based care for children) is another intervention to support children. Under this programme, substitute family care is provided for a temporary period to children whose parents are not able to care for them due to numerous reasons including illness, death, separation or desertion of one parent, or any other crisis. A grant of Rs. 425 per child per month is given by the government to the foster parent/parents through an NGO to enable them to meet the basic expenses of the child. In terms of numbers, Public Health Centres (PHC) are increasing in remote areas, however, the quality of health infrastructure is still lacking. Figure 1.6 demonstrates the relative progress of Maharashtra with respect to "good health," which shows a considerable improvement in 2019 compared to the previous year, but fails to keep pace with the top performer in the country, Kerala.

Figure 1.6: Goal 3: Good Health



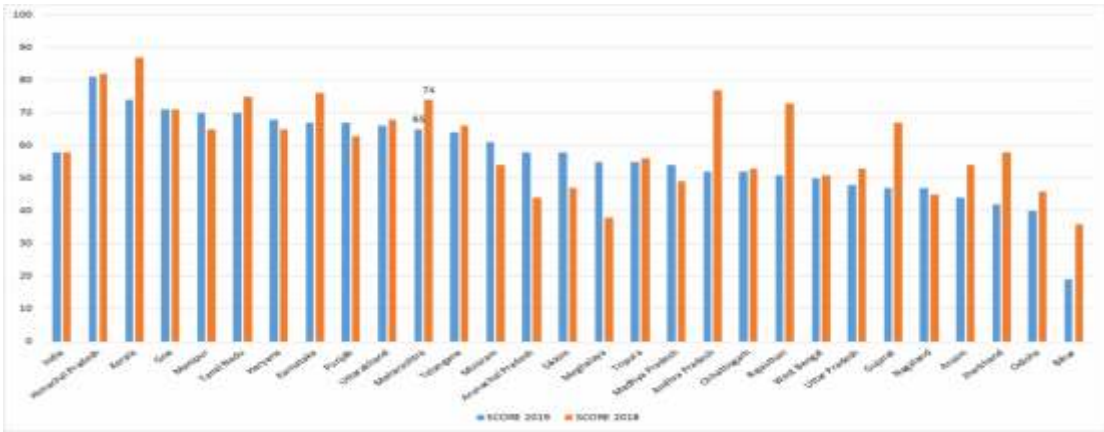
Source: https://sdgindiaindex.niti.gov.in/#/ranking

With respect to water, the per capita water availability in post-monsoon time is deteriorating in the State of Maharashtra due to inadequate rains, increasing multi-sectoral water demand for irrigation, industries and domestic purposes. It has been observed that many rural areas face severe drinking water challenges, particularly poor quality of drinking water.

1.1.4 Quality Education

The primary goals of the education schemes are the provision of quality education and the enhancement of student learning outcomes; bridging social and gender disparities in school education through equity and inclusion; encouraging educational vocationalization and assisting the State in enforcing the Right to Free and Compulsory Education (RTE) Act, 2009, adopted in 2010. Samagra Shiksha's Centrally Sponsored Scheme envisages "education" as a continuum from pre-school, primary, upper primary, secondary to senior high school levels. Diverse learning tests point to regional gaps in primary school literacy and numeracy skills among children. However, statistics show that a large proportion of children also need to reach the learning result standard recommended for their respective class. According to NITI Aayog SDG report 2019, Maharashtra is among front runners scoring 65 out of 100 in quality education, further depicted in Figure 1.7. Several schemes encourage child education, such as the flagship Beti Bachao Beti Padhao, campaign. Fostering educational facilities responsive to the needs of children with disabilities will ensure an inclusive learning environment for everyone. Separate toilet facilities for girls with Swachh Vidyalaya have helped tackle the female dropout rates to a significant degree. Consistent efforts are made to expand the formal base of higher education, with particular focus on technical, professional, and vocational education. Although nearly 98 % enrolment is seen in schools at the primary level, gender inequality in enrolment is 5.75 % and there are nearly 75,000 children out of school in the State (GoM, 2017).

Figure 1.7: Goal 4: Quality Education



Source: https://sdgindiaindex.niti.gov.in/#/ranking

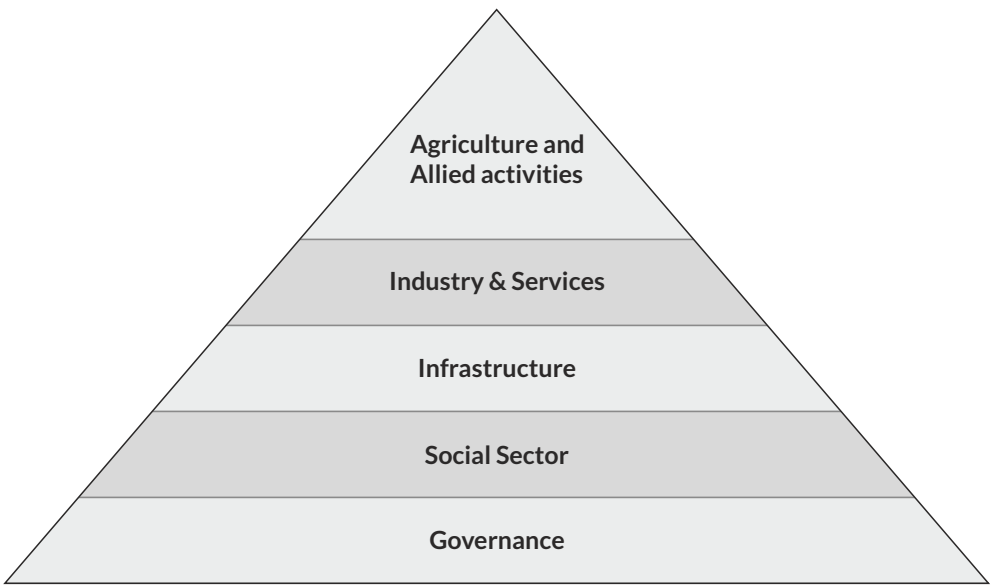
1.2 Core Pillars (Themes) of Vision 2030 - Maharashtra

The SDGs represent the ambitious global agenda of the people with the objective of strengthening the country's development potential, elaborating the goal specific detailed targets and indicators, which have been suitably designed by the governments. The multi-dimensional pillars have been prepared across social, economic and environmental sectors of India. The fundamental element of the vision is to ensure sustainable and inclusive economic growth of the State. It requires a multi-dimensional plan that enables sustained progress across all sectors, favourably impacting the vulnerable segments. This is carried out by creating avenues for increasing scope of investment which is of crucial importance for self-sustaining growth in the long run. Therefore, policy level priority has been accorded to form a new and effective five-pillar strategy by the GoM. It includes:

i. **Agriculture and Allied Activities:** This includes food self-sufficiency; animal husbandry, dairy and fisheries (ADF) to generate productivity in primary sector and agro-activities.

ii. **Industry:** Maharashtra being a leading industrial State, will incorporate the policy interventions like Make in India and Make in Maharashtra, giving the much required impetus to its vast Micro, Small and Medium Enterprises (MSME) which accounts for 80 % of the State's total employment (Jadhav, 2019). To provide the big push to the engine of growth, effective capturing of related sectors is required

Figure 1.8: Five Pillar Strategy



Source: https://plan.maharashtra.gov.in/Sitemap/plan/pdf/final_Vision_Eng_Oct2017.pdf

iii. **Infrastructure** - while the State has been categorised as a performer State with respect to infrastructure, it is crucial to address the existing infrastructural bottlenecks be it physical, social and institutional.

iv. **Social sector** - this sector will contribute in the form of providing quality health and educations services to all, enhancing the State's Human Development Index (HDI). It is important to note that education and health have been accorded high priority in the State's plans.

v. **Governance** - As per the rankings of the Ministry of Personnel, which introduced the Good Governance Index (GGI), in December 2019, Maharashtra stood at rank 2 among the large States on the overall governance composite index. However, the State will have to improve the score with respect to the individual dimensions under the GGI. GoM has planned a monitoring system for effective administrative and financial reforms from the standpoint of achievements for Vision 2030 within the specific time frame .This initiative imposes a need for data gathering and information compilation at unit level, with more detailed in-depth questionnaires to identify the laggard areas in different dimensions and designing a comprehensive road map for the aspirational villages to fulfil the targets of SDGs within the specific timeframe.

Maharashtra has set up cell on SDGs and has mapped various schemes on SDGs at the State level. However, the State has to prepare budget aligned with SDGs, create monitoring framework consultations, orientations and training programmes. All these initiatives will take the State closer towards not only becoming a one trillion dollar economy, but also result in Maharashtra being classified as a leading State with respect to SDGs and HDI.

[12] *https://plan.maharashtra.gov.in/Sitemap/plan/pdf/final_Vision_Eng_Oct2017.pdf*

Chapter 2

DATA AND METHODOLOGY

2.1 Introduction

There are some studies conducted for examining the status of SDGs in India as well as in other countries, but very few that have been conducted on assessing the status of SDGs district-wise (studying at the third tier of administration). The present study deep dives into the district-level analysis to track the progress of each district with respect to the stipulated targets. Along with district wise ranking and estimating State averages, the present study has focused on conducting primary survey for two aspirational districts in Maharashtra, with the objective to understand the current need of the districts and to prescribe a roadmap for policy interventions required to address the gaps. In broad, this study aims to support NABARD towards inching ahead for achievement of better rural infrastructure and inclusive development by assessing the status of select SDGs the rural districts of Maharashtra.

The study has been conducted in two parts - a) Secondary Study and b) Primary Study. The first part or the secondary study examines the district wise ranking for rural Maharashtra, based on the latest, available secondary data. The data has been collected from reliable government sources like the Central Statistical Office (CSO), National Sample Survey (NSS) rounds, Statistical abstract of Maharashtra; Economic Survey of Maharashtra; District profile of Maharashtra by Census, District Statistical Handbook of all the districts of Maharashtra and the Infrastructure Statistics of Maharashtra has been retrieved from the Directorate of Economic and Statistics of Maharashtra. It evaluates the district wise disparity with respect to sustainable growth in rural areas, present status of poverty and hunger, access to health, education, water and sanitation, taking into account 66 indicators across the four dimensions as highlighted in the earlier Chapter 1. While the part two of the study, is a cross-section study based on primary data surveyed from select districts of Maharashtra, viz., Osmanabad and Washim. A Principal Component Analysis (PCA) has been constructed - which is made up of composite indices for 32 districts of Maharashtra. Few districts, viz, Mumbai (100%), Mumbai Suburban (100%) and Thane (76.99%) are urban districts, while Palghar the 36th district the State, was created in 2014 and has been excluded from the study, as data was not easily available for the same.

The secondary study has been conducted in stages.

- The districts are ranked with simple summation of score method where index is constructed with equal weightage.
- Selected indicators / variables are examined with their actions in realising the development of the districts
- Variables are normalised using different parameters as appropriate
- Variables are then modified by making them unidirectional either by subtracting from 100 (for those variables with are in percentage form) or considering the inverse function
- Principal Component Methods has been applied to the scaled down variables and the number of components having Eigen values greater than unity have been retained for

constructing the four dimensional index

- Simple average of composite scores (equal weightage) of all four composite indices for four respective dimensions is considered as final index for overall comparison
- The districts are compared with the consecutive values acquired in composite indices in the achievement of select dimensions of SDGs
- Further, in the next stage, a rank correlation has been performed with these two ranks (PCA and total score method) to cross check the reliability of the method used
- The new composite index with 66 variables and district wise HDI index, which is standardised method of examining the status of development of the districts to cross check the consistency of the method used.

2.2 Parameter Normalization and Scaling down

There are total number of 66 interrelated indicators distributed amongst 4 dimensions, each one plays an important role to ensure the development activities in rural economy. As these are interrelated and defined in different scales, a proper standardization is required to make them comparable. In order to normalize the variables, the data set is either taken in the form of per capita variable or is taken as the ratio of its total. After the normalization of the indicators, it is seen that there are wide differences in the scaling of the indicators and also they are measured in different units of measurements. For the ease of computation, all the indicators have been scaled down as well-made unit free by using the following formula:

$$X_{\text{scaled down}} = \frac{X - \min^*(X)}{\max(X) - \min^*(X)}$$

Where X = observed value for any parameter across the districts

2.3 Principal Component Analysis

Principal Components Analysis (PCA) is an applied normal statistical tool for cross section data analysis. It is regarded as one of the invaluable outcome of functional linear algebra having a dimensionality reduction technique. PCA is a straightforward, non-parametric technique for mining relevant information from unclear data sets. It offers a roadmap to decrease multifaceted data set to a lesser dimension to reveal the actual impact and help to find the binding factors for some events. In PCA, interrelated indicators are represented as a linear combination of weighted eigenvectors called eigen-faces. These eigenvectors are acquired from covariance matrix of the select unidirectional variables. The weights are found out after selecting a set of most relevant Eigen values. Mathematically, each variable is expressed as a linear combination of underlying factors. The amount of variance a variable share with all other variables included in the analysis, is referred to as communality. Being a multivariate statistical technique, the method uses advanced

form of correlation analysis to identify groups of correlated variables. These groups contain variables that are highly correlated with each other and are referred to as factors and represent different groups. Since the variables within each group are correlated, it is believed that these variables measure some factor or dimension common to the group. The composite index has been demonstrated as-

$$X_i = A_{i1}F_1 + A_{i2}F_2 + A_{i3}F_3 + \ldots\ldots\ldots\ldots A_{im}F_m + V_iU_i$$

$$+ V_iU_i$$

where

X_i = i - th standardized variable

A_i = standardized multiple regression coefficient of variable i on commong factor j

F = common factor

V_i = standardized regression coefficient of variable i on unique factor i

U_i = the unique factor for variable i

m = number of common factor

The unique factors are uncorrelated with each other and with the common factors. The common factors themselves can be expressed as linear combination of the observed variables.

$$F_1 = W_{i1}X_1 + W_{i2}X_2 + \ldots\ldots\ldots\ldots W_{ik}X_k + V_iU_i$$

where

F_1 = estimate of the i-th factor

W_i = weight or factor score coefficient

k = number of variables

It is possible to select weights or factor score coefficients so that the first factor explains the largest portion of the total variance. Then a second set of weights can be selected so that the second factor accounts for most of the residual variance, subject to being uncorrelated with the first factor. This same principle can be applied for selecting additional set of weights for the remaining factors until all the variation will be explained. Thus, the factors can be estimated so that their factor scores, unlike the values of the original variables, are not correlated. Furthermore, the first factor accounts for the highest variance in the data, the second factor the second highest, and so on. The regression coefficients W_{ij} (the partial slopes) for all of these multiple regressions are called factor loadings.

Here W_{ij} = Loading of the i-th factor. These factor loadings are used for creating the Principal Components. The composite index has been formed with the feasible number of principal components which are having Eigen values more than 1.

Statistics Associated with Factor Analysis: Correlation Matrix:

The correlation matrix is a lower triangle matrix showing the simple correlations - r, between all possible pairs of the observed variables included in the analysis. The diagonal elements, which are all 1, are usually not written. A correlation matrix is a simple and useful strategy to visualize the variables included in the study. If the values outside the main diagonal are often high (in absolute value), some variables are correlated; if most these values are near to zero, the factor analysis is not really useful.

Bartlett's Test of Sphericity:

The Bartlett's test compares the observed correlation matrix to the identity matrix. The Bartlett's test checks if the observed correlation matrix diverges significantly from the identity matrix (theoretical matrix under H0: the variables are orthogonal). The factor analysis can perform a compression of the available information only if we reject the null hypothesis.

Communality:

Communality is the amount of variance a variable shares with all the other variables being considered in the analysis. It is also the proportion of variance explained by the common factors.

Eigenvalue:

The eigenvalue represents the total variance explained by each factor. It is required to determine the number of factors to be extracted from the data. Normally factors having eigenvalue greater than unity are retained.

Kaiser-Meyer-Oklin Statistic:

The Kaiser-Meyer-Oklin statistic (KMO statistic) is used to examine the appropriateness of factor analysis to the given dataset. A high value of KMO statistic (more than 0.5) indicates that the factor analysis is appropriate. Lower values of KMO (less than 0.5) imply that the factor analysis may not be appropriate. The KMO index has the same goal as Bartlett's test of Sphericity.

2.3.1 Value of PCA

The final converted data had been imported in the SPSS software. The variables with string characteristics had been converted to numerical values with two decimal places. Principal Component Methods has been applied to the scaled down variables and the number of components having Eigen values greater than unity have been retained for constructing the scale down value. The Kaiser-Meyer-Oklin statistic (KMO statistic) have been used to check the goodness of fit in the Principal Component Method.

The extracted first component accounts for a highest variance in the observed variables. That refers to the fact that the first component is correlated with at least some of the considered observed variables. The second component extracted, generally have two important features. This component accounts for second highest variance in the data set which was not accounted for by the principal component. The remaining components that are extracted in the analysis display the same two characteristics: each component accounts for a maximal amount of variance in the observed variables that was not accounted for by the preceding components, and is uncorrelated with all of the preceding components. The analysis moves in this way, with each new component adds lesser scales of variance. The first component has been considered as principal if it explains more than 70 percent of total variance. Otherwise few consecutive components are also retained and interpreted. When the analysis is complete, the subsequent components will display changing degrees of correlation with the observed variables, but are completely uncorrelated with one another. Once the number of Components have been identified using the Eigen value criteria, the factor loadings are multiplied with the corresponding values of the variables (scaled down values). Finally, the districts are ranked on the basis of the estimated composite values for each dimension. The indicators that are selected for constructing the composite index using PCA are as follows.

Table 2.1: Total Number of indicators considered for the study

Dimensions	No. of Indicators
Dimension 1 - Sustainable Economic Growth	12
Dimension 2 - No Poverty, Zero Hunger and Reduced Inequality	12
Dimension 3 - Good Health, Clean Water and Sanitation	21
Dimension 4 - Quality Education	21
Total	66

For each dimension mentioned, there are different inter-related indicators considered. The targets and indicators are suggested by UNDP for each SDG. These are considered as standard indicators for estimating the status of each Goal. Further, for India, NITI Aayog commenced the widespread exercise of estimating India as a whole and its States' progress towards the SDGs for 2030, as the first SDG India Index, titled, 'Baseline Report 2018'. In order to provide a holistic view including social, economic and environmental status, the SDG India Index has been constructed a composite index through number of indicators spanning across 13 out of 17 SDGs (leaving out Goals 12, 13, 14 and 17). It has successfully tracked the improvement of all the States and Union Territories in India on a set of 62 National Indicators, measuring their progress on the outcomes of interventions and schemes of the Government of India. The research team has

attempted to include all the measured indicators considered by UNDP and NITI Aayog for the select dimensions. The latest data for a number of interrelated indicators which, were related with the district specific study were included by gathering the same from all the concerned government departments, and from data available from reliable sources in the public domain. However, few indicators were not included in the district specific study, due to unavailability of the data. Table 2.2, below represents the dimension wise detailed description of the indicators that are considered for the present study.

The composite index which is based on secondary analysis, had to consider few important indicators which date back to Census 2011. It is therefore very likely that after a span of almost nine years since the census survey, there will be substantial changes in demographic, physical and institutional structure in the rural areas in Maharashtra. Further, a large number of welfare schemes which have been initiated and implemented, are likely to have some positive results in the growth of these areas. Thus while the present study undertaken will throw up ranking of the districts, these may be impacted by judgement based on data captured a decade ago placing some limitations in the outcome. To address these challenges, and to fulfil the objective of capturing the ground reality, a primary study was undertaken in the second phase of the study. The research team have selected Osmanabad and Washim districts, which are identified as aspirational districts in Maharashtra as per the NITI Aayog's Baseline Report-2018.

Indicators across the four dimensions are discussed in Table 2.2 to 2.5.

Table 2.2: Dimension 1 - Sustainable Economic Growth (SDG-GI)

S. No.	Goal No.	Variable	Objective	Description	Modi -fied	Compl -iance UNDP/ NITI AYOG	Data Source	Year of Ref.
1.	Goal 8	Per Capita Growth Rate of GDDP (PCGR)	Annual per capita Growth rate of District Domestic Product in percentage	(Current year GDDP- Past year GDDP)/Past year GDDP*100	No	NITI Aayog	DDP Of Maharashtra (DES 2004-2014)	2013 - 2014
2.	Goal 8	Percentage of Primary sector in GDDP (PPS)	Annual growth rate of GDDP per capita (at constant price of 2004-05) [Calculated using CAGR]	Distance formula applied	No	NITI Aayog	DDP Of Maharashtra (DES 2004-2014)	2014

S. No.	Goal No.	Variable	Objective	Description	Modi -fied	Compl -iance UNDP/ NITI AYOG	Data Source	Year of Ref.
3.	Goal 8	Percentage of Secondary Sector (PSS) in GDDP	Annual growth rate of GDDP per capita (at constant price of 2004-05) [Calculated using CAGR]	Distance formula applied	No	NITI Aayog	DDP Of Mahar ashtra (DES 2004-2014)	2014
4.	Goal 8	Percentage of households with banking facilty (PHBF)	Strengthen the capacity of domestic financial institutions to encourage and expand access to banking, insurance and financial services for all	Distance formula applied	No	NITI Aayog and UNDP	Distric Report of Mahar ashtra (2017)	2017
5.	Goal 8	PMJDY a/c opened - Percapita PMJDY a/c opened (PMJDYO)	Percentage of households with a bank account	Distance formula applied	No	NITI Aayog and UNDP	Econo mics survey of Mahar ashtra (2017-18)	2017
6.	Goal 8	PMJDY deposits - Per Capita PMJDY deposits (PMJDYD)	Per capita deposits in Rs. Crore	Distance formula applied	No	NITI Aayog and UNDP	Econo mics survey of Mahar ashtra (2017-18)	2017
7.	Goal 8	Proportion of No. of Fair price shops to total fair price shops (FPS)	Total government spending in social protection and employment programmes as a proportion of the national budgets and GDP	Distance formula applied	No	UNDP	Econo mics survey of Mahar ashtra (2017-18)	

S. No.	Goal No.	Variable	Objective	Description	Modi-fied	Compl-iance UNDP/ NITI AYOG	Data Source	Year of Ref.
8.	Goal 8	Per capita consumption of Electricity (PCCE) in KW/Hr.	To understand how much electricity is consumed and actual land irrigated	Distance formula applied	No		Infrastructur statistics of Maharashtra DES (2014-15)	
9.	Goal 8	Cropping Intensity (CI)	To understand the sustainable agriculture	Gross cropped area/net sown area *100	No	UNDP	Krishi Maharashtra Land utilization statistics (2017)	
10.	Goal 8	No. of Self Help Groups (SHGs)	To understand the sustainable growth for financial inclusion through SHGs	No. of SHG/ Total SHG	No	SSE, NABARD	Nlrm.Gov.in (2017)	
11.	Goal 8	MSME - micro (MSMEM)	To understand the sustainable growth for Micro Industries	Micro enterprises to total MSME then distance formula is applied.	No	SSE, NABARD	Industrial State profile of Maharashtra, Ministry of MSME (2017)	
12.	Goal 8	MSME - small (MSMES)	To understand the sustainable growth for small industries	Distance formula applied	No	SSE, NABARD	Industrial State profile of Maharashtra, Ministry of MSME (2017)	

Source: Compiled and Estimated from various sources by the authors.

Table 2.3: Dimension 2 - No Poverty, Zero Hunger and Reduced Inequality (SDG-PHII)

S. No.	Goal No.	Variable	Objective	Description	Modi -fied	Compl -iance UNDP/ NITI AYOG	Data Source	Year of Ref.
13.	Goal 1	National Poverty line (NPL)	By 2030, reduce at least by half the proportion of men, women and children of all ages living in poverty in all its dimensions according to the national dimensions.	Unidirectional through Subtraction	Yes	NITI Aayog and UNDP	Census data (2011)	2011
14.	Goal 1	Health Insurance (HI)	Implement nationally appropriate social protection systems and measures for all including floors, and by 2030 achieve substantial coverage of the poor and the vulnerable.	Percentage of households with any usual member covered by health scheme/health insurance	No	NITI Aayog	NFHS (2015-16)	2016
15.	Goal 1	Mother and Child Protection Card (MCPC)	Implement nationally appropriate social protection systems and measures for all including floors, and by 2030 achieve substantial coverage of the poor and the vulnerable.	Percentage of population (out of total eligible population) receiving social protection benefits under maternity beneficiary card	No	NITI Aayog	NFHS (2015-16)	2016

S. No.	Goal No.	Variable	Objective	Description	Modi -fied	Compl -iance UNDP/ NITI AYOG	Data Source	Year of Ref.
16.	Goal 1	Financial Assistance to mother and child (FAMC)	Implement nationally appropriate social protection systems and measures for all including floors, and by 2030 achieve substantial coverage of the poor and the vulnerable.	Percentage of population (out of total eligible population) receiving social protection benefits under maternity beneficiary card	No	NITI Aayog	NFHS (2015-16)	2016
17.	Goal 1	Homeless household/10000 (HH)	By 2030, ensure that all men and women, in particular the poor and the vulnerable, have equal rights to basic services, ownership and control over land and other forms of property.	Unidirectional through Subtraction Unidirectional through Subtraction.	Yes	NITI Aayog	Census data (2011)	2011
18.	Goal 2	Antyodaya Yojana (AAY)	By 2030, end hunger and ensure access by all people, in particular the poor and people in vulnerable situations, including infants, to safe, nutritious and sufficient food all year round	Ratio of rural households covered under public distribution systems out of total rural households (Monthly income of highest earning member less than Rs. 5000)	Yes	NITI Aayog	NFHS (2015-16)	2016

S. No.	Goal No.	Variable	Objective	Description	Modi -fied	Compl -iance UNDP/ NITI AYOG	Data Source	Year of Ref.
19.	Goal 2	Stunted Children/100 (STC)	By 2030, end all forms of malnutrition, including achieving, by 2025, the internationally agreed targets on stunting and wasting in children under 5 years of age, and address the nutritional needs of adolescent girls, pregnant and lactating women and older persons	Unidirectional through Subtraction Percentage of children under are stunted. age 5 years who	Yes	UNDP/ NITI Aayog	NFHS (2015-16)	2016
20.	Goal 2	Total cereal productivity in Kgs/hector (TCP)	By 2030, end all forms of malnutrition, including achieving, by 2025, the internationally agreed targets on stunting and wasting in children under 5 years of age, and address the nutritional needs of adolescent girls, pregnant and lactating women and older persons	Rice, Wheat four cereals produced annually per unit area (KG/hector)		NITI Aayog	Krishi.gov.in (2018-19)	2018-2019

S. No.	Goal No.	Variable	Objective	Description	Modi -fied	Compl -iance UNDP/ NITI AYOG	Data Source	Year of Ref.
21.	Goal 2	Total food grain productivity in Kgs/hector (TFGP)	By 2030, end all forms of malnut rition, including achieving, by 2025, the internationally agreed targets on stunting and wasting in children under 5 years of age, and address the nutritional needs of adolescent girls, pregnant and lactating women and older persons	Ratio	No	NITI Aayog	Krishi.gov.in (2018-19)	2018-2019
22.	Goal 2	Total pulses productivity in Kgs/hector (TPP)	By 2030, end all forms of malnut -rition, including achieving, by 2025.	Ratio	No	NITI Aayog	Krishi.gov.in (2018-19)	2018-2019
23.	Goal 2	Total oilseeds productivity in Kgs/hector (TOP)	By 2030, end all forms of malnutrition, the internationally agreed targets on stunting and wasting in children and address the nutritional needs of adolescent girls, pregnant and lactating women and older persons	Ratio	No	NITI Aayog	Krishi.gov.in (2018-19)	2018-2019
24.	Goal 10	Gini Inequality (GI)	Reduce inequality and adopt policies, especially fiscal, wage and social protection policies and progressively achieve greater equality.	Unidirectional through Inverse. (measured of inequality intensity)	Yes	UNDP	Author' Calcula tion	Origi nal source 2011

Source: Compiled and Estimated from various sources by the authors.

Table 2.4: Dimension 3 - Good Health, Clean Water and Sanitation (SDG-HWSI)

S. No.	Goal No.	Variable	Objective	Description	Modi -fied	Compl -iance UNDP/ NITI AYOG	Data Source	Year of Ref.
25.	Goal 6	Households with an improved drinking-water source (IDW)	By 2030, achieve universal and equitable access to safe and affordable drinking water for all	Percentage of population using safety managed drinking water services.	No	NITI Aayog	NFHS (2015-16)	2015-2016
26.	Goal 6	Households using improved sanitation facility (ISF)	By 2030, achieve access to adequate and equitable sanitation and hygiene for all	Percentage of population using safety managed drinking water services, including hand washing facility with soap and water	No	NITI Aayog	NFHS (2015-16)	2015-2016
27.	Goal 3	Households using iodized salt (IOS)	Good Health and Well-being promoting good health	Percentage	No	SSE, NABARD	NFHS (2015-16)	2015-2016
28.	Goal 3	Households using clean fuel for cooking (CFC)	Good Health and Well-being promoting good health	Percentage	No	SSE, NABARD	NFHS (2015-16)	2015-2016
29.	Goal 3	Households with any usual member covered by a health scheme or health insurance (HSHI)	Achieve universal health coverage, including financial risk protection, access to quality essential health-care services and access to safe, effective, quality affordable essential medicines and vaccines for all	Percentage	No	SSE, NABARD	NFHS (2015-16)	2015-2016

S. No.	Goal No.	Variable	Objective	Description	Modi -fied	Compl -iance UNDP/ NITI AYOG	Data Source	Year of Ref.
30.	Goal 3	Women age 20-24 years married after age 18 years (WMAAge)	Ensure universal access to sexual and reproductive health-care services, including for family planning, information and education, and the integration of programmes reproductive health into national strategies	Unidirectional by Subtraction	Yes	NITI Ayog	NFHS (2015-16)	2015-2016
31.	Goal 3	Women age 15-19 years who were not already mothers or pregnant at the time of the survey (WNP)	Ensure universal access to sexual and reproductive health-care services, including for family planning, information and education, and the integration of programmes reproductive health into national strategies	Unidirectional by Subtraction	Yes	NITI Ayog	NFHS (2015-16)	2015-2016
32.	Goal 3	Institutional births (IB)	Good Health and Well-being that aims to provide better facilities for maternal relief	Percentage	No	SSE, NABARD	NFHS (2015-16)	2015-2016
33.	Goal 3	Institutional births in public facility (IBPF)	Good Health and Well-being that aims to provide better facilities for maternal relief	Percentage	No	SSE, NABARD	NFHS (2015-16)	2015-2016
34.	Goal 3	Children under age 3 years breastfed within one hour of birth (CUTBOH)	By aiming to end all forms of malnutrition, including stunting and wasting	Percentage	No	SSE, NABARD	NFHS (2015-16)	2015-2016

S. No.	Goal No.	Variable	Objective	Description	Modi -fied	Compl -iance UNDP/ NITI AYOG	Data Source	Year of Ref.
35.	Goal 3	ST Children under 5 years who are not stunted (height-for-age) (STC)	By aiming to end all forms of malnutrition, including stunting and wasting	Unidirectional by Subtraction	Yes	SSE, NABARD	NFHS (2015-16)	2015-2016
36.	Goal 3	Children under 5 years who are not wasted (weight-for-height) (WSTC)	By aiming to end all forms of malnutrition, including stunting and wasting	Unidirectional by Subtraction	Yes	SSE, NABARD	NFHS (2015-16)	2015-2016
37.	Goal 3	Children under 5 years who are not severely wasted (weight-for-height) (SWSTC)	By aiming to end all forms of malnutrition, including stunting and wasting	Unidirectional by Subtraction	Yes	SSE, NABARD	NFHS (2015-16)	2015-2016
38.	Goal 3	Children under 5 years who are not underweight (CNUW)	By aiming to end all forms of malnutrition, including stunting and wasting	Unidirectional by Subtraction	Yes	SSE, NABARD	NFHS (2015-16)	2015-2016
39.	Goal 3	Women whose BMI is normal (BMI < 18.5 kg/m2) (WNBMI)	Good Health and Well-being promoting good health	Unidirectional by Subtraction	Yes	SSE, NABARD	NFHS (2015-16)	2015-2016
40.	Goal 3	Men whose BMI is normal (BMI < 18.5 kg/m2) (MNBMI)	Good Health and Well-being promoting good health	Unidirectional by Subtraction	Yes	SSE, NABARD	NFHS (2015-16)	2015-2016
41.	Goal 3	Women who are not overweight or obese (BMI > 25.0 kg/m2) (WNO)	Good Health and Well-being promoting good health	Unidirectional by Subtraction	Yes	SSE, NABARD	NFHS (2015-16)	2015-2016
42.	Goal 3	Men who are not overweight or obese (BMI > 25.0 kg/m2) (MNO)	Good Health and Well-being promoting good health	Unidirectional by Subtraction	Yes	SSE, NABARD	NFHS (2015-16)	2015-2016

S. No.	Goal No.	Variable	Objective	Description	Modi -fied	Compl -iance UNDP/ NITI AYOG	Data Source	Year of Ref.
43.	Goal 3	Maternal mortality ratio (MMR)	By 2030, reduce the global maternal mortality ratio to less than 70 per 100,000 live births		Yes	NITI Ayog	Doke PP.Comprehensive index for community health in Maharashtra State, India. Indian J Community Med 2016;41:288-291 (2016)	2016
44.	Goal 3	Doctor/100000 (DOC)	Achieve universal health coverage, including financial risk protection, access to quality essential health-care services and access to safe, effective, quality and affordable essential medicines and vaccines for all	Ratio (Number of government physicians per 100000 population)	No	NITI Aayog	Doke PP.Comprehensive index for community health in Maharashtra State, India. Indian J Community Med 2016;41:288-291 (2016)	2016
45.	Goal 3	Nurses/100000 (NURSE)	Achieve universal health coverage, including financial risk protection, access to quality essential health-care services and access to safe, effective, quality and affordable essential medicines and vaccines for all	Ratio (Number of government nurses and mid wives per 100000 population)	No	NITI Aayog	Doke PP.Comprehensive index for community health in Maharashtra State, India. Indian J Community Med 2016;41:288-291 (2016)	2016

Source: Compiled and Estimated from various sources by the authors.

Table 2.5: Dimension 4 - Quality Education (SDG-EI)

S. No.	Goal No.	Variable	Objective	Description	Modi -fied	Compl -iance UNDP/ NITI AYOG	Data Source	Year of Ref.
46.	Goal 4	Net Enrolment Ratio(Primary) (NERP)	Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all	Percentage	No	NITI Aayog	District Report Card Volume-I (2016-17)	2016-2017
47.	Goal 4	Net Enrolment Ratio(Upper Primary) (NERUP)	Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all	Percentage	No	NITI Aayog	District Report Card Volume-I (2016-17)	2016-2017
48.	Goal 4	Percentage of Professionally Qualified Teachers (Government Regular) (PPQTGR)	Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all	Percentage	No	NITI Aayog	District Report Card Volume-I (2016-17)	2016-2017
49.	Goal 4	Professionally Qualified Teachers (Government Contractual) (PPQTGC)	Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all	Percentage	No	NITI Aayog	District Report Card Volume-I (2016-17)	2016-2017
50.	Goal 4	Percentage of Professionally Qualified Teachers (Private) (PPQTP)	Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all	Percentage	No	NITI Aayog	District Report Card Volume-I (2016-17)	2016-2017
51.	Goal 4	Percentage of Schools with PTR<30 (PSPTR)	Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all	Percentage	No	NITI Ayog	District Report Card Volume-I (2016-17)	

S. No.	Goal No.	Variable	Objective	Description	Modi -fied	Compl -iance UNDP/ NITI AYOG	Data Source	Year of Ref.
52.	Goal 4	Inverse of student classroom ratio (ISCR)	Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all		No	SSE, NABARD	District Report Card Volume-I (2016-17)	2016-2017
53.	Goal 4	Percentage of Government Rural Schools (PGRS)	Build and upgrade education facilities that are child, disability and gender sensitive and provide safe, non-violent, inclusive and effective learning environments for all	Percentage	No	SSE, NABARD	District Report Card Volume-I (2016-17)	2016-2017
54.	Goal 4	Percentage of Schools with Approachable by Weather Road (PSAWR)	Build and upgrade education facilities that are child, disability and gender sensitive and provide safe, non-violent, inclusive and effective learning environments for all	Percentage	No	UNDP	District Report Card Volume-I (2016-17)	2016-2017
55.	Goal 4	Percentage of Schools with Playground (PSP)	Build and upgrade education facilities that are child, disability and gender sensitive and provide safe, non-violent, inclusive and effective learning environments for all	Percentage	No	UNDP	District Report Card Volume-I (2016-17)	2016-2017
56.	Goal 4	Percentage of Schools with Boundary wall (PSBW)	Build and upgrade education facilities that are child, disability and gender sensitive and provide safe, non-violent, inclusive and effective learning environments for all	Percentage	No	UNDP	District Report Card Volume-I (2016-17)	2016-2017

S. No.	Goal No.	Variable	Objective	Description	Modi -fied	Compl -iance UNDP/ NITI AYOG	Data Source	Year of Ref.
57.	Goal 4	Percentage of Schools with Girl's toilet (PSGT)	Build and upgrade education facilities that are child, disability and gender sensitive and provide safe, non-violent, inclusive and effective learning environments for all	Percentage	No	UNDP	District Report Card Volume-I (2016-17)	2016-2017
58.	Goal 4	Percentage of Schools with Drinking Water (PSDW)	Build and upgrade education facilities that are child, disability and gender sensitive and provide safe, non-violent, inclusive and effective learning environments for all	Percentage	No	UNDP	District Report Card Volume-I (2016-17)	2016-2017
59.	Goal 4	Percentage of Schools with Midday meal (PSMDM)	Build and upgrade education facilities that are child, disability and gender sensitive and provide safe, non-violent, inclusive and effective learning environments for all	Percentage	No	UNDP	District Report Card Volume-I (2016-17)	2016-2017
60.	Goal 4	Percentage of Schools with Electricity (PSE)	Build and upgrade education facilities that are child, disability and gender sensitive and provide safe, non-violent, inclusive and effective learning environments for all	Percentage	No	UNDP	District Report Card Volume-I (2016-17)	2016-2017
61.	Goal 4	Percentage of Schools with Computer facility (PSCF)	Build and upgrade education facilities that are child, disability and gender sensitive and provide safe, non-violent, inclusive and effective learning environments for all	Percentage	No	UNDP	District Report Card Volume-I (2016-17)	2016-2017

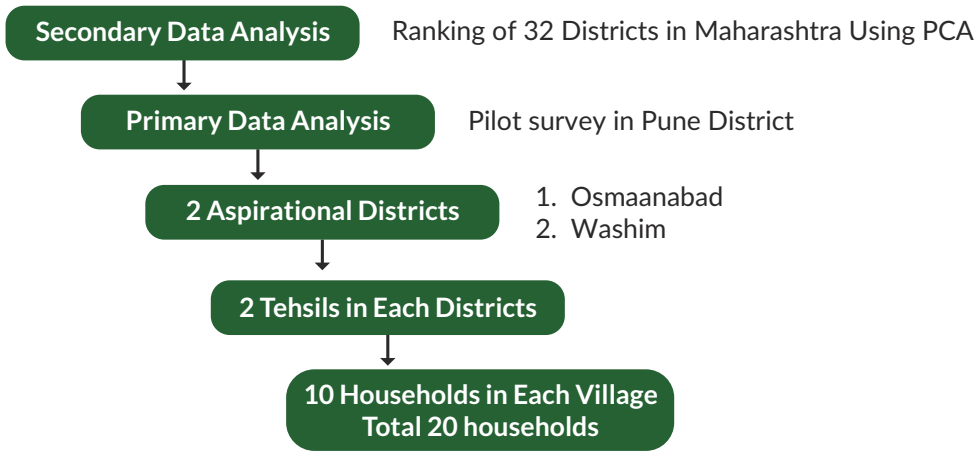
S. No.	Goal No.	Variable	Objective	Description	Modi -fied	Compl -iance UNDP/ NITI AYOG	Data Source	Year of Ref.
62.	Goal 4	Average Number of Teacher per School (ATPS)	Build and upgrade education facilities that are child, disability and gender sensitive and provide safe, non-violent, inclusive and effective learning environments for all	Percentage	No	UNDP	District Report Card Volume-I (2016-17)	2016-2017
63.	Goal 4	Percentage of Beneficiaries Primary(Textbook) (PBPT)	Build and upgrade education facilities that are child, disability and gender sensitive and provide safe, non-violent, inclusive and effective learning environments for all	Percentage	No	UNDP	District Report Card Volume-I (2016-17)	2016-2017
64.	Goal 4	Percentage of Beneficiaries Upper Primary(Textbook) (PBUPT)	Build and upgrade education facilities that are child, disability and gender sensitive and provide safe, non-violent, inclusive and effective learning environments for all	Percentage	No	UNDP	District Report Card Volume-I (2016-17)	2016-2017
65.	Goal 4	Percentage of Beneficiaries Primary(Uniform) (PBPU)	Build and upgrade education facilities that are child, disability and gender sensitive and provide safe, non-violent, inclusive and effective learning environments for all	Percentage	No	UNDP	District Report Card Volume-I (2016-17)	2016-2017
66.	Goal 4	Percentage of Beneficiaries Upper Primary(Uniform) (PBUPU)	Build and upgrade education facilities that are child, disability and gender sensitive and provide safe, non-violent, inclusive and effective learning environments for all	Percentage	No	UNDP	District Report Card Volume-I (2016-17)	2016-2017

Source: Compiled and Estimated from various sources by the authors.

Inter-Divisions Comparison by ANOVA

There are eight agricultural divisions in Maharashtra viz. (Konkan, Nasik, Pune, Kolhapur, Aurangabad, Latur, Amravati and Nagpur) and each of the divisions includes a number of districts with varying indicators. In order to make inter-division comparison, one-way ANOVA has been applied. This will enable us to find out the relative performance of the eight administrative divisions of the State in terms of four dimensions and composite index.

Figure 2.1: The Design of the Study



2.4 Methodology for Primary Survey

With respect to the primary study, it encompasses the empirical evaluation based on knowledge and information gathered from the field. The data collection process required a preliminary survey and listing of households in order to construct the sampling frame and draw a relevant sample. The study has followed a purposive sampling method, given the criterion for each dimension in first stage and then random selection of households in second stage. The pilot survey was conducted in two talukas of Pune district, i) Bhor and ii) Junnar, which were selected on the basis of percentage of population and distance to the Pune district centre. Respondents were randomly selected using a random start. Systematic random sampling was used to pick subsequent respondents. Primary survey included interview of households at the sample areas as well as by gathering information from local people and making keen observations. Also relevant secondary information from district offices, banks and other formal institutions were collected as supportive data base. The pilot survey was extremely helpful in understanding the situation and construction of the questionnaire for the final survey. Two separate questionnaires were prepared i) household based questionnaire which included detailed questions on select indicators for each of the four dimension along with household based characteristics and ii) village based questionnaires for focused group discussion (FGDs) in order to gather information

about the community and the associated problems. After finalising the questionnaires, an intensive primary survey has been conducted for two aspirational districts in Maharashtra, viz., Osmanabad and Washim. In each district, 2 talukas / tehsils were selected on the basis of population percentage and distance from the district centre.

Table 2.6: A brief overview for the two select district- Osmanabad & Washim

District	Taluka	Number of Households Interviewed
Osmanabad	Lohara	50
	Washi	50
Washim	Malegaon	51
	Manora	49
Total		200

In Osmanabad district, Lohara Taluka was 47 km far from district town and Washi Taluka was 58 km far from district town in the opposite direction. For Washim, Malegaon Taluka - which is 70 km far from district town and Manora Taluka, which is 66 km far from district town have been selected for the study (Refer to table 4.1) in chapter 4.

Chapter 3

A SECONDARY ANALYSIS OF SDGS IN RURAL MAHARASHTRA

3.1 Introduction

Socio-economic conditions of the districts in Maharashtra are the focus area of the study. Therefore, to analyse them in an efficient and effective manner, the study has prepared four dimensions, using complementing indicators. Each of these dimensions are pertaining to some of the SDGs and their targets. The linkage between SDGs and these dimensions helped in analysing the situation in a better way and also indicated achievable targets for districts of Maharashtra. The secondary data analysis includes district-wise performance in each of the indicator under four dimensions such as Sustainable Economic Growth, Poverty, Zero Hunger and Reduced Inequality, Health, Clean Water and Sanitation and Education covering 66 parameters and 32 districts. Ranking of districts was carried out using Principal Component Analysis (PCA) for each dimension. A composite index has been prepared for 32 districts using four dimensions with equal weight. The composite index and four sub-index has been compared with the Human Development Index (HDI) created by the (UNDP), which includes three dimensions such as a long and healthy life, being knowledgeable and have a decent standard of living. Followed by PCA, performance of various indicators taken in each dimension, and lastly, region-wise analysis of dimensions has been undertaken for the eight administrative divisions of the State. This analysis sets a platform for further study including the primary data that has been collected on the ground-level for select districts (two aspirational districts of Maharashtra identified by NITI Aayog - Osmanabad and Washim). The rankings of top five and bottom five districts are provided in Table 4.1.

This chapter is divided into three parts. Section 3.2 provides the ranking of districts in term of four dimensions and composite index. Section 3.3 deals with the ranking of divisions in term of four dimensions and composite index. Section 3.4 provides conclusions

3.2 Ranking of Districts

3.2.1: Dimension 1: Sustainable Economic Growth

Sustainable Economic Growth as per SDG 8 (UN, 2020) will require societies to create the conditions that allow people to have quality jobs that stimulate the economy while not harming the environment. With respect to SDG 8, the State of Maharashtra had a score of 70 (rank 11) outperforming the all India rank of 64, however lagging behind the top achiever State of Telangana with a score of 82. It is therefore imperative for the State and districts to create a favourable environment providing suitable job opportunities and decent working conditions for the working age population. There is also a need to increase access to financial services to increase incomes, accumulate assets and make productive investments. This will also help increase productivity and reduce unemployment levels in Maharashtra. UNDP has defined the targets for SDG 8 as highlighted in Table 3.1

Table 3.1: The Targets set under SDG 8 as defined by UNDP

Goals	Targets
8.1	Sustain per capita economic growth in accordance with national circumstances and, in particular, at least 7 percent GDP growth per annum in the least developed countries
8.2	Achieve higher levels of economic productivity through diversification, technological upgrading and innovation, including through a focus on high-value added and labour-intensive sectors
8.3	Promote development-oriented policies that support productive activities, decent job creation, entrepreneurship, creativity and innovation, and encourage the formalization and growth of micro-, small- and medium-sized enterprises, including through access to financial services
8.4	Improve progressively, through 2030, global resource efficiency in consumption and production and endeavour to decouple economic growth from environmental degradation, in accordance with the 10-year framework of programs on sustainable consumption and production, with developed countries taking the lead
8.5	By 2030, achieve full and productive employment and decent work for all women and men, including for young people and persons with disabilities, and equal pay for work of equal value
8.6	By 2020, substantially reduce the proportion of youth not in employment, education or training
8.7	Take immediate and effective measures to eradicate forced labour, end modern slavery and human trafficking and secure the prohibition and elimination of the worst forms of child labour, including recruitment and use of child soldiers, and by 2025 end child labour in all its forms
8.8	8 Protect labour rights and promote safe and secure working environments for all workers, including migrant workers, in particular women migrants, and those in precarious employment
8.9	By 2030, devise and implement policies to promote sustainable tourism that creates jobs and promotes local culture and products
8.10	Strengthen the capacity of domestic financial institutions to encourage and expand access to banking, insurance and financial services for all
8.a	Increase Aid for Trade support for developing countries, in particular least developed countries, including through the Enhanced Integrated Framework for Trade-Related Technical Assistance to Least Developed Countries
8.b	By 2020, develop and operationalize a global strategy for youth employment and implement the Global Jobs Pact of the International Labour Organization

Source: compiled from https://www.undp.org/content/undp/en/home/sustainable-development-goals/

The Study undertaken by (NITI Aayog, 2019) on SDG India Index, has focused on only four of the 10 targets as given below -

Table 3.2: Focus of SDG India Index by Niti-Aayog

Goal	Targets			
8	8.1 Sustain per capita economic growth in accordance with national circumstances and, in particular, at least 7 percent gross domestic product growth per annum in the least developed countries	8.3 Promote development-oriented policies that support productive activities, decent job creation, entrepreneurship, creativity and innovation, and encourage the formalization and growth of micro-, small- and medium-sized enterprises, including through access to financial services	8.5 By 2030, achieve full and productive employment and decent work for all women and men, including for young people and persons with disabilities, and equal pay for work of equal value	8.10 Strengthen the capacity of domestic financial institutions to encourage and expand access to banking, insurance and financial services for all
Indicators	Annual growth rate of Net Domestic	Ease of doing business score (EoDB)	Unemployment rate (%)	Number of banking outlets per 1,00,000 population
	Product (NDP) per capita		Labor Force Participation Rate (%)	Percentage of households with a bank account
				Proportion of women account holders under PMJDY

Source: SDG India Index, NITI Aayog, 2019-20

Using Principal Component Analysis (PCA) and 12 parameters[13] an Index of Sustainable Economic Growth - (SDG-GI) is estimated and presented in Table 3.3 and Figure 3.1. For comparative purpose HDI (2011) score of districts are also presented in the table. It is clear that there exists wide variation among districts in Maharashtra. For example, only eight districts are performing exceedingly well compared to State average and these districts are Pune, Bhandara, Osmanabad, Kolhapur, Jalna, Nashik, Solapur and Aurangabad[14]. Other than these districts Ahmednagar, Jalgaon, Satara, Nagpur, Sangli and Beed are also performing above State average.

Table 3.3: Rankings of Districts in term of Sustainable Economic Growth (SDG-GI)

Rank	District	District SDG Sustainable Growth Index- (SDG-GI)	Human Development Index (HDI 2011) Score
1	Pune	4.073	0.814
2	Bhandara	2.987	0.718
3	Osmanabad	2.751	0.649
4	Kolhapur	2.734	0.77
5	Jalna	2.684	0.663
6	Nashik	2.660	0.746
7	Solapur	2.568	0.728
8	Aurangabad	2.527	0.727
9	Ahmednagar	2.437	0.72
10	Jalgaon	2.291	0.723
11	Satara	2.167	0.742
12	Nagpur	2.163	0.786
13	Sangli	2.044	0.742
14	Beed	2.035	0.678
15	Parbhani	1.996	0.683
16	Chandrapur	1.910	0.718
17	Buldhana	1.833	0.718

[13]Refer to table 2.2

[14]Bhandara is doing exceedingly well in term of SDG-GI mainly due to its better performance in indicators like per capita PMJY accounts, deposits and proportion of fair price to total fair price. per capita income growth and cropping intensity. On the other hand, Osmanabad which is identified as an aspirational district by Niti Aayog, is doing exceedingly well, mainly due to their better performance in indicators like per capita income growth and cropping intensity.

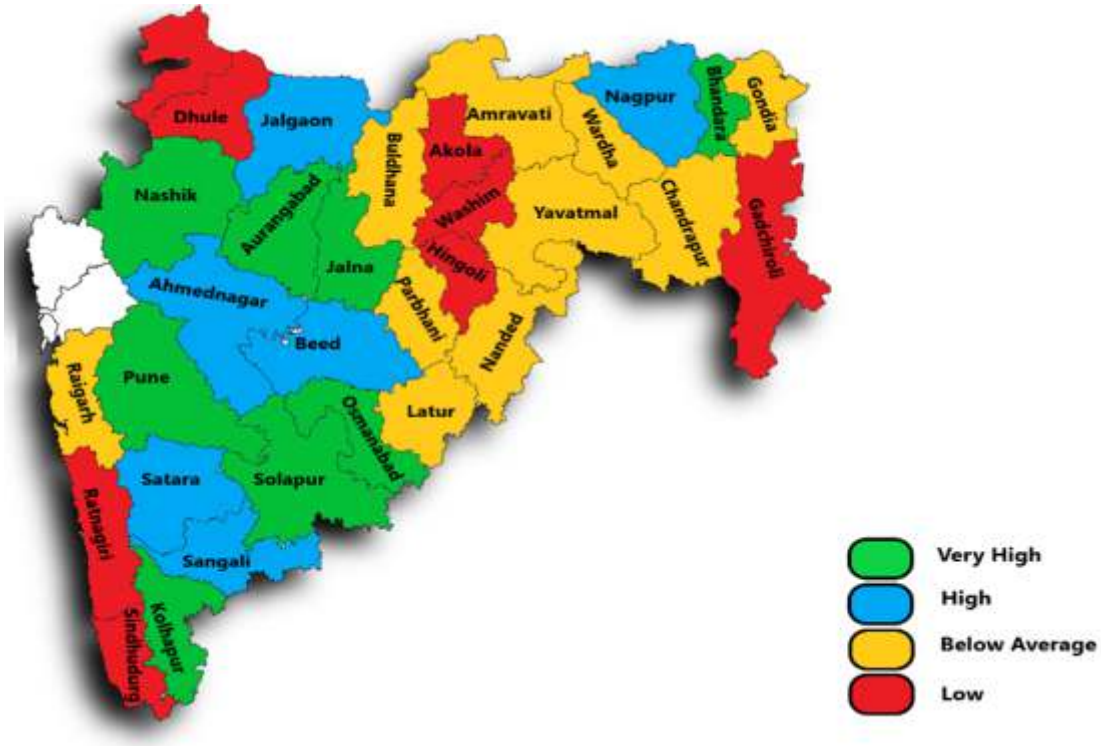
Rank	District	District SDG Sustainable Growth Index- (SDG-GI)	Human Development Index (HDI 2011) Score
18	Yavatmal	1.822	0.7
19	Raigarh	1.820	0.759
20	Latur	1.814	0.663
21	Nanded	1.800	0.657
22	Amravati	1.750	0.701
23	Wardha	1.706	0.723
24	Gondia	1.654	0.701
25	Dhule	1.544	0.671
26	Akola	1.528	0.722
27	Ratnagiri	1.406	0.723
28	Hingoli	1.380	0.648
29	Gadchiroli	1.359	0.608
30	Nandurbar	1.281	0.604
31	Sindhudurg	1.013	0.753
32	Washim	0.984	0.646
	Average	2.02	

Source: Author's Calculation

Note: Colouring of the table is based on the level of performance (scores) on Growth Index Green signifies very high performance; blue represents high; yellow represents below average; and red represents very low performance.

Altogether, there are 14 districts whose performances are better than the State average. On the other hand, there are 18 districts whose performances are below the State average and among them Dhule, Akola, Ratnagiri, Hingoli, Gadchiroli, Nandurbar, Sindhudurg and Washim are the worst performing districts.

Figure 3.1: District wise performance of SDG-GI



3.2.2 Dimension 2: No Poverty, Zero Hunger and Reduced Inequality

In this dimension, the study deal with various indicators such as poverty, hunger and inequality in rural Maharashtra (SDG 1, 2 and 10). Poverty and hunger reduction are major present day concerns. The NITI Aayog SDG report 2019-20 shows Maharashtra at rank 19 with the score of 47 in poverty which is below the national score of 50 and Tamil Nadu being the top ranking State with score of 72. Maharashtra thus falls in the category of an aspirant State with 21.92 % of people living below poverty line. With respect to SDG 2 zero hunger, Maharashtra's score is 34 with rank 22, below the national average score of 35 and the State of Goa being an achiever with score of 76. Further, for SDG 10 (inequality) Maharashtra has score of 70 with the rank of 8, performing better than national average score of 64, with Telangana having score of 94 ranking as prominent achiever. From the related scores of the goals and relative rankings, it is clear that Maharashtra is not performing up to the mark and there is need for substantial progress. The targets setup by UNDP are as follows[15] :

[15] *Refer to https://sustainabledevelopment.un.org/content/documents/26281VNR_2020_India_Report.pdf*

Table 3.4: Targets by UNDP Goal 1

	Targets
1.1	By 2030, eradicate extreme poverty for all people everywhere, currently measured as people living on less than $1.25 a day
1.2	By 2030, reduce at least by half the proportion of men, women and children of all ages living in poverty in all its dimensions according to national definitions
1.3	Implement nationally appropriate social protection systems and measures for all, including floors, and by 2030 achieve substantial coverage of the poor and the vulnerable
1.4	By 2030, ensure that all men and women, in particular the poor and the vulnerable, have equal rights to economic resources, as well as access to basic services, ownership and control over land and other forms of property, inheritance, natural resources, appropriate new technology and financial services, including microfinance
1.5	By 2030, build the resilience of the poor and those in vulnerable situations and reduce their exposure and vulnerability to climate-related extreme events and other economic, social and environmental shocks and disasters
1.a	Ensure significant mobilization of resources from a variety of sources, including through enhanced development cooperation, in order to provide adequate and predictable means for developing countries, in particular least developed countries, to implement programs and policies to end poverty in all its dimensions
1.b	Create sound policy frameworks at the national, regional and international levels, based on pro-poor and gender-sensitive development strategies, to support accelerated investment in poverty eradication action.

The study undertaken by (NITI Aayog, 2019) on SDG India Index has focused on three of these seven targets and these are as in Table 3.5.

Table 3.5: SDG India Index NITI Aayog 2019: three of the seven targets for Goal 1

	Targets		
	1.2 By 2030, reduce at least by half the proportion of men, women and children of all ages living in poverty in all its dimensions according to national definitions	1.3 Implement nationally appropriate social protection systems and measures for all, including floors, and by 2030 achieve substantial coverage of the poor and the vulnerable	1.4 By 2030, ensure that all men and women, in particular the poor and the vulnerable, have equal rights to economic resources, as well as access to basic services, ownership and control over land and other

	Targets		
			forms of property, inheritance, natural resources, appropriate new technology and financial services, including microfinance
	1 -National Poverty Line	Health Insurance Mother and Child Protection Card 1-Homeless household	1-Homeless household

Source: SDG India Index, NITI Aayog, 2019-20.

In this dimension, we deal with SDG 2- Zero Hunger with the eight UNDP defined targets as highlighted below:

Table 3.6: Targets by UNDP Goal 5

	Targets
2.1	By 2030, end hunger and ensure access by all people, in particular the poor and people in vulnerable situations, including infants, to safe, nutritious and sufficient food all year round.
2.2	By 2030, end all forms of malnutrition, including achieving, by 2025, the internationally agreed targets on stunting and wasting in children under 5 years of age, and address the nutritional needs of adolescent girls, pregnant and lactating women and older persons.
2.3	By 2030, double the agricultural productivity and incomes of small-scale food producers, in particular women, indigenous peoples, family farmers, pastoralists and fishers, including through secure and equal access to land, other productive resources and inputs, knowledge, financial services, markets and opportunities for value addition and non-farm employment.
2.4	By 2030, ensure sustainable food production systems and implement resilient agricultural practices that increase productivity and production, that help maintain ecosystems, that strengthen capacity for adaptation to climate change, extreme weather, drought, flooding and other disasters and that progressively improve land and soil quality.

	Targets
2.5	By 2020, maintain the genetic diversity of seeds, cultivated plants and farmed and domesticated animals and their related wild species, including through soundly managed and diversified seed and plant banks at the national, regional and international levels, and promote access to and fair and equitable sharing of benefits arising from the utilization of genetic resources and associated traditional knowledge, as internationally agreed.
2.a	Increase investment, including through enhanced international cooperation, in rural infrastructure, agricultural research and extension services, technology development and plant and livestock gene banks in order to enhance agricultural productive capacity in developing countries, in particular least developed countries.
2.b	Correct and prevent trade restrictions and distortions in world agricultural markets, including through the parallel elimination of all forms of agricultural export subsidies and all export measures with equivalent effect, in accordance with the mandate of the Doha Development Round.
2.c	Adopt measures to ensure the proper functioning of food commodity markets and their derivatives and facilitate timely access to market information, including on food reserves, in order to help limit extreme food price volatility.

The study by NITI Aayog (2019) has focused on three targets out of these eight targets, which include-

Table 3.7: SDG India Index NITI Aayog 2019: three of the seven targets for Goal 2

Goal	Targets		
	2.1 By 2030, end hunger and ensure access by all people, in particular the poor and people in vulnerable situations, including infants, to safe, nutritious and sufficient food all year round.	2.2 By 2030, end all forms of malnutrition, including achieving, by 2025, the internationally agreed targets on stunting and wasting in children under 5 years of age, and address the nutritional needs of adolescent girls, pregnant and lactating women and older persons	2.4 By 2030, ensure sustainable food production systems and implement resilient agricultural practices that increase productivity and production, that help maintain ecosystems, that strengthen capacity for adaptation to climate change, extreme weather, drought, flooding and other disasters and that

Goal	Targets		
			progressively improve land and soil quality.
Indicators	1 - AAY	1-Stunted Children/100	Total cereal productivity in Kgs/hector Total food grain productivity in Kgs/hector Total pulses productivity in Kgs/hector Total oilseeds productivity in Kgs/hector

Source: Targets and Indicators set by NITI Aayog for SDG 8. Source: SDG India Index, NITI Aayog, 2019-20.

In dimension 2, the study also includes SDG 10, which discusses reduced inequality. The three goals directly affect the living standards of human beings, with the defined targets associated with SDG 10. They are:

Table 3.8: Targets by UNDP Goal 10

	Targets
10.1	By 2030, progressively achieve and sustain income growth of the bottom 40 percent of the population at a rate higher than the national average
10.2	By 2030, empower and promote the social, economic and political inclusion of all, irrespective of age, sex, disability, race, ethnicity, origin, religion or economic or other status
10.3	Ensure equal opportunity and reduce inequalities of outcome, including by eliminating discriminatory laws, policies and practices and promoting appropriate legislation, policies and action in this regard
10.4	Adopt policies, especially fiscal, wage and social protection policies, and progressively achieve greater equality
10.5	Improve the regulation and monitoring of global financial markets and institutions and strengthen the implementation of such regulations
10.6	Ensure enhanced representation and voice for developing countries in decision-making in global international economic and financial institutions in order to deliver more effective, credible, accountable and legitimate institutions

	Targets
10.7	Facilitate orderly, safe, regular and responsible migration and mobility of people, including through the implementation of planned and well-managed migration policies
10.a	Implement the principle of special and differential treatment for developing countries, in particular least developed countries, in accordance with World Trade Organization agreements
10.b	Encourage official development assistance and financial flows, including foreign direct investment, to States where the need is greatest, in particular least developed countries, African countries, Small Island developing States and landlocked developing countries, in accordance with their national plans and programs
10.c	By 2030, reduce to less than 3 percent the transaction costs of migrant remittances and eliminate remittance corridors with costs higher than 5 percent

Out of these eight targets, the study by (NITI Aayog, 2019) on SDG India Index has focused on only one target, as given below:

Table 3.9: SDG India Index NITI Aayog 2019: three of the seven targets for Goal 10

Goal	Targets
10.4	Adopt policies, especially fiscal, wage and social protection policies, and progressively achieve greater equality
Indicators	Gini Inequality inverse

Targets and Indicators set by NITI Aayog for SDG 8. Source: SDG India Index, NITI Aayog, 2019-20.

The ranking of districts in term of Poverty, Hunger and Inequality (Dimension 2) is presented in Table 3.10 and Figure 3.2. It is clearly evident that only 17 districts such Sindhudurg, Gondia, Kolhapur, Ratnagiri, Pune, Amravati, Nagpur, Wardha, Bhandara, Chandrapur, Hingoli, Gadchiroli, Latur, Buldana, Washim, Akola and Solapur have performed above the State average and remaining districts such as Dhule, Sangli, Nanded, Jalgaon, Satara, Nashik, Raigarh are performing below average compared to other districts in Maharashtra. Parbhani, Yavatmal, Aurangabad, Ahmednagar, Beed, Osmanabad, Nandurbar and Jalna are performing poorly in Maharashtra[16] .

[16]Refer to table 2.3 for indicators list

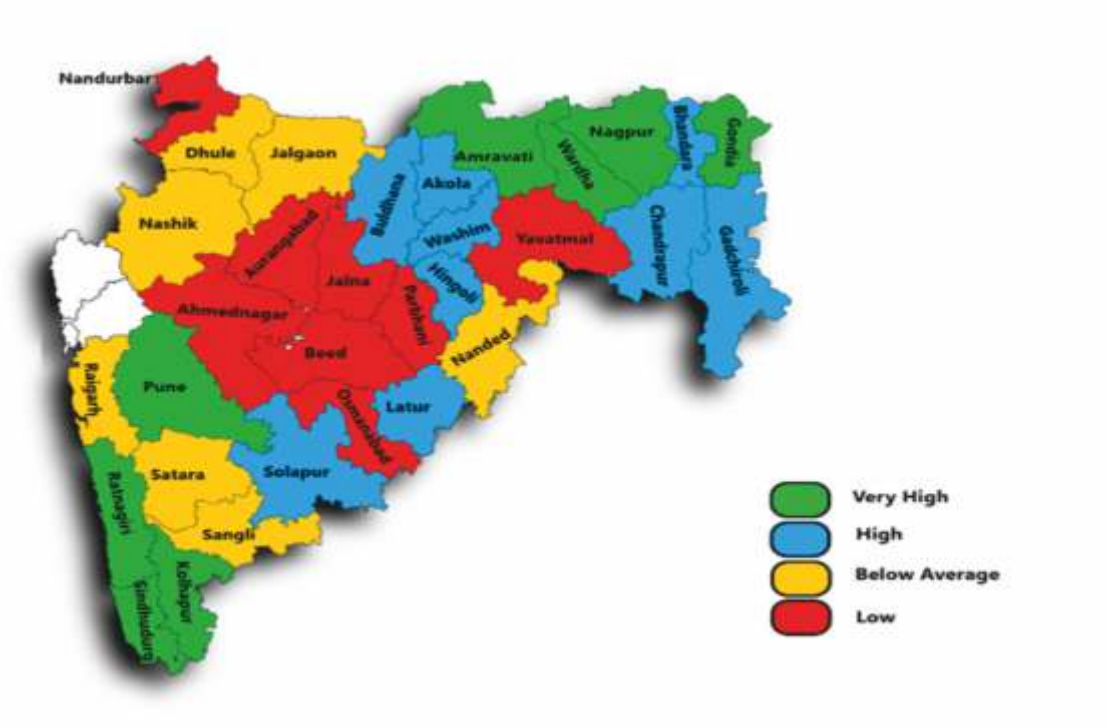
Table 3.10: Ranking of Districts in term of SDG-PHII

Rank	District	SDG Poverty, Inequality and hunger Index (SDG-PHII)	Human Development Index (HDI 2011) Score
1	Sindhudurg	3.6744	0.753
2	Gondia	3.5564	0.701
3	Kolhapur	3.3681	0.77
4	Ratnagiri	3.1553	0.723
5	Pune	3.1166	0.814
6	Amravati	3.1018	0.701
7	Nagpur	3.0724	0.786
8	Wardha	3.0545	0.723
9	Bhandara	2.8607	0.718
10	Hingoli	2.7121	0.648
11	Chandrapur	2.7062	0.718
12	Gadchiroli	2.6316	0.608
13	Latur	2.5921	0.663
14	Buldana	2.5789	0.718
15	Washim	2.5412	0.646
16	Akola	2.5198	0.722
17	Solapur	2.4424	0.728
18	Sangli	2.3979	0.742
19	Dhule	2.3949	0.671
20	Nanded	2.3922	0.657
21	Jalgaon	2.3882	0.723
22	Satara	2.2867	0.742
23	Nashik	2.2600	0.746
24	Raigarh	2.1901	0.759
25	Parbhani	1.9880	0.683
26	Yavatmal	1.9071	0.7
27	Aurangabad	1.6703	0.727
28	Ahmednagar	1.5392	0.72
29	Beed	1.4968	0.678
30	Osmanabad	1.3980	0.649
31	Nandurbar	1.0556	0.604
32	Jalna	0.8161	0.663
	Average	2.433	

Source: Author's Calculation

Note: Colouring of the Table is based on the level of performance (scores) on Poverty, inequality and Hunger Index. Green signifies very high performance; blue represents high; yellow represents below average; and red represents very low performance.

Figure 3.2: District wise performance of SDG-PHII



3.2.3 Dimension 3: Good Health, Clean Water and Sanitation

World Health Organization (WHO) describes good health as a State of complete physical, mental and social well-being and not merely the absence of disease or infirmity. The constitution adopted by it in 1946 emphasizes on following points:

- The enjoyment of the highest attainable standard of health is one of the fundamental rights of every human being without distinction of race, religion, and political belief, economic or social condition.
- The health of all peoples is fundamental to the attainment of peace and security and is dependent on the fullest co-operation of individuals and States.
- Governments have a responsibility for the health of their peoples which can be fulfilled only by the provision of adequate health and social measures.

Understanding the importance of health and SDG 3 - Ensure healthy lives and promote well-being for all at all ages, adopted by UNDP and has prescribed targets which are[17] :

Table 3.11: Targets by UNDP Goal 3

	Targets
3.1	By 2030, reduce the global maternal mortality ratio to less than 70 per 100 000 live births.
3.2	By 2030, end preventable deaths of new-borns and children under 5 years of age, with all countries aiming to reduce neonatal mortality to at least as low as 12 per 1000 live births and under-5 mortalities to at least as low as 25 per 1000 live births.
3.3	By 2030, end the epidemics of AIDS, tuberculosis, malaria and neglected tropical diseases and combat hepatitis, water-borne diseases and other communicable diseases.
3.4	By 2030, reduce by one third premature mortality from non-communicable diseases through prevention and treatment and promote mental health and well-being.
3.5	Strengthen the prevention and treatment of substance abuse, including narcotic drug abuse and harmful use of alcohol.
3.6	By 2020, halve the number of global deaths and injuries from road traffic accidents.
3.7	By 2030, ensure universal access to sexual and reproductive health-care services, including for family planning, information and education, and the integration of reproductive health into national strategies and programmes.
3.8	Achieve universal health coverage, including financial risk protection, access to quality essential health-care services and access to safe, effective, quality and affordable essential medicines and vaccines for all.
3.9	By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination.
3.a	Strengthen the implementation of the WHO Framework Convention on Tobacco Control in all countries, as appropriate.
3.b	Support the research and development of vaccines and medicines for the communicable and non-communicable diseases that primarily affect developing countries, provide access to affordable essential medicines and vaccines, in accordance with the Doha Declaration on the TRIPS Agreement and Public Health, which affirms the right of developing countries to use to the full the provisions in the Agreement on Trade-Related Aspects of Intellectual Property Rights regarding

[17] *Refer to https://sustainabledevelopment.un.org/content/documents/26281VNR_2020_India_Report.pdf*

	Targets
	flexibilities to protect public health, and, in particular, provide access to medicines for all.
3.c	Substantially increase health financing and the recruitment, development, training and retention of the health workforce in developing countries, especially in least developed countries and small island developing States.
3.d	Strengthen the capacity of all countries, in particular developing countries, for early warning, risk reduction and management of national and global health risks.

The 2019, study undertaken by NITI Aayog, on the SDG India Index has focused on five of these 13 targets which includes:

Table 3.12: SDG India Index -NITI Ayog 2019: five of the 13 targets for Goal 3

Goal	Targets				
3	3.1 By 2030, reduce the global maternal mortality ratio to less than 70 per 100,000 live births	3.2 By 2030, end preventable deaths of New-borns and children under 5 years of age, with all countries aiming to reduce neonatal mortality to at least as low as 12 per 1,000 live births and under-5 mortality to at least as low as 25 per 1,000 live births	3.3 By 2030, end the epidemics of AIDS, tuberculosis, malaria and neglected tropical diseases and combat hepatitis, water-borne diseases and other communicable diseases	3.7 By 2030, ensure universal access to sexual and reproductive health-care services, including for family planning, information and education, and the integration of reproductive health into national strategies and programmes	3.c Substantially increase health financing and the recruitment, development, training and retention of the health workforce in developing countries, especially in least developed countries and small island developing States

Goal	Targets				
Indicators	Maternal Mortality Ratio Proportion of Institutional deliveries	Under 5 mortality rate per 1000 live births Percentage of fully immunized children in the age group 0-5 years	Total case notification rate of Tuberculosis per 1 lakh population HIV Incidence per 1000 uninfected population	Percentage of currently married women aged 15-49 years who use any modern method of family planning	Total physicians, nurses and midwives per 10,000 population

Source: SDG India Index, NITI Aayog, 2019-20.

In Dimension 3, the study includes SDG 3 as discussed above and SDG 6 - Clean water and Sanitation in order to ensure availability and sustainable management of water and sanitation for all, with the specified targets as elaborated:

Table 3.13: Targets by UNDP Goal-6

	Targets
6.1	By 2030, achieve universal and equitable access to safe and affordable drinking water for all
6.2	By 2030, achieve access to adequate and equitable sanitation and hygiene for all and end open defecation, paying special attention to the needs of women and girls and those in vulnerable situations
6.3	By 2030, improve water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials, halving the proportion of untreated wastewater and substantially increasing recycling and safe reuse globally
6.4	By 2030, substantially increase water-use efficiency across all sectors and ensure sustainable withdrawals and supply of freshwater to address water scarcity and substantially reduce the number of people suffering from water scarcity
6.5	By 2030, implement integrated water resources management at all levels, including through transboundary cooperation as appropriate
6.6	By 2020, protect and restore water-related ecosystems, including mountains, forests, wetlands, rivers, aquifers and lakes
6.a	By 2030, expand international cooperation and capacity-building support to developing countries in water- and sanitation-related activities and programmes, including water harvesting, desalination, water efficiency, wastewater treatment, recycling and reuse technologies
6.b	Support and strengthen the participation of local communities in improving water and sanitation management

Out of these eight targets, the NITI Aayog (2019) study, on SDG India Index has focused on four targets as elaborated below:

Table 3.14: SDG India Index -NITI Ayog 2019: four targets for Goal 6

Goal	Targets			
6	6.1 By 2030, achieve universal and equitable access to safe and affordable drinking water for all	6.2 By 2030, achieve access to adequate and equitable sanitation and hygiene for all and end open defecation, paying special attention to the needs of women and girls and those in vulnerable situations	6.3 By 2030, improve water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials, halving the proportion of untreated wastewater and substantially increasing recycling and safe reuse globally	6.6 By 2020, protect and restore water-related ecosystems, including mountains, forests, wetlands, rivers, aquifers and lakes
Indicators	Percentage of households having improved source of drinking water	Percentage of rural households with individual household toilets Percentage of urban households with individual household toilets Percentage of districts verified to be ODF Proportion of schools with separate toilet facility for girls	Percentage of industries (17 categories of highly polluting industries/grossly polluting industry/red category of industries) complying with waste water treatment as per CPCB norms	Percentage of blocks over-exploited

Source: SDG India Index, NITI Aayog, 2019-20.

Based on the targets of the SDG 3 and SDG 6, the study has formulated the indicators for the dimension 3, which focuses on health, water and sanitation in rural Maharashtra. The study has included indicators suggested by NITI Aayog, with respect to the dimension of health, water and sanitation. Further, the study has taken certain additional variables such as health of children with respect to their age, weight, and height and body mass index (BMI) of men and women and so on to analyse the condition of health facilities in districts of Maharashtra in detail [18].

The Table 3.15 and Figure 3.3 shows the ranking of districts with respect to health, water and sanitation. The relative positions of districts in terms of Good Health, Clean Water and Sanitation indicate that Bhandara, Wardha, Sindhudurg, Nagpur, Sangli, Pune, Amravati and Gondia are performing very high. Nanded, Kolhapur, Latur, Ahmednagar, Ratnagiri, Akola, Buldhana, Satara, Gadchiroli, and Raigad are performing high [19].

Table 3.15: The Rankings of Districts in term of SDG-HWSI

Rank	District	SDG Health, Water and Sanitation Index	Human Development Index (HDI 2011) Score
1	Bhandara	6.708	0.786
2	Wardha	6.112	0.723
3	Sindhudurg	6.007	0.608
4	Nagpur	5.972	0.701
5	Sangli	5.419	0.742
6	Pune	5.391	0.722
7	Amravati	5.319	0.663
8	Gondia	5.310	0.814
9	Nanded	5.091	0.728
10	Kolhapur	4.874	0.718
11	Latur	4.862	0.753
12	Ahmednagar	4.825	0.77
13	Ratnagiri	4.800	0.723
14	Akola	4.740	0.678
15	Buldhana	4.735	0.701
16	Satara	4.709	0.646

[18] *Refer to table 2.4 for indicators list*

[19] *Both Bhandara and Wardha are doing exceedingly well in SDG-HWSI mainly because of its better performances for Bhandara which include indicators like women under the age 20-25 unmarried before 18 years' age, doctors per 10,000 people and households using better sanitation facilities. Similarly, Wardha's better performances owes it to the better performance in indicators such as households using iodized salt, women under the age 20-25 unmarried before 18 years' age and household insurance coverage.*

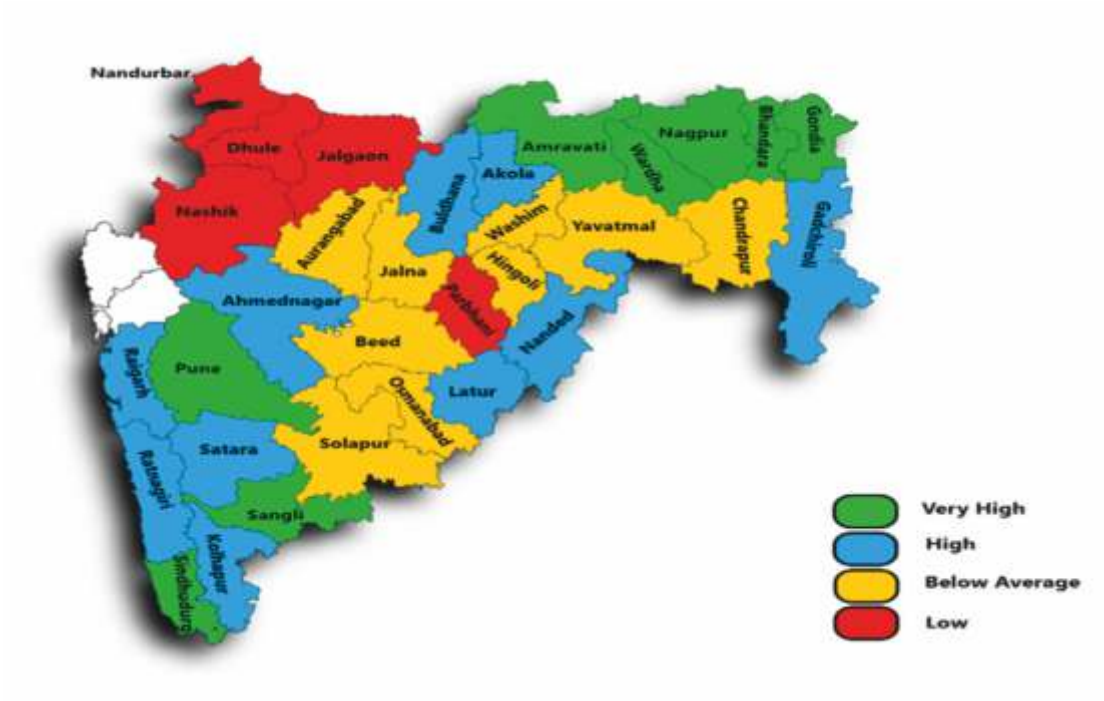
Rank	District	SDG Health, Water and Sanitation Index	Human Development Index (HDI 2011) Score
17	Gadchiroli	4.655	0.72
18	Raigad	4.624	0.684
19	Osmanabad	4.574	0.671
20	Chandrapur	4.302	0.649
21	Washim	4.263	0.759
22	Beed	4.231	0.742
23	Solapur	4.185	0.648
24	Yavatmal	4.180	0.657
25	Jalna	4.159	0.718
26	Aurangabad	4.122	0.732
27	Hingoli	4.044	0.7
28	Jalgaon	3.950	0.727
29	Parbhani	3.605	0.746
30	Dhule	3.186	0.663
31	Nashik	2.665	0.683
32	Nandurbar	1.899	0.604
	Average	4.610	

Source: Author's Calculation

Note: Colouring of the table is based on the level of performance (scores) on SDG Health, Water and Sanitation Index. Green signifies very high performance; blue represents high; yellow represents below average; and red represents very low performance.

District such as Gadchiroli which is identified by NITI Aayog as an aspirational district is one of the better ranking districts as per the SDG_HWS Index. This can be attributed to the fact that this district is doing well in indicators like women aged between 15 to 19 is already mothers or pregnant, number of nurses per 10000 people and women whose BMI is normal. Osmanabad, Chandrapur, Washim, Beed, Solapur, and Yavatmal are performing below average. Lastly, the districts which are performing poorly in health, water and sanitation in Maharashtra are Jalna, Aurangabad, Hingoli, Jalgaon, Parbhani, Dhule, Nashik, and Nandurbar.

Figure 3.3: District wise performance of SDG-HWS



3.2.4 Dimension 4: Quality Education

The Dimension 4 includes 23 variables, which are in line with UNDP's SDG 4 - Quality Education, ensuring inclusive and equitable quality education and promote lifelong learning opportunities for all. The score of Maharashtra with respect to SDG 4 is 65 (Rank 10), which is greater than that for India with score of 58. Himachal Pradesh is top ranking State with score of 81for the year 2019. The targets set under SDG 4 by UNDP are:

Table 3.16: Targets by UNDP Goal 4

	Targets
4.1	By 2030, ensure that all girls and boys complete free, equitable and quality primary and secondary education leading to relevant and Goal-4 effective learning outcomes
4.2	By 2030, ensure that all girls and boys have access to quality early childhood development, care and pre-primary education so that they are ready for primary education
4.3	By 2030, ensure equal access for all women and men to affordable and quality technical, vocational and tertiary education, including university

	Targets
4.4	By 2030, substantially increase the number of youth and adults who have relevant skills, including technical and vocational skills, for employment, decent jobs and entrepreneurship
4.5	By 2030, eliminate gender disparities in education and ensure equal access to all levels of education and vocational training for the vulnerable, including persons with disabilities, indigenous peoples and children in vulnerable situations
4.6	By 2030, ensure that all youth and a substantial proportion of adults, both men and women, achieve literacy and numeracy
4.7	By 2030, ensure that all learners acquire the knowledge and skills needed to promote sustainable development, including, among others, through education for sustainable development and sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and non-violence, global citizenship and appreciation of cultural diversity and of culture's contribution to sustainable development
4.a	Build and upgrade education facilities that are child, disability and gender sensitive and provide safe, nonviolent, inclusive and effective learning environments for all
4.b	By 2020, substantially expand globally the number of scholarships available to developing countries, in particular least developed countries, small island developing States and African countries, for enrolment in higher education, including vocational training and information and communications technology, technical, engineering and scientific programmes, in developed countries and other developing countries
4.c	By 2030, substantially increase the supply of qualified teachers, including through international cooperation for teacher training in developing countries, especially least developed countries and small island developing States

Study undertaken by (NITI Aayog, 2019) on SDG India Index, has focused on 3 of these 10 targets. The variable list (23), along with its description, justification and its compliance with UNDP/NITI Aayog- source of the data and year, are presented in Table 3.17 for better understanding.

Table 3.17: SDG India Index -NITI Ayog 2019: three of the ten targets for Goal 4

Goal	Targets		
4	4.1 By 2030, ensure that all girls and boys complete free, equitable and quality primary and secondary education leading to relevant and Goal-4 effective learning outcomes	4.A Build and upgrade education facilities that are child, disability and gender sensitive and provide safe, nonviolent, inclusive and effective learning environments for all	4.C By 2030, substantially increase the supply of qualified teachers, including through international cooperation for teacher training in developing countries, especially least developed countries and small island developing States
Indicators	Net Enrolment Ratio(Primary) Net Enrolment Ratio(Upper Primary)	Inverse of student classroom ratio Percentage of Government Rural School Percentage of Schools with Single Classroom Percentage of Schools with Approachable by Weather Road Percentage of Schools with Playground Percentage of Schools with Boundary wall Percentage of Schools with Girl's toilet Percentage of Schools with Drinking Water Percentage of Schools with Midday meal Percentage of Schools with Electricity Percentage of Schools with Computer facility Percentage of Beneficiaries Primary (Textbook) Percentage of Beneficiaries Upper Primary (Textbook) Percentage of Beneficiaries Primary (Uniform) Percentage of Beneficiaries Upper Primary (Uniform)	Percentage of Professionally Qualified Teachers (Government Regular) Professionally Qualified Teachers (Government Contractual) Percentage of Professionally Qualified Teachers (Private) Percentage of Schools with PTR<30 Inverse of Pupil Teacher Ratio Average Teacher per School

Source: SDG India Index, NITI Aayog, 2019-20.

The ranking of districts in term of Quality Education (dimension 4) is presented in Table 3.18 and Figure 3.4. It is observed from the Table 3.18 that districts are performing equally well in terms of education as 20 out of 32 districts are above State average and only 12 districts performing below the State average [20].

Table 3.18: Rankings of Districts in term of SDG-Education

Rank	District	SDG - Education Index (SDG-EI)	Human Development Index (HDI 2011) Score
1	Jalgaon	5.616	0.723
2	Dhule	5.521	0.671
3	Sangli	5.414	0.742
4	Ahmednagar	5.273	0.72
5	Solapur	5.157	0.728
6	Sindudurg	5.068	0.753
7	Bhandara	5.032	0.718
8	Nandurbar	5.024	0.604
9	Pune	4.838	0.814
10	Wardha	4.710	0.723
11	Yavatmal	4.709	0.7
12	Ratnagiri	4.688	0.723
13	Osmanabad	4.571	0.649
14	Kolhapur	4.559	0.77
15	Aurangabad	4.539	0.727
16	Latur	4.526	0.663
17	Nagpur	4.447	0.786
18	Satara	4.435	0.742
19	Gondia	4.366	0.701
20	Nashik	4.276	0.746
21	Amravati	4.168	0.701
22	Buldana	4.149	0.718
23	Hingoli	3.998	0.648
24	Chandrapur	3.784	0.718

Rank	District	SDG - Education Index (SDG-EI)	Human Development Index (HDI 2011) Score
25	Raigarh	3.684	0.759
26	Jalna	3.676	0.663
27	Washim	3.398	0.646
28	Nanded	3.295	0.657
29	Parbhani	2.914	0.683
30	Akola	2.769	0.722
31	Beed	1.819	0.678
32	Gadchiroli	1.430	0.608
	Average	4.245	

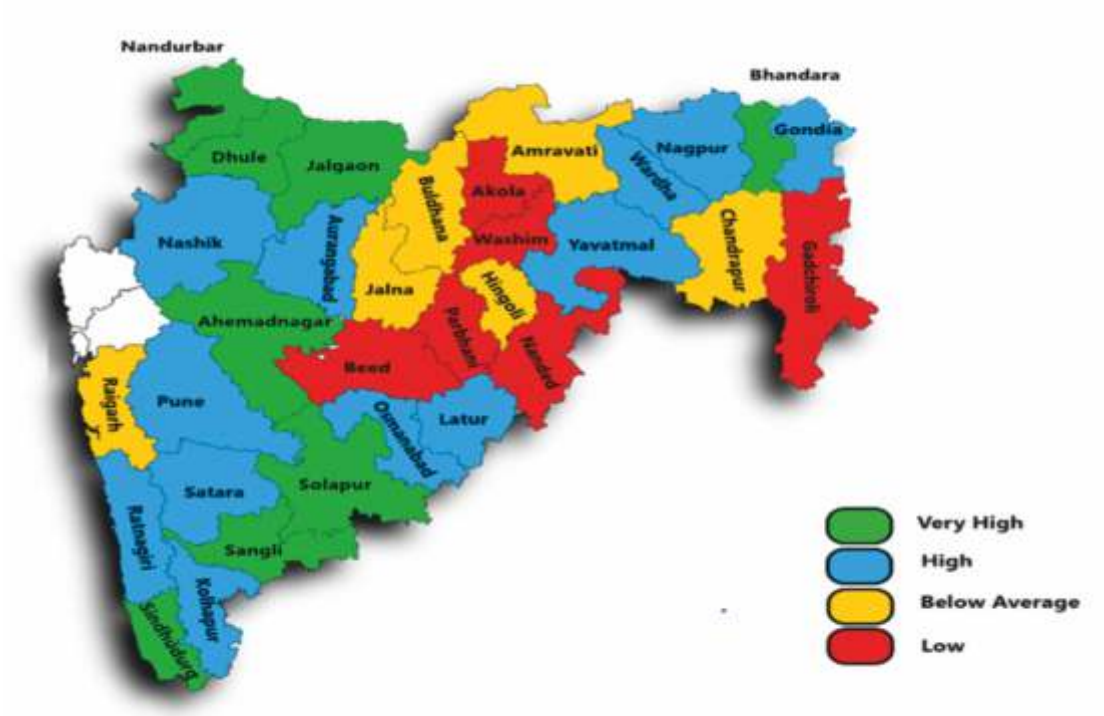
Source: Authors Calculation

Note: Coloring of the table is based on the level of performance (scores) on Education Index. Green signifies very high performance; blue represents high; yellow represents below average; and red represents very low performance.

Further, Jalgaon tops the table followed by Dhule and Sangli [21]. Out of the 12 poor performing districts, only six districts such as Washim, Nanded, Parbhani, Akola, Beed and Gadchiroli are performing very poorly compared to other districts. This is indicative of the fact that better resources and facilities in schools and with respect to qualified teachers, midday meal facilities, drinking water, etc. are available in the region.

[21] *Both Dhule and Nandurbar are doing very well in SDG-EI compared to their respective ranks in other dimensions. Dhule is doing well in indicators like percentage of schools with drinking water facilities, percentage of schools with computer, percentage of beneficiary primary schools with respects to text books. Nandurbar also doing well since it is over performing in parameters such as percentage of schools in rural areas, percentage of schools with toilet facilities for girls, percentage of schools with drinking water facilities and percentage of beneficiary primary schools with respects to text books.*

Figure 3.4: District wise performance of SDG-Education



3.2.5 Composite SDG Index (SDG-CI)

The composite SDG index has been constructed on the basis of four indices -sustainable growth, poverty, inequality and hunger, health, water and sanitation and education - for the 32 districts and 8 administrative divisions of Maharashtra. A simple arithmetic average of the four indices has been calculated and all the districts have been accordingly ranked as shown in table 3.19.

Table 3.19: Rankings of Districts in term of Composite SDG Index (SDG-CI)

DISTRICT	SDG-GI	SDG-PHII	SDG-HWSI	SDG-EI	SDG-CI	(HDI 2011) Score
Bhandara	2.99	2.86	6.71	5.03	4.397	0.718
Pune	4.07	3.12	5.39	4.84	4.355	0.814
Sindhudurg	1.01	3.67	6.01	5.07	3.940	0.753
Nagpur	2.16	3.07	5.97	4.45	3.913	0.786
Wardha	1.71	3.05	6.11	4.71	3.896	0.723
Kolhapur	2.73	3.37	4.87	4.56	3.884	0.77
Sangli	2.04	2.40	5.42	5.41	3.819	0.742
Gondia	1.65	3.56	5.31	4.37	3.722	0.701
Solapur	2.57	2.44	4.19	5.16	3.588	0.728
Amravati	1.75	3.10	5.32	4.17	3.585	0.701

DISTRICT	SDG-GI	SDG-PHII	SDG-HWSI	SDG-EI	SDG-CI	(HDI 2011) Score
Jalgaon	2.29	2.39	3.95	5.62	3.561	0.723
Ahmednagar	2.44	1.54	4.82	5.27	3.518	0.72
Ratnagiri	1.41	3.16	4.80	4.69	3.512	0.723
Latur	1.81	2.59	4.86	4.53	3.448	0.663
Satara	2.17	2.29	4.71	4.44	3.399	0.742
Buldhana	1.83	2.58	4.73	4.15	3.324	0.718
Osmanabad	2.75	1.40	4.57	4.57	3.323	0.649
Aurangabad	2.53	1.67	4.12	4.54	3.215	0.727
Chandrapur	1.91	2.71	4.30	3.78	3.176	0.718
Dhule	1.54	2.39	3.19	5.52	3.162	0.671
Yavatmal	1.82	1.91	4.18	4.71	3.154	0.7
Nanded	1.80	2.39	5.09	3.30	3.145	0.657
Raigarh	1.38	2.71	4.04	4.00	3.034	0.648
Nashik	2.66	2.26	2.67	4.28	2.965	0.746
Akola	1.53	2.52	4.74	2.77	2.889	0.722
Jalna	2.68	0.82	4.16	3.68	2.834	0.663
Washim	0.98	2.54	4.26	3.40	2.796	0.646
Parbhani	2.00	1.99	3.60	2.91	2.626	0.683
Gadchiroli	1.36	2.63	4.66	1.43	2.519	0.608
Beed	2.03	1.50	4.23	1.82	2.395	0.678
Nandurbar	1.28	1.06	1.90	5.02	2.315	0.604
Average	2.02	2.43	4.61	4.24	3.328	

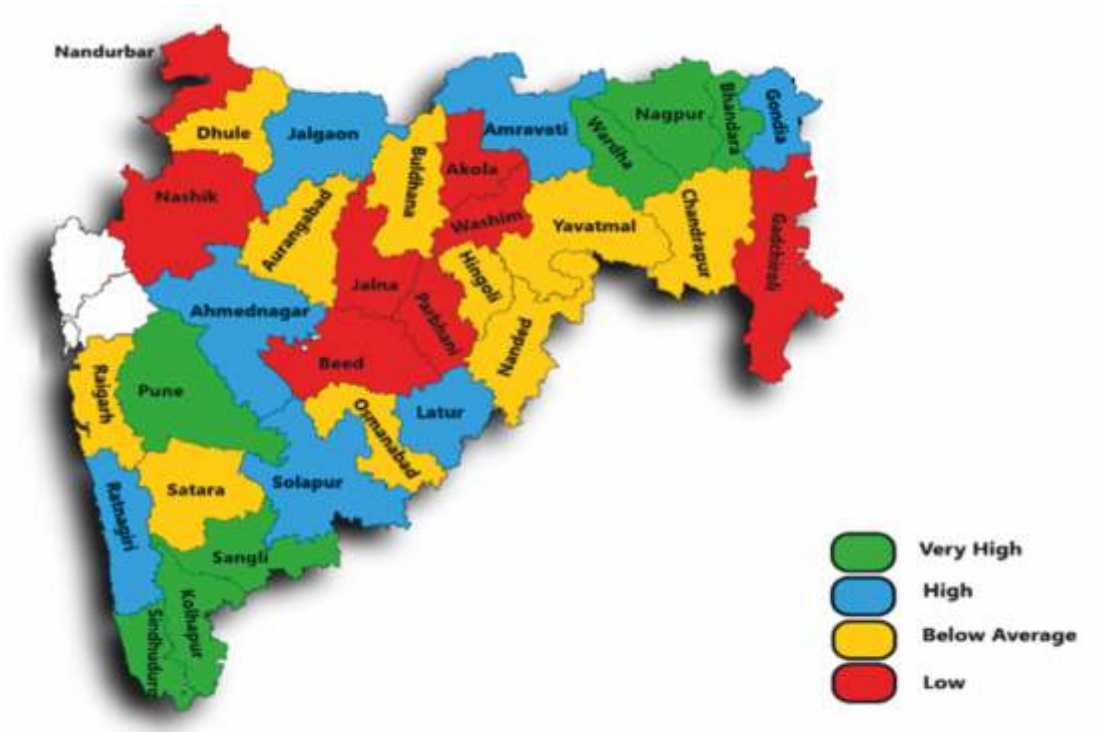
Source: Author's Calculation

Note: Colouring of the table is based on the level of performance (scores) on Composite Index Green signifies very high performance; blue represents high; yellow represents below average; and red represents very low performance.

A better picture of the level of relative performance of districts in terms of SDG Index is presented in Map 3.5 wherein district scores are divided into four performance groups:

- High Performance districts (Green Colour)
- Good Performance districts (Shaded Blue Colour)
- Moderate Performance districts (Yellow Colour)
- Lowest Performance districts (Red Colour)

Figure 3.5 District wise performance of SDG composite Index



As it is observed, there is clear inter district variations in terms of SDG composite score from the minimum of 2.31 (Nandurbar) to the maximum value of 4.40 (for Bhandara). Further, it is observed that only 14 districts have over performed compared to the State average. In the overall ranking Bhandara is top performing districts in the State followed Pune and Sindhudurg. After Sindhudurg, Nagpur, Wardha, Kolhapur, and Sangli are performing very high. Districts such as Gondia, Solapur, Amravati, Jalgaon, and Ahemadnagar and Latur are categorized as high performing districts. Further, as many as 10 districts (Satara, Buldhana, Osmanabad, Aurangabad, Chandrapur, Dhule, Yavatmal, Nanded, Raigarh and Hingoli) have moderate performance. Lastly, the districts like Nashik, Akola, Jalna, Washim, Gadchiroli, Parbhani, Beed and Nandurbar have lowest ranking in term of SDG index in the State of Maharashtra.

3.3 Region-wise Performances

The relative ranking of divisions in term of four dimensions and composite index is presented in Table 3.19. It is clear that there are vast intra-division variations in all four dimensions. For example, divisions like, Pune, Aurangabad and Kolhapur are performing very well in terms of sustainable growth. At the bottom, Amaravati followed Konkan division show very low performances. On the other hand, divisions such as Konkan, Nagpur and Kolhapur are performing very well in term poverty, inequality and hunger dimensions and divisions such as Nashik and Aurangabad are hugely underperforming.

Table 3.20: Region-wise Rankings in term of Fours Dimensions and SDG Composite Index

Divisions	SDG -GI	Divisions	SDG -HII	Divisions	SDG -HWSI	Divisions	SDG -EI	Divisions	SDG -CI
Pune	3.02	Konkan	3.00	Nagpur	5.50	Nashik	5.11	Pune	3.82
Aurangabad	2.41	Nagpur	2.98	Konkan	5.14	Pune	5.09	Kolhapur	3.70
Kolhapur	2.31	Kolhapur	2.68	Kolhapur	5.00	Kolhapur	4.80	Nagpur	3.60
Nagpur	1.96	Amravati	2.53	Pune	4.80	Konkan	4.48	Konkan	3.51
Latur	1.94	Pune	2.36	Amravati	4.64	Nagpur	3.96	Amravati	3.15
Nashik	1.94	Latur	2.21	Latur	4.43	Latur	3.86	Latur	3.12
Amravati	1.58	Nashik	2.02	Aurangabad	4.17	Amravati	3.84	Nashik	3.00
Konkan	1.41	Aurangabad	1.32	Nashik	2.92	Aurangabad	3.34	Aurangabad	2.81
Maharashtra	2.02	Maharashtra	2.39	Maharashtra	4.61	Maharashtra	4.31	Maharashtra	3.34

Source: Author's Calculation

Notes: SG is sustainable growth, PIH is poverty, Inequality and Hunger, HWS is health, water and Sanitations and EDU education

Further, relative performances of divisions in term of health, water and sanitation shows not much variations as divisions are doing equally well except Latur and Aurangabad. Similar performances are also observed in term of educational index as divisions are doing equally well. Relative performances of divisions in term of SDG composite Index indicates that Pune is the top divisions in Maharashtra followed by Kolhapur and Nagpur. Latur, Nasik and Aurangabad are laggard divisions as most of the laggard districts are concentrated in these divisions.

The rankings of districts within the region in term of four dimensions and overall SDG index is also provided in Figure 3.2, 3.3, 3.4, 3.5 and 3.6. It is clear that there are large intra-division variations among districts in term of dimensions like sustainable growth, poverty, inequality and hunger and the composite index. Further, there are large intra-district variations in divisions like Nashik, Nagpur, Amravati and Latur compared to other divisions.

Figure 3.6: Combined Bar chart for Sustainable Growth Index of Districts across Divisions

Source: Author's Calculation

Figure 3.7: Combined Bar chart for Poverty, Inequality and Hunger Index of Districts across Divisions

Source: Author's Calculation

Figure 3.8: Combined Bar chart for Health, Water and Sanitation of Districts across Divisions

Source: Author's Calculation

Figure 3.9: Combined Bar chart for Education Index of Districts across Divisions

Source: Author's Calculation

Figure 3.10: Combined Bar chart for SDG Composite Index of Districts across Divisions

Source: Author's Calculation

Having analyzed the relative performance of divisions and districts within divisions, a one-way ANOVA technique was applied to compare the eight agricultural divisions. For this purpose, null hypothesis is proposed as:

Ho: All divisions are performing at-par in all dimensions.

Accordingly, the alternative hypothesis is:

Ha: All divisions are not performing at-par in all dimensions.

The ANOVA results are presented in Table 3.15. The F-statistics indicate that the eight agri-divisions of the State are not performing at par in terms of Sustainable growth, Health, Water and Sanitation, Health, Water and Sanitation and SDG Composite Index as the null hypothesis is rejected at 5 % level except for the education dimension. Therefore, the ANOVA results indicate that there exists performance variation among division in all dimensions and composite index except for the educational index.

Table 3.21: One-way ANOVA for all dimensions among Divisions

	Sum of Squares	Degree of Freedom	Mean Square	F-stat	Significance
Between Groups	5.895	7	.842	2.951*	.022
Within Groups	6.849	24	.285		
Total	12.744	31			
Poverty, Inequality and Hunger					
Between Groups	7.814	7	1.116	3.632**	.007
Within Groups	7.140	24	.298		
Total	14.954	31			
Health, Water and Sanitation					
Between Groups	18.347	7	2.621	5.750**	.001
Within Groups	10.939	24	.456		
Total	29.286	31			
Education					
Between Groups	11.130	7	1.590	1.855	.128
Within Groups	20.911	24	.871		
Total	32.041	31			
SDG Composite Index					
Between Groups	6.351	7	.907	2.402*	.005
Within Groups	3.401	24	.142		
Total	9.752	31			

Source: Author's Estimation

*Notes: ** and * denotes rejection of null hypothesis at 5 and 10 % level.*

Sensitivity Analysis

The cross-correlation among SDG dimensions including composite index and between each of the SDG dimensions and HDI score of districts are presented in Table 3.16. It is evident that there exists positive correlation among SDG dimensions except between sustainable economic growth and poverty, inequality and hunger. This is expected since higher economic growth reduces poverty, inequality and hunger. Further, the correlation between SDG dimensions and HDI are found positive and significant, suggesting that improvement SDG dimensions will improve HDI score of districts. Therefore, the above correlation analysis indicates that the SDG composite index and its four dimensions significantly captures the aspects of economic development for Maharashtra and all round effort must be made to improve them.

Table 3.22: Cross- Correlation between SDG Dimensions and Human Development Index

	SDG-GI	SDG-PHII	SDG-HWSI	SDG-EI	SDG-CI	HDI
SDG-GI	1					
SDG-PHII	-0.14	1				
SDG-HWSI	0.14	0.59*	1			
SDG-EI	0.25	0.14	0.08	1		
SDG -CI	0.44*	0.63*	0.74*	0.63*	1	
HDI	0.50*	0.46*	0.45*	0.39*	0.70*	1

Source: Author's Calculation

3.4 Conclusions

The objective of this chapter is to assess the current status of select SDGs covering 66 parameters across four dimensions (Sustainable Economic Growth, Poverty, Zero Hunger and Reduced Inequality, Health, Clean Water and Sanitation and Education) for thirty-two districts and eight divisions of Maharashtra.

The rankings of the districts indicate that there exists sizeable disparity in terms of the four dimensions and composite index among the districts in Maharashtra. Further it is noticed that no single district is performing consistently in all the four dimensions but districts like Bhandara, Pune, Sindhudurg, Kolhapur, Nagpur, Wardha Sangli, Gondia and Solapur are best performing districts while other districts such as Nashik, Akola, Washim, Jalna, Parbhani, Gadchiroli, Beed and Nandurbar are worse performing districts in Maharashtra. Further, division-wise ranking indicates that Pune is the top performing divisions in Maharashtra followed by Kolhapur and Nagpur. Latur, Nasik and Aurangabad are laggard divisions as most of the laggard districts are concentrated in these divisions.

A one-way ANOVA analysis indicates that the eight administrative divisions of the State are not performing at par in terms of SDG four dimensions and Composite Index except Education Index. Given that districts are not doing well in all parameters, policies are required to identify underperforming districts and underperforming indicators for the respective districts. There should be all round actions (existing schemes and new action plan) targeted to the above mentioned parameters to achieve Sustainable Development Goals (SDGs) by 2030.

Annexure I

Table 3.23: Indicator wise District performance for (Dimension 1) SDG-GI

PCGR	PPS	PSS	PHBF	PMJDYO	PMJDYD
Better Performing Districts					
Osmanabad	Washim	Raigarh	Sangli	Bhandara	Bhandara
Jalna	Jalgaon	Aurangabad	Satara	Gondia	Sindhudurg
Jalgaon	Osmanabad	Pune	Kolhapur	Yavatmal	Ratnagiri
Beed	Jalna	Ratnagiri	Gadchiroli	Beed	Gondia
Buldhana	Parbhani	Kolhapur	Pune	Nanded	Osmanabad
Poor Performing Districts					
Gondia	Gondia	Latur	Amravati	Nagpur	Akola
Washim	Ratnagiri	Amravati	Jalgaon	Wardha	Nandurbar
Yavatmal	Pune	Hingoli	Nanded	Sindhudurg	Yavatmal
Gadchiroli	Nagpur	Parbhani	Dhule	Raigarh	Buldhana
Hingoli	Raigarh	Washim	Nandurbar	Pune	Washim

FPS	PCCE	CI	SHGs	Micro	Small
Better Performing Districts					
Pune	Pune	Parbhani	Pune	Pune	Pune
Nashik	Solapur	Osmanabad	Solapur	Satara	Kolhapur
Yavatmal	Kolhapur	Aurangabad	Yavatmal	Amravati	Nashik
Nanded	Jalna	Hingoli	Kolhapur	Sangli	Raigarh
Bhandara	Aurangabad	Akola	Satara	Kolhapur	Nagpur
Poor Performing Districts					
Wardha	Nanded	Yavatmal	Aurangabad	Wardha	Gadchiroli
Ratnagiri	Washim	Chandrapur	Hingoli	Latur	Buldhana
Hingoli	Gondia	Raigarh	Dhule	Gadchiroli	Gondia
Washim	Gadchiroli	Sindhudurg	Akola	Ratnagiri	Washim
Sindhudurg	Sindhudurg	Ratnagiri	Washim	Gondia	Parbhani

Source: Author's Calculation

Table 3.24: Indicator wise District performance for (Dimension 2) SDG-PHII

NPL	HI	MCPC	FAMC	HH	AAY
Better Performing Districts					
Sindhudurg	Amravati	Buldana	Gadchiroli	Parbhani	Gadchiroli
Kolhapur	Solapur	Bhandara	Gondia	Hingoli	Chandrapur
Satara	Dhule	Wardha	Sindhudurg	Sangli	Nandurbar
Solapur	Latur	Ratnagiri	Akola	Aurangabad	Gondia
Parbhani	Buldana	Sindhudurg	Nandurbar	Yavatmal	Beed
Poor Performing Districts					
Washim	Chandrapur	Satara	Nashik	Ratnagiri	Bhandara
Jalna	Nashik	Ahmednagar	Aurangabad	Jalna	Kolhapur
Gadchiroli	Kolhapur	Raigarh	Parbhani	Raigarh	Sangli
Chandrapur	Satara	Sangli	Satara	Wardha	Satara
Nandurbar	Osmanabad	Nandurbar	Osmanabad	Nandurbar	Pune

STC	TCP	TPP	TFGP	TOP	GI
Better Performing Districts					
Pune	Ratnagiri	Wardha	Ratnagiri	Kolhapur	Gondia
Solapur	Sindhudurg	Amravati	Sindhudurg	Sindhudurg	Nagpur
Satara	Kolhapur	Nagpur	Kolhapur	Sangli	Pune
Sangli	Raigarh	Chandrapur	Raigarh	Nanded	Nashik
Ratnagiri	Gondia	Nandurbar	Gondia	Chandrapur	Chandrapur
Poor Performing Districts					
Jalna	Latur	Raigarh	Parbhani	Bhandara	Akola
Akola	Parbhani	Ahmednagar	Latur	Solapur	Gadchiroli
Parbhani	Osmanabad	Aurangabad	Osmanabad	Gadchiroli	Osmanabad
Nandurbar	Solapur	Solapur	Solapur	Gondia	Yavatmal
Yavatmal	Beed	Beed	Beed	Beed	Jalna

Source: Author's Calculation

Table 3.25: Indicator wise District performance for (Dimension 3)-SDG-HWSI

IDW	ISF	IOS	CFC	HSHI	WNM	WNP
Better Performing Districts						
Akola	Sindhudurg	Jalna	Jalna	Amravati	Wardha	Sindhudurg
Nagpur	Sangli	Parbhani	Buldhana	Solapur	Bhandara	Nagpur
Jalgaon	Bhandara	Nandurbar	Parbhani	Dhule	Gondia	Wardha
Amravati	Satara	Nanded	Chandrapur	Latur	Ratnagiri	Bhandara
Sangli	Ratnagiri	Gadchiroli	Hingoli	Buldhana	Sindhudurg	Gadchiroli
Poor Performing Districts						
Nashik	Gadchiroli	Ahmednagar	Satara	Chandrapur	Nanded	Hingoli
Gondia	Osmanabad	Sangli	Pune	Nashik	Beed	Jalgaon
Yavatmal	Parbhani	Raigad	Raigad	Kolhapur	Parbhani	Aurangabad
Sindhudurg	Dhule	Pune	Sindhudurg	Satara	Jalna	Solapur
Jalna	Nandurbar	Solapur	Ratnagiri	Osmanabad	Aurangabad	Jalna
IB	**IBPF**	**CBF**	**STC**	**WSTC**	**SWSTC**	**CNUW**
Better Performing Districts						
Sindhudurg	Gondia	Bhandara	Pune	Aurangabad	Sindhudurg	Sangli
Bhandara	Bhandara	Buldhana	Solapur	Bhandara	Raigad	Pune
Nagpur	Wardha	Aurangabad	Satara	Sangli	Bhandara	Sindhudurg
Wardha	Chandrapur	Ahmednagar	Sangli	Osmanabad	Ahmednagar	Ratnagiri
Ratnagiri	Nagpur	Kolhapur	Ratnagiri	Pune	Aurangabad	Satara
Poor Performing Districts						
Solapur	Sangli	Jalna	Jalna	Nashik	Nandurbar	Akola
Nanded	Jalgaon	Pune	Akola	Washim	Washim	Dhule
Nashik	Nashik	Satara	Parbhani	Chandrapur	Beed	Nashik
Dhule	Satara	Akola	Nandurbar	Nandurbar	Chandrapur	Yavatmal
Nandurbar	Solapur	Chandrapur	Yavatmal	Gadchiroli	Gadchiroli	Nandurbar
WNBMI	**MNBMI**	**WNO**	**MNO**	**MMR**	**DOC**	**NURSE**
Better Performing Districts						
Solapur	Pune	Gondia	Nandurbar	Satara	Nanded	Satara
Jalgaon	Solapur	Chandrapur	Buldhana	Nanded	Osmanabad	Gadchiroli
Beed	Sangli	Gadchiroli	Hingoli	Nagpur	Bhandara	Parbhani
Pune	Sindhudurg	Nandurbar	Bhandara	Sangli	Yavatmal	Nanded
Osmanabad	Jalgaon	Washim	Gondia	Washim	Solapur	Jalna
Poor Performing Districts						
Bhandara	Gondia	Latur	Osmanabad	Buldhana	Ratnagiri	Ratnagiri
Chandrapur	Bhandara	Jalgaon	Ratnagiri	Chandrapur	Washim	Solapur
Parbhani	Aurangabad	Pune	Satara	Dhule	Nashik	Wardha
Gondia	Nandurbar	Kolhapur	Solapur	Akola	Gadchiroli	Raigad
Nandurbar	Chandrapur	Sangli	Sangli	Nashik	Satara	Aurangabad

Source: Author's Calculation

Table 3.26: Indicator wise District performance for (Dimension 4) SDG-EI

NERP	NERUP	PPQTGR	PPQTGC	PPQTP	PSPTR	ISCR
Better Performing Districts						
Osmanabad	Nandurbar	Osmanabad	Beed	Yavatmal	Dhule	Nashik
Ahmednagar	Ahmednagar	Yavatmal	Ratnagiri	Jalna	Jalgaon	Jalgaon
Hingoli	Gadchiroli	Gondiya	Gondiya	Jalgaon	Nandurbar	Dhule
Washim	Nanded	Jalna	Ahmednagar	Sangli	Nashik	Nandurbar
Bhandara	Hingoli	Jalgaon	Dhule	Osmanabad	Jalna	Pune
Poor Performing Districts						
Dhule	Wardha	Sindudurg	Washim	Nagpur	Beed	Gondiya
Nagpur	Nagpur	Dhule	Amravati	Ratnagiri	Gondiya	Satara
Beed	Latur	Beed	Hingoli	Raigarh	Gadchiroli	Gadchiroli
Raigarh	Aurangabad	Nandurbar	Sindudurg	Gondiya	Ratnagiri	Ratnagiri
Latur	Pune	Gadchiroli	Gadchiroli	Gadchiroli	Sindudurg	Sindudurg
PGRS	**PSAWR**	**PSP**	**PSBW**	**PSGT**	**PSDW**	**PSMDM**
Better Performing Districts						
Gadchiroli	Sangli	Sindudurg	Sindudurg	Wardha	Wardha	Ratnagiri
Sindudurg	Jalgaon	Sangli	Ratnagiri	Gondiya	Gondiya	Sindudurg
Ratnagiri	Bhandara	Jalgaon	Sangli	Nagpur	Nagpur	Satara
Gondiya	Wardha	Ratnagiri	Solapur	Pune	Pune	Sangli
Raigarh	Gondiya	Solapur	Jalgaon	Aurangabad	Aurangabad	Kolhapur
Poor Performing Districts						
Nashik	Nanded	Chandrapur	Jalna	Nanded	Hingoli	Nashik
Amravati	Aurangabad	Beed	Nanded	Jalna	Jalna	Nandurbar
Akola	Beed	Akola	Nashik	Akola	Akola	Nanded
Pune	Nandurbar	Gadchiroli	Osmanabad	Gadchiroli	Parbhani	Dhule
Nagpur	Gadchiroli	Washim	Beed	Beed	Gadchiroli	Gadchiroli
PSE	**PSCF**	**ATPS**	**PBPT**	**PBUPT**	**PBPU**	**PBUPU**
Better Performing Districts						
Wardha	Ahmednagar	Pune	Sindudurg	Gondiya	Gadchiroli	Gadchiroli
Sindudurg	Pune	Nagpur	Nandurbar	Washim	Nandurbar	Gondiya
Bhandara	Satara	Jalgaon	Dhule	Ratnagiri	Osmanabad	Nandurbar
Pune	Kolhapur	Latur	Sangli	Bhandara	Dhule	Yavatmal
Nagpur	Dhule	Akola	Beed	Hingoli	Gondiya	Nashik
Poor Performing Districts						
Nanded	Jalna	Satara	Wardha	Nagpur	Sindudurg	Sangli
Jalna	Beed	Raigarh	Aurangabad	Pune	Jalna	Kolhapur
Beed	Nandurbar	Gadchiroli	Raigarh	Nandurbar	Aurangabad	Satara
Nandurbar	Nanded	Ratnagiri	Pune	Akola	Raigarh	Aurangabad
Gadchiroli	Gadchiroli	Sindudurg	Nagpur	Aurangabad	Nagpur	Sindudurg

Source: Author's Calculation

Table 3.27: Dimension wise District performance

SDG Growth Index (GI)	SDG Poverty, hunger and Inequality Index (PHII)	Health, Water and Sanitation Index (HWSI)	Education Index (EI)	Composite Index (CI)
Better Performing Districts				
Pune	Sindhudurg	Bhandara	Jalgaon	Bhandara
Bhandara	Gondia	Wardha	Dhule	Pune
Osmanabad	Kolhapur	Sindhudurg	Sangli	Sindhudurg
Kolhapur	Ratnagiri	Nagpur	Ahmednagar	Nagpur
Jalna	Pune	Sangli	Solapur	Wardha
Poor Performing Districts				
Hingoli	Ahmednagar	Jalgaon	Nanded	Washim
Gadchiroli	Beed	Parbhani	Parbhani	Parbhani
Nandurbar	Osmanabad	Dhule	Akola	Gadchiroli
Sindhudurg	Nandurbar	Nashik	Beed	Beed
Washim	Jalna	Nandurbar	Gadchiroli	Nandurbar

Source: Author's Calculation

Chapter 4

STUDY OF ASPIRATIONAL DISTRICTS

4.1. Introduction

The GOI undertook an exercise of identifying aspirational districts based on 49 indicators (81 data-points) from the 5 identified thematic areas across the country in 2018, with the objective of ensuring and working towards inclusive growth, leaving no one behind. In this exercise 117 aspirational districts were identified. In the next round in 2020, six thematic areas were introduced, which include - i) Health and Nutrition ii) Education iii) Agriculture and Water Resources iv) Financial Inclusion v) Skill Development and vi) Basic Infrastructure. This is well articulated in the words of the Prime Minister's "Sabka Saath Sabka Vikas". The aim of the programme is to steer the status and progress of the identified aspirational districts for each State. According to the NITI Aayog baseline ranking (2018), four aspirational districts of Maharashtra had been identified, as highlighted in Table 4.1. However, in 2020, the ranking of these districts came down substantially:

Table 4.1: Ranking of Aspirational Districts of Maharashtra (2018 and 2020)

District	2018 Rank	2020 Rank	Change in Rank
Osmanabad	3rd	32nd	declined by 29 Rank
Washim	11th	69th	declined by 58 Rank
Gadchiroli	14th	33rd	declined by 19 Rank
Nandurbar	39th	84th	declined by 45 Rank

Source: https://niti.gov.in/sites/default/files/2018-12/AspirationalDistrictsBaselineRankingMarch2018.pdf

https://niti.gov.in/aspirational-districts-baseline-ranking-map

In the baseline ranking of the aspirational districts in 2018, Osmanabad, Washim and Gadchiroli were ranked among the 'better 20' districts in the country, while Nandurbar ranked among the 'remaining districts', with none of these four districts from Maharashtra featuring in the 'bottom 20' category. While in the next round all four districts slipped into the middle ranking districts, with Gadchiroli facing the least decline and Washim slipped downwards by 58 rank.

The present study, is an attempt to examine the relative performance of the aspirational districts of Maharashtra within the defined 66 indicators across the four dimensions using both secondary and primary data. The following section undertakes a secondary analysis of the four districts, while the third section of the chapter highlights the primary study undertaken for the two select aspirational districts of Osmanabad and Washim. From each of these districts, two tehsils and five villages have been selected.

4.2 Secondary Analysis of the Aspirational District

4.2.1 Dimension 1 - Sustainable Economic Growth

The Dimension 1 of the study emphasized on economic growth and therefore created an SDG-GI, based on 12 indicators, which are further examined through PCA for the four aspirational districts of Maharashtra presented in Table 4.2.

Table 4.2: Indicator wise ranking of aspirational districts - SDG -GI

District	Per Capita Growth rate (PCGR) Ranking	Percentage of Primary sector to total GDP (PPS) Ranking	Percentage of Secondary sector to total GDP (PSS) Ranking	Percentage of household with banking facility (PHBF) Ranking	Per-capita PMJDY Bank A/c opened (PMJDYO) Ranking	Per-capita PMJDY Deposits (PMJDYD) Ranking
Gadchiroli	31	23	24	4	20	10
Nandurbar	25	14	20	32	15	29
Osmanabad	1	3	27	8	13	5
Washim	29	1	32	16	21	32
Average	0.30	0.06	0.08	0.11	0.20	0.16

District	Proportion of fair price shops to total fair price shops (FPS) Ranking	Per capita consum -ption of Electricity (PCCE) Ranking	Cropping Intensity (CI) Ranking	No. of SHGs (SHGs) Ranking	Micro (MSMEM) Ranking	Small (MSMEM) Ranking	PCA Ranking
Gadchiroli	20	31	23	12	30	28	29
Nandurbar	23	27	19	16	18	23	30
Osmanabad	22	13	2	15	20	27	3
Washim	31	29	15	32	15	31	32
Average	0.39	0.26	0.20	0.15	0.05	0.06	

Source: Author's Calculation
Green Boxes indicate that the score of concerned districts is higher than the average for the 32 districts of Maharashtra

Observations:

- Osmanabad district was a high performing district (rank 3), with an above average score with respect to the following indicators such as; (i) Percapita growth rate, (ii) Percentage of primary sector in total GDP (iii) Percentage of household with banking facility (iv) PMJDY A/c Opened (v) PMJDY Deposits (vi) Per capita electricity consumption (vii) Cropping intensity and (viii) No. of SHGs. However, in the remaining indicators the performance of Osmanabad district is observed to be below State average.
- In terms of the indicators such as (i) Percentage of household with banking facilities (PHBF), (ii) PMJDY Deposits and (iii) No. of SHGs - Gadchiroli is found to be out performing other aspirational districts. While in case of other indicators such as (i) per capita growth rate (ii) percentage of primary sector to total GDP and (iii) Per capita electricity consumption it was least performing district in comparison to other aspirational district. In PCA ranking for dimension 1, Gadchiroli is found to be one of the least performing districts with a rank of 29.
- The Nandurbar district was performing below average in the following 9 indicators i.e. (i) Per capita Growth rate (ii) Percentage of Secondary sector to total GDP (iii) Percentage of household with banking facility (PHBF) (iv) PMJDY Deposits (v) proportion of fair price shops to total fair price shops (vi) per capita electricity consumption (vii) cropping intensity (viii) MSME- Small and (ix) MSME- Micro. As per PCA scores, Nandurbar's performance has been very poor in majority of the indicators, with a PCA rank of 30.
- The PCA ranking for dimension one suggests that Washim is the worst performing district as it scored below average in 9 out of 12 indicators. Further, for the indicators such as (i) Percentage of secondary sector in total GDP (ii) PMJDY Deposits (iii) No of SHGs and (iv) Small enterprises the performance of Washim district was insignificant, which support the argument that Washim is the least performer among the four aspirational districts.

4.2.2 Dimension 2 - No Poverty, Zero Hunger and Reduced Inequalities

With respect to Dimension 2 for SDG-PHII, 12 indicators were examined to assess the performance of the districts, through the PCA model for the aspirational districts of Maharashtra - (Refer to Table 4.3)

Table 4.3: Indicator wise ranking of aspirational districts SDG-PHII

District	Above National Poverty Line (ANPL) Ranking	Health Insurance (HI) Ranking	Mother and Child Protection Card (MCPC) Ranking	Financial Assistance to mother and child (FAMC) Ranking	Homeless household (HH) Ranking	AAY Ranking	Stunted Children per 100 children (SC) Ranking
Gadchiroli	30	6	14	1	17	1	9
Nandurbar	32	16	32	5	32	3	31
Osmanabad	9	32	9	32	25	22	26
Washim	28	8	13	9	6	10	21
Average	0.292	0.209	0.604	0.097	0.370	-0.077	0.312

District	Total cereal productivity in Kgs/hector (TCP) Ranking	Total pulses productivity in Kgs/hector (TPP) Ranking	Total food grain productivity in Kgs/hector (TFP) Ranking	Total oilseeds productivity in Kgs/hector (TOP) Ranking	Gini Inequality inverse (GI) Ranking	PCI Ranking
Gadchiroli	10	24	8	30	29	12
Nandurbar	21	5	17	17	25	31
Osmanabad	30	26	30	26	30	30
Washim	17	14	24	9	10	15
Average	0.252	0.280	0.196	0.128	-0.338	

Sources: Author's Calculation

Green Boxes indicate that the score of concerned districts is higher than the average for the 32 districts of Maharashtra

Observations

- Gadchiroli district was performing above average in 6 out of 12 Indicators such as; (i) Health insurance, (ii) Financial Assistance to mother and child (iii) AAY (iv) Stunted Children per 100 (v) Total cereals productivity (vi) total food grain productivity. However, in terms of indicators such as (i) total oilseeds productions indicator, (ii) Above National poverty line, (iii) homeless households and (iv) Total pulses productivity, Gadchiroli district's PCA score was below State average. In case of overall PCA ranking for dimension 2, Gadchiroli at rank 12.
- In terms of the indicators such as (i) Above National Poverty Line (ii) Stunted children/ 100, (iii) Total cereal productivity (iv) Total food grain productivity - Washim was an

under performer with a very low score and ranking. However, with respect to (i) Homeless households, (ii) Total oilseeds productivity and (iii) Inverse GINI coefficient, Washim is found to be performing above the State average and was positioned at number 15, with respect to PCA ranking.

The Osmanabad district was performing below average in the following 10 indicators i.e. (i) Health insurance, (ii) Financial Assistance to mother and child (iii) AAY (iv) Stunted Children per 100 (v) Total cereals productivity (vi) Total food grain productivity, (vii) 1-homeless households and (viii) Total pulses productivity, (ix) Total oil seeds productivity and (x) GINI coefficient. As per PCA scores Osmanabad's performance has been very poor in majority of the indicators and thus holds 30th position in comparison with 32 districts.

- The PCA ranking for Dimension 2 suggests that Nandurbar (rank 31) is one of the least performing district as it scored below average in 8 out of 12 indicators but, for the following three indicators (i) Mother Child Protection card (ii) Above National Poverty line and (iii) Homeless households the performance of district was very poor and insignificant.

4.2.3 Dimension 3 - Good Health, Clean Water and Sanitation

Dimension 3 throws light on the SDG-HWSI, addressing SDG 3 and 6 and is explained with the help of 21 indicators as elaborated in Table 4.4. These indicators examine the performance of the districts, through the PCA model for the aspirational districts of Maharashtra

Table 4.4: Indicator wise ranking of aspirational districts SDG-HWSI

District	Households with an improved drinking-water source (IDW) Ranking	Households using improved sanitation facility (ISF) Ranking	Households using clean fuel for cooking (CFC) Ranking	Households using iodized salt (IOS) Ranking	Households with any usual member covered by a health scheme or health insurance (HSHI) Ranking	Women age 20-24 years unmarried before age 18 years (WNM) Ranking
Gadchiroli	21	28	5	12	6	7
Nandurbar	20	32	3	7	16	11
Osmanabad	14	29	15	10	32	17
Washim	16	24	12	17	8	14
Average	0.05	0.23	-0.01	0.25	0.17	0.22

District	Children under 5 years who are not underweight (weight for age) Ranking	Women whose BMI is normal (BMI < 18.5 kg/m2) Ranking	Men whose BMI is normal (BMI < 18.5 kg/m^2) Ranking	Women who are not overweight ornobese (BMI > 25.0 kg/m^2) Ranking	Men who are not overweight or obese (BMI > 25.0 kg/m^2) Ranking
Gadchiroli	19	13	11	3	8
Nandurbar	32	32	31	4	1
Osmanabad	26	5	9	26	28
Washim	24	12	10	5	10
Average	0.15	0.45	0.26	0.18	0.02

District	Maternal mortality ratio (MMR) Ranking	Doctor/10000 population (DOC) Ranking	Nurses/10000 population (NURSES) Ranking	PCA Ranking
Gadchiroli	21	31	2	17
Nandurbar	10	23	18	32
Osmanabad	24	2	22	19
Washim	5	29	27	21
Average	0.13	0.26	0.08	

Sources: Author's Calculation

Green Boxes indicate that the score of concerned districts is higher than the average for the 32 districts of Maharashtra

Observations:

- Gadchiroli district was performing above the State average in 12 out of 21 indicators such as; (i) Households using clean fuel for cooking (ii) Households using iodized salt (iii) Family member covered with any Health insurance, (iv) Un married woman below 18 years, (v) Women not pregnant or mother between 15-19 years (vi) Institutional birth in public facility, (vii) Non-stunted children below 5 years, (viii) Women with normal BMI (ix) Men with normal BMI (x) Not obese women (xi) Not obese men (xii) Nurses / 10000 population. However, in terms of indicators such as (i) Improved drinking water facility, (ii) Improved sanitation facility (iii) Institutional births, (iv) Children under 3 years breastfed with one hour of birth, (v) Children under 5 years who are not wasted (vi) Maternal mortality (vii) Doctors / 10000 population, Gadchiroli district's PCA score was below State average. It was observed that Gadchiroli has the maximum number of wasted and severely wasted children below 5 years in comparison with aspirational districts. In case of overall PCA ranking for Dimension 3, Gadchiroli was performing

better as compared to other aspirational districts - as it holds 17th position out of 32 districts.

- In terms of the indicators such as (i) HH with Improved drinking water facility, (ii) HH with clean fuel for cooking. (iii) Household using iodized salts (iv) children under 5 years who are not wasted (v) Women with Normal BMI, (vi) Men with normal BMI, (vii) Women not obese, (viii) Men not obese and (ix) Doctor /10000 population - Osmanabad performed better than average score with PCA ranking of 19 for dimension 3.
- The ranking of Washim district shows that it was performing above the State average with respect to following 10 indicators i.e. (i) Households with any usual member covered by a health scheme or health insurance, (ii) Households using clean fuel for cooking (iii) Un married woman below 18 years, (iv) Women not pregnant or mother between 15-19 years, (v) Women with Normal BMI, (vi) Men with normal BMI, (vii) Not-obese men (viii) Not-obese women (ix) Maternal Mortality Rate, and (x) Institutional birth in Public facility. However, the district showed very poor performance in 8 indicators i.e. (i) Households with improved sanitation facilities, (ii) Institutional Births, (iii) Non-stunted Children below 5 years, (iv) Non-wasted children below 5 years, (v) Non-severely wasted children below 5 years, (vi) Non-underweight children under 5 years, (vii) Doctor/10000 population and (viii) Nurses/10000 population. As per the PCA scores, Washim holds 21st position in comparison with 32 districts.
- The PCA ranking for Dimension 3 suggests that Nandurbar is one of the least performing district as it scored below average in 14 out of 21 indicators, and for the following five indicators (i) Improved sanitation facility (ii) Institutional births, (iii) Children not-underweight and (iv) Normal BMI of women (v) Normal BMI for men - the performance of the district was insignificant and therefore, Nandurbar ranked 32 as the worst performer district.

4.2.4 Dimension 4: Quality Education

Dimension 4 of the study, highlights 21 indicators with respect to the SDG-EI, addressing SDG 4 and is explained in Table 4.5. These indicators examine the performance of the districts, through the PCA model for the aspirational districts of Maharashtra

Table 4.5: Indicator wise ranking of aspirational districts SDG-EI

District	Net Enrolment Ratio (Primary) (NERP) Ranking	Net Enrolment Ratio (Upper Primary) (NERUP) Ranking	Percentage of Professionally Qualified Teachers (Government Regular Total) (PPQTGR) Ranking	Percentage of Professionally Qualified Teachers (Government contractual Total) (PPQTGC) Ranking	Percentage of Professionally Qualified Teachers (Private Total All) (PPQTP) Ranking	Percentage of schools with Pupil Teacher Ratio (<30) (PSPTR) Ranking
Gadchiroli	24	3	32	32	32	30
Nandurbar	17	1	31	8	15	3
Osmanabad	1	7	1	13	5	22
Washim	4	13	23	28	20	14
Average	0.41	-0.21	0.37	-0.08	0.20	-0.19

District	Inverse of Student Classroom Ratio (ISCR) Ranking	Percent of Government Rural Schools (PGRS) Ranking	Percentage of Schools with approachable by all-weather road (PSAWR) Ranking	Percentage of Schools with Playground (PSP) Ranking	Percentage of Schools with Boundary wall (PSBW) Ranking
Gadchiroli	30	1	32	31	18
Nandurbar	4	8	31	17	11
Osmanabad	20	27	18	10	31
Washim	12	16	6	32	20
Average	0.27	-0.03	0.06	0.66	0.52

District	Percentage of Schools with Girl's toilet (PSGT) Ranking	Percentage of Schools with Drinking Water (PSDW) Ranking	Percentage of Schools with Mid-Day-Meal (PSMDM) Ranking	Percentage of Schools with Electricity (PSE) Ranking	Percentage of Schools with Computer (PSCF) Ranking	Average Teacher per School (ATPS) Ranking
Gadchiroli	31	32	32	32	32	30
Nandurbar	9	8	29	31	30	27
Osmanabad	10	9	10	25	7	13
Washim	16	26	20	22	19	18
Average	0.78	0.69	0.27	0.42	0.07	0.00

District	Percent of Beneficiaries Primary (Textbook) (PBTB) Ranking	Percent of Beneficiaries Upper Primary (Textbook) (PBUPT) Ranking	Percent of Beneficiaries Primary (Uniform) (PBPU) Ranking	Percent of Beneficiaries Upper Primary (Uniform) (PBUPU) Ranking	PCA Ranking
Gadchiroli	30	1	32	31	18
Nandurbar	4	8	31	17	11
Osmanabad	20	27	18	10	31
Washim	12	16	6	32	20
Average	0.27	-0.03	0.06	0.66	0.52

Sources: Author's Calculation

Green Boxes indicate that the score of concerned districts is higher than the average for the 32 districts of Maharashtra

Observations:

- The performance of Nandurabar shows that it was performing above the State average in the following 11 indicators i.e. (i) Net Enrolment Ratio (Upper Primary), (ii) Percentage of Professionally Qualified Teachers (Government Contractual Total), (iii) Percentage of schools with Pupil Teacher Ratio, (iv) Inverse of student classroom ratio, (v) Percentage of government rural Schools, (vi) Percentage of Schools with Boundary Wall, (vii) Percentage of Schools with Girl's Toilet, (viii) Percentage of Schools with Drinking Water, (ix) Percentage of Beneficiaries Primary (Textbook) (x) Percentage of Beneficiaries Primary (Uniform) (xi) Percentage of Beneficiaries Upper Primary (Uniform). Thus Nandurbar stood at rank 8 with respect to the PCA for SDG-EI.
- Osmanabad was performing above the average with respect to 14 out of 21 indicators such as; (i) Net Enrolment Ratio (Primary) (ii) Net Enrolment Ratio (Upper Primary) (iii) Percentage of Professionally Qualified Teachers (Government Regular Total), (iv) Percentage of Professionally Qualified Teachers (Government Contractual Total), (v) Percentage of Professionally Qualified Teachers (Private), (vi) Percentage of Schools with Playground, (vii) Percentage of Schools with Girls Toilet (viii) Percentage of Schools with Drinking Water, (ix) Percentage of Schools with Mid-Day-Meal and (x) Percentage of Schools with Computer (xi) Average Teacher per School (xii) Percentage of Beneficiaries Primary (Text Book) (xiii) Percentage of Beneficiaries Upper Primary (Textbooks (xiv) Percentage of Beneficiaries Primary (Uniform) - thereby, Osmanabad was performing above the State average and had stood at rank 13 for the SDG-EI.
- In terms of the indicators such as (i) Percentage of Schools with approachable by all-weather road, (ii) Percentage of Schools with Electricity and (iii) Percent of Beneficiaries Upper Primary (Textbook), Washim is found to be the better performing districts among

the other aspirational districts. Apart from this, the district score was less than or equal to the State average in 14 out of 21 indicators and had a poor PCA ranking of 27 for dimension 3.

- The PCA scores for dimension 4 suggests that Gadchiroli was the worst performing district at rank 32. It only scored above State average for five indicators such as (i) Net Enrolment Ratio (Upper Primary) (ii) Percent of Government Rural Schools (iii) Percent of Beneficiaries Primary (Textbook) (iv) Percent of Beneficiaries Primary (Uniform) (v) Percent of Beneficiaries Upper Primary (Uniform).

4.2.5 Overall Performance Dimension-wise

Table 4.6: Overall ranking of aspirational districts

District	SDG Growth Index SDG-GI	SDG Poverty, Hunger, and Inequality Index	Health, Water and Sanitation Index	Education Index SDG-EI	SDG Composite Index (SDG-CI)
Gadchiroli	2.75(3)	1.40(30)	4.57(19)	4.57(13)	3.323(17)
Nandurbar	0.98(32)	2.54(15)	4.26(21)	3.398(27)	2.796(28)
Osmanabad	1.36(29)	2.63(12)	4.65(17)	1.430(32)	2.519(30)
Washim	1.28(30)	1.06(31)	1.89(32)	5.024(8)	2.315(32)
Average	2.02	2.43	4.61	4.24	3.328

Sources: Author's Calculation

Green Boxes indicate that the score of concerned districts is higher than the average for the 32 districts of Maharashtra

Observations:

- Osmanabad district ranked very high (3) with respect to SDG-GI and had a very low rank of 30, with respect to SDG-PHII.
- Washim performed very poorly with 32 rank for SDG-GI and rank 32 for SDG-EI. However on SDG-PHII, the district showcased a high performance above the State average
- Gadchiroli was performing better with respect to SDG-PHII (Rank 12), SDG-HWSI (Rank 17). However, it exhibited very low performance for SDG-GI and SDG-EI being amongst the worst performing districts in the State.
- Nandurbar performance was very low for SDG-GI (Rank 30), SDG-PHII (Rank 31) and SDG-HWSI (Rank 32). However, it was an outlier with (Rank 8) for SDG-EI.
- Among the four aspirational districts as can be seen in Table 4.6, Osmanabad was found

to be better performing with a composite ranking of 17, with an average score above the State average. Whereas the other three aspirational districts performed very poorly in the SDGCI Ranking with Washim, at rank (28), Gadchiroli (30) and Nandurbar (32). This is also reflected in the aspirational index 2020, prepareded by NITI Aayog.

4.2.6 Primary Study of Aspirational Districts

In this section, the findings of the primary survey has been elaborated for the select two districts - Osmanabad and Washim. The primary survey was undertaken at two levels, with two separate Questionnaire: i) Village level and ii) Household Level (Refer to Annexure 4.1). The sample village selection for Osmanabad and Washim was undertaken using two stage cluster sampling technique. At the first stage, two tehsils each from both the aspirational districts were selected in geographically opposite directions from the district headquarters. In the second stage, five villages were randomly selected from each tehsil which gave a total of 20 villages as our sample size for further analysis.

4.3.1 Village Profile

The village level survey conducted has been classified under the defined four dimensions:

i) Dimension 1: Sustainable economic growth

ii) Dimension 2: No poverty, zero hunger and inequality

iii) Dimension 3: Good health, water and sanitation, and

iv) Dimension 4: Education.

Further, village level data for 20 villages was collected, with five villages belonging to each of the Tehsils - Lohara and Washi, from Osmanabad district and 10 villages in Washim district from two Tehsils namely, Manora and Malegoan (Refer to maps in Figure 4.1) .

Figure 4.1: Osmanabad and Washim District Map

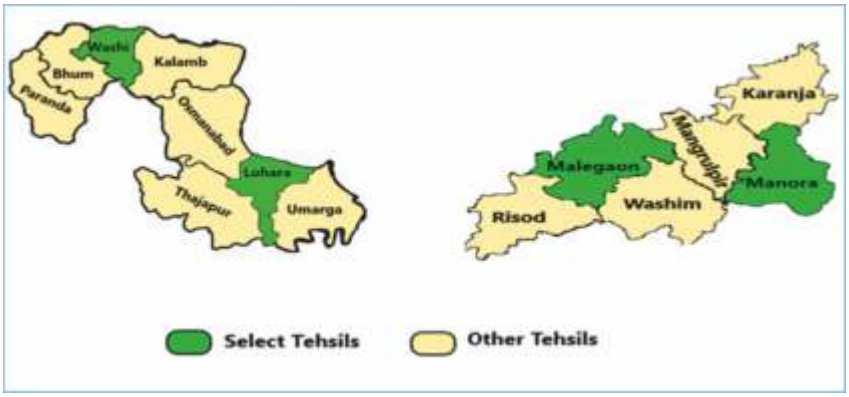


Table 4.7: Village Identification

Tehsil	Panchayat	Village / Post Office	Population	No of Households	Area of village (Hectares)	Cultivators Figure in Brackets are % of Population	Village Adopted
Osmanabad District							
Lohara	Ashta Kasar	Ashta Kasar	6190	1372	2200	1500 (24)	No
	Jewali	Jewali	10886	2490	3102.69	2500 (23)	No
	Makani	Makani	6861	1652	2109.04	700 (10)	No
	Sastur	Sastur	7255	1659	2502.8	1230 (17)	No
	Lohara BK	Lohara BK	1516	356	1120	540 (36)	No
Total			32708			6470(20)	
Washi	Indapur	Indapur	3442	763	1915	1300 (38)	Yes
	Bavi	Bavi	3279	720	1203	1700 (52)	No
	Para	Para	4287	934	1856	2000 (61)	Yes
	Tarkheda	Tarkheda	6626	1427	2515	1166 (18)	No
	Pargaon	Pargaon	3949	907	1761.05	1403 (36)	No
Total			21583			7569(35)	
Washim District							
Manora	Manora	Manora	8695	3000	797.95	4000 (46)	No
	Bhuli	Bhuli	3007	945	1350.15	1000 (33)	No
	Pohradevi	Pohradevi	4609	1102	549.9	3200 (69)	No
	Fulbari	Fulbari	3695	975		2700 (73)	No
	Manora	Kupta	3999	475	457.3	3000 (75)	No
Total			24005			13900(58)	
Malegaon	Malegaon	Malegaon	21290	4460		6000 (28)	No
	Kiniraja	Kiniraja	6254	1000	2921	4200 (67)	No
	Malegaon	Jaulka	3588	800	1333	2500 (70)	No
	Mungla	Mungla	5011	525	2967.31	3500 (70)	No
	Malegaon	Shirpur	16890	2000	3942	12000 (71)	No
Total			53033			28200(53)	

Source: Primary Survey

- In Lohara Tehsil, it was observed that there were three very large villages (population + 10000) such as Jewali - Lohara Tehsil in Osmanabad district and also Malegoan and Shirpur in Malegaon Tehsil in Washim district.
- Range of cultivators according to Tehsils:
  - Lohara Tehsil, Makani village only accounted for 10% cultivators, while Lohara BK accounted for 36%.

- Washi Tehsil, the cultivators ranged from a high of 61% in Para village to 18% in Tarkheda village.
- Manora Tehsil, the cultivators ranged from 75% in Manora village to 33% in Bhuli village
- Malegoan Tehsil, Shirpur village had 71% of its population as cultivators while the same for the village of Malegoan stood at 28%
- There were larger number of cultivators in Washim District in comparison to Osmanabad.

- Two of the villages in Osmanabad district namely Indapur and Para, were closely affiliated to the Pokhara Nanaji Deshmukh Krushi Sanjivini Scheme. This helped the marginal and small farm holders in drought prone areas with the objective of helping the farmers to overcome the challenges related with droughts.

Table 4.8: Details about Leadership at the village level (Sarpanch)

Tehsil	Panchayat	Village / Post Office	Gender	Age	Education	Primary occupation	Reli -gion	Caste Group
Osmanabad District								
Lohara	Ashta Kasar	Ashta Kasar	Male	42	Graduate	Farmer	Hindu	SC
	Jewali	Jewali	Male	47	Graduate	Gramsevak	Hindu	OBC
	Makani	Makani	Male	38	BA, B.Ed.	Farmer	Hindu	OBC
	Sastur	Sastur	Male	35	BA	Pharmacy	Hindu	SC
	Lohara BK	LoharaBK	Male	42	Class 12	Farmer	Hindu	General
Washi	Indapur	Indapur	Male	41	MA, Mphil	Farmer	Hindu	General
	Bavi	Bavi	Male	40	Class 10	Farmer	Hindu	General
	Para	Para	Male	48	Class 12	Farmer	Hindu	General
	Tarkheda	Tarkheda	Female	38	Class 12	Housewife/Sarpanch	Hindu	General
	Pargaon	Pargaon	Male	48	Class 10	Farmer	Hindu	ST
Washim District								
Manora	Manora	Manora	Male	45	Graduate	Farmer/Sarpanch	Hindu	General
	Bhuli	Bhuli	Male	45	Primary	Farmer/Sarpanch	Hindu	OBC
	Pohradevi	Pohradevi	Male	43	Graduate	Farmer/Sarpanch	Hindu	SC
	Fulbari	Fulbari	Male	46	Graduate	Farmer/Sarpanch	Hindu	SC
	Manora	Kupta	Male	32	Primary	Farmer/Sarpanch	Muslim	General
Malegaon	Malegaon	Malegaon	Female	40	Class 10	Housewife/Sarpanch	Hindu	General
	Kiniraja	Kiniraja	Female	40	Graduate	Housewife/Sarpanch	Hindu	OBC
	Malegaon	Jaulka	Female	28	Graduate	Housewife/Sarpanch	Hindu	OBC
	Mungla	Mungla	Male	38	Graduate	Farmer/Sarpanch	Hindu	OBC
	Malegaon	Shirpur	Female	35	Primary	Housewife/Sarpanch	Hindu	OBC

Source: Primary Survey

Table 4.8, gives basic information (age, gender, educational level, religion) of the Panchayat heads in the 20 villages across the 4 tehsils and 2 districts. Observations are as follows:

- The Panchayat heads (Sarpanch) for the sample villages are mostly male members (75%) with farming as their main occupation in both the districts.
- In Maleagon Tehsil - 80 % of the Sarpanch were females.
- 55% of the village heads had a graduation degree - with 50% in Osmanabad and 60% in Washim district.
- All five female Sarpanch were housewife, with three of them belonging to OBC category. There was only one female Sarpanch, belonging to the OBC was a housewife, with only primary education as a qualification.
- 40 % of the village heads belonged to the General category, 35%, 20% and 5% belonged to OBC, SC and ST respectively. It was observed that 50% of the village heads from Osmanabad belonged to the general category while in Washim - 50% belonged to OBC category.
- Most of the village Sarpanch were 35 years and above in age. In Jaulka village the female Sarpanch was only a 28 year old graduate and a male Sarpanch (32 years of age) from Kupta village was from minority community.
- We can observe from Table 4.8, that the Sarpanch in the sample villages belonged to various categories and were by and large educated, thereby showcasing inclusive representation at the village level.

4.3.2 Observations from Osmanabad and Washim district

Dimension 1: Sustainable Growth

Sustainable growth aspects in the sample villages has been analysed and presented in Table 4.9, 4.10, 4.11 and 4.12. The Tables include the following indicators which helps us to understand the implications of prevailing infrastructure required for growth

1. Physical infrastructure - availability of transportation facilities, access to essential services such as Electricity and Internet.
2. Institutional infrastructure - Post offices, banks, distance from nearest Police station
3. Industrial development and employment schemes

Table 4.9: Village Infrastructure - Transportation (Roads)

Village / Post Office	Nearest Town	Distance from Town	Distance from District Headqu -arters (km)	All Weather Road	Availability of Bus stop	Distance from nearest railway station (Km)
Osmanabad District						
Ashta Kasar	Umranga	15	62	Yes	Yes	10
Jewali	Lohra	13	71	Yes	Yes	10
Makani	Lohra	14	65	Yes	Yes	11
Sastur	Omraga	35	60	Yes	Yes	60
LoharaBK	Lohara	2	60	Yes	Yes	65
Indapur	Osmanabad	50	50	Yes	Yes	35
Bavi	Washi	10	50	No	No	30
Para	Washi	10	65	No	No	10
Tarkheda	Washi	25	43	Yes	No	20
Pargaon	Beed	40	85	No	Yes	75
Washim District						
Manora	Malegaon	47	95	Yes	Yes	55
Bhuli	Manora	10	80	Yes	Yes	40
Pohradevi	Manora	20	110	Yes	Yes	60
Fulbari	Manora	21	111	Yes	Yes	65
Kupta	Manora	10	80	Yes	Yes	45
Malegaon	Washim	25	25	Yes	Yes	10
Kiniraja	Malegaon	20	105	Yes	Yes	15
Jaulka	Malegaon	10	95	Yes	Yes	25
Mungla	Malegaon	15	95	Yes	Yes	35
Shirpur	Malegaon	15	75	Yes	Yes	50

Source: Primary Survey

Observations - Transport Infrastructure

- In Osmanabad district, all select villages in Lohara tehsil were having transportation services, while 60% of select villages in Washi tehsil were not having transportation facilities. Whereas, in Washim district, all the select villages were found to have transportation facilities for travelling to their nearby towns.
- The travel distance of all the villages to the closet town in Lohara tehsil, ranged from 2 kms for Lohara BK village to 35 kms for Sastur village. Whereas in Washi tehsil - it ranged from a minimum of 19 kms for villages Bavi and Para to 50 kms from village Indapur.

- In Manora Tehsil - village Kupta and Bhuli were 10 kms away from the closet town - while the same for Manora village was 47kms. In Malegaon tehsil, the distance ranges from 10kms to 25 kms for village Jaulka and Malegoan respectively.
- The average distance of the select villages in Osmanabad district to their nearby towns is 24km, whereas in Washim the average distance of the sample villages from their nearest town was 19.3 Km.
- Similarly, the average distance of the villages in Osmanabad district from their headquarters was 61 Kms whereas in Washim district the average distance of the villages from their district headquarters was 87 kms.
- In terms of infrastructure, Washim district was found to have better roads and accessibility to transportation to nearby towns compared to Osmanabad district.
- With respect to access to the closest railway stations in the four tehsils the observations were as under:
  - Lohara Tehsil - Osmanabad district - village Ashta Kasar and Jewali were at a distance of 10 kms from the closest railway station and Lohara BKvillage was 65 kms away
  - In Washi Tehsil - Osmanabad district - it ranged from 10 kms for Para village to 75kms in Pargoan village to the railway station
  - Monaora Tehsil - Washim District - all the villages were at a considerable distance ranging from 40-65 kms away from the railway station
  - Malegoan Tehsil - Washim District - the railway station was in the range of 10 kms to 50 kms for the villages surveyed.

Table 4.10: Village Infrastructure - Electricity, Internet and Cold Storage

Village / Post Office	Percentage of households' electricity (%)	Electricity (hours in day)	Quality of power	Access to Internet	Quality of internet facility	Closest Cold Storage (km)
Osmanabad District						
Ashta Kasar	100	24	Normal	Yes	Good	NA
Jewali	85	12	Low	Yes	Normal	75
Makani	100	12	Normal	Yes	Normal	65
Sastur	100	12	Normal	Yes	Normal	60
LoharaBK	95	12	Low	Yes	Normal	65
Indapur	80	15	Low	Yes	Good	No
Bavi	80	8	Low	Not in use	NA	10

Village / Post Office	Percentage of households' electricity (%)	Electricity (hours in day)	Quality of power	Access to Internet	Quality of internet facility	Closest Cold Storage (km)
Para	80	24	Low	Yes	Poor	60
Tarkheda	80	16	Low	Yes	Good	30
Pargaon	80	16	Low	Yes	Normal	75
Washim District						
Manora	97	24	Normal	Yes	Good	Within the village
Bhuli	100	8	Normal	Yes	Normal	0.6
Pohradevi	92	10	Normal	Yes	Normal	11
Fulbari	95	8	Normal	Yes	Normal	15
Kupta	100	10	Normal	Yes	Good	Within the village
Malegaon	99	24	Normal	Yes	Good	Within the village
Kiniraja	94	9	Normal	Yes	Normal	9
Jaulka	97	8	Normal	Yes	Good	10
Mungla	99	9	Normal	Yes	Normal	10
Shirpur	95	10	Normal	Yes	Normal	Within the village

Source: Primary Survey

Observations:

Electricity:

- All the villages have been electrified with all the majority of the households in the village having access to electricity.
- In Osmanabad and Washim district, on an average 88% and 97% of the households have electricity respectively.
- On an average the villages in Osmanabad district receive 15 hours of electricity supply per day, with village Asta Kasar getting 24 hours power supply and the same for Bavi village is as low as 8 hours a day. In Washim district, 80% of households were having electricity for not more than 10 hours a day - with village Manora receiving 24 hours electricity supply, while villages Bhuli and Fulbari receiving only 8 hours a day. It is evident that Osmanabad was better in terms of electricity accessibility.

Internet:

- All the villages surveyed in the study had internet access, with only Bavi village (Washi Tehsil - Osmanabad district) where it was observed that the internet was not in use.
- On an average internet speed was found to be good or normal in 80% of the villages with it being poor / slow in Para village (Washi Tehsil - Osmanabad)
- Internet access was found to be better for the select villages in Washim district.

Cold Storage:

- In Osmanabad district only Bavi villages could access cold storage within 10 kms, while the rest of the villages had to travel nearly 55 kms to access the same.
- It was observed that in Washim district, 50% of the select villages were having cold storage facilities in the village itself while for the rest of the villages, the distance ranged from 0.6 kms for Bhuli village to a maximum of 15 kms in Fulbari village.
- None of the sample villages except Pargoan had a police station in Osmanabad district. The other sample villages had an access to police station which are 10 to 15 kms away.

Table 4.11: Institutional Infrastructure

Village / Post Office	Village Post Office	Self-Help Groups	Develop-ment Group or NGO	Cooper-ative Society	Farmer organi-zation	Small Loans-Micro Credit	Agricult-ural exte-nsion officer visits	Angan-wadi Centre
Osmanabad District								
Ashta Kasar	Yes	Yes	Yes	No	Yes	No	Yes	Yes
Jewali	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes
Makani	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes
Sastur	Yes	Yes	Yes	Yes	No	No	Yes	Yes
LoharaBK	Yes	Yes	No	Yes	No	No	Yes	Yes
Indapur	Yes	Yes	Yes	Yes	No	No	Yes	Yes
Bavi	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes
Para	Yes	Yes	No	Yes	No	No	Yes	Yes
Tarkheda	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Pargaon	Yes	Yes	No	Yes	No	No	Yes	Yes
Washim District								
Manora	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Bhuli	Yes	Yes	Yes	No	No	No	Yes	Yes
Pohradevi	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Fulbari	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Kupta	Yes	Yes	Yes	No	Yes	No	Yes	Yes
Malegaon	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Kiniraja	Yes	Yes	Yes	No	Yes		Yes	Yes
Jaulka	Yes	Yes	No	No	Yes	No	Yes	Yes
Mungla	Yes	Yes	No	Yes	No	No	Yes	Yes
Shirpur	Yes	Yes	Yes	No	Yes	No	Yes	Yes

Source: Primary Survey

Observations

Table 4.11, throws light on the State of institutional infrastructure available in the select villages.

- Post Office: All of the four tehsils in both the district had post office.
- Self Help Groups: All the villages had active SHGs functioning.
- Development Group / NGOs: 60% of sample villages had a meaningful intervention by development group/NGO which helped the villages to progress ahead on certain parameters (For example Nanaji Deshmukh Krihi Sanjivini Yojana in Bavi village- Mention activities)
- Cooperative Society: Other than Asta Kasar village in Lohara Tehsil - Osmanabad district - the remaining nine villages enjoyed the services of cooperative society. While in Washim district only 50% of the villages enjoyed this service.
- Farmers Producer Organisations: Only 40% of the sample villages in Osmanabad district had a functional farmers' organisation while in Washim this figure was much better with 80% of the villages having this facility, thereby helping the farmers to market the farm produce and other activities such as procuring good quality seeds, reasonably priced fertilisers, pesticides etc.
- Small Loans and Microcredit Facilities: These facilities were only available in 2 villages - Bavi and Tarkheda in Washi Tehsil, Osmanabad. Similarly microcredit facilities were only available in village Manora and Malegoan in Washim district.
- Agriculture Extension Officer: All the villages in Osmanabad and Washim districts were found to have Agricultural Extension Officer
- Anaganwadi centres: All the villages had Anganwadis.

Table 4.12: Industrial Development and Employment

Village / Post Office	MGNREGA Scheme	Other Employment Scheme	MSME	If Yes which schemes?	Implementation of Skill Development Scheme
Osmanabad District					
Ashta Kasar	Yes	Yes	No	NA	No
Jewali	Yes	No	Yes	Jan Jagruti Karyakram	Yes
Makani	No	No	Yes	Jan Jagruti Karyakram	Yes
Sastur	Yes	No	No	NA	No
LoharaBK	Yes	No	Yes	Jan Jagruti Karyakram	No
Indapur	Yes	No	No	NA	No
Bavi	Yes	No	No	NA	No
Para	Yes	No	No	NA	No
Tarkheda	Yes	No	No	NA	No
Pargaon	Yes	No	No	NA	No

Village / Post Office	MGNREGA Scheme	Other Employment Scheme	MSME	If Yes which schemes?	Implementation of Skill Development Scheme
Washim District					
Manora	Yes	No	Yes	Jan Jagruti Karyakram	Yes
Bhuli	Yes	Yes	Yes	Jan Jagruti Karyakram	No
Pohradevi	Yes	No	Yes	Jan Jagruti Karyakram	Yes
Fulbari	Yes	No	Yes	Jan Jagruti Karyakram	Yes
Kupta	Yes	Yes	No	NA	No
Malegaon	Yes	Yes	Yes	Jan Jagruti Karyakram	No
Kiniraja	Yes	No	Yes	Jan Jagruti Karyakram	Yes
Jaulka	Yes	No	Yes	Jan Jagruti Karyakram	Yes
Mungla	Yes	Yes	Yes	Jan Jagruti Karyakram	Yes
Shirpur	Yes	Yes	Yes	Jan Jagruti Karyakram	Yes

Source: Primary Survey *NA: Not Applicable*

Observations:

Table 4.12 elaborates on the presence of MNREGA and other employment schemes, along with the potential for MSME and the presence of skill development schemes being implemented. It was observed that

Employment:

- MGNREGA has been implemented in all the villages.
- Only Ashta Kasar in Osmanabad district and in five villages of Washim district other employment schemes have been implemented
- Measures to encourage growth of MSME as an important a source of employment was present in three villages in Osmanabad (Jewali, Makani and Manora) in Lohara tehsil
- Except for Kupta village in Washim district, 90% of the select villages were found to have MSME providing alternative employment opportunities.
- The major intervention for strengthening MSME's growth in all the villages was through Jan Jagruti Karyakaram.

Skill Development:

- Other than Jewali and Makani village in Osmanabad district, none of the other select villages had any operational skill development schemes. While in Washim district - the scheme were present in all the villages except Bhuli, Kupta and Malegoan village.
- 70% and 50% of sample villages in Washim and Osmanabad district, respectively, have seen skill development schemes being implemented.

Dimension II- No Poverty, Zero hunger and Reduced Inequality

This dimension examines the goal of no poverty, zero hunger and reduced inequality using the following parameters as can be seen in Table 4.13.

1. Poverty and Inequality reduction through various social development schemes or minority and disadvantaged communities.
2. Assessment of welfare loss via natural disaster schemes
3. Assessment of hunger through accessibility of food grains

Table 4.13: Schemes Floated for Reduction of Poverty, Inequality and Hunger

Village Name	Social Development programmes		Accessibility to food grains	
	Total funds Allocated for social development in lakhs	Funds utilized in percentage (%)	PDS/ Fair Price Shop	Market in vicinity
Osmanabad District				
Ashta Kasar	6	100	Yes	Yes
Jewali	20.5	100	Yes	Yes
Makani	31	100	Yes	Yes
Sastur	6	100	Yes	Yes
LoharaBK	22	0	Yes	No
Indapur	12	100	Yes	Yes
Bavi	36	69	No	No
Para	6	100	Yes	Yes
Tarkheda	NA	NA	Yes	Yes
Pargaon	NA	NA	Yes	Yes
Washim District				
Manora	6	100	Yes	Yes
Bhuli	6	100	Yes	Yes
Pohradevi	6	100	Yes	Yes
Fulbari	6	100	Yes	Yes
Kupta	6	100	Yes	Yes
Malegaon	20.4	88	Yes	Yes
Kiniraja	6	100	Yes	Yes
Jaulka	6	100	Yes	Yes
Mungla	6	100	Yes	Yes
Shirpur	6	100	Yes	Yes

Source: Primary Survey *NA: Not Available*

Observations

- The villages surveyed in both the districts Osmanabad and Washim were allocated funds for SC and ST development with some villages utilising the same.
- In Osmanabad districts, Ashat Kasar, Jewali and Sastur villages experienced droughts every three years. Interaction with the Sarpanch revealed that the villagers were aware of employment and insurance schemes. Village Jewali had a water conservation and water harvesting programmes. While some of the villages received government subsidies due to drought.
- In Washim districts all the villages for Manora tehsil experienced drought every three years. Accordingly, awareness meeting is conducted to address issues related with natural disasters and measures to conserve water.
- All the villages had a PDS or fair price shops, with the exception of Bavi village in Washi Tehsil of Osmanabad.
- In Osmanabad district, there was no convenient accessibility to the ware house and the market in close proximity to the villages in Lohara tehsil. In Washi tehsil, none of the select villages had cold storage and warehouse facility. While in Washim district nearly 50% of select villages were having the cold storage facility within the village.

Dimension III- Health, Clean Water and Sanitation

The Dimension III of the study covers two major SDG 3 and 6 addressing Good Health, Clean Water and Sanitation. These goals were examined using the following parameters:

1. Good Health

- Availability of Health Facility Centres- Public and Private
- Availability of Maternity and Child Welfare centres - Public and Private
- Availability of Other Health facilities i.e. Sub public health centres, Primary health centres, ANM centres and Mobile health services

2. Access to clean water and sanitation

- Source of drinking water
- Water user association
- Availability of tube well and canal
- Rashtriya Peyajal Yojana Beneficiaries
- Swacch Bharat Yojana beneficiaries
- Availability of public toilet

The health care infrastructure in rural India is a three tiered system based on the following norms [22]:

Table 4.14: Health Care Infrastructure in rural India

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

Source: Primary Survey

Table 4.15: Health status in the select districts

	Government Health Services				Private Health Services		
Village Name	Sub Centre	ANM[23] Centre	Primary Health Centre [PHC]	Private Medical facilities	Mobile Health Centers	Maternity and Child Welfare Centers	Primary Health Centers [SUB]
Osmanabad District							
Ashta Kasar	Yes	Yes	No	No	No	No	Yes
Jewali	Yes	Yes	Yes	Yes	No	Yes	Yes
Makani	Yes	Yes	Yes	Yes	No	No	Yes
Sastur	Yes	Yes	Yes	No	No	Yes	Yes
LoharaBK	Yes	Yes	Yes	No	No	No	Yes
Indapur	No	No	No	No	No	No	No
Bavi	Yes	Yes	No	No	No	No	Yes
Para	Yes	Yes	Yes	No	No	No	Yes
Tarkheda	Yes	Yes	Yes	No	No	No	Yes
Pargaon	Yes	Yes	Yes	No	Yes	No	Yes
Washim District							
Manora	Yes	No	Yes	No	No	No	Yes
Bhuli	Yes	Yes	No	No	No	No	Yes
Pohradevi	Yes	Yes	No	No	No	No	Yes
Fulbari	Yes	Yes	No	No	No	No	Yes
Kupta	Yes	Yes	No	No	No	No	Yes
Malegaon	Yes	Yes	No	No	No	No	Yes
Kiniraja	Yes	Yes	No	No	No	No	Yes
Jaulka	Yes	Yes	No	No	No	No	Yes
Mungla	Yes	Yes	No	No	No	No	Yes
Shirpur	Yes	Yes	No	No	No	No	Yes

Source: Primary Survey

[22] *https://www.nhm.gov.in/images/pdf/monitoring/rhs/rural-health-care-system-india-final-9-4-2012.pdf*
[23] *ANM, is a village-level female health worker in India who is the first contact person between the community and health services. ANMs are grass-root workers in health organization pyramid*

Observations:

The health system in rural areas is divided into i) Government and ii) Private health services.

Government Health Services:

- All the villages in Osmanabad and Washim district had access to Sub centre since last 20 years. This provided the villagers with the fist point of contact between PHC system and the community. The only exception was Indapur in Washi Tehsil, Osmanabad which was 4.7 kms away.
- All the villages had an ANM centre, with the exception of Indapur and Manora villages in Osmanabad and Washim district respectively.
- 80% of sample villages in Osmanabad district had access to Government maternity centre and child care. All the sample villages have ANM centres with the exception of Indapur.
- Osmanabad district was better equipped with presence of PHC in 70% of the select villages. In Lohora tehsil most of the select villages had presence of PHC, with the exception of Ashta Kasar, while in Washi tehsil only three of the select villages were having access to PHCs. In contrast, 90% of the select villages in Washim district have no PHC facilities.
- Community Health Centre (CHC) was not available in any of the districts

Private Health Services:

- A few select villages like Jewali and Makani in Osmanabad district had access to private medical facilities, while the same was found to be absent in Washim district.
- Mobile health facilities were available only in Pargaon village in Osmanabad.
- Private hospital was found in Trakheda and Pargoan village in Washi Tehsil - Osmanabad district
- Private Maternity and Child Welfare Centers was present in Jewali and Satur villages of Lohara Tehsil in Osmanabad
- Private Sub Centre facilities was available in all the villages with the exception of Indapur village.
- Trained doctors were available in 50 % of the sample villages in Osmanabad (Jewali, Makani, Sastur, Tarkhed and Pargoan) but the same was not the case in Washim district.
- Private pharmacy is only available in Makani village and private maternity centre in Sastur and Para village.
- From the above analysis we can conclude that Osmanabad had access to better health care system than Washim district.

- The above analysis does not portray a very encouraging situation with respect to modern health care facilities. The villages are solely dependent on Government health facilities which are not fully equipped to meet health emergencies. However, all the villages in both the districts had access to Sub Centres- public and private.

Table 4.16: Access to water and sanitation facilities

Village / Post Office	Source Drinking Water	Canal	Closest Canal (Km)	Tube well	Closest Govt. Tube Well (km)	Water user Assoc -iation	Public Toilet	Swacch Bharat Yojna Benefi -ciaries	Benefi -ciaries from Rastriya Gramin Peyajal Yojana
Osmanabad District									
Ashta Kasar	Public Tap	Yes	NA	Yes	0	No	Yes	NR	NR
Jewali	Public Tap	No	13	Yes	0	No	No	NR	NR
Makani	Public Tap	Yes	NA	Yes	0	No	No	NR	NR
Sastur	Public Tap	No		Yes	0	Yes	Yes	NR	NR
Lohara BK	Public Tap	No	3 Km	Yes	0	No	No	NR	NR
Indapur	Hand Pump	No	No	No	10	No	No	90%	No
Bavi		No	NA	Yes,	0	No	Yes	60%	100%
Para	Borewell, Public tap	No	NR	Yes	0	Yes	Yes	60%	100%
Tarkheda	Borewell, Public tap	No	NR	Yes	0	No	Yes	80%	80%
Pargaon	Borewell, Public tap	Yes	NA	Yes	0	No	No	80%	80%
Washim District									
Manora	Public Tap	Yes	NA	Yes	NA	No	Yes	NR	NR
Bhuli	Public Tap	Yes	0.5	Yes	0.4	No	Yes	NR	NR
Pohradevi	Public Tap	No	10	Yes		No	Yes	NR	NR
Fulbari	Public Tap	No	15	Yes		No	Yes	NR	NR
Kupta	Public Tap	No	-	Yes		No	Yes	NR	NR
Malegaon	Public Tap	Yes	0	Yes	NA	No	Yes	NR	NR
Kiniraja	Public Tap	Yes	0	-		No	Yes	NR	NR
Jaulka	Public Tap	No	-	-		No	Yes	NR	NR
Mungla	Public Tap	No	-	Yes		No	Yes	NR	NR
Shirpur	Public Tap	No	-	No	No	No	Yes	NR	NR

Source: Primary Survey
NR: Not recorded NA: Not Applicable

Observations:

Water and Sanitation

- Villages in Osmanabad have access to clean water through bore well, public tab and hand pumps. The proximity to the closest tube well was 10 kms away from the sample village.
- Ashta Kasar, Makani and Pargoan villages in Osmanabad district - while Manora, Bhuli, Malegoan and Kinjara villages in Washim district had access to canal facilities within the village.
- Indapur village could access tube well facility which was at a distance of 10 kms from the village.
- Only Sastur and Para had water user association, the presence of such association plays an important role in addressing and resolving water scarcity on account of drought condition in the Osmanabad district. While such arrangements were absent in Washim district, which further adds to water stress and poor sanitation condition in the district.
- Community toilets (Public toilets) were found in all the villages of Washim district but in Osmanabad district it was found in Sastur, Bavi, Para and Tarkheda villages.
- Beneficiaries of the Swachh Bharat Abhiyan scheme was recorded in all the villages of Washi taluka in Osmanabad district.
- Large number of beneficiaries for the Rastriya Gramin Peyajal Yojana (drinking water facilities) was found in four of the villages in Washi taluka - Osmanabad district.

Dimension IV- Education

The Dimension IV of the study deals with quality education. The following indicators were used to assess the status of education in both the districts.

1. The status of physical infrastructure in the schools present in the village
2. Availability of qualified teacher for primary / secondary education - Public and Private schools
3. Pupil teacher ratio
4. Gross enrolment ratio in Public and Private schools
5. Vocational training services
6. School dropouts

Observations:

Infrastructure:

- Government owned school - a) primary school b) middle Co-ed school c) Secondary Co-ed schools d) Higher-secondary co-ed schools were present in the select villages of both the districts
- The schools at all levels in both the districts had good infrastructure which included a) proper classrooms b) electricity c) computer facilities d) drinking water facility e) mid-day meals f) separate toilets for girls and boys g) playground and h) free vaccination.

Table 4.17: Availability of teachers for primary education

	Government Primary Schools				Private Primary Schools			
Village Name	Male Teachers	Female Teachers	Teachers with Profes -sional Qualifica -tion Male	Teachers with Profes -sional Qualifica -tion Female	Male Teachers	Female Teachers	Teachers with Profes -sional Qualifica -tion Male	Teachers with Profes -sional Qualifica -tion Female
Osmanabad District								
Ashta Kasar	3	4	2	3	6	5	7	6
Jewali	3	7	2	3	7	6	6	4
Makani	3	6	7	4	5	3	5	3
Sastur	4	5	7	4	5	3	7	4
LoharaBK	4	2	7	3	6	3	3	1
Indapur	5	2	3	2	5	4	6	2
Bavi	4	6	7	5	6	3	3	2
Para	9	8	8	11	12	11	11	10
Tarkheda	4	6	6	3	5	3	5	4
Pargaon	5	3	7	6	5	3	7	5
Washim District								
Manora	4	2	3	2	6	4	5	2
Bhuli	3	6	2	3	7	6	6	4
Pohradevi	4	2	7	3	6	3	3	1
Fulbari	4	6	7	5	6	3	3	2
Kupta	4	5	6	3	5	3	5	4
Malegaon	3	5	2	3	7	5	7	5
Kiniraja	3	6	7	4	5	3	5	3
Jaulka	4	5	7	4	5	3	7	4
Mungla	11	10	8	12	13	10	10	11
Shirpur	5	3	7	6	5	3	7	5

Source: Primary Survey

Observations:

- There was a good mix of qualified male and female teachers in the government and private primary schools in Lohara and Washi tehsil, while there were more male teachers in Washi Tehsil of Osmanabad district.
- There were larger number of teachers in the private schools than the government schools in Osmanabad district.
- There was a good mix of qualified male and female teachers in government and private primary schools in both the tehsils of Washim. However, there were larger number of teachers in government and private primary schools in both the tehsils - Manora and Malegaon in Washim district.

Table 4.18: Availability of teachers for secondary education

Village Name	Teachers in Government Secondary				Teachers in Private Secondary schools			
	Total Male	Total Female	Teachers with Profes -sional Qualifica -tion Male	Teachers with Profes -sional Qualifica -tion Female	Total Male	Total Female	Teachers with Profes -sional Qualifica -tion Male	Teachers with Profes -sional Qualifica -tion Female
Osmanabad District								
Ashta Kasar	10	7	11	7	12	13	13	13
Jewali	11	8	11	8	11	15	13	12
Makani	10	11	11	9	13	10	10	2
Sastur	11	8	11	8	11	15	13	12
LoharaBK	11	10	8	12	13	10	10	11
Indapur	9	17	13	11	9	10	11	10
Bavi	10	9	10	9	13	15	13	12
Para	11	8	11	8	11	15	13	12
Tarkheda	13	7	13	7	13	14	13	15
Pargaon	11	8	11	8	11	15	13	12
Washim District								
Manora	10	18	11	12	9	10	9	10
Bhuli	12	8	12	8	13	15	13	14
Pohradevi	11	10	8	12	13	10	10	11
Fulbari	10	9	10	9	13	15	13	12
Kupta	13	7	13	7	13	14	13	15
Malegaon	11	7	11	7	12	14	12	14
Kiniraja	10	11	11	9	13	10	10	2
Jaulka	11	9	11	8	13	14	13	15
Mungla	12	10	14	10	10	11	12	14
Shirpur	10	8	9	12	11	13	13	14

Source: Primary Survey

Observations

- There was a good mix of qualified male and female teachers in both the government and private secondary schools in each of the tehsils in both the districts under study.
- In the government school the male- female teacher's ratio was found to be 53:47. While in private schools the ratio was observed to be 46:54.
- There were more female teacher in the private secondary schools as compared to government schools

Table 4.19: Student Enrolment Ratio

Village Name	Government Schools				Private Schools			
	Total Male	Total Female	Teachers with Profes -sional Qualifica -tion Male	Teachers with Profes -sional Qualifica -tion Female	Total Male	Total Female	Teachers with Profes -sional Qualifica -tion Male	Teachers with Profes -sional Qualifica -tion Female
Osmanabad District								
Ashta Kasar	44	56	50	50	48	52	55	45
Jewali	49	51	56	44	45	55	41	59
Makani	48	52	55	45	40	60	48	52
Sastur	48	52	No	No	54	46	No	No
LoharaBK	45	55	56	44	50	50	48	52
Indapur	45	55	51	49	47	53	53	47
Bavi	49	51	51	49	45	55	53	47
Para	45	55	56	44	55	45	41	59
Tarkheda	51	49	65	35	50	50	61	39
Pargaon	52	48	50	50	48	52	55	45
Washim District								
Manora	45	55	51	49	47	53	53	47
Bhuli	49	51	56	44	45	55	41	59
Pohradevi	45	55	56	44	50	50	48	52
Fulbari	49	51	51	49	45	55	53	47
Kupta	51	49	65	35	50	50	61	39
Malegaon	44	56	50	50	48	52	55	45
Kiniraja	48	52	55	45	40	60	48	52
Jaulka	48	52	No	No	54	46	No	No
Mungla	45	55	56	44	55	45	41	59
Shirpur	52	48	50	50	48	52	55	45

Source: Primary Survey

Observations

As per the data on student enrolment ratio in all the village for both districts, it was observed that primary schools were having more girl students as compared to boys, while in secondary schools the number of boys enrolled were more as compared to girls.

Table 4.20: Pupil Teacher ratio, Vocational training, number of school dropouts

Village Name	Pupil-Teacher ratio		Vocational training programmes			No. of Dropouts	
	PTR in Primary Schools	PTR in Secondary Schools	Participation rate - Male Adult of Vocational Programs	Participation rate - Female Adult of Vocational Programs	Frequency of Vocational Programs	Boys Between 6-13 years	Girls Between 6-13 years
Osmanabad District							
Ashta Kasar	22	17	NA	NA	NA	No	No
Jewali	22	17	25	10	Weekly	No	No
Makani	22	17	100	250	Half Yearly	20	25
Sastur	22	17	No	No	No	No	No
LoharaBK	22	17	No	No	No	31	28
Indapur	22	17	25	10	Weekly	No	No
Bavi	22	17	No	No	No	No	No
Para	22	17	No	No	No	No	No
Tarkheda	22	17	No	No	No	No	No
Pargaon	22	17	No	No	No	NR	NR
Washim District							
Manora	22	19	35	10	Monthly	20	25
Bhuli	22	19	10	6	Quarterly	31	28
Pohradevi	22	19	4	NA	NA	No	No
Fulbari	22	19	NA	NA	NA	NR	NR
Kupta	22	19	NA	NA	NA	No	No
Malegaon	22	19	35	10	Monthly	No	No
Kiniraja	22	19	NA	NA	NA	No	No
Jaulka	22	19	25	10	Monthly	No	No
Mungla	22	19	15	4	Monthly	20	25
Shirpur	22	19	25	10	Weekly	31	28

Source: Primary Survey

Observations

- The pupil teacher ratio for Maharashtra is generally 1: 30. The study reveals a healthy pupil teacher ratio for all the villages.
- The drop out data for school children were found in select villages of Makani and Lohara BK in Osmanabad District and same was also found to be present in the villages of Manora and Bhuli village in Washim district.
- The vocational training programmes are held in Jewali and Makani villages with active participation in Makani village - Osmanabad district. The frequency of such programmes in Makani, was half yearly. In Washim district the participation has been sluggish but the frequency of these programmes has been weekly or monthly.
- With respect to scholarships, students in select villages were given the Savitribai Phule Scholarship upto Rs 100, which is mandatorily reserved to the girl students of class 5th to 10th for the students belonging to the minority communities in Maharashtra such as VJNT (Vimukta Jati/Nomadic Tribes), SBC (Special Backward Class) or Scheduled Caste (SC). Also another scholarship programme provided by the GOM, the Suvarna Mahotsav is provided for ST -girl students under the Tribal Development Department at PreMatric level. It was observed that students from Jewali, Indapura, Bavi, Para, Tarkheda and Pargoan villages - in Osmanabad district were recipients to the scholarship. .
- The scholarships were offered in the form of books, uniforms offered by NGOs in the villages of Osmanabad.

4.4 Conclusion

The objectives of this chapter was to examine the relative performance of fours aspirational districts such as Osmanabad, Washim, Gadchiroli and Nandurbar in terms of four dimensions covering 66 parameters using both secondary and primary data. The relative ranking of districts suggests that Osmanabad doing relatively well in 33 parameters with respect to the State average with overall rank of 17 out of 32 districts. Performances of Washim suggest that it is doing well in as many as 35 parameters with overall ranks of 28. The relative performance of Gadchiroli indicates that it is undeforming in as many as 40 parameters with overall rank of 30 in the State. Nandurbar is the worst performing districts with over rank of 32. It ranking in four dimensions such as: SDG-GI, SDG-PHII, SDG-HWS and SDG-EI are 30, 31, 32 and 8 respectively. This district is undeforming in 43 indicators out 66 parameters.

The relative performance of aspirational districts (Osmanabad and Washim) from primary survey (village level) indicates that majority of villages are doing well in both the districts. However, there are few deficiencies observed related to four dimensions. Although most of the villages have all-weather road connections to nearest town and market still few villages are yet to be connected with all-weather road. Similar observations are also found with respect to electricity connection at house hold level. The quality of electricity supply suggests that only few villages had 24 hours'

access to electricity. Further, all the villages surveyed in the study had internet access but access to internet was found to be better for the select villages in Washim district. More importantly, most of the sample villages had access to financial facilities, agricultural extension services, although a few villages had accesses to small loans and microcredit facilities.

Most of the villages are covered by employment schemes and PDS/fair price shops. However, only few sample villages from both the districts had access to skill development programs. Few villages both in Osmanabad and Washim districts had experienced droughts every three years, accordingly, they were aware of water conservation and water harvesting programmes. In term of health and sanitation, Osmanabad was better equipped with presence of PHC in 70% of the select villages compared only 10 % villages in Washim. Further, it is observed that the absence of private health center, pharmacy and modern health facilities in most of the villages in both districts. Most of the villages had access to water and sanitation facilities, although piped water facilities was largely absent. In term of education, it was observed that most of sample villages are doing well and better equipped with schools, facilities and presence of adequate professional teachers.

Annexure-II

Findings of Household data

This segment provides a profile of the household respondent, belonging to Osmanabad (398 respondents) and Washim (279 respondents) districts of Maharashtra. The objective of the household survey was to throw light on how the households performed with respect to the various dimensions under the given study.

- Dimension 1: SDG - GI (SDG 8)
- Dimension 2: SDG - PHII (SDG 1,2,and 10)
- Dimension 3: SDG - HWS (SDG 3 and 6)
- Dimension 4: SDG - EDU (SDG 4)

Each of the variables on which the household has been surveyed is linked with the four dimension under the study. For example it can be seen that for the variable on education- it exhibits a strong linkage with dimension four and a moderately high linkage with all the other three dimensions.

The profile of the respondents reveal the following:

Social Diversity

Table 4.21: Religion & caste category

District Name	Religion		Caste Category			
	Hindu	Muslim	SC	ST	OBC	Others
Osmanabad	92	8	9	1	15	75
Washim	97	3	16	7	55	22

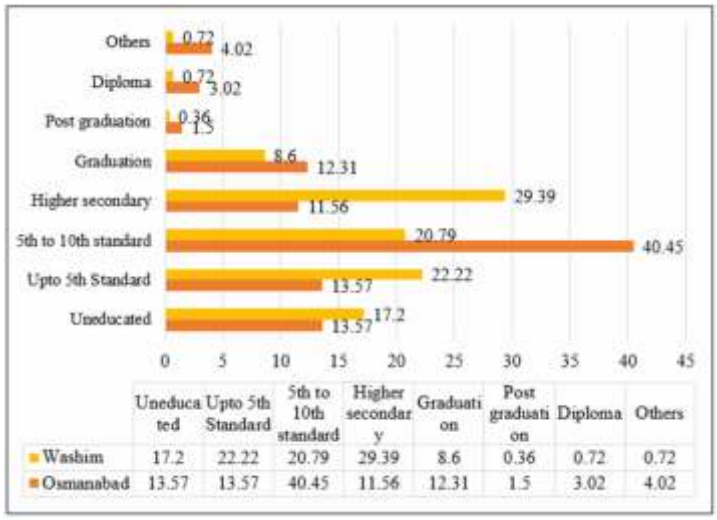
Source: Primary Survey

i) The majority of the population for both the sample districts- Osmanabad (92%) and Washim (97%) belong to the Hindu community, while the Muslim community account for 8 % and 3 % of the population respectively.

ii) The caste composition of the sample respondents revealed a higher percent of OBC, SC and ST population is present in Washim.

Education (Strongly linked with SDG-4 Dimension 4, and moderately linked with the other three dimensions of the study)

Figure 4.2: Education status of Respondents (in %)



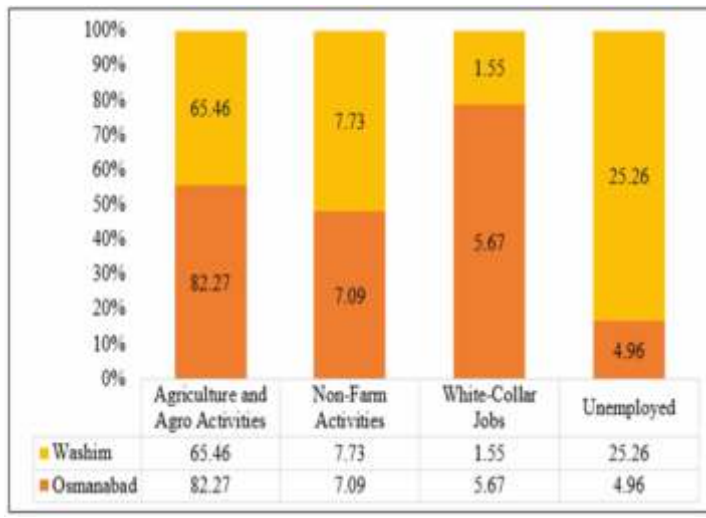
	Uneducated	Upto 5th Standard	5th to 10th standard	Higher secondary	Graduation	Post graduation	Diploma	Others
Washim	17.2	22.22	20.79	29.39	8.6	0.36	0.72	0.72
Osmanabad	13.57	13.57	40.45	11.56	12.31	1.5	3.02	4.02

Source: Primary Survey

iii) Washim had a higher illiteracy rate and a higher student's enrolment rate up to class V and higher secondary education. Osmanabad was found to be performing better with respect to enrolments for graduation and post-graduation education. Both the districts needed to address the issue of illiteracy in the future to improve their performance with respect to Dimension 4 - SDG 4 - on education

Occupation of Households (Strongly linked with Dimension 1, moderately high linkage with Dimension 2)

Figure 4.3: Occupation Status of Respondents (in %)



	Agriculture and Agro Activities	Non-Farm Activities	White-Collar Jobs	Unemployed
Washim	65.46	7.73	1.55	25.26
Osmanabad	82.27	7.09	5.67	4.96

Source: Primary Survey

iv) Osmanabad district had higher number of respondents who were engaged with Agriculture and Agro Activities and have white collared jobs. However, higher level of unemployment was seen in Washim district. Further, with respect to MGNREGA, the number of households

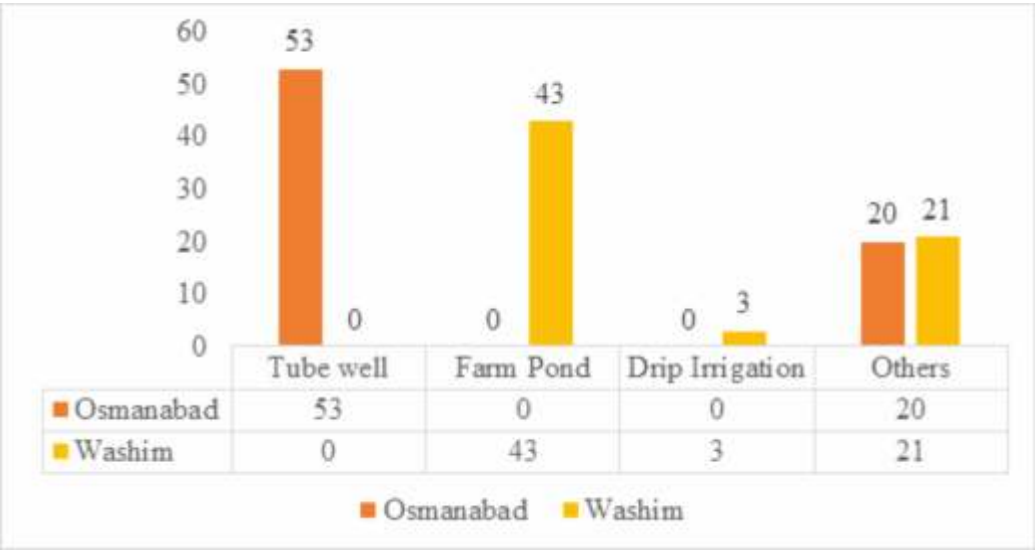
Irrigation Facilities: (Strongly linked with Dimension 1 and 2)

Table 4.22: Irrigation facilities available to the Respondents

Irrigation Facilities		
Indicators	Osmanabad	Washim
% of Respondents having irrigation	50	35
Owned Irrigation Faccilities	51	49
Rented	21	16
Type of Irrigation Facilities		
Indicators	Osmanabad	Washim
Tube well	53	0
Farm Pond	0	43
Drip Irrigation	0	3
Others	20	21

Source: Primary survey

Figure 4.4: Types of Irrigation Facilities in %



Source: Primary survey

v) Osmanabad had a higher number of respondents having ownership and access to irrigation facilities. Tube wells were largely popular in Osmanabad while farm pond was the more prominent type of irrigation in Washim with a few households even using drip irrigation facilities.

Additional Support to Household (Strongly linked with Dimension 2 and moderately high linkage with Dimension 1)

Table 4.23: Additional Support to Household

District Name	Soil Test				Soil Health Card		
	Yes	No	No Response	Total	Yes	No	No Response
Osmanabad	10	90	0	100	12	88	00
Washim	5	75	20	100	3	97	20

Source: Primary survey

Table 4.24: Possession of Tractors (in %)

District Name	Tractor			Tractor with trolley			Tractor without trolley		
	Yes	No	No Response	Yes	No	No Response	Yes	No	No Response
Osmanabad	4	95	1	3	95	2	0	98	2
Washim	1	97	2	0	98	2	0	91	9

Source: Primary survey

Table 4.25: Possession of farming tools (in %)

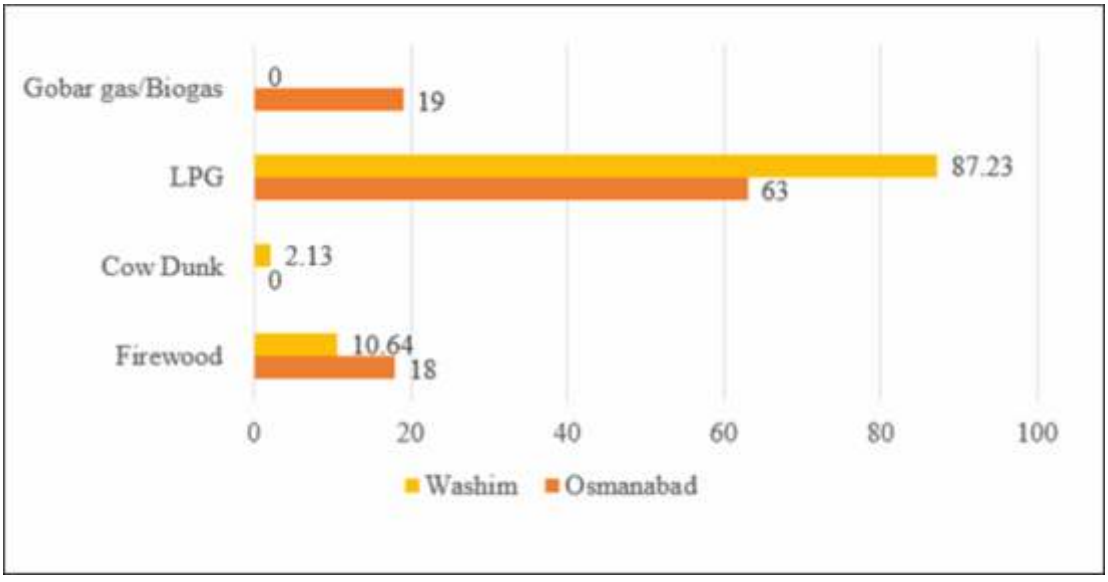
District Name	Hand tractors			Threshing machine			Tillers			Sprayers		
	Yes	No	No Response	Yes	No	No Response	Yes	No	No Response	Yes	No	No Response
Osmanabad	2	98	0	3	97	0	0	100	-	1	99	0
Washim	0	90	10	0	89	11	1	87	11	0	97	13

Source: Primary survey

i) Washim had a larger number of respondents with respect to Kisan Credit Cards. Overall with respect to soil testing cards, soil health cards, tractors, threshing machines, and other tools for agriculture and cultivations, Osmanabad was performing better than Washim

Cooking Fuel: (Strongly linked with Dimension 1, 2 and 3)

Figure 4.5: Types of Cooking Fuel (in % age)



Source-Primary Survey

ii) There were higher number of households having LPG facilities in Washim. Osmanabad had a good mix of households opting for LPG and biogas for cooking which is a relatively clean cooking fuel as it produces fewer pollutant.

Banking: (Strongly linked with Dimension 1 and 2)

Table 4.26: Banking Services Available

District Name	Type of Bank					Account Status				
	Comme-rcial Bank	Cooper-ative Banks	Credit institu-tions	Do not Know	No respo-nse	Active	Inactive	No respo-nse	Do not Know	Total House holds
Osmanabad	28	70	1	0	1	100	0	0	-	100
Washim	2	59	5	21	13	63	3	21	13	100

Source: Primary survey

Table 4.27: Purpose of visit to Bank

District Name	Bank Visit (in past 3 months)		Purpose of Visit					
	Yes	No	Deposit	Withdrawal	Credit	Others	No response	Do not Know
Osmanabad	97	3	19	16	50	15	0	0
Washim	58	42	4	21	5	41	13	21

Source: Primary survey

iii) Osmanabad had 90% of the respondents Visit a bank in the last 3 months, while the same for Washim stood at 50% of the respondents. 50(% of the respondents visited a bank in Osmanabad to avail credit. Both the districts had a mix of commercial, cooperative and credit institutions.

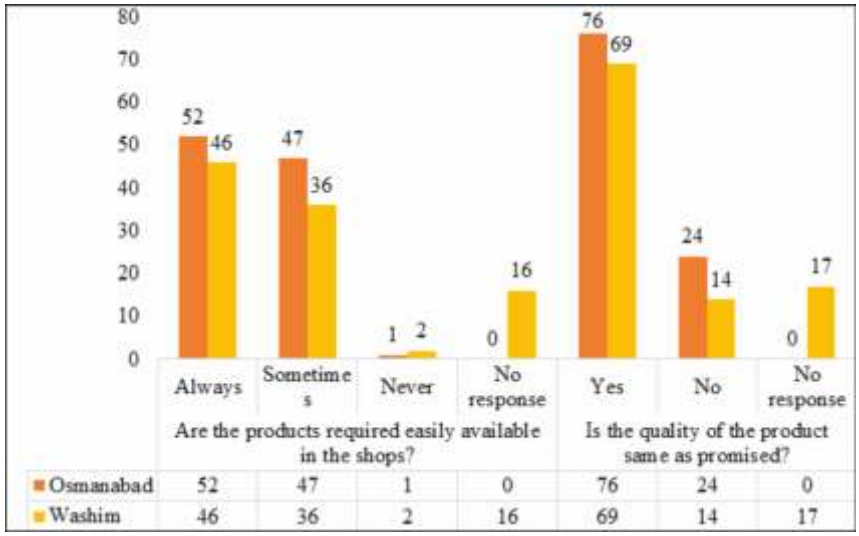
Public Distribution System (Strongly linked with Dimension 2)

Table 4.28: Public Distribution System (PDS) and its type

District Name	Public-Distribution-System				PDS type			
	Yes	No	No response	Total House holds	Priority	Antyodaya Anna Yojana (Yellow Card)	No response	Total House holds
Osmanabad	89	11	0	100	80	12	8	100
Washim	46	26	29	100	1	7	92	100

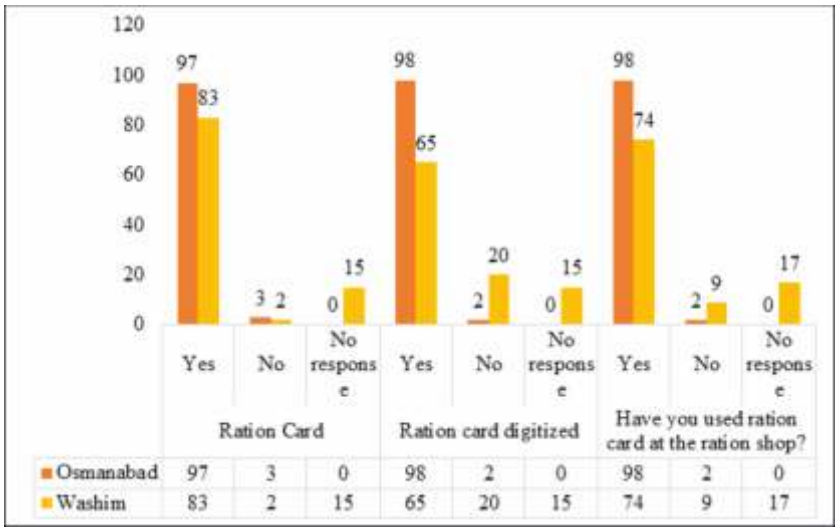
Source: Primary survey

Figure 4.6: Product Availability in the PDS and its Quality in (%)



Source: Primary survey

Figure 4.7: Access to Ration Card, Digitalisation and Usage in (%)



Source: Primary survey

Table 4.29: Reasons for not availing ration card

District Name	Reasons not availing Ration Card benefits							
	Too far	No time	Financial constraints	Irregular supply	Poor quality	No Need	Insufficient quantity	Others
Osmanabad	89	11	0	100	80	12	8	100
Washim	46	26	29	100	1	7	92	100

Source: Primary survey

iv) Osmanabad had better access to PDS system, more number of priority cards, and more number of respondents having digitised ration cards than Washim. However, there were more respondents in Osmanabad who found the quality and quantity of the food grains supplied poor and insufficient.

Democratic Rights (Strongly linked with Dimension 2)

Table 4.30: Access to Voter Card and Voting (in %)

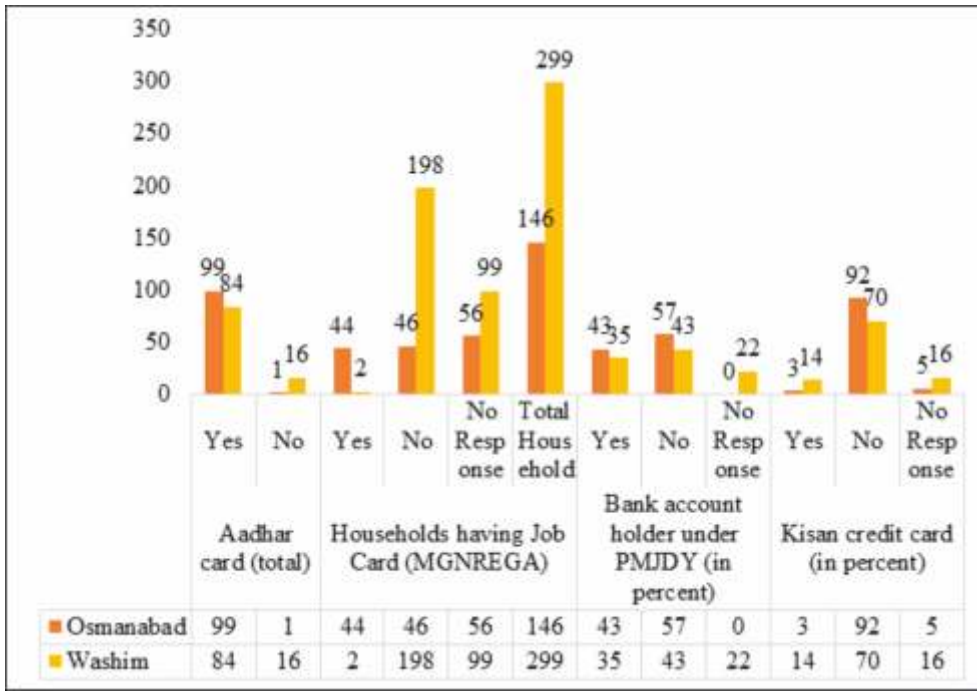
District Name	Voter Card			Casted Vote?	
	Yes	No	No Response	Yes	No
Osmanabad	89	11	0	100	80
Washim	46	26	29	100	1

Source: Primary survey

v) All the respondents had a voter's card and nearly 99% of them had exercised their voting rights in the last few elections. This addresses the issue of equality with respect to citizens' rights being able to be exercised

Tools for Availing Social Security (Strongly linked with Dimension 2 and moderately linked with Dimesion1)

Figure 4.8: Households registered under government programmes for Social Security



Source: Primary survey

vi) Large number of respondents in both Osmanabad and Washim District had registered AADHAR Card, whereas some respondents had PMJDY accounts. However, with respect to MGNREGA job cards there were larger number of households in Washim district who were not having the job card.

Ownership of Assets at the Household level (Strongly linked with Dimension 2)

Table 4.31: Ownership of Assets at the Household level

Ownership of Assets		
Asset Type	**Osmanabad**	**Washim**
Two-wheeler	45	55
Three-wheeler	2	0
Four Wheeler	3	0
Television	41	26
Refrigerator	19	4
HH having Cows	42	4
HH having Bulls	21	2
HH having Goats	7	2
Buffaloes	19	2

Source: Primary survey

vii) While both Washim and Osmanabad had more a number households with two-wheelers, the numbers were higher for Washim in this regard. With respect to three-wheelers, four-wheelers, television, refrigerators and households owning cattle like cows, buffaloes, bulls and goats, Osmanabad was doing better with respect to ownership of assets.

It is evident from the survey that Osmanabad district is doing better than Washim.

Annexure-III

Field Observations - From Pilot Survey (Pune and Osmanabad)

Kolwadi- Pune

Kolwadi is a large village located in the outskirts of Pune, Velha taluka - 65 km away from the city centre and covers an area of 600 hectares. The village has a total population of 4967, made up of 940 households and comprises of 2606 males and 2361 females according to 2011 census. The literacy rate of the village stood at 83.42 %, with 92.46% male literacy and 65.23% female literacy rate[24]. It is found that 30% of the village population involved in farming activities, producing rice, during the monsoon months from June to September. Further, the remaining 70% of the villagers are engaged in the milk production or dairy activity, with around 200 litres of milk being produced and supplied to the nearby market (Pune city), daily. Cow milk is priced at Rs.25/ litre and the milk from Buffalo is priced at Rs.40 / litre, with storage of the produce being managed by the villagers in their households.

The villagers source the water from the bore wells. There are four government and two privates bore wells in this village. While the village as per the records has 100 % household electrification, they however experienced 8 to 10 hours of power cut on every Thursday in 2019. The nearest bus stop is 5 kilometres away, and the nearest police station is 22 km away. The nearest market for the villagers is located in Nasrapur, which is 18 kilometres away. However, villagers have to use either personal or private transport system to commute to the market.

The village is also 100 % open defection free under Swach Bharat Abhiyan (SBA). Under the said mission, 15 toilets were built in the village entailing an expenditure of Rs.12000 per toilet, was incurred by the government.

There is an Anganwadi - child care centre in the village, having a teacher and a helper to take care of the village children. The existing primary school can accommodate students from class 1 to class VII with teachers holding a diploma in education. All the students are provided with mid-day meals and are provided with free vaccines. The teacher-pupil ratio is 1:15. E-learning is provided in the school, which is equipped with five computers. The primary school in Kolwadi was the first school in the taluka. The secondary school is 4km away from the village, with the government providing cycles for the girls to attend schools regularly, while the local panchayat provides free books and school uniforms to all the students.

The nearest primary health care centre for the people of Kolwadi village is in Karjane village and remains open all through the day (24 x 7). Each doctor has to maintain a continuous 48 hours shift. While the medicines are provided free of cost, but each patient has to pay Rs. 2 for the case paper.

[24]The Literacy rate for Maharashtra stood at 82.34% as per 2011 Census, with Male being 88.38% and female - 75.87% literacy rate. Pune District it was 89.45%

There are four disabled persons in the village.

As a part of the Pradhan Mantri Jan Dhan Yojana (PMJDY) every eligible villager has a bank account and benefits from government schemes where cash is provided directly in their bank accounts.

Mangdari [25], Velhe, Pune, Maharashtra

The village Mangdari is located in Velhe Taluka of Pune district, in Maharashtra with a total geographical area of 245 hectares and is 59 kms from the city centre. The total number of households residing in this village is 116 with a total population 622, of which 319 are males while 303 are females. As per the 2011 Census, the literacy rate of Mangdari village was 83.07%, where male literacy stood at 92.31 %while the female literacy rate was 73.45 %. There are 61 children in the age group 0-6, which constitutes around 9.8 % of the total population. The average sex ratio and child sex ratio in the village stood at 950 and 848 respectively. There are no persons belonging to the Schedule Caste (SC) and Schedule Tribe (ST) in this village.

Around 30% of village dwellers are working is the service sector, and the remaining are involved in farming activities. The farmers grow two separate crops - rice and vegetables. During June to September they grow rice and also grow tomato, onions and other vegetables as per the needs and the prevailing situation. It was informed that 95 % of the male workforce are engaged in regular activities (having employment for more than 6 months) and the rest 5 %are engaged in marginal activities for livelihood. The village further comprises of 280 cultivators and 14 agricultural labourers. The stream flowing in the village is a crucial seasonal source of water, besides water is also sourced from three tube wells sanctioned by the village panchayat. Every household has water connection and the water is treated through a big aqua plant. Further, with respect to electrification, the village as per the records has 100 % household electrification. However, the villagers face 8 to 10 hours power cut once a week, which is usually on a Thursday.

There is one primary school in this village with classes from 1-7, having four teachers - one male and three females. There are 25 boys and 26 girls in this school. The secondary school in the village which accommodates classes from Standard 8-10, with three male and two female teachers; the school has 50 boys and 53 girls. This village also has an Anganwadi with seven boys

[25] Findings are based on observations and interview with Sarpanch Shri. Sampat Bandu Mangade

and eight girls. The village has an all-weather road connecting to the town. The nearest bus stop of the village is 4 km away from the village whereas the railway station is 59 kms away (Pune Railway station). The police station lies at a distance of 22 km whereas the post office is 4 kms away and located in the Kolwadi village. The village is well equipped and has access to the following: a) to fair price shops and grocery stores b) nearest market place Nasrapur - 16 kms away c) banking facilities mainly - State Bank of India and Pune District Central Cooperative Bank, d) tube well facilities, e) Self Help Groups (SHGs) and Cooperative Society, for providing credit.

In the year 2000, Mangdari village received the national award for an open defecation free village. The village comes under an extremely remote area. The draught in the region in 2018 resulted in a loss of more than 50 % of its rice production.

Hadsar[26], Junnar, Pune, Maharashtra

Hadsar village is located in Junnar taluka, has an area of 1017 hectares, and has a population of 1538 with 333 households according to census 2011. There are 772 male and 766 female population in the village. The sex ratio stood at 992 for Hadsar, with the child sex ratio at 910.

The village is 94 kms from Pune city centre. Being a tribal village with 88.69% ST, the NABARD's tribal development fund project is an important development intervention in the area. The literacy rate of the village was 77.05%, lower than the literacy rate of the State of Maharashtra and Pune district. The male literacy rate in the village stood at 89.60% and that for the female was 64.53%. While the village is now open defecation free - it was observed on the visit by the research team that the toilets had no water - and therefore was not functional to the extent required. It was commendable to note that the villagers collectively collaborated for the building of nearly 200 toilets in the village for all households. This collaborative effort was refunded by the central government's SBA scheme. The village also has some Corporate Social Responsibility [CSR] intervention by Hindustan Petroleum, which worked on provision and setting up of bore wells to ease the issues related with water. The nearest town and market place for exchange of goods is in Junnar which is nearly 15 kilometres away from the village.

It was observed that 70% of the villagers are mainly engaged in farming activities, growing bajra, rice, tomatoes, potatoes and onions. Besides various other activities such as animal rearing of cows and buffaloes and also involved with taking care of livestock and poultry farming activity, where hens and roasters are domesticated for eggs and meat. This helps the villagers with an

[26]Findings are based on observations and interview with Sarpanch Shri. Sakharam Shankar Bheli

important source of livelihood. Fishing too, is undertaken as a seasonal activity depending on the availability of water to cultivate fish for sale. Water is the biggest challenge faced by the villagers. Since the village is located on the slopes of the Sahyadri hills, most of the rainwater gets drained away. The village is dependent on rainwater for cultivation and has no irrigation facilities available. However, some villagers manage to procure water from the nearby dam's reservoir, as an alternate. The cluster pattern households are mostly 'kuccha' and hence many houses do end up getting washed away annually.

The primary and secondary school is available in the village. The village is 100% electrified.

Ashta Kasar, Lohara, Osmanabad

The village Ashta Kasar is located in Lohara taluka. The village area is 2200 hectares and it is 45 kms away from the Osmanabad city, taking 1.5 hours to commute time to the main city. According to census 2011 the village has a population of 6190, of which 3168 are males and 3022 are females, with a total of 1372 households. Literacy rate for the village is 79.76 %, with 88.52% male and 70.62% female literacy[27]. The village is well connected with the main roads and with the village panchayat office being 5 kms away from the highway. The village can be reached easily with private vehicle and the public transport service available in the village is poor.

Farming is the main occupation for 60% of the villagers, with wheat being the main crop for cultivation. Due to scarcity of water, no agricultural activities can be performed during the summer months of March to June. The village has been experiencing severe drought till 2016; with very little rain in the following years. However, in the year 2019, the village received relatively better amount of rain.

The main source of water is the lake which is located at a distance of 2 kms from the village. Besides, there are two tanks and one well, from which water from the lake is fetched with the help of a motor. While there are no water filters in the village except in the school, Terephthaloyl chloride (TCL) is used at community level to make the water portable. It was clearly observed that access to clean drinking water is the major issue in the village. This issues has been deliberated at the village panchayat level. 'Nala rundikaran[28]' and 'Nala saralikaran[29]' are carried out under 'jalsandharan' yojana but results are awaited. Further, 100% of the village is electrified, but the villagers face 6 hours power cuts on a daily basis (December 2019). This is also an issue for agriculture, as due to poor power supply, sufficient and timely water cannot be drawn for cultivation purposes. Also, due to poor quality of power supply, the water motors get burnt.

With respect to village infrastructure, it was observed that there is no good drainage system in the village. Only half of the village has well-constructed roads. Further, there is a problem for

[27]Literacy rate for Osmanabad district stood at 86.26% as per 2011 Census
[28]Nala Rundikaran is the canal treatment process of widening & deepening of Canals.
[29]Nala Saralikaran is the canal treatment process of straightening canals.

'samshan land' or cremation ground. This land is not usable in the rainy season. Post office is not active in this village. The panchayat members of the village have highlighted the various issues in writing to ZP committee regarding water filtration community toilets and electricity supply and these are main concerns highlighted for the last 2-3 years, but no satisfactory response has been received.

Under the Ujjawala scheme, almost 60 % of the households have received gas connection but the villagers continue to use both gas and Chula as they find the cost of LPG cylinder on a regular basis, unaffordable. The Aantodya Anna Yojana (AAY) scheme, which provides subsidised food grains to the very poor, is not effectively working in the village. There are 219 cards that have been issued but ration facilities are not fully provided to the people. In the village there are 32 self-help groups which include both male and female SHGs and are fully active.

It was observed that the Anganwadi centre in the village was functioning satisfactorily, with six Anganwadi centres being traced in the village. There are sufficient number of Asha workers in the village and timely administration of vaccination is carried out satisfactorily. The Asha workers visit individual households, whenever needed. Iron Tablets and folic acid are provided through the Anganwadi for primary and secondary school, twice a week. Women also receive iron and folic acid twice a week to enhance their immunities. The research team visited an Anganwadi centre which had 28 girls and 27 boys. Anganwadi meetings are being conducted once a month. All Asha workers have received mobile phones from Anganwadi.

The nearest bazaar (Mandai) or market is 30 km away from the village and known as Aathodi Bazaar. The nearest hospital is 30 km away in Umarga, while the primary health sub-center is in the village, but the building is damaged and therefore the nurse sits at the Anganwadi Centre For child delivery (institutional delivery), the nearest hospital is 30 kms away. The ambulance facility

can be availed from the Primary Health Centre (PHC), provided it is available, and entails a cost of around Rs 250-300, else the villagers need to seek the service of a private ambulance at the cost of Rs. 1500 is available for the villagers.

Primary as well as secondary school facility is available in the village. The primary school is close to the village panchayat. The school is divided separately for the boys and girls, having different administrative system as well as the school head or principal. There are 104 boys and 102 girls in the primary school, for which there are four teachers. In the boys school there are three male and one female teachers and in girls school there are two male and two female teachers. The teacher student ratio is 1:28 for boys and 1:25 for girl's school. Each student is provided with two sets of uniforms, one pair of shoes and books, which are provided by government, the rest of the expenses have to borne by the parents. Students walk for around 3-4 km to reach the school, as no cycles have been provided. Mid-day meal is also provided in the school, which includes Khichadi (a nutrtitous combination of rice and lentils) and sabzi (vegetables) as the meal, along with eggs and milk which are provided once a week.

Water filter is provided in the school, but cannot be directly accessed by the students. Students can only fetch water through the teachers. Further, the water filter is only functional if there is electricity. Under the Sarva Shiksha Abhiyan (SSA), the school has received funds for toilets, but the toilets built from the funds are locked and not accessible by the students. Students generally use the area behind the building as a toilet. It was observed that the school classrooms were adequate, clean and have good benches to sit. Further, the classrooms were well decorated with the charts and tables, which may help children while studying. While the schools does not receive any fund for cleaning the premises, the teachers contribute Rs. 500 each as and when required on a rotational basis. As in December 2019, the school has not received any refund from Sarva Shiksha Abhiyan. The team could not trace any senior authority in the school for catering to the needs of the school like painting, digitalization, solar and water tank maintenance etc. Some of their demands were put forward to higher authorities but have not received any response. There is special school for SC and ST in the Achler village - Lohara Taluka, which is the part of local

network made up of 10 schools. This leads us to conclude that there is discrimination in the Lohara Taluka.

The Gram panchayat of this village is made up of 15 members, wherein 9 (60%) are women representatives. Panchayat have indirect election[30] for the Sarpanch i.e. head of the panchayat committee. Panchayat meeting is held at regular intervals, once a month, with women actively participating in the meeting. There was absence of a toilet in the premises of the panchayat office. The meetings are held in the panchayat building. Internet is provided in the panchayat premises, but lacks appropriate usage, due to low speed. The Panchayat addresses a wide range of issues - such as various farm related requirements, water problem, also the school building related concerns are directed throught the village panchayat committee to Zilla Parishad (ZP). The village receives funds allocated, from the ZP through online transfer, therefore it is not a problem even if the Member of the Legislative Assembly (MLA) changes. Gaon Vikas Party is the local political party and it is not connected to any bigger political party.

[30]Indirect Election - villagers select their Sarpanch through election. There is no big political party involved in the election.

Bavi, Washi, Osmanabad

Village Bavi, belongs to Washi taluka, Osmanabad district, with an area of 2519 hectares. Bavi village is located 65 Km away from the Osmanabad city centre and around 20 Km away from the national highway. The total population is 3279 and 720 households, with 1690 males and 1589 females. The sex ratio is 904 and the child sex ratio is 903 for the said village. The village literacy rate is 68.5 %, with female literacy rate being as low as 29.9 % and the male literacy rate being 85.90%.

Farming 50% and dairy 20% are the main occupation of the villagers, with the main crop being wheat. Further, the villagers also engage with mendhi palans (grazing of goats) and making of Jhaadu (broom stick). Some of the villagers also work on construction business, having their own vehicles and material.

Bavi village has received grants under *Nanaji Deshmukh Krishi Sanjivani Prakalp* [31] *which is a joint initiative of Government of Maharashtra (GOM) and World Bank*. This scheme is active and the tenure of the scheme is for six years, wherein a sum of Rs 1400.36 lakhs are allotted to this village under this scheme. Farm ponds, Nala Saralikaran, sprinklers for irrigation, pine-line throughout the village, providing electric motor pump, sheli palan (goat grazing) and phalbaug are the initiatives active under this scheme. In December 2019, Rs 25 lakh have been invested under this initiative, besides, many other scheme are also proposed.

There are three lakes in the village, while two are filled with water, one of the lakes get dried up. The villagers cannot get access to water from the lakes because of an ongoing dispute with the adjoining village panchayats. Water is one of the crucial challenges faced by the villagers in the absence of rain. In 2019, till the month of November, the villagers received water supply through tankers, with the panchayat incurring the cost. For farming the villagers depend primarily on the ground water, however, most of the hand pumps are not functional due to the low level of ground water. Further, 90 % of the motor pumps are non-functional due to low voltage and poor quality of power distribution. After the month of March, the water situation becomes severe, as there is no water for 4-5 months, not even for drinking purpose. People rely on water tanks which come once in every 2-3 days and often leads to dispute among the villagers. A recent initiative of water ATM has been introduced, for providing clean drinking water to the households, and while this facility is available for limited time, it provides the villagers with access to safe drinking water. It

[31] Nanaji Deshmukh Krishi Sanjivani Prakalp- This is a scheme which is going to promote climate flexible agriculture and will help small and medium farmers.

was encouraging to note that plans for another water ATM [32]was under construction.

The villagers also faces problem with respect to electricity and water. At times, power supply is absent for 2-3 days, at a stretch. There is only one electricity line for the village, which is insufficient to meet the needs of the whole village.

The village road was found to be under construction. The 5 km stretch from the main road to the village, has neither proper road nor any signages directing to this village. The first glance of the village revealed it to be a comparatively better, since construction vehicles were found parked, close to the Panchayat office. Public transport is available, with buses being scheduled twice a day, at 6:30 am and 9:30 pm. For the rest of the time, the villagers have to travel 5 Km to reach the nearest bus stops.

It was observed that there was no toilet in the gram panchayat premise, however, 60 % of the households have benefited with the SCB and presently nearly all the households in the village have their private toilets. Despite this situation, open defecation persist as a matter of habit of the people. Even though the panchayat has received internet connection, they have not started using the same.

There are 1650 MNREGA cards but only 80 people have been provided with employment support from the scheme. The wages of workers differ for men and women, with men being paid Rs 250 and women Rs. 160.

The village has 35 SHGs which are not operational as they have not been able to generate adequate funds and disburse them in a timely manner. This discourages the villagers to engage with the SHGs. For instance, loans for the Kharif season is sanctioned during August and September and this does not help the farmer who needs timely credit support to carry out farming activities and the same has been observed in the Rabi season. Further, it was observed that villagers who had well connects with banks, could avail loans in a timely manner.

There is one functioning primary school in the village, and it was observed that the classroom are painted and the walls are filled with charts and visuals. There are 145 boys and 125 girls in the school with a teacher-pupil ratio is 1:38. One position for a teacher is vacant. The teachers get a monthly emolument of Rs 5000. The school has a good student's attendance record of 98 %. Uniforms and books are provided by the government. The school is electrified and has facilities for drinking water and mid-day meal. Further, while computers have been provided by the government, they are not functional due to low ram and poor quality of the processor. In spite of this deficiency, the school has e-learning facility, and an active science centre, which is built with the help of villagers. Overall, the primary school is found to be satisfactorily functioning, but there is an urgent need for improvement of the boundary walls and water supply for the school. It was informed that while the school needs land, because current rooms are inadequate to

[32]Water ATM- Water ATMs are automated water dispensing units, which provide communities with 24/7 safe water access.

accommodate the total strength of the students, this requirement has been forwarded to the competent authority at the ZP. However, there are many posts vacant at the ZP, which poses a challenge with respect to good governance.

On the health front, girls are educated about menstruation and get subsidized sanitary napkins for Rs 15, from the Asha workers compared to market price of Rs 26. The Primary Health Sub-center was not functional, while the post office was seen to be performing its main functions. The nearest bank which is the District Central Co-operative Bank, is 51 km away.

The research team came up with an interesting observation, that in place of the elected female Sarpanch, the husband posed to be the Sarpanch and was addressing the research team with our queries. Thus the presence of a female Sarpanch was superficial and was just a case of convenient compliance.

Indapur, Washi, Osmanabad

The village Indapur is in close proximity with Bavi village with an area of 1915 hectares. It is situated in Washi taluka and is 5 kms, 70 km away from Osmanabad city centre. A total of 763 households are residing in the village. The village of Indapur has a population of 3442, of which 1801 are males and 1641 females according to 2011 Population Census. The sex ratio for the village is 911 and the child sex ratio stood at 781. The literacy rate of the village is 78.94%, with female literacy rate being 69.13% and the male literacy rate being 88.06%.

It was observed, that 70 % of the villagers are mainly engaged in farming activities, and the major crops cultivated in the village are wheat, sugarcane, paddy and jowar. Most of the underground water is used for farming (90 %), and thus not much water is available for other usage, creating

water shortage in the village. The main source of water is from dam reservoir and ground water which is at a considerable distance from the village. There is ample supply of water in the village for agriculture but there is no piped water supply to the households. While the pipeline has been laid, but due to poor quality of work and indifferent maintenance work, it is found to be non-functional. Villagers have to go to the water site to fetch water for all household needs. While funds have been provided by the government from time to time, the task remains unaddressed by the panchayat. Due to lack of water, poor sanitation facilities pose yet another challenge faced by the villagers, where they have the luxury of bathing only once or twice a week because they have to go to fields for the same. The village Indapur is not an open defecation free village.

Under the MGNERGA scheme, 994 cards have been issued, but no jobs are being provided to the villagers. The village has 54 self-help groups (SHGs) which are partially functioning. Further, with respect to electrification, the village as per the records has 80% household electrification. However, the villagers face 6-7 hours power cut daily.

There is school till secondary class VII. Science centre and computers are provided in the school but they are not functional because there is no electricity in the school. School has not received fund for electricity and cannot afford the same without funding support. There is no drinking water and toilets in the school. Even for the girls above the age of 12 years, there is no provision of toilets and thus the village is not open defecation free. This is a matter of grave concern. Further, there is no waste management system in the village.

The village roads are in poor condition, as there were no pacca roads in the villages, making commute difficult at all times, especially during the monsoon months. However, the roads close to the Sarpanch's house were pucca and duly cemented. The Pucca roads were made up of cement; it was only 3 inches in width as compared to the standard 6 inches' width.

The villagers were reluctant to share any information in the absence of Sarpanch, thus governance at the grass root level was found to be a challenge in this village.

Chapter 5

CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusions

The 7 SDGs classified under four dimensions and 66 indicators have been carefully analyzed with respect to the achievements and constraints in the present study undertaken for the 32 districts of rural Maharashtra. The present study, deep dives into the district-level analysis to track the progress of each district with respect to the stipulated targets. The study has been conducted in two parts - a) Secondary Study and b) Primary Study.

The secondary data analysis of the study, has applied the Principal Component Methods (PCM) to create a dimension wise index followed by calculating an overall PCI including all the dimensions. This includes: i) Dimension 1 - SDG-GI ii) Dimension 2 - SDG-PHII iii) Dimension 3 - SDG-HWSI iv) Dimension 4- SDG-EI and v) Overall - SDG-CI.

5.1.1 Findings of the Secondary Study

The secondary analysis for the 32 districts reveals the following:

i) **Dimension 1 - SDG-GI:** The top five districts under the growth dimension, includes - Pune, Bhandara, Osmanabad, Kolhapur and Jalna, with 14 districts lying above the State average. The bottom five districts highlighted in the study - Hingoli, Gadchiroli, Nandurbar, Sindhudurg and Washim. Three of these districts Gadchiroli, Nandurbar, and Washim feature in the list of aspirational districts of Maharashtra as identified by the study undertaken by Niti Aayog.

ii) **Dimension 2 - SDG-PHII:** The top five performing districts with respect to poverty, hunger and inequality as addressed in dimension 2 -includes - Sindhudurg, Gondia, Kolhapur, Ratnagiri and Pune, with 17 districts lying above the State average. The bottom five districts included Ahmednagar, Beed, Osmanabad, Nandurbar and Jalna.

iii) With respect to the aspirational districts Gadchiroli and Washim were identified as a high performing district, while Osmanabad and Nandurbar were laggards - or very poor performing districts as per the calculations of our study.

iv) **Dimension 3- SDG-HWSI:** With respect to the health, water and sanitation - as discussed in dimension 3, the top five performing districts include Bhandara, Wardha, Sindhudurg, Nagpur and Sangli. There are 18 districts performing above the State average under this dimension. The very poor -bottom five districts include Jalgoan, Parbhani, Dhule, Nashik and Nandurbar.

v) Of the four aspirational districts under SDG-HWSI, Gadchiroli is performing above average, with Osmanabad and Washim performing poorly and Nandurbar very poorly.

vi) **Dimension 4 - SDG-EI:** Jalgoan, Dhule, Sangli, Ahmednagar and Solapur are the best performing districts, with respect to education index as covered in dimension 4. There are a very large number of districts (20), performing above the State average. The laggards for this dimension includes Nanded, Parbhani, Akola, Beed and Gadchiroli districts.

vii) **The aspirational districts** - Nandurbar was a high performing district with respect to education - dimension 4, with Osmanabad performing above the State average. Washim and Gadchiroli have shown very poor performance.

viii) **The SDG - CI -** in the overall performance with respect to the composite index -Bhandara, Pune, Sindhudurg, Nagpur and Wardha were the five best performing districts in the State. There were 14 districts ranked above the State average. Washim, Parbhani, Gadchiroli, Beed and Nandurbar were the bottom five districts - with three of the four aspirational districts featuring in this category. Osmanabad, was the only aspirational district performing slightly below the State average.

ix) A study of the eight administrative divisions of Maharashtra revealed the following:

Dimension 1- SDG-GI - the region of Pune, Aurangabad and Kolhapur were the better performing regions, with a score above the district average for the growth dimension. Amravati and Konkan were the laggard regions with respect to economic growth index.

Dimension 2 - SDG-PHII - the best performing regions scoring above the State average, with respect to poverty, hunger and inequality index included - Konkan, Nagpur, Kolhapur and Amravati. Pune region fell marginally below the State average, while Latur, Nashik and Aurangabad were the worst performing regions.

Dimension 3 - SDG-HWSI - this dimension relates with health, water and sanitation index, wherein Nagpur, Konkan, Kolhapur, Pune and Amravati regions were performing above the State average, with the worst performing region being Nashik.

Dimension 4 - SDG-EI: Nashik, Pune, Kolhapur and Konkan regions performed above the State average with respect to the education index, with Amravati being the laggard region in Maharashtra.

SDG-CI - The Composite index revealed that four of the eight regions were performing better than the State average - Pune, Kolhapur, Nagpur and Konkan. The worst performing region being identified as Nashik and Aurangabad.

5.1.2 Findings of the Primary Study

The primary study of the two aspirational districts Osmanabad and Washim, covering two tehsils in each district and five villages in each tehsil, revealed that the majority of the villages are doing well in both the districts. However, with respect to certain indicators, it could be concluded that:

i) Washim had better roads transport and accessibility to transportation to nearby towns compared to Osmanabad district.

ii) More number of households in Washim district were electrified, but with respect to quality of power the villages in Osmanabad were better off.

iii) Internet access and access to cold storage was found to be better for the select villages in Washim district.

iv) Both the districts had a good mix of institutional infrastructure with respect to post office, SHG, Development Groups/ NGOs/ Cooperative society, Farmers organizations, Agriculture Extension Officer, PDS, FPS, Anaganwadis and with select villages having Small Loans and Microcredit Facilities

v) MGNREGA has been implemented in all the villages in both the districts, however, other employment schemes were present in only select villages and skill development interventions were present in the villages of Washim district

vi) The study of the villages in both the districts, revealed that funds were allocated for SC and ST, with some villages having showcased utilization of these funds.

vii) Both the districts were found to be drought prone, while all the villages in Washim had conducted awareness meetings to address issues related with natural disasters and discussed measures to conserve water.

viii) All the villages in Osmanabad and Washim district had access to basic health facilities like sub centre since the last 20 years, providing the villagers with the fist point of contact between the PHC system and the community. However, other than two villages, the rest of them had an ANM centre. Osmanabad district was better equipped with the presence of PHC in 70% of the select villages, although CHC was not available in any of the villages surveyed. Some of the villages had access to private medical facilities. Overall, Osmanabad had access to a better health care system than Washim district.

ix) Villages in Osmanabad could only access clean water through bore well, public tab and hand pumps. While villages in Washim district had access to canal facilities within the village. However, access to clean drinking water was a major problem observed in the pilot study as well a part of the field observations.

x) Community toilets were found in all the villages of Washim district and only a few select villages in Osmanabad districts.

xi) With respect to education there was a good mix of government and private schools in both the districts which included primary, middle, secondary and higher-secondary schools were present in the select villages of both the district, with good infrastructure. There was a good mix of qualified male and female teachers in the government and private schools. Enrolments as well as the teacher student ratio in schools were encouraging with both boy and girl students attending. However, drop outs were also observed in the primary study undertaken. While vocational training programmes were conducted in the schools in select villages and scholarships too were offered - this should be a universal case across all the villages in the State of Maharashtra. Osmanabad was performing better than Washim district with respect to literacy rate for the sample surveyed (Contrary to the literacy rate as per the 2011 census - Osmanabad 78.44% and Washim was 83.25% literacy rate)

5.2 Recommendations of the Study

The study has identified the laggard districts and regions according to the framework defined (which incorporates four dimensions and seven SDGs and 66 indicators). Further, it has been observed that over the years the GOM has undertaken several initiatives, some emerging at the State while others have been initiated by the central government. These initiatives indicator wise have been identified in Annexure IV.

The recommendations of the present study highlights the need to work towards increasing the States' per capita income from the current level Rs. 191, 176 (2018-19) - 2583 USD, to 4045 USD per annum (1USD = Rs 74), towards achieving upper middle income status for Maharashtra, as defined by the World Bank[33]. This can be achieved by enhancing agriculture productivity with respect to food grains, cereals, pulses, oilseeds and coarse grains. An enabling environment should be created to encourage the secondary sector - including micro and small enterprises, providing scope for enhancing non-farm employment opportunities.

The State is performing poorly with respect to poverty and hunger. To rectify this aspect, all vulnerable sections must be covered by Pradhan Mantri Jan Dhan Yojana (PMJDY), which will provide opportunities for financial inclusion. The microfinance institutional framework and the SHGs have been improving over time, with respect to their numbers, deposits and loans disbursements. Large number of initiatives are underway with the Central and State Government, which provide support for training youth with relevant skills and encouraging the spirit and dynamism for entrepreneurship and self-employment. Further, a number of employment schemes have been operating in the State, like the Maharashtra Rural Employment Guarantee Act, 1977, Sinchan Vihir Yojana (Irrigation Wells Programme), Maharashtra State Rural Livelihood Mission (MSRLM-UMED) since 2011 under National Rural Livelihood Mission (NRLM) and Mahatma Gandhi National Rural Employment Guarantee (MGNREGA) and State Funded Scheme are being implemented in 34 districts of Maharashtra, and guarantees 100 days employment per household in a year to rural families whose adult members volunteer to do unskilled manual work.

This has also been supported by an active PDS and FPS which have to some extent been successful in addressing the issues related with poverty, hunger and inequalities. It can be seen that the centrally sponsored Annapurna scheme has been adopted since April, 2001, providing free of cost to destitute people of age 65 years and above. The PDS has been computerised at the State level to eradicate malpractices and distribute food commodities to eligible beneficiaries in a transparent manner. Further, one nation one ration card has been implemented since January 2020 and the Antyodaya Anna Yojana (AAY) scheme is providing the eligible beneficiaries with subsidised foodgrains. While AAY covers the poorest of the poor, families not identified by AYY come under Priority Household (PHH).

[33]https://www.worldbank.org/en/country/mic/overview#:~:text=They%20are%20defined%20as%20lower,62%25%20of%20the%20world's%20poor.

Health insurance has been provided under the Mahatma Jyotiba Phule Jan Arogya Yojana (MJPJAY), erstwhile Rajiv Gandhi Jeevandayee Arogya Yojana is being implemented in the State to provide cashless medical facilities. Since September 2018, Ayushman Bharat - Pradhan Mantri Jan Arogya Yojana (PMJAY) has been integrated with Mahatma Jyotiba Phule Jan Arogya Yojana.

To address the issues related with Mother and Child, the Pradhan Mantri Surakshit Matritva Abhiyan has been introduced to provide fixed day assured and quality antenatal care to pregnant women, and the Pradhan Mantri Matru Vandana Yojana' has been implemented in the State since January, 2017, providing cash in the form of direct benefit transfer (DBT) to pregnant women registered in government institutions.

Major emphasis should be further given to expand use of clean fuel for cooking purposes at household level. In this context, Pradhan Mantri Ujjwala Yojana should be given priority as this has both energy poverty and health implications for women.

It is evident after analysing the broad framework of the related indicators under Dimension 3 SDG-HWSI, Maharashtra as a whole is performing reasonably well. While some select targets have already been achieved, it is likely that timely interventions will help the State inch closer to the defined targets. For instance the State has already achieved the targeted rate as defined for the Maternal Mortality Rate (MMR) by 2016, along with the Under 5 Mortality Rate. The Neo-natal mortality rate for Maharashtra is likely to be achieved in a few years as the present score is very close to the target to be realized (The neonatal mortality rate was 13 in 2017 against a target to be achieved of less than 12). With respect to total physicians, nurses and midwives per 10,000 - the State has a score of 43, while the target to be achieved by India is 45. As per the ESM (2019-20) the estimated doctor population ratio in the State stood at 1:1,237. Whereas WHO has defined doctor per population ratio at (1: 1000) and nurses to population ratio at (3: 1000). The leading State is falling short on some of these select defined targets. It is also encouraging to note that timely health camps for pregnant women, lactating mothers and infants are organized yearly. The framework of the three tiered rural health system prevailing in the State, which include the sub-centre, PHC and CHC should be strengthened in such a manner that the average population covered which is relatively higher for Maharashtra should be improved. Presently there are 10,638 Sub Centres catering to an average population of 5,786. At the next level there are PHC 1823 - Population 33,776 and 361 CHC - addressing a population of 1,70,515. It is therefore recommended that there is a need to upgrade health institutions and comply with quality standards of National Accreditation Board for Hospitals & Healthcare Providers (NABH) certifications. The main objective being to enhance the availability and accessibility of services by establishing new health institutions based on population and distance norm.

While the present study has identified the indicators and the poor performing districts, it is recommended that a special health officer/ health executive needs to be appointed for the said district to address the regional inequity on this front. Further with respect to the Integrated Child Development Services Scheme (ICDS); Mid-day meal Programs (MDM); and Special Nutrition Programs should be strengthened in the laggard districts to address the malnutrition and reduce number of stunted children. Janani Suraksha Yojana and Janani Shishu Suraksha Karyakram

under National Rural Health Mission needs to strengthen to reduce MMR and IMR in backward districts. Additional effort is required to improve access to drinking water and sanitation facilities particularly in the poor performing districts identified.

The performance of the State of Maharashtra with respect to education dimension is good for select districts The State has undertaken a number of initiatives and various interventions, which includes implementing the Right to Free and Compulsory Education since April 2010. It has undertaken several measures to ensure gender equality in Education. However, there are a few areas that need to be improved with respect to achieving 100 % enrolment rates at the school levels, benchmarking to zero drop-out rates, having 100% qualified teachers, ensuring that all disabled students are able to attend school, fulfilling the objectives of inclusion and leaving no one behind.

It has been observed that as per ESM (2019-20) the State overall has nearly achieved a PTR as per the target defined of 30. However, select districts are performing poorly with respect to enrolments. The focus needs to now shift, on outcome education and what is learned by the students. It is encouraging to note that the World Bank has earmarked funds for improving the quality of school education in the State under the program called 'Strengthening Teaching-Learning and Results for States Program (STARS),' along with five other States.

Samagra Shiksha is an umbrella scheme being implemented from 2018-19, encompassing three schemes i) Sarva Shiksha Abhiyan (SSA) ii) Rashtriya Madhyamik Shiksha Abhiyan (RMSA) and iii) Teacher Education (TE), with the objective to ensure inclusive and equitable quality education from pre-school to senior secondary stage as envisaged in SDG 4. It also takes into account vocational education and strengthens and up-grade State councils of education research and training/State Institutes of Education and District Institute of Education and Training (DIET) as a nodal agencies for teacher training. Further, the GoM launched 'Pragat Shaikshanik Maharashtra Programme' in 2015-16, with the objective of enhancing outcome of education, focusing on learner-centric education. Under the programme, a special action plan has been prepared to provide need based and demand-driven training to teachers. The Government has reached out to various stakeholders in society to partner with them and also have been encouraging corporates to invest Corporate Social Responsibility (CSR) funds in the school system to improve educational facilities.

It is important to ensure sound infrastructure in rural areas, including - Physical infrastructure (transport infrastructure providing rural-urban connectivity, quality and timely supply of electricity, digital technology and internet connectivity, portable drinking water and adequate supply for irrigation process) along with social infrastructure (health, sanitation and education) and institutional infrastructure encompassing (Banking facilities, SHGs, Agriculture extension) will not only enhance inclusive growth for Maharashtra State, but will also provide better livability conditions, helping the State to inch towards SDGs by 2030.

The State has prepared a holistic framework with a road map (the vision document of State Maharashtra and the Village Social Transformation Foundation (VSTF)) for achieving the SDGs by

2030 by involving private players. The focus is on SDGs - related 125 blocks in 23 districts. The government has also established an 'Action Room to Reduce Poverty' to develop Micro Development plans in most deprived blocks from 13 districts in collaboration with the United Nations. Mechanism for convergence at the department and with multiple stakeholders have been set up to undertake planning at the district, block and panchayat levels. The important task of sensitising elected representatives and bureaucrats have been undertaken, with the main purpose of capacity building. Also planning, budgeting, decision making and aligning with the SDG process has commenced, with short-term and medium-term targets to be achieved at three year intervals 2024, 2027 and 2030.

It is essential from hereon, to undertake timely impact assessment and evaluation of the interventions and initiatives, in order to review the adequacy of these interventions, identifying critical gaps and devising suitable interventions. Various stakeholders in the State which include the Planning and Development Department and the Department of Economics and Statistics (DES), the Legislative Members, Line Departments, District Administration and Gram Panchayats will be a part of the process. It is clear that the progress of the State of Maharashtra should be measured from time to time, because as Stated by Peter Drucker *"If you can't measure it, you can't improve it."*

Annexure-IV

Table 5.1: Existing schemes for Dimension 1

Dimension 1- Goal 8		
Indicators	**Schemes**	**Scheme Operation Details**
Per capita growth	Gram Panchayat development Plan	During 2016-17 and 2017-18, total no of 244062 and 221834 GPDP were prepared respectively by the gram panchayats across the country. Fund allocated in gpdp (%) :Road(51.56), health and sanitation (17.33), Drinking water(8.21), rural electrification(4.97), maintenance and community assest(3.5), water conservation(0.62).
	Rural Infrastructure Development Fund (1995-96)	As of march 2019, A total of 25 tranches is included in the fund whereby a sum of 16954.79 cr have been sanctioned, of which 11990.07 cr have been disbursed so far.
MSMEs	Annual Credit Plan	The credit target set in 2019 was 235.4 thousand crore, of which 42.7% percent was achieved.
	Maharashtra State Industrial Cluster Development Programme	A total of 171 cluster projects was approved by GoM out of which 73 cluster projects have been granted approval for establishment of CFCs for which total grants of ` 104.89 crore have been released.
	Micro, Small Enterprises - Cluster Development Programme	A total of 30 industrial cluster project were approved with a total grant of 169.85 crore
	Pradhan Mantri MUDRA Yojna (2015)	The scheme is classified in 3 categories: 1. Shishu 2. Kishor 3. Tarun The progress of the scheme in 2018- 2019 (in crore) was Total accounts: 43,85,981 Sanctioned loan: 26,438.94 Disbursed loans: 25,741.99
Accounts opened under PMJDY	Pradhan Mantri Jan Dhan Yojana (2014)	As of Jan 2020, a total of 2.67crore accounts were opened in Maharashtra, of which 1.32 crore accounts (49.4 per cent) were from rural areas
Strength-ening Agriculture and allied activities	Kisan Credit Card Scheme (1998)	In 2019, total of 36.94 lakh new KCC cards have been issued in Maharashtra. The total amount of loan sanctioned under this scheme was 10,541.38 crore in 2019.
	Chhatrapati Shivaji Maharaj Shetkari Sanman Yojana (2017)	As of 2019, the total number of farmer's beneficiaries grew to 44.23 lakh with an expenditure of 19843 crore.

Dimension 1- Goal 8		
Indicators	**Schemes**	**Scheme Operation Details**
Strengthening Agriculture and allied activities	Sant Shiromani Shri Savata Mali Shetkari Athavade Baajar Abhiyaan (2016)	As of 2019, the scheme includes 62 sanctioned markets for farmers, out of which 32 are functioning in the State.
	Rashtriya Krishi Vikas Yojana (2007)	Under the scheme, during 2019-20 an amount of 434.47 crore grants is sanctioned to Maharashtra, of which 128.99 crore has been utilised.
	National Mission on Agriculture Extension and Technology (NMAET)	During the 12th plan period, the total outlay of the scheme was 13073.08 crore, with Government of India's share of Rs. 11390.68 crore and State share of Rs. 1682.40 crore.
	ATMA Scheme	A total amount of Rs.226.07 Crores are sanctioned under the scheme. The funds are allocated and shared between the Centre, State and District on an agreed ratio.
	Mission for integrated Development of Horticulture (MIDH)	As of 2019, under this scheme GoM received a total grant of 2,005.62 crore of which expenditure incurred was ` 1,997.06 crore
	Dr. Babasaheb Ambedkar Krishi Swavalamban Yojana	Under this scheme a grant of ` 273.62 crore was sanctioned for 2019-20.
	Birsa Munda Krishi Kranti Yojana	Under this scheme a grant of ` 100.71 crore was sanctioned for 2019-20.
	Chief Minister Agriculture and Food processing scheme (2017-18)	During 2019-20 a grant of ` 40 crore was allotted under this scheme
	Pradhan Mantri Kisan Samman Nidhi (PM-KISAN) (2018-19)	As of 2020, 72.21 lakh beneficiary farmers have been benefited and total amount of ` 3,909.82 crore has been utilized under this scheme.
	National Livestock Mission	During 2018-19 and 2019-20, GoI has sanctioned ` 10.53 crore and ` 18.55 crore respectively for activities under NLM.
Access to better Irrigation	Unnat Sheti-Samruddha Shetkari Campaign	GoM has initiated this campaign from kharif 2017-18 with the objective of Doubling Farmers' Income by the year 2022.
Strengthening Agriculture and allied activities	Package Scheme of Incentives	Under the scheme, during 2019-20 an amount of 3,390 crore was disbursed.

Dimension 1- Goal 8		
Indicators	**Schemes**	**Scheme Operation Details**
Strength -ening Secondary Sector	Atal Saur Krushi Pump Yojana	6,000 solar agriculture pumps were commissioned upto 2019, as against the target of 7,000.
	Mukhyamantri Saur Krishi Vahini Yojana	Under the scheme two pilot projects of solar energy of 2 MW capacity each are executed in Ahmednagar district and Yavatmal district.
	Deen Dayal Upadhyay Gram Jyoti Yojana (2015)	The total amount sanctioned to the State under this scheme was 2,164.15 crore.
	Scheme for Walk-through energy audit for SMEs	As of 2019, nearly 3,362 small and medium enterprises (SMEs) participated in the scheme and availed a subsidy of ` 91.12 lakh
	Pradhan Mantri Gram Sadak Yojana (2000)	In 2019, a road lemgth of 26,331 km have been constructed and nearly 10,616 inhabitants were connected.
	Gramin Sadak Vikas Yojana (2020-21)	Under this scheme, a total of Rs. 10 billion is allocated.
	Nagari Sadak Vikas Yojana (2020-21)	Under this scheme, a total of Rs. 15.01 billion is allocated.
	Chief Minister Gram Sadak Yojana	During 2019-20, the road length upgraded was 11,500 km and expenditure incurred was ` 6,246 crore
	Save Energy Programme	In all, 1,437 such energy audits have been conducted and subsidy of ` 249.81 lakh was given upto December, 2019.
	Renewable Purchase Obligation (RPO) & Renewable Energy Certificates (REC) Mechanism	A minimum quantity of purchase from renewable energy sources target upto 2018-19 is 2.75 per cent for solar and 11.0 per cent for other renewable energy.
Electricity	Maharashtra State Rural Livelihood Mission	During 2019-20 a total credit linkage of ` 726.60 crore was disbursed to 48,754 Self Help Groups.
	Self Help Group (SHG) bank linkage programme	Under this scheme, Total loan disbursed= 135.57 crore, Outstanding loan = 312.02 crore.
	Mahila Arthik Vikas Mahamandal	In 2019-20, Funds of 8.15 crore have been granted under this schemes and an expenditure of ` 7.00 crore was incurred.

Dimension 1- Goal 8		
Indicators	**Schemes**	**Scheme Operation Details**
Self Help Groups	Pradhan Mantri Krishi Sinchai Yojana (PMKSY)	Launched in 2015, The PMKSY has been approved for implementation across the country with an outlay of Rs. 50,000 crore in five years
	Pradhan Mantri Fasal Bima Yojana	In 2019, a compensation claims of ` 344.87 crore were proposed for 12.28 lakh beneficiary farmers.
	Weather Based Crop Insurance Scheme for Fruit Crops	During 2018-19 compensation claims of ` 1,414.18 crore are paid (progressive) to 3.45 lakh beneficiary farmers.
Cropping Intensity	Bhausaheb Fundkar Falbaug Lagwad Yojana (2018-19)	Covers 34 districts of the State, a grant of ` 46.94 crore were received of which ` 19.91 crore have been spent in 2019-20.
	Dr. Punjabrao Deshmukh interest rebate scheme	Under this scheme a total subsidy of ` 120.64 crore was given to 9.73 lakh beneficiaries in 2019-20.
	Sinchan Vihir Yojna	Under this scheme the State has announced to construct 11000 irrigation wells in the districts of Nagpur, gadchiroli, chandrapur, Gondia and Bhandara.

Source: Author's compilation from Maharashtra Economic Survey 2019-20

Table 5.2: Existing schemes for Dimension 2

Dimension 2- Goal 1, Goal 2 and Goal 10		
Indicators	**Schemes**	**Scheme Operation Details**
Poverty	Maharashtra Human Development Programme	Under this programme, various schemes focussing on improvement in education, health and income are being implemented. Considering socio-economic, geographical conditions and local needs of the talukas, district/taluka specific schemes are formulated.
	Pradhan Mantri Awaas Yojana	'Pradhan Mantri Awaas Yojana - Housing For All (PMAY-HFA)', is a flagship scheme of GoI under which the houses are to be made available to all by the year 2022. Upto January, 2020, in all 13.49 lakh houses have been approved in 391 cities of the State under the scheme
	Pradhan Mantri Awaas Yojana	'Pradhan Mantri Awaas Yojana - Housing For All (PMAY-HFA)', is a flagship scheme of GoI under which the houses are to be made available to all by the year 2022.

Dimension 1- Goal 8		
Indicators	**Schemes**	**Scheme Operation Details**
Poverty	Shabari Awaas Yojana	Shabari Awaas Yojana is a State scheme being implemented in rural areas for the people belonging to ST community who are homeless or having kutcha house.
	Ramai Awaas Yojana	Ramai Awaas Yojana is a State scheme being implemented for the people belonging to SC & Neo-Buddhist community
	MGNREGA Act	National Rural Employment Guarantee Act is being implemented in all the districts except Mumbai city and Mumbai Suburban districts as Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA)
	MGNREGA	Maharashtra:- Under the scheme, the GoI guarantees 100 days employment per household in a year to rural families whose adult member volunteers to do unskilled manual work. GoI provides grants for expenditure on employment upto 100 days per household.
	Revised Rajiv Gandhi Gramin Niwara Yojana-II	The scheme is being implemented for Above Poverty Line (APL) beneficiaries in low income category for construction of houses. Under the scheme, amount of ` 72.56 crore was disbursed to lead banks as interest component through MHADA upto November, 2019.
Nutrition - Food Grains, Pulses & oil seeds produ -ctivity	National Food Security Mission (NFSM)	The mission was launched in 2007-08 to increase the production of rice, wheat and pulses through area expansion and productivity enhancement, restoring soil fertility and productivity, creating employment opportunities and enhancing farm level economy.
	Sub-Mission on Seed and Planting material (SMSP)	The scheme is being implemented in the State from 2014-15 through Maharashtra State Seeds Corporation, so that farmers get quality/certified seeds at affordable prices.
	Promotion of Kitchen Garden in Tribal Districts	The scheme aims at providing balanced diet, rich in vitamin A & C and other essential minerals like iron and other nutrients, by promoting plantation of fruit trees and vegetables in the backyards of their residence
	Navsanjivani Yojana	Navsanjivani Yojana (NSY) is being implemented to reduce MMR and IMR in tribal areas of 16 districts covering 8,419 villages
	Supplementary Nutrition Programme	The 'Supplementary Nutrition Programme' (SNP) is implemented under ICDS to meet the minimum nutritional requirements of children, pregnant women & lactating mothers and to provide health care to them.

Dimension 1- Goal 8		
Indicators	**Schemes**	**Scheme Operation Details**
Gini Inequality	Mahila Arthik Vikas Mahamandal	The Mahila Arthik Vikas Mahamandal (MAVIM) is the nodal agency for implementing various women empowerment programmes in the State through Self Help Groups (SHGs), financial institutions and Government.
Mother Child Protection / MMR	Integrated Child Protection Scheme	Programmes such as shelter homes, special adoption resource agencies, child welfare committees, Juvenile Justice Boards, district child protection society, State child protection society, Government / NGO children homes, observation homes, after care homes, etc.
	Child Policy	The main objectives of the child policy are to take appropriate, constructive and reformative measures to remove inequality, discrimination, injustice occurring on children due to social status, to give rights to every child for love & care, protection, co-operation and child rearing in a family or family like environment.
	Pradhan Mantri Matru Vandana Yojana	The scheme was launched in 2017, under the scheme, cash of ` 5,000 is given in the form of direct benefit transfer (DBT) to pregnant women registered in govt.

Source: Author's compilation from Maharashtra Economic Survey 2019-20

Table 5.3: Existing schemes for Dimension 3

Dimension 3 - Goal 6 and Goal 3		
Indicators	**Schemes**	**Scheme Operation Details**
Access to clean water and sanitation	National Rural Drinking Water Programme	Implemented since 2009, the scheme aims at providing adequate drinking water in rural areas
	Dual Pump Piped Water Supply Scheme	Implemented since 2009, the scheme aims at establishing solar based water pumps, especially in Non-electrified villages.
	Water Scarcity Mitigation Programme	The programme is implemented every year from October to June in villages and wadis which are facing water scarcity
	Mukhyamantri Rural Drinking Water Progamme	In order to improve water supply and to provide clean and sufficient drinking water in the rural areas

Dimension 3 - Goal 6 and Goal 3		
Indicators	**Schemes**	**Scheme Operation Details**
Access to clean water and sanitation	Jalsawaria II	A World bank assisted programme, with a total fund of 1284 crore out of which the 70% will be borne by WB and the remaining by the State.
	Swachh Bharat Mission (Rural)	Implemented in 2014, the scheme aims to ensure cleanliness in rural areas, to stop the practice of open defecation, construction & sustained use of sanitary latrines at household level.
	Maharashtra Rural Water and Sanitation Program	The programme is financed by the World bank and GoM, with a ratio of 70:30 respectively.
Good Health	National Health Rural Mission	Launched in 2005, the programme aims to provide adequate health facilities to rural areas. The total amount sanctioned under this plan for the year 2019 was 3,920.44 crore.
	Reproductive and Child Health Programme - II	The programme aims to enhance child health status and population stabilization.
	Matrutva Anudan Yojana	The scheme is being implemented under Navsanjivni Yojna to provide health services like in tribal areas
	Universal Immunisation Programme	The programme is being implemented with the aim to provide high quality immunisation services to prevent mortality, morbidity and disability from vaccine preventable diseases
	Promotion of Kitchen Garden in Tribal Districts	The scheme addresses the problem of malnutrition and undernourishment by promoting plantation of fruits & vegetables trees.
	Supplementary Nutrition Programme	A programme under ICDS. It aims to control malnourishment in rural areas by providing nutritious diet to the children below six years of age and improve the health of pregnant women & lactating mothers.
	National AIDS Control Programme	NACP aims on creating awareness and education & surveillance of specific groups of population.
	Epidemic Control Programme	Epidemic control programme deals with monitoring of outbreaks as well as sporadic cases of water borne diseases like Cholera, Gastro, Acute Diarrhoea/dysentery, Infective hepatitis, Typhoid, etc.

Dimension 3 - Goal 6 and Goal 3		
Indicators	**Schemes**	**Scheme Operation Details**
Good Health	Rajiv Gandhi Jeevandayee Arogya Yojana	Rajiv Gandhi Jeevandayee Arogya Yojana is being implemented in the State in collaboration with the National Insurance Company to provide cashless medical facilities.
	Ayushman Bharat	From 23rd September 2018, Ayushman Bharat - Pradhan Mantri Jan Arogya Yojana (PMJAY) is integrated with Mahatma Jyotiba Phule Jan Arogya Yojana. This scheme is implemented in the State on Insurance Mode (MJPJAY and PMJAY) and Assurance Mode (only PMJAY). In all 2.23 crore beneficiary families get health insurance coverage under both the schemes.

Source: Author's compilation from Maharashtra Economic Survey 2019-20

Table 5.4: Existing schemes for Dimension 4

Dimension 4 - Goal 4		
Indicators	**Schemes**	**Scheme Operation Details**
Inclusive Education	Samagra Shiksha	The schemes includes three major sub schemes to promote equitable and Inclusive education; 1. Sarvashiksha Abhiyaan 2. Rashtriya Madhyamik Shiksha Abhiyan 3. Teacher Education
	Inclusive Education for Divyang	It aims to provide quality education for children with special needs. As of 2019-20, The total number of beneficiaries under this scheme are 2.9 lakh
	Pragat Shaikshanik Maharashtra Programme	The programme includes designing of special action plan for enhancing the grade and educational capacity among the students.
Net Enrolment ratio	Mid-day meal scheme	The scheme aims to enhance the enrollment and attendance of the students. The scheme is primarily implemented for classes up 8 and includes, in 2019-20 total beneficiaries under this scheme were around 107.88 lakh
	Schemes to Encourage Education	This includes various sub initiatives to promote education such as: 1. free Uniform and study material for std I to IV 2. Financial Aid for Std I to X students 3. Free education to economically backward male students 4. stipend to tribal students

Dimension 4 - Goal 4		
Indicators	**Schemes**	**Scheme Operation Details**
Inclusive Education	Schemes to encourage Girls Education	To encourage girls enrolment in education the State runs various sub initiatives : 1. Attendance Allowance Scheme 2. Ahilyabhai Holkar Scheme 3. Free education to girls studying in XI and XII 4. Kasturba Gandgi Balika Vidyalaya As of 2019-20, a total of 25.96 lakh girl beneficiaries are part of the scheme
	Rashtriya Uchchatar Shiksha Abhiyan	A centrally sponsored scheme, launched in 2013. The scheme is aimed at building efficiency, transparency, responsibility and productive outcome in higher education
	Rajarshi Chatrapati Shahu Maharaj tuition fee scholarship scheme	The scheme provides financial assistance to students of EWS. The scheme covers the following 1. Higher Education 2. Techniacal Education 3. Mediacl Education & Research 4. Agricuture 5. Animal Husbandary, Dairy Development& Fishiries
Zero Dropout Rates	Scheme for adolescent girls	The Scheme for adolescent girls is being implemented with an aim to encourage school dropout aged 11 to 14 years to re-join school from February, 2019 across 553 ICDS projects in the State

Source: Author's compilation from Maharashtra Economic Survey 2019-20

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