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Manpower Planning in Odisha

Submitted to
Planning & Convergence Department
Government of Odisha

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Study Team

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Foreword

The subject of manpower planning and forecasting was widely debated and used during the 1960s and '70s, both by developing and developed countries, for creating an efficient pool of human resources to achieve sustainable economic growth and development. Like other countries, India had also given due importance to its human resources since Independence and creating a large chunk of skilled manpower to maximise the returns from its demographic advantages. The Strategy for New India @75 lays focus on capacity building and infrastructure development for skilling / reskilling / up-skilling the existing and new entrants to the labour force. This has created a growing competition among the states to reap the benefits of these policies. Being one of the fastest growing states in the country, Odisha has launched a series of policy reforms in the areas of industry, food processing, tourism, agriculture and fisheries, information and technology and skill development etc. to sustain its growth momentum. The potential growth rate of the state has picked up and moved to a higher growth trajectory of 6.0–7.0 per cent during the 2000s from a Hindu growth rate of 3.0–4.0 per cent recorded in the earlier decades. For sustaining such high growth rate in the long run, the State must launch a comprehensive plan on managing its human resources and improving the productivity and efficiency of its huge unskilled labour force engaged especially in agriculture and unorganised sectors.

In this context, to deliver a long term strategy on human resources for the State and for its three selected districts (Ganjam, Sundargarh and Jajpur), the present study makes an assessment of the current and future demand and supply conditions of manpower at the aggregate and sectoral level during the period 2017-18 to 2021-22 and for the next five years 2022-23 to 2026-27. The study also makes an effort to assess the skilled manpower supply and demand, and skill gap for the State and its three districts for the two time periods as mentioned above. The study uses both primary survey information of the institutions, establishments and households and secondary data from various ministries, and uses suitable econometric tools for projections of manpower over the said period to develop a skill development eco-system in the State. It is found that roughly 0.45 million people join the labour force every year in the State of Odisha. While the demand for skilled jobs in the State may touch 13 million by the end of 2026-27, the supply of skilled labour force is lagging behind, leading to the shortage of a whopping 11 million skilled labour force by then. The study has suggested actionable policy plans at the sectoral level to improve the supply situation of skilled manpower and at the same time to create more domestic demand to absorb the skilled labour force.

I thank the Planning and Convergence Department (P&C), Government of Odisha, for awarding this important study to NILERD. The study would not have been possible without the cooperation and support from the officers at P&C department, and various other departments in the state and districts. NILERD is grateful to all of them.

I hope the state, the policy makers, industrialists and the economists alike will find this report interesting and useful.

Dr. Yogesh Suri
Director-General
NILERD

Acknowledgement

The study team wishes to extend its sincere gratitude to Planning & Convergence Department, Government of Odisha for awarding this important study to the National Institute of Labour Economic Research and Development (NILERD), an autonomous institute under NITI Aayog, Government of India.

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Last but not the least; the study team is grateful to hundreds of respondents including MSME units, households, educational institutions and organisations. Without their cooperation the study would not have been possible.

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List of Abbreviations

ARIMA: Autoregressive Integrated Moving Average
ASTIs: Advanced Skill Development Training Institutes
BSE: Board of Secondary Education
CAGR: Compound Annual Growth Rate
CSO: Central Statistical Organization
DESO: Directorate of Economics and Statistics, Government of Odisha
DP&C: Department of Planning and Convergence
DTET: Directorate of Technical Education and Training
EGW: Electricity, Gas and Water Supply
FGD: Focus group discussion
FTRPs: Full Time Resource Persons
GDP: Gross Domestic Product
GER: Gross Enrolment Ratio
GSDP: Gross State Domestic Product
GVA: Gross Value Added
GVJCs: Government Vocational Junior Colleges
IDCO: Odisha Industrial Infrastructure Development Corporation Ltd.
IDCOL: Industrial Development Corporation of Odisha Ltd.
IPICOL: Industrial Promotion & Investment Corporation of Odisha Ltd.
IT: Information Technology
ITCs: Industrial Training Centres
ITES: Information Technology Enabled Services
ITIs: Industrial Training Institutes
LFPR: Labour Force Participation Rate
MSME: Micro-Small-Medium Scale Enterprises
NALCO: National Aluminum Company Limited
NATS: National Apprenticeship Training Scheme
NSDC: National Skill Development Corporation India
NSQF: National Skill Qualifications Framework
NSSO: National Sample Survey Office
OPEPA: Odisha Primary Education Programme Authority
OSDP: Odisha Skill Development Project
RMSA: Rastriya Madhyamik Shiksha Abhiyan
SD&TE: Skill Development and Technical Education Department
SEZ: Special Economic Zone
SIL: School Industry Linkage
SSA: Sarva Siksha Abhiyan
THS: Trade, hotel and restaurants
TSC: Transport, Storage and Communications
UDIE: Unified District Information System for Education (UDISE)
UPSS: Usual Principal and Subsidiary Status
WFPR: Workforce Participation Rate

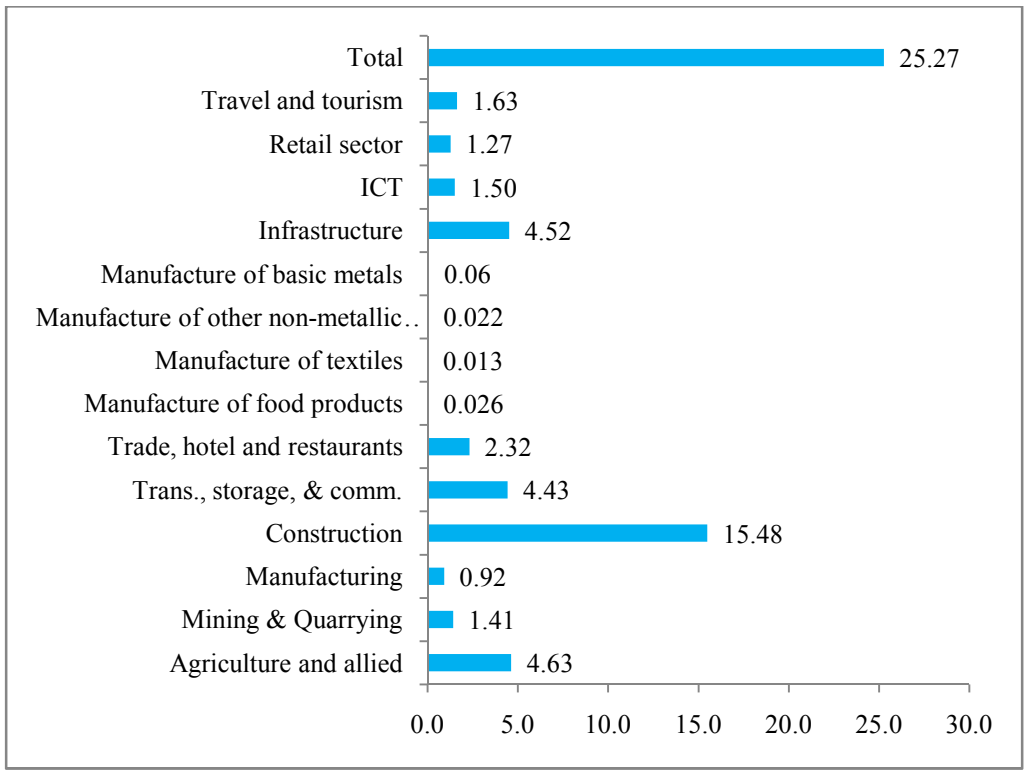
Executive Summary

Over the past decades, the subject of manpower planning and forecasting was perceived as one of the important means for creating conditions for efficient use of human resources to achieve sustainable growth and development in both developed and developing countries (ILO, 1994).[1] In the Indian context, the growing demand for manpower planning in general and skill development planning in particular has attracted much attention of the policy makers and the government across the states in the recent time. Odisha is seen as one of the fastest growing states in the country during the past decade, positioning itself as a progressive state in the area of education, health, information and technology, infrastructure, investment and industrial development. Launching a series of policy reforms in the areas of industry, food processing, tourism, agriculture and fisheries, information and technology and others, the state has evolved itself as a suitable destination for foreign investment. The potential or long term growth rate of the state has picked up and moved to a higher growth trajectory of 6.0–7.0 per cent from a Hindu growth rate of 3–4 per cent recorded in earlier decades. For sustaining such high growth rate in the long run, it is imperative to improve the productivity and efficiency of the labour force through imparting skills and training programmes. In this context, to understand the current and future scenario of manpower requirements in Odisha in view of a growing demand for skilled labour force in high value added sectors like services and manufacturing, and for sifting out the overcrowded unskilled labour force from informal sector like agriculture, the Department of Planning and Convergence, Government of Odisha initiated this study for the said purpose. Some of the key objectives of the study are: (1) to assess the current manpower scenario in the three broad economic sectors viz., agriculture, industry and services and its sub-sectors/emerging sectors; (2) to analyse the manpower projections and supply-demand gap under the three scenarios viz., baseline, optimistic and pessimistic, based on growth and income projections of different sectors and sub-sectors for the year 2016-17, 2021-22 and 2026-27; and to assess the skill gap of manpower for the State and specially the three selected districts namely, Jajpur, Sundargarh and Ganjam.

Both secondary and primary informations are used for analysing the different objectives of the study. While the demand side of manpower projection is carried out based on employment-output elasticity estimated by using a simple econometric model, the supply side of projection is done by using the labour force participation rate and attrition rates. However, due to data limitations, the supply side projection for the three selected districts has been analysed based on only labour force participation rate (LFPR). Skill requirement and skill gap analysis is done using the information from the primary survey and NSSO data. The caveat of the study is that the findings may not reflect the exact manpower demand-supply situation in the future owing to paucity of data information on labour market and other macroeconomic indicators at the sectoral level, but they may be used as an indicative outcome to know the future labour market trends in the state. The estimated results of skilled job requirements for the state across key sectors are illustrated in the figure below.

[1] *New Approach to Manpower Planning and Analysis*, P. Richards and R. Amjad (eds.), International Labour Organisation, Geneva, 1994

Key Sector wise Cumulative Skill gap (demand minus supply) during 2016 and 2026 under the Baseline or Business-as-usual growth scenario in the State (in Lakh)



Some of the key findings of the study are outlined below.

A. Findings at the State Level

- *Sectoral imbalance in employment and output:* The data analysis suggests that like India, the state of Odisha faces a peculiar situation in terms of sectoral employment contribution. While agriculture and allied sector contributes only about 16 per cent to the state's gross domestic product (GDP), it absorbs a substantial workforce of around 55 per cent. On the other hand, high value added sectors such as industry and services together contribute about 84 per cent to the state's GDP but absorb only 45 per cent of the total employment. Although absolute employment has started declining in agriculture sector in the recent past, the pace of shifting of workforce from agriculture to non-agriculture has been rather slow.
- *Skill status of the workforce:* The workforce in agriculture sector is largely unskilled with no or little formal or informal skill training. About 66.5 per cent of the total workforce in agriculture and allied sector is having either primary education or no education. Therefore, shifting the agricultural labour directly to manufacturing or services sector (except manual work in manufacturing units, retail shops, small restaurants and domestic help activities etc.) is going to be quite a difficult task as the latter sectors mostly require semi-skilled or high skilled workforce. The status of Technical education of the existing workforce is even worse, where more than 90 per cent of them do not have technical education.

- *Training capacity and the concerns:* It is estimated that roughly 4.5 lakh people join the labour force every year in the State. Further, while the demand for skilled workers is expected to reach around 131 lakh by 2026 from 93 lakh in 2016, the state has the capacity to provide technical training to only 1.23 lakh people per year (NSDC). As per the All India Council of Technical Education (AICTE) data, total enrolment in technical and professional courses (engineering and technology, management, pharmacy etc.) was 54,000 in 2015-16. Data published by the Directorate General of Training, Ministry of Skill Development and Entrepreneurship, Government of India shows that 92,000 students were enrolled in ITIs/ITCs during 2015-16 in the state. Altogether, these technical/vocational courses offer about 1.5 lakh technical labour force every year. If we add up the number of students enrolled under vocational junior colleges and project implementation agencies (PIAs), the total skilled personnel would be around 2 lakh per annum, which is certainly far less than the required demand.
- *Vocational Education and concerns:* Survey data of three selected districts namely Jajpur, Ganjam and Sundergarh point to the fact that seat utilization capacity is only around 45 per cent. The reason could be due to poor placement of around 30-40 per cent. Courses offered by the institutions are not suitable to local industry demand and some of the courses (Attendant Operator (Chemical Plant), Laboratory Assistant (Chemical Plant), Mechanic (Motor Vehicle), Tool & Die Maker (Press Tools, Jigs & Fixtures) and Wireman) in which seat utilization is nearly 100 per cent, the share of these courses in total number of seats is only around 2 per cent. Lack of necessary skills of instructors, nature of jobs of instructors (part-time or contractual), low salary and lack of carrier development opportunities are factors affecting the quality of education.
- *Employment by industry:* Survey data on establishments points to the fact that maximum percentage of workers ranging between 70–90 per cent are engaged in small scale manufacturing industries in the state. The contribution of medium industries to total industrial employment in the state is abysmal. It suggests that the transformation of industries from small to medium scale has not been really happening at the ground level. Within Small and Medium Enterprises (SMEs), maximum employment has been happening in food and allied, repairing and services, glass and ceramics, engineering and metal, and textile enterprises.
- *Trends in skilled jobs in the State:* National Sample Survey Organisation (NSSO) data indicates that the proportion of regular wage labourers has continuously increased since 2004-05, which indicates that the demand for skilled workforce may have increased in the state. However, at the same time the proportion of casual employment, which constitutes mostly unskilled workers, has also marginally gone up between 2004-05 and 2011-12, suggesting that due to lack of sufficient demand of skilled jobs or due to lack of proper skill, people are joining the casual labour market in the state.
- *Composition of Skilled and Unskilled:* Establishment data also reveal that more than 50 per cent of jobs in the state are unskilled. The proportion of skilled workers is found more in sectors like health, education, banking and business services, repairing and servicing, engineering and metal, textile, and miscellaneous manufacturing.
- *Future skill demand:* Respondents from establishments survey reported that the demand for more skilled jobs in the future may come from sectors such as engineering and metal, repairing and servicing, agro and food processing, tourism and hospitality, wholesale and

retail trade, and food and beverage services, construction material and building hardware, electronics and IT, transportation and logistics.

- *Areas of training:* The household survey reveals that while female members preferred having skill training in the area of tailoring, embroidery, nursing, beautician, salesmanship, jeweler, diamond cutting, paper bag and computer science; male members required skill training in agro and food processing, textile designing, driving, mobile repairing, plumbing, automobile repairing, mechanical, computer science and hospitality.
- *Awareness and concerns:* It was pointed out by the youths in rural areas that they heard about the skill development programmes initiated by the state government but have never realised the same in true sense, as the local governments at the district and Panchayat levels have never informed them of any government schemes on skill development. The local governments hardly conduct any awareness programmes on skill development. The findings also suggest that girls are unwilling to go beyond their own districts after the completion of skill training, whereas boys are willing to go anywhere within or outside the state. But there was concern on low salary of Rs.6000-8000, which demotivate them to join the training courses as surviving with such a low salary outside the district or the state is becoming quite difficult.

Manpower Demand Projection

- *Structural change in the state economy:* Odisha's economy has experienced a Tick (√) pattern of economic growth during the last sixty years, constituting three distinct phases. During the first phase (1950-51 to 1989-90), the state economy recorded 3.6 per cent growth contributed mainly by primary and secondary sectors. The growth rate however declined by 1 percentage point to 2.6 per cent during the second phase (1990-91 to 2002-03) due to poor performance of primary and secondary sectors. Then came the third phase (2003-04 to 2010-11), the golden period of economic growth, wherein the state economy registered 10.4 per cent growth rate led by tertiary and secondary sector. Though the growth rate has slightly decelerated since 2010-11 due to financial crisis and erratic rainfall that has affected the performance of primary sector, still the long term or potential growth rate of the state economy remains in the range of 6.0 to 7.0 per cent. The continued decline in the share of agriculture sector total state's GDP from 52.52 per cent during 1950-51 to 16 per cent during 2016-17 is a matter of concern since around 55 per cent of the state's workforce is still engaged in the sector and moreover it poses a serious challenge to food security and livelihood of the rural population.
- *Growth Scenarios:* For estimation of expected manpower demand or jobs creation during the period 2017-18 to 2021-22 and during 2022-23 and 2026-27, the study considers three economic (GSDP) growth scenarios[2]. They are normal or business-as-usual growth, optimistic or high growth and pessimistic or low growth scenarios. It is expected that GSDP (at 2011-12 constant basic prices) of the state would grow on an average by 6 per cent during the intial 5 years and 6.5 per cent during the next 5 years under the baseline scenario. On the other hand, the growth rate is expected to accelerate to 7–7.5 per cent under the optimistic scenario owing to various reforms measures undertaken by the government in the recent time. In contrast, the pessimistic scenario may evidence lower

[2] Growth projections are done using trend analysis and five years moving average methods.

growth rates of 5.0-5.5 per cent due to policy uncertainty, natural calamities and external factors.

- *Manpower demand under baseline:* Manpower demand or requirements under the baseline scenario is expected to increase from 187.6 lakh in 2016-17 to 210.7 lakh in 2026-27, with incremental demand of 35.8 lakh by 2026-27. Out of which, demand for employment in agriculture sector would decline from 93.6 lakh in 2016-17 to 89.6 lakh in 2026-27. On the other hand, the demand for employment is expected to increase both in industry and services from 52.3 and 41.7 lakh in 2016-17 to 69.3 and 51.8 lakh in 2026-27 respectively.
- *Manpower demand under alternative scenarios:* Under the optimistic scenario, the manpower demand is expected to increase more than the baseline scenario from the 175.0 lakh in 2011-12 to 215.5 lakh by 2026-27, with an incremental demand of 40.6 lakh by 2026-27. In contrast, manpower demand is expected to remain low under the pessimistic scenario from the 175.0 lakh in 2011-12 to 206.7 lakh in 2026-27, with an incremental demand of 31.8 lakh till 2026-27.
- *Manpower demand at sector/sub-sectoral levels:* Manpower demand for disaggregated sector under the baseline scenario shows that within industry, the major chunk of demand is expected to come from construction sector (21 lakh in 2011-12 to 43.7 lakh in 2026-27) followed by manufacturing (17.1 lakh in 2011-12 to 19.4 lakh in 2026-27). Within services sector, the demand is expected to be highest in sectors like trade, hotel and restaurants (17 lakh in 2011-12 to 21.3 lakh in 2026-27) followed by transport, storage and communication, other services (education, health etc.), and banking and insurance. State specific emerging sectors like infrastructure, retail secor, travel and tourism, and metal based industries are expected to required substantntial number of manpower by 2026-27.

Manpower Supply Projection

- Our estimate suggests that the manpower supply for all age groups is expected to touch around 193.9 lakh in 2016-17 from 179.3 lakh in 2011-12. It may rise further to 204.2 lakh in 2021-22 and 217.2 lakh in 2026-27. With this, the demand-supply gap of workers may increase from 4.3 lakh in 2011-12 to around 6.5 lakh in 2026-27.
- In case of those in the age group of 15-59 years, the supply of manpower is expected to rise far higher than the 'all age' groups due to higher LFPR. It is estimated that the supply of workers may be around 176.3 lakh in 2016-17 and may increase further to 198.1 lakh in 2026-27. Therefore, the demand–supply gap of manpower may increase from 4.1 lakh in 2011-12 to more than 6.5 lakh in 2026-27.
- Region-wise, we found that manpower demand–supply gap is expected to be higher in southern region (2.8 lakh) followed by northern region (2.4 lakh) and central region (1.3 lakh) by 2026-27.

Demand for Skilled jobs and Skill Gap:

- As the economy of the state progresses, the demand for skilled jobs particularly in services and manufacturing sector is expected to rise. It is estimated that skilled jobs may increase from 93.7 lakh in 2016-17 to 131.3 lakh in 2026-27 under the normal growth scenario. Across sectors, highest demand for skilled jobs would likely to come from

industry sector (40.7 lakh in 2016-17 to 61.5 lakh in 2026-27) followed by services sector (34.0 lakh in 2016-17 to 46.0 lakh in 2026-27). In case of emerging sectors, highest skilled manpower demand would come from infrastructure sector (8.16 lakh in 2016-17 to 13.80 lakh in 2026-27) followed by travel and tourism, ICT, retail trade and manufacturing of basic metals.

- *Skill gap*[3]*:* Due to the shortage of skilled labour force supply, the cumulative skill gap (demand minus supply) for the State is expected be 25.27 lakh during 2016-17 and 2026-27.. Out of total skilled labour force shortages, the highest skill gap is being reported in construction sector (15.48 lakh) followed by agriculture and allied sector (4.63 lakh), infrastructure (4.52 lakh), transport, storage and communication (4.43 lakh), travel and tourism (4.29 lakh), and trade, hotel and restaurant (2.32 lakh) during 2016-17 and 2026-27.

B. Findings at the District Level

a. Ganjam District

Manpower Demand Projection

- *Baseline scenario:* Under the baseline scenario, manpower demand in the district is expected to reach 17.99 lakh in 2026-27 from 15.25 lakh in 2011-12, with an incremental demand of 2.74 lakh by 2026-27. However, while the demand for manpower in agriculture sector would decline from the 8.84 lakh in 2011-12 to 8.31 lakh in 2026-27, in opposite, the demand for manpower both in industry and services is expected to rise from 3.87 lakh and 2.53 lakh in 2011-12 to 6.92 and 3.81 lakh in 2026-27 respectively.
- *Optimistic and Pessimistic scenarios:* Under the optimistic scenario, the manpower demand is expected to increase more than the baseline scenario from 15.25 lakh in 2011-12 to 18.37 lakh by 2026-27, with an incremental demand of 3.12 lakh by 2026-27. In contrast, manpower demand is expected to remain low under the pessimistic scenario from 15.25 lakh in 2011-12 to 17.63 lakh in 2026-27, with an incremental demand of 2.39 lakh till 2026-27.
- *Disaggregated sectors:* Manpower demand for disaggregated sectors under the baseline scenario points to the fact that within industry higher demand for manpower is expected to come from construction sector (2.70 lakh in 2011-12 to 4.69 lakh in 2026-27) and manufacturing sector (0.89 lakh in 2011-12 to 0.97 lakh in 2026-27). In the case of services sector, higher demand is expected to come from trade, hotel and restaurants (0.88 lakh in 2011-12 to 1.27 lakh in 2026-27), other services (education, health etc.), and transport, storage and communication.
- As compared to the baseline scenario, the incremental demand for manpower under the optimistic scenario may increase more than 0.25 lakh in the case of construction sector and 0.02 lakh in the case of manufacturing sector. In contrast, as compared to the baseline scenario, in pessimistic scenario incremental demand for manpower is expected to decline by 0.24 lakh and 0.01 lakh for construction and manufacturing sectors respectively. Similar increase/decrease of incremental manpower demand is evident for

[3] In case of total (skilled + unskilled) manpower demand or jobs creation, the study found that the demand for manpower is less than the supply. In contrast, in case of skill, we found that the demand for skilled jobs is more than the supply of skilled manpower in the state.

sectors like trade, hotel and restaurants, other services (education, health etc.), and transport, storage and communication under the optimistic-pessimistic scenarios as compared to the baseline scenario.

Manpower Supply Projection

- The supply of manpower for all age groups is expected to touch around 16.3 lakh in 2016-17 from 15.5 lakh in 2011-12. It may rise further to 17.2 lakh in 2021-22 and 18.3 lakh in 2026-27. With this, the demand-supply gap of workers may increase from 24 thousand in 2011-12 to around 35 thousand in 2016-17 and thereafter it may increase slightly and remain higher till 2026-27.
- Since the proportion of youth population to total population is higher in the district as compared to state level, the supply of manpower in age group 15-24 is expected to increase substantially higher than the supply of manpower in the case of all age groups. It is estimated that the supply of workers may be around 15 lakh in 2016-17 and increase further to 17.2 lakh in 2026-27.Therefore, the demand-supply gap of manpower in the age group 15-24 may increase from 24.3 thousand in 2011-12 to 37.8 thousand in 2016-17 and further to 42.6 thousand in 2026-27.

Demand for Skilled jobs and Skill Gap:

- It is estimated that the demand for skilled job for the district may increase from 9.96 lakh in 2016-17 to 15.08 lakh in 2026-27. While the demand for skilled jobs is expected to decline in the agriculture sector (5.96 lakh in 2016-17 to 5.94 lakh in 2026-27), it would increase for services (6.76 lakh in 2016-17 to 10.54 lakh in 2026-27) and industry (1.7 lakh in 2016-17 to 2.58 lakh in 2026-27).
- Skill gap of the district is expected to increase from 3.07 lakh in 2016-17 to 5.39 lakh in 2026-27. Increase of skill gap in the district is mainly driven by services sector and industry to the tune of 6.4 and 1.4 lakh respectively by 2026-27.

b. Jajpur District

Manpower Demand Projection

- Manpower demand under the baseline scenario suggests that the demand for employment in the district is expected to increase from 6.41 lakh in 2011-12 to 7.23 lakh in 2026-27, with an incremental demand of 0.82 lakh by 2026-27. Out of which, while the demand for manpower would decline in agriculture sector from 3.07 lakh in 2011-12 to 2.6 lakh in 2026-27, on the other hand, the demand for manpower is expected to increase both in industry and services from 1.40 and 1.94 lakh in 2011-12 to 2.11 and 2.52 lakh in 2026-27 respectively.
- Under the optimistic scenario, the manpower demand is expected to go up more than the baseline scenario from 6.41 lakh in 2011-12 to 7.40 lakh by 2026-27, with an incremental or cumulative demand of 0.99 lakh by 2026-27. In contrast, manpower demand is expected to increase at a slower rate under the pessimistic scenario from 6.41 lakh in 2011-12 to 7.13 lakh in 2026-27, with an incremental demand of 0.72 lakh till 2026-27.

- ❖ Manpower demand for disaggregated sector under the baseline scenario shows that within industry, more demand for manpower is expected to come from manufacturing sector (0.89 lakh in 2011-12 to 1.21 lakh in 2026-27) followed by construction sector (0.45 lakh in 2011-12 to 0.79 lakh in 2026-27) and least demand comes from utilities sector (0.03 lakh in 2011-12 to 0.05 lakh in 2026-27). Within the services sector, the demand is expected to be highest in sectors such as trade, hotel and restaurants, other services (education, health etc.), transport, storage and communication, and banking and finance.
- ❖ Under the optimistic scenario, the demand for manpower is expected to increase in sectors such as manufacturing, construction, trade, hotel and restaurants, banking and insurance services and transport, storage and communication as compared to the baseline scenario due to better growth prospects. The opposite is true under the pessimistic scenario where demand for manpower in these sectors is expected to decline as compared to the baseline scenario due to low growth of output.

Manpower Supply Projection

- ❖ The results suggest that the manpower supply for all age groups is expected to touch around 6.7 lakh in 2016-17 from 6.5 lakh in 2011-12. It may rise further up to 7.0 lakh in 2021-22 and 7.4 lakh in 2026-27. Thus, the demand-supply gap of workers may increase from 12.9 thousand in 2011-12 to around 17.7 thousand in 2016-17, and thereafter it may remain slightly higher till 2026-27.
- ❖ In the case of age group 15-59, the supply of manpower is expected to rise from 5.6 lakh in 2011-12 to 5.9 lakh in 2016-17 and further to 7.02 lakh in 2026-27. Therefore, the demand-supply gap of manpower may increase from 7 thousand in 2011-12 to 7.7 thousand in 2016-17 and further to 8.9 thousand in 2026-27.

Demand for Skilled jobs and Skill Gap:

- ❖ The demand for skilled job particularly in manufacturing and services sector is expected to rise in the future. It is estimated that the demand for skilled jobs may increase from 3.54 lakh in 2016-17 to 4.94 lakh in 2026-27.
- ❖ Skill gap is expected to be 0.95 lakh during 2011-26 from 0.16 lakh during 2011-16. Sectors which are expected to register higher skill gap are services and industry by 0.77 and 0.23 lakh respectively by 2026-27. Potential sectors for the districts namely ICT, retail, travel and tourism are expected to experience skill gap to the tune of 0.15, 0.07 and 0.17 respectively by 2026-27.

c. Sundargarh District

Manpower Demand Projection

- ❖ Manpower demand under the baseline scenario suggests that the demand for employment in the district is expected to increase from 10.19 lakh in 2011-12 to 12.24 lakh in 2026-27, with an incremental demand of 2.06 lakh by 2026-27. Out of which, the demand for employment in agriculture sector would decline from 5.1 lakh in 2011-12 to 4.95 lakh in 2026-27. On the other hand, the demand for employment is expected to increase both in

industry and services from 2.13 and 2.96 lakh in 2011-12 to 3.65 and 3.65 lakh in 2026-27 respectively.

- Under the optimistic scenario, the manpower demand is expected to increase more than the baseline scenario from 10.19 lakh in 2011-12 to 12.53 lakh by 2026-27, with an incremental demand of 2.34 lakh by 2026-27. In contrast, the manpower demand is expected to remain low under the pessimistic scenario from 10.19 lakh in 2011-12 to 11.97 lakh in 2026-27, with an incremental demand of 1.78 lakh till 2026-27.
- The manpower demand for disaggregated sector under the baseline scenario shows that within industry, the major chunk of demand is expected to come from construction sector (0.96 lakh in 2011-12 to 1.77 lakh in 2026-27) followed by manufacturing (1.01 lakh in 2011-12 to 1.58 lakh in 2026-27) and least demand is expected to come from utilities sector (0.03 per cent by 2026-27). Within services sector, the demand is expected to be highest in sectors like trade, hotel and restaurants (0.84 lakh in 2011-12 to 1.13 lakh in 2026-27) followed by other services (education, health etc.), and transport, storage and communication.
- In comparison to the baseline scenario, the demand for manpower under the optimistic scenario shows a 0.10 lakh increase in the case of construction sector followed by 0.06 lakh increase in manufacturing sector. The opposite is true under the pessimistic scenario where demand is expected to decline by 0.11 lakh for construction and 0.03 lakh for manufacturing as compared to the baseline scenario. Similar increase/decrease of incremental demand is also evident for sectors like trade, hotel and restaurants, other services (education, health etc.), and transport, storage and communication under the optimistic/pessimistic scenarios as compared to the baseline scenario.

Manpower Supply Projection

- Our estimate suggests that manpower supply for all age groups is expected to touch around 11.05 lakh in 2016-17 from 10.5 lakh in 2011-12. It may rise further to 11.7 lakh in 2021-22 and 12.6 lakh in 2026-27. With this, the demand-supply gap of workers may increase from 27.9 thousand in 2011-12 to around 30.8 thousand in 2016-17, and may increase further to 32.8 thousand to 2026-27.
- In the case of age group 15-59, the supply of manpower is expected to rise more than all age groups due to higher LFPR. It is estimated that the supply of workers may be around 15 lakh in 2016-17 and may increase further to 17.2 lakh in 2026-27.Therefore, the demand-supply gap of manpower may increase from 27.9 thousand in 2011-12 to 37.0 thousand in 2016-17 and further to 38.8 thousand in 2026-27.

Demand for Skilled jobs and Skill Gap:

- It is estimated that the demand for skilled jobs in the district may increase from 5.24 lakh in 2016-17 to 7.47 lakh in 2026-27. Across major sectors, it is expected to increase in the agriculture sector (0.31 lakh in 2016-17 to 0.33 lakh in 2026-27), from 0.87 lakh in 2011-12 to 1.47 lakh in 2026-27 in the industry sector and from 2.9 lakh in 2011-12 to 5.1 lakh in 2026-27 in the services sector.
- Skill gap for the district is expected to increase from 0.33 lakh during 2011-16 to 0.83 lakh during 2011-21 and further to 1.6 lakh during 2011-26. Industry and services sectors are expected to experience shortage of skilled manpower by 0.38 and 1.2 lakh during 2011-26 respectively. Potential sectors like mineral based industries may experience skill

shortage of 0.04 lakh during 2011-26. Similarly, other sectors such as ICT, retail trade and travel and tourism are expected to face skill shortage by 0.22, 0.18 and 0.17 lakh respectively during 2011-26.

C. Policy Recommendations

The discussion so far suggests that in the recent past, Odisha's economy has taken a major stride in economic and human development, largely due to several progressive steps taken by the State Government during the last two decades. The privatisation of education has attracted large number of private players in the domain of general, technical, professional and vocational education, thereby boosting the supply side of manpower in the state. But three pertinent questions arise here: (1) is the quality of education, particularly in schools and technical and vocational institutes in the state, good enough when compared to other developed states in the country? (2) are the students at various levels of education employable? and (3) does the state create sufficient demand to absorb the growing educated labour force?. A report published by the World Economic Forum in 2016 suggests that India has performed poorly in human development index because it has failed to address 3Es – Education, Employability and Employment – horizontally or simultaneously. Odisha faces similar problems. While the industrial associations blame the poor quality of education as the cause of unemployment in the state, the education institutions on the other hand complain about lack of jobs for their students in local industries, as a result of which, more than half of the seats in various technical institutes remain vacant. At some point, both complain that lack of coordination among institutions, industry and the government is the root cause of problems. Although the state economy has moved up to a higher growth trajectory, thanks to the unprecedented rise of services and industry sector, the benefit of such high growth however could not reach the last mile. In contrast to high GDP growth, employment growth has been quite sluggish, resulting in high unemployment and low poverty reduction. Agriculture sector, which is the main source of livelihood for more than half of the population in the state, has been in continuous decline due to multiple factors and this is a matter of concern. Therefore, the policy suggestions of the study focus on creating more skilled labour force and at the same time improve the demand side of employment in order to reduce the demand-supply gap in the state.

1. Primary sector

- The agriculture and allied sector experiences severe shortage of skilled manpower in the state. The state has been able to supply only 2–3 per cent of total skilled manpower demand in the sector.
- *Cropping sector:* The study suggests that improving farm productivity is paramount in order to achieve higher growth in manufacturing sector and the overall state. Improving productivity and attracting youth to the sector is possible through providing good infrastructure, high technology and skill training to youths and farmers. The training opportunities in the sector could be enhanced by maximizing the services of ITIs, KVKs and other educational and research institutions. There is need for more skill trainings in the area of repair, maintenance and operation of tractors, tillage, threshing, harvesting and processing equipments. The sector also needs more skilled manpower in organic grower, quality seed grower and integrated farming.

- *Food Processing:* The state is a leading producer of rice, vegetables, cashew, mango, banana, guava and pomegranate. The state has advantage of strengthening food processing and agro-based MSMEs in the area of salt, spices, dal milling, oil milling, khadsari, sugar, fishery, dairy and dairy products, cashew and corn flakes. Hence skill development related to these activities must be given top priority. Vocational training institutes can be setup for field level tasks like drying, cleaning and packaging. The industry needs more skilled workforce at the pre-processing stage. Skilled personnel are also required in the areas such as basic hygiene, sanitation practices and food machinery (i.e., canning, dehydration and handling frozen foods). It is also suggested to enhance the present cold storage facilities in the coastal districts and requisite skill training may be imparted for the maintenance and operation of machinery.
- *Fishery sector:* The sector needs more skill training in the area of fish breeding, mussel culture, fish feed preparation, fish processing, fishing boat building, preservation, maintenance of brood stock, sexing and selection of brood fish, injection to brooders and breeding, collection of eggs and hatching, spawn collection, rearing of spawn etc. may be strengthened.
- *Forestry and animal husbandry sector*: More skill training is required on how to use modern technology in collection and processing of various forest products. Animal husbandry sector requires more skilled personnel in dairy development, entrepreneurship in diary development, poultry dressing, meat processing and vaccinator.

2. Secondary Sector

- Creating more employment opportunities in the sector, there is need for promoting and expanding the base of ancillary and downstream industries in the state, which has so far been limited to only a few districts. Further, the state experiences 'missing middle' phenomena where medium sized industries are found a very few. In this regard, a thorough third party evaluation study may be conducted at the district level to understand the pros and cons of this issue.
- From the discussion with district level officers, it was found that companies knowingly breaching the initial agreement of preference to be given to local people and displaced families for employment is a matter of concern. The government should form a committee for each industrial cluster comprising officers from the companies, district and state level to look after the recruitment and selection process in a transparent manner. The lack of recruitment of local people in local industries has discouraged students to opt for skill training in various vocational and engineering institutions.
- As far as skill development is concerned, considering the state has advantages in mineral resources, skill training should focus more on automobile mechanic, engineers, pump mechanic diesel mechanic, refrigeration and AC, motor mechanic, machinist, turner and wielder, geologists, mine managers, boiler, attendant, fabrication, handicrafts and industrial plumbing.

3. Tertiary sector

- Being the driver's of economic growth of the state, sustaining high growth in the tertiary sector is critical for the long term development. The sector however faces a peculiar situation in growth and employment. While it contributes around 45 per cent of GSDP, it absorbs only around 22 per cent of employment. For improving the prospects of

employment, more attention may be given to labour intensive services such as travel, tourism, hospitality, retail and wholesale trade, education and health. Information and communication technology sector which requires high skilled manpower has potential to create more employment may also be prioritised as the sector has low base as compared to other developed states.

- From the primary survey, the respondents reported that more skilled manpower required in trades such as Drivers, Security Guard, Mechanics for repairing of mobiles and other home appliances, tourist guides, housekeepers, interpreters, travel agents, data entry operators, BPO, data analysts, IT service providers, nursing staff, lab technicians, Para health workers, business correspondents, financial managers, accountants, Departmental Manager, Retail (Auto), Retail (Fast food), Retail (Operations), and Retail (Showroom), Assistant Beauty Therapist, Assistant Hair Stylist , Beauty Culture and Beauty Therapist.

4. Education and Skill Development

- *Vocational courses at Secondary school level:* The state government has taken a bold step on introducing vocational courses on automobile and information technology in secondary level. From our discussion in the field level, it was suggested that there is need for appointing subject expert teachers and provision for industry experience for students to maximize the learning process.
- *Skill training model- best practices from other countries like Germany:* This model is well adopted by many countries in the world. Under this model, a candidate will spend half of the time at a vocational school to acquire the theoretical knowledge and the rest of the time he/she will spend at a company to gain practical knowledge about what the company does and eventually the candidate may get absorbed in the same company. In India, the Ministry of Skill Development and Entrepreneurship, Government of India has recently launched Apprenticeship Promotion Scheme, 2017 to create industry-ready workforce. The model may be replicated in the State.
- *Placement-linked model:* In order to improve the enrollment ratio in vocational and technical courses, like DDU-GKY, a placement linked model could be implemented.
- *Robust Manpower Information System (MIS):* The Department of Industry may develop a robust MIS which would enable the government to understand the specific skill requirements and plan for the same
- *Developing a robust database on skill trainings:* Although skill training is being conducted by different state government departments, there is no one-stop shop in accessing the information. Hence SD&TE may maintain an online database by providing department-wise, year-wise, trade-wise, district-wise, training agency-wise information on enrollment, dropout and placement under various training programmes.
- SD&TE should prepare a district level performance index on skill development to incentivize the best performers.
- Like Mawlynnong, a clean village in Meghalaya, Dept. of Tourism should plan for developing at least one model village in each district through participation of citizens to attract more tourists. For this appropriate skill training should be imparted for the villagers.
- Enhancing training capacity: It is estimated that roughly around 4.3 lakh people entering into the labour market every year in the State. While the State would demand around 3.8 lakh skilled manpower every year between 2016/17 and 2026/27, the total skilled

personnel available in each year are around 2 lakh, which is certainly less than the required demand.

- *Monitoring and evaluation of programmes:* For third party evaluation, DoP&C may set up a monitoring and evaluation centre in reputed institute like NISER and NCDS for collecting data of various programmes including skill development on real time basis for an effective evaluation of programmes.

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Chapter 1

Introduction

"Education, vocational training and lifelong learning are central pillars of employability, employment of workers and sustainable enterprise development"

- International Labour Organisation

1.1. Background of the Study

1.1 Against the backdrop of growing demand for skilled labour force in India in general and in emerging states in particular, the subject of human resource planning has attracted much attention of the government across the states. In order to understand the current manpower scenario in the state and also the future demand across broad economic sectors and emerging sectors as well, the Department of Planning and Convergence (DP&C) , Government of Odisha, commissioned this study to National Institute of Labour Economic Research and Development (NILERD), New Delhi.

1.2 It is predicted that India will become one of the highest youth-populated countries in the world by 2022 with an average age of its population at 29 years.[4] In comparison, during the same period, the average age is expected to be 37 years in China and the US and 45 years in Western Europe.[5] A report of Ernst & Young and FICCI[6] indicates that the country's population pyramid at 15–64 years' age group bracket is expected to "bulge" over the next decade, which in turn would expand the working age population from approximately 761 million to 869 million during 2011–2020. Therefore, until 2020, the country would experience a period of "demographic bonus," where the growth rate of the working age population would exceed the growth rate of the total population. And more importantly, around 64 per cent of India's population is expected to be in the working age bracket (15–59 years) by 2026, while only 13 percent of the population will be aged above 60 years, thus lowering the old-age dependency. However, many social scientists have raised a word of caution that if the country fails to reap the benefits of this demographic dividend, it would turn into a demographic curse, which could become too difficult to address. The reason behind this pessimistic narrative could be due to the fact that the country faces two key challenges: severe paucity of highly trained workers and non-employability of large sections of the conventionally educated youth, who possess little or no job skills as per the requirement of the market.

1.3 Therefore, in order to reap the benefit of demographic factor, which is expected to last for the next 25 years, it is imperative that we must equip the workforce with employable skills and knowledge so that they can contribute significantly to the economic growth of the country. It is further argued that to achieve high growth rate (around 8-9 per cent per annum) consistently for a short to medium term, it is critical to improve the quality of vocational and technical education and impart required skill training to the younger generation.

[4] "State of the Urban Youth, India 2012," UN Habitat, April 2013, p.123
[5] "Skill Development in India, A Transformation in the Making – Dilip Chenoy," IDFC, December 2012, p.1
[6] http://www.ey.com/Publication/vwLUAssets/EY-Government-and-Public-Sector-Reaping-Indias-demographic-dividend/$FILE/EY-Reaping-Indias-promised-demographic-dividend-industry-in-driving-seat.pdf

1.4 In order to expand the skill development, the Government of India formulated National Skill Development Policy in 2009 with a target of achieving 500 million skilled workforce by 2022. However, this tall target seems to be too optimistic; instead, the Institute of Applied Manpower Research argued that the number of people who need to be trained by 2022 ranges between 249 to 290 million under different skill requirement scenario.[7] The Twelfth Five Year Plan (2012–17) has proposed to create 50 million non-farm employment opportunities and to provide skill certification to at least an equivalent number of people.[8] It means the government needs to double the pace of skill training during the Thirteenth Five Year Plan period to achieve the initial target of 500 million by 2022, which is certainly going to be an uphill task for the reason that, as per the Twelfth Five Year Plan report, the existing annual training capacity in the country is only 4.5 million. Although Government of India has launched the new National Skill Development Policy in 2015 to increase the speed, standard and sustainability of skill development, several key challenges still persist.[9]

1.5 As per the Twelfth Five Year Plan report, while 12.8 million people join the Indian workforce each year, the annual training capacity is less than half of that. Current studies indicate that net enrolment in vocational courses in India is about 5.5 million per year as compared to 90 million in China and 11.3 million in the United States.[10] A mere 2 per cent of Indian workers are formally skilled. Significantly, the bulk of the labour force in India – about 93 per cent – who work in the unorganized sector are largely untouched by any kind of formal training. By way of comparison, 96 per cent of the workers in South Korea receive formal skill training, which is 80 per cent in Japan, 75 per cent in Germany and 68 per cent in the United Kingdom.

1.6 Coming to Odisha State, it is one of the fastest growing states in India and is a land of multiple opportunities. The state is expected to achieve a GDP growth rate of 7.5 per cent during 2016-17, higher than the national growth rate of 7.1 per cent. Despite the fact that the state economy is prone to frequent natural calamities affecting the output of agriculture sector badly, it has moved up to a high growth trajectory in recent years due to impressive performance of non-agriculture sectors. Sectors such as mineral based large and medium industries, repairing and services enterprises, construction, trade, hotel and restaurants, banking and financial services, education and health, IT and ITes, and transport and tourism are performing very well. These are sectors that have potential to grow higher and faster because of low base effect as compared to other advance states in the country.

1.7 Like India, the state faces a peculiar situation as far as sectoral employment is concerned. While agriculture and allied sector contributes only about 16 per cent to the state GSDP, it

[7] "Training 500 million people by 2022 unrealistic: Govt think-tank IAMR," *Economic Times* website, http://articles.economictimes.indiatimes.com/2013-06-07/news/39815423_1_skill-development-skill-gap-ck-prahalad, accessed 12 August 2013

[8] http://planningcommission.gov.in/plans/planrel/12thplan/pdf/12fyp_vol3.pdf

[9] Report on the Committee for Rationalization & Optimization of SSCs; http://msde.gov.in/assets/images/ssc-reports/SSC%20Vol%20I.pdf

[10] http://www.ey.com/Publication/vwLUAssets/EY-Government-and-Public-Sector-Reaping-Indias-demographic-dividend/$FILE/EY-Reaping-Indias-promised-demographic-dividend-industry-in-driving-seat.pd

absorbs a substantial workforce of around 55 per cent (NSSO, 68th round). On the other hand, industry and services together contribute 84 per cent to the state GSDP but absorb only 45 per cent of the total employment. Nevertheless, the employment trends show that there has been a decline in employment in agriculture sector over the period and an increase of employment in non-agriculture sector, but the pace of shifting of workforce from low productivity sector (agriculture) to high productive sector (non-agriculture) has been rather slow.

1.8 The workforce in agriculture sector basically constitutes unskilled labour with no or little formal or informal skill training. Therefore, shifting the agricultural labour directly to manufacturing or services sector (except manual work in manufacturing units, retail shops, small restaurants, domestic help activities etc.) is going to be quite a difficult task as the latter sectors require semi-skilled or high-skilled workforce. This seems to be the reason why most of the agricultural labourers in the last decade or so, who have shifted to non-agricultural sector, have been absorbed in the construction industry which does not need skilled workforce for certain activities. As a result, the composition of informality within the formal sector workforce has increased during the last decade, as agricultural labourers continue to work as casual or marginal workers in the formal sector.

1.9 Another critical challenge faced by the state is that about 66.5 per cent of its workforce in agriculture and allied sector has either primary education or no education (NSSO 68th round). Similarly, in manufacturing and non-manufacturing sectors, 60.4 and 66.8 per cent workers respectively have either primary education or no education. However, educational level of the workers in the services sector is quite better, as only 31 per cent of the workers have no education or primary education. In the case of technical education, the situation is even worse across all sectors, where more than 90 per cent of the workers do not have technical education. Further, it is found that, while around 4.5 lakh people join the labour force every year, the state has capacity to provide technical training to only 1.23 lakh people per year. Whereas the demand for skilled worker is expected to reach around 135 lakh by 2026.[11] As per the AICTE data, total enrolment in technical and professional courses (engineering and technology, management, pharmacy etc.) was 54,000 in 2015-16. Data published by the Ministry of Skill Development and Entrepreneurship, Government of India show that 92,000 students were enrolled in ITIs/ITCs during 2015-16 in the state. Altogether, these technical/vocational courses produce about 1.5 lakh technical labour force every year. If we add to it the number of students enrolled in vocational junior colleges and PIAs, the total skilled personnel will be around 2 lakh per annum, which is certainly far less than what is required. Hence, the state government needs to undertake a number of initiatives for improving the technical skills of the labour force in order to make them efficient and productive.

1.10 In this context, to assess the current and future demand of workforce and its skill composition in Odisha and its three selected districts such as Jajpur, Ganjam and Sundargarh, a study was commissioned by the Department of Planning and Convergence (DP&C), Government of Odisha, to National Institute of Labour Economics Research and Development (NILERD), New Delhi. In addition to above, the study also seeks to identify the sectors that could absorb the growing labour force, which in turn will reduce the volume of open

[11] http://www.nsdcindia.org/sites/default/files/files/odisha-skill-gap-report.pdf

unemployment (particularly among young and educated persons) in the state in general and in the three selected districts in particular. The specific objectives of the study are outlined below:

1.2 Objectives of the Study

- To assess the current scenario of manpower in the state for three sectors viz., Agriculture, Industry & Services

- To assess the requirement of manpower in 2016-17 and 2021-22, based on growth and income projections for different domain-specific sectors, especially for emerging and state-specific areas like: Mineral-based industry, Bio-Technology, ICT, Infrastructure, Retail sectors and FPI, delineating the requirements for skilled and highly skilled technical and managerial manpower.

- To analyze the region-wise skill gap of manpower by covering the three selected districts namely, Jajpur, Ganjam and Sundargarh.

- To suggest policy options for achieving the set targets for different sectors like: school education, higher education, vocational training, technical education, bio-technology, ICT, mineral-based industry, agriculture and food processing industry.

1.3 Chapterization

1.11 The report comprises five chapters. Background and objectives of the study are discussed in chapter one, followed by the methodology used for estimation and projection of manpower supply and demand, in chapter two. The situation analysis of Odisha and the three selected districts has been done in chapter three. The situation analysis contains the current economic, employment, education and skill development scenario of the state vis-à-vis some of the advance states and all India as well. In chapter four, analyses of results obtained from both primary and secondary data are discussed and the final chapter of the report concludes the study.

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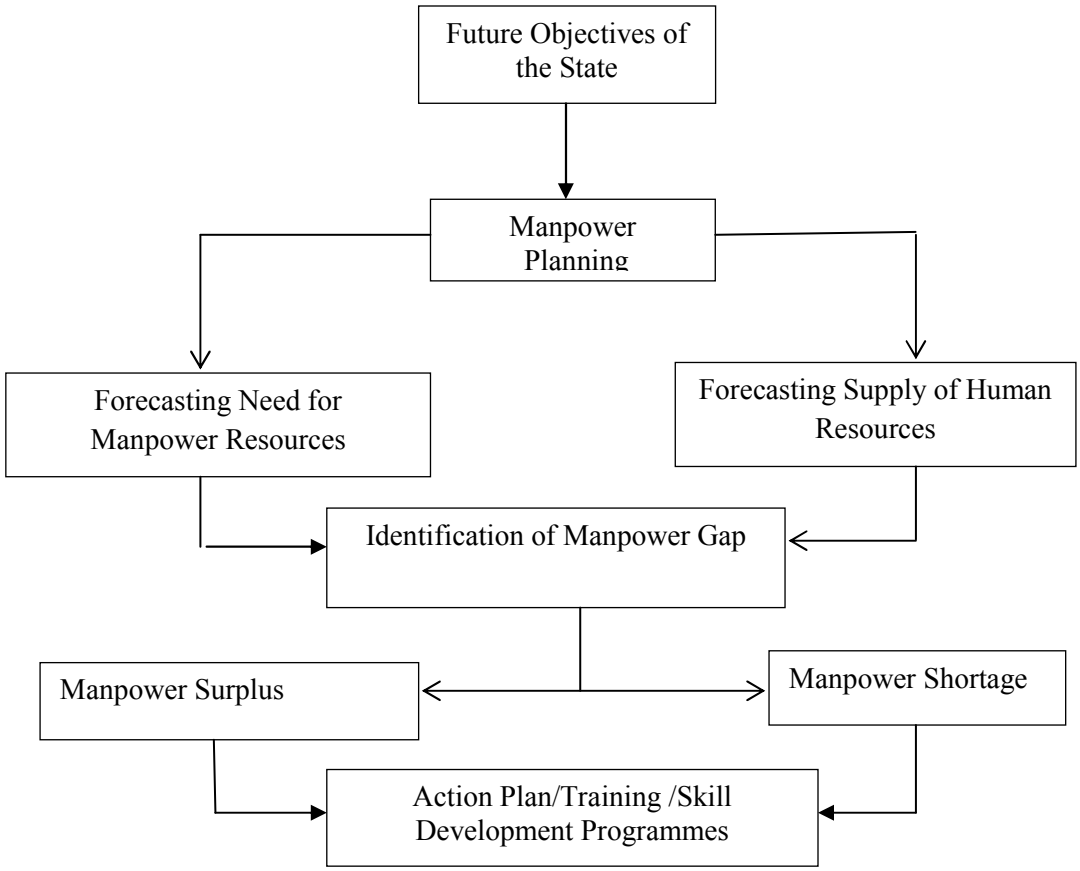
Chapter 2

Methodology of Manpower Demand and Supply Estimation

2.1 Manpower planning in any state/country involves three things viz., estimating/forecasting present and future sectoral labour demand, estimating the present and future size of labour force by its skill distribution and the policy measure to fill both skill and employment gaps in the state at the macro and micro levels. In this chapter we discuss the approach used for estimation and projection of manpower demand and supply at the aggregate and sectoral level for the state of Odisha and the three selected districts. The broad schematic view of manpower approach followed in this study is illustrated in **Figure 2.1**.

Figure 2.1: Manpower Planning



2.1 Estimating Sectoral Labour Demand

2.2 The size of employment that would be generated during 2021-22 and 2026-27 would depend on the level of output to be produced during the same period and the type of techniques to be used in the production process. In a static context, the size of employment that can be generated

varies positively with the degree of labour-intensity (the quantity of labour per unit of output or investment). The size of employment generation also depends on the choice of product mix that would be produced. At the macro level, projection of the total volume of employment depends on the level of output. Before explaining the appropriate methods of employment projection for Odisha, it is important to review the existing methods of employment projections. A summary of each of these methods is outlined in **Table 2.1**.

Table 2.1: Various Manpower Demand Forecasting Methodologies

Projection Approaches	Input Requirements		Output
	Data	Tool	
Time Series Projection	Historical Records (20 years) of the targeted series	Projection Techniques, e.g. Exponential smoothing, Box-Jenkins (ARIMA) modelling etc.	Short-term aggregated manpower demand forecast; Large forecast error if discontinuities occur within the projected time period
Bottom-Up Approach	Detailed labour returns and costs of the past projects breakdown by various sectors	Large size of database but rather simple calculations	Project based occupational manpower demand; Industry-based occupational manpower demand by summing up all project based demand
Top-Down Approach	Extensive macroeconomic statistics, e.g. GDP, sectoral output, unemployment rate, productivity, interest rate, etc.	Extrapolations, advanced econometrics modelling e.g. co-integration, vector error correction modelling, simulation, sensitivity analysis, etc.	Long term industry-based aggregate manpower demand; Occupational and regional manpower demand can be obtained by extrapolating, using labour productivity factor or experts' judgment.
Market Signaling Approach	Labour market signals, e.g. movement of relative wages, enrolment data, occupational employment trends and un-employment rate, job advertisement, etc.	Relative simple analysis, e.g. interviews, surveys, FGD and tracer study, etc.	Existing mismatch signals (qualitative and quantitative) in the labour market; Employer's view on future prospects of individual occupation

Source: Wong et al., 2012

2.3 To begin with "time series projection method", it is a fairly reliable and relatively simple way of projecting the future manpower requirements on the basis of past employment trends. The time series extrapolation uses the stochastic information by examining a relationship solely between the past behaviour and time and then extrapolating the trend into the future (Bezdek, 1975; Goh and Teo, 2000). This method includes the use of simple deterministic model such as linear extrapolation to the complex stochastic models like Box-Jenkins model for adaptive forecasting. But the major limitation of using this method is that these forecasts are more suitable

for producing only short-term forecasts and it does not give insights into the factors causing the changes in manpower requirements and occupational structure. Extrapolation produces large forecast error if discontinuities occur within the projected time period. Further, we require at least twenty-five or more data points of labour demand requirement (employment) for estimation and projection. Since, it is hard to get a long span time series data for employment in Odisha, the use of this method is not feasible.

2.4 The "Bottom-up" approach is otherwise known as the labour multiplier approach. In this approach both occupation-wise labour demand is estimated multiplying the labour multiplier and the project expenditures. The recent labour demand forecasting model by Chan et al. (2002) is representative of this approach. This method is widely used for forecasting construction and health sector employment across the countries. For example, Rosenfeld and Warszawski (1993) in Israel, Proverbs et al. (1999) in UK, CWDFC (2002) in Alberta have used this approach to forecast the labour demand in the construction sector. Smith et al. (2000) projected the demand for health professionals in Tennessee and McClean and Reid (1993) projected the demand for nurses in UK using this labour multiplier approach. Even though this method yields very good results, but applying this method for each and every sectors of the economy is quite an ambitious task. Further, due to the paucity of expenditure data for each and every sub-sector of the economy, it is difficult to use this method in the present study.

2.5 The "Top-down" approach is the most suitable method amongst the various methodologies used to derive the manpower forecasts. This method uses macro level information on output, investment, employment etc. to forecast the future labour demand. This approach is widely used by many researchers (Parnes, 1962; Debeauvis and Psacharopoulos, 1985; Infante and Garcia, 1990; Uwakweh and Maloney, 1991; Eijs, 1994; Dekker et al., 1994; Willems, 1996 and 1998; Campbell, 1997; Rickman, 2001; Maddala, 2001; and Hopkins, 2002) and institutes of both developed and developing counties (for example; USA, UK, Germany, Netherland, Italy, Czech, France and Sri Lanka etc.). The forecasting methodology used by the Bureau of Labour Statistics (BLS, 2003) is a typical example of the "Top-down" approach.

The top-down method includes three major steps: Firstly, to project the future level of output of major economic sectors based on the past trends. Secondly, to estimates the employment equation of major sectors with respect to output to get the employment-output elasticities. And finally, to predict the future level of employment demand for each sector by using employment-output elasticities and the predicted output level.

The sectoral employment elasticity is estimated using equation (2.1) where employment of the i^{th} sector in period t is determined by the employment level in period t-1 and output level in period t. We use double log regression model to estimate the elasticity. To estimate the future level of employment of the i^{th} sector, we use equation (2.2) where rate of growth of employment of the i^{th} sector is multiplied with the current level of employment in the sector. The rate of growth of employment of the i^{th} sector is computed by multiplying growth rate of output in the i^{th} sector with the corresponding sectoral elasticity of output and employment.

$$\ln E_{it} = \alpha + \beta \ln E_{it-1} + \gamma \ln Y_{it} + \varepsilon \ldots \quad (2.1)$$

$$E_{it} = E_i (1 + r_{ei})^t \ldots \quad (2.2)$$

Where $r_{ei} = g \times u_i \times \eta_i$

r_{ei} = Annual rate of increase in employment in i^{th} sector

g = Annual rate of growth of GDP

u_i = Sectoral growth elasticity (i.e., elasticity of i^{th} sector output with respect to GDP)

η_i = Sectoral employment elasticity (i.e., rate of increase in i^{th} sector employment due to unit change in i^{th} sector output)

E_{it} = Employment of the i^{th} sector at the end of period t

E_i = Employment of the i^{th} sector during the benchmark year

Y_{it} = Output of the i^{th} sector at the end of period t

ε = stochastic disturbance term

2.6 The present study uses "top-down" method for projecting the sectoral manpower demand for Odisha and the three selected districts under the study for the period 2021-22 and 2026-27. The study also discusses two alternative growth scenarios (optimistic and pessimistic) based on past experiences of high and low growth trends of the state economy and vision of the state vis-a-vis other developed states like Tamil Nadu, Karnataka, Maharashtra and Punjab.

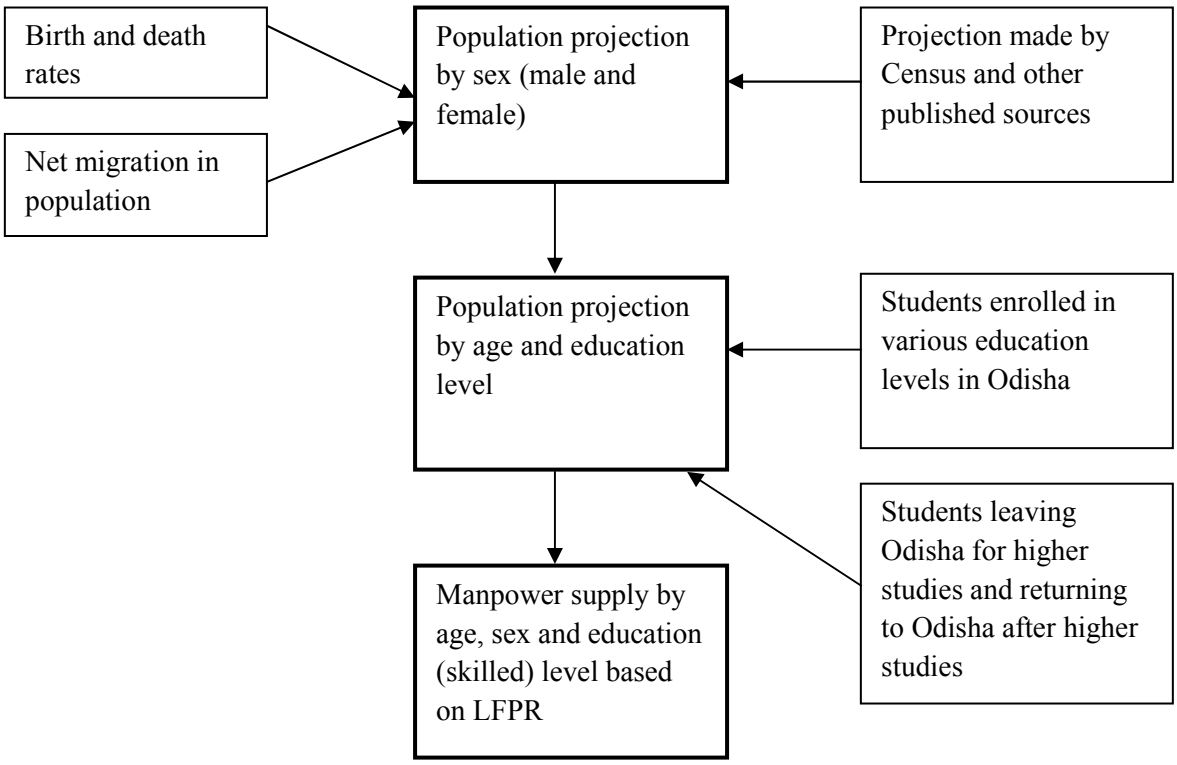
It is pertinent to mention here that due to data limitations, the present study could not estimate manpower demand for specific emerging sectors as outlined in the objectives of the study. For example, GDP data which is a key component of manpower demand estimation is available only for broad economic sectors published by Central Statistical Organization (CSO) and Directorate of Economics and Statistics, Government of Odisha (DESO). The same data for specific sectors like IT & ITES, biotechnology, foreign institutional investment and retail sector etc. are not available at the state level and district level. Further, GDP data at the district level are available at factor prices till 2012-13. New GDP series at basic prices is available only for the overall state and the same has been used for manpower demand projection of the state.

2.2 Estimating the Size of Future Labour Force

2.7 The information required for projection of labour force size includes: (1) The current size of enrollments at various levels and types of educational institutions, (2) existing stock of qualified manpower belonging to various skill categories; and (3) the rate of attrition on account of death and retirement or due to out-migration to other states during the plan period. The size of enrollment is required to estimate the anticipated outflow of the qualified manpower from different educational institutions. Current size of labour force and number of people going out of labour force are essential to know how the size of labor force is expected to grow. This is

important for designing appropriate policy measures. The flow chart of manpower supply is illustrated in **Figure 2.2**.

Figure 2.2: Flow Chart of Manpower Supply



2.8 The size of labour force in Odisha during 2021-22 and 2026-27 has been estimated using the following three components:

- Labour force participation rate (LFPR)
- Labour force net of attrition on account of health and retirement or out-migration
- Population at different age groups

Labour force constitutes the persons usually employed or willing to be employed during the reference period in the age group 15-59. All members of a population cannot be engaged in economically productive activities. Those persons who can produce goods and services constitute the potential labour force. Labour force excludes the very young and very old people as well as the physically or mentally challenged. It also does not include those people who are engaged otherwise (in household activities) or are not willing to work. Labour force participation rate is defined as the number of persons in the labour force per 1000 persons.

2.9 It is important to note here that while estimating labour force for the current and the future years for the state, all three parameters mentioned above have been taken into account. To calculate the attrition rate, factors such as crude birth rate, crude death rate and net migration rate are taken into account. All these factors however have not been adjusted to labour force while calculating manpower supply in the case of three selected districts due to lack of availability of reliable data on migration.

2.3 Data Source

The analysis of the study is based on both secondary and primary data.

2.3.1 Secondary Data

2.10 The major sources of secondary data are Census of India, National Sample Survey (NSS), Central Statistical Organization (CSO), Directorate of Economics and Statistics, Government of Odisha (DESO), and data from various state Government Departments of Odisha. Total population by age, sex, education and social groups have been compiled from the Census data. Sectoral employment patterns by sex and level of skill were computed using the unit level data of NSS various rounds (Quinquennial rounds). Sectoral output (gross value added) data for the state and the three selected districts such as Jajpur, Ganjam and Sundargarh and other districts are taken from both CSO and DESO.

2.3.2 Primary Data

2.11 Primary survey of the study has been carried out in the three selected districts covering the following stakeholders:

- Households
- Educational institutions
- Establishments

The stakeholders have been interviewed through a structured questionnaire (**Annexure**). The questionnaires cover both qualitative and quantitative information. Quantitative information like income, expenditure and employment etc. in the case of households; turnover, investment, exports, employment, number of employees trained etc. in the case of establishments; and gender-wise enrolment, pass-out, drop-out, placement, and average emoluments per month etc. in the case of educational institutions have been covered. Qualitative information like educational qualifications in terms of general and technical, whether received any technical or vocational training, whether current employment is based on qualification and registered with employment exchange etc. have been collected. We have also carried out focus group discussion (FGDs) to understand the perceptions of the school dropouts on employment situation and skill requirements for employability.

2.3.2.1 Households Survey

2.12 A Household survey has been carried out to understand the supply and demand side of skill development in agriculture sector as most of the agricultural and informal labourers are residing in rural areas. Information on household members' income, expenditure, education, gender and

age, occupation, employment in formal and informal sector and information related to skill have been collected. As per Census 2011, the total number of households with respect to rural and urban areas in the three selected districts is reported in **Table 2.2**. Based on Census data it is found that the composition of rural and urban population is 92.8:7.2 in Jajpur, 78.6:21.4 in Ganjam and 65.2:34.8 in Sundargarh district. The sample size of households based on 5% error or 95% confidence interval comes to around 150 for each district and same number of households are interviewed for each district under the survey.

Table 2.2: Sample Size of Households

Categories	No. of Households (population)			Sample Selection at 95% C.I.		
	Jajpur	Sundargarh	Ganjam	Jajpur	Sundargarh	Ganjam
Rural Areas	378645	312497	596062	140	98	119
Urban Areas	29206	166612	162205	11	53	32
Total	**4,07,851**	**4,79,109**	**7,58,267**	**150**	**150**	**150**

The actual number of households covered under the study is given in **Table 2.3**.

Table 2.3: Sample Size of Households

Categories	Ganjam	Jajpur	Sundargarh	Total
Rural	112	140	97	349
Urban	38	11	52	101
Total	150	151	149	450

2.3.2.2 Educational Institutions

2.13 To understand the supply side of manpower and skill composition in the three selected districts in the State, different types of institutions such as general, technical, vocational and professional have been interviewed under the survey. Initially, it was planned to cover 182 institutions across the three districts. But due to no-response and non-cooperation from many colleges and institutions, only 142 institutions were covered under the survey. The distribution of actual sample size of the institutions by types and districts are reported in **Table 2.4**.

Table 2.4: Sample Size of Educational Institutions

Districts	Vocational Schools under RMSA	Junior colleges (General and Vocational)	Technical/Vocational*	Total
Ganjam	5	16	24	45
Jajpur	7	20	16	43
Sundargarh	7	19	28	54
Total	19	55	68	142

Note: * includes Pharmacy and Dental institutions, ITIs/ITCs, engineering schools and colleges and polytechnics.

2.3.2.3 Establishments

2.14 To find out the demand side of skill situation in the three districts, the primary survey covers different industries using a structured questionnaire. A composition of large, medium and small industries is covered in the sample. Data till 2016 show that there are 16,181 registered units (small, medium and large) in Sundargarh; 13,020 units (small and large) in Ganjam; and 8,074 units (small, medium and large) in Jajpur. Keeping in view the logistic constraints, at least 1 per cent of the sample industries from total industries have been selected from each district on random sampling basis covering the following categories of enterprises:

- Food and allied
- Engineering & metal based
- Textile
- Repairing and servicing
- Glass & Ceramics
- Miscellaneous manufacturing
- Tourism and hospitality
- Wholesale and retail trade
- Food and beverage service activities
- Other services

The sample size of industries of the three selected districts is given in **Table 2.5**.

Table 2.5: Sample Size of Establishments

Location of establishment	Ganjam	Jajpur	Sundargarh	Total
Rural	11	92	59	162
Urban	175	105	137	417
Total	186	197	196	579

2.4 Definition of Unskilled, Semi-skilled, Skilled and Highly Skilled Workers

The study uses the following definition of the workforce in terms of skilled and unskilled according to the classification of their occupations.

(i) Unskilled

An unskilled worker is one who does operations that involve the performance of simple duties, which require no independent judgment or previous experience although familiarity with the occupational environment is necessary.

Example: Peon, Chowkider, Durban, Packer, Watchman, Cleaner, Sweeper, Mazdoor, Loader, Unloader, Messenger, Helper, Mali and any other unskilled worker.

(ii) Semi-skilled

A semi-skilled worker is one who does work generally of defined nature wherein the major requirement is not so much of the judgment, skill but for proper discharge of duties assigned to him or relatively narrow job where important decisions are made by others. His/her work is thus limited to the performance of routine operations with limited scope.

Example: Gatekeeper (Cinema), Lineman, Assistant Operator, Winder, Assistant Electrician (of Cinema), Weight man, Stock boy, Bill collector, Assistant Cook, Waiter or Bearer working in western Style (Hotel & Restaurants), Book Binder (Ordinary), Book-Stitching (Ordinary), Ruling, Cutting, Auctioner, Assistant Kharidar, Mali with Technical experience, Junior Hotel Guide, Pantry-man, Room Bearer, Assistnat Bakery Mistry and any other semi-skilled worker.

(iii) Skilled

A skilled employee is one who is capable of working efficiently exercising considerable independent judgment and of discharging his duties with responsibility. He/she must possess a thorough and comprehensive knowledge of the trade, craft or industry in which he/she is employed.

Example: Cinema Operator, Electrician, Mechanic, Tailor, Cook, Dry Cleaner (Machine Operator), Washerman, Iron-man and Dyer (both in dry-cleaning), Head Waiter, Head Bearer, Carpenter, Polisher, Fitter, Plumber, Film Repairer (Film Distributors), Hotel Guide, and any other skilled worker not specifically mentioned

(iv) Highly Skilled

A highly skilled worker is one who is capable of working efficiently and supervises efficiently the work of skilled employees.

Example: Head Clerk, Accountant, Head Cashier, Head Operator, Assistant/Manager, Head Salesman, Stenographer, Cutter (Tailoring), Head Booking Clerk, Head Dispenser, Beautician and any other skilled employee who is capable of working effectively exercising considerable independent judgment and discharge his duties with responsibility. He/she must process a thorough and comprehensive knowledge of the trade, craft or industry in which he/she is employed.

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Chapter 3

Situation Analysis of Growth, Employment and Skill Development

3.1 Introduction

3.1 In this chapter an attempt has been made to analyse the current strength, weaknesses and opportunities of Odisha and the three selected districts of the state. The analysis covers some of the key socio-economic parameters such as demography, economic growth, employment, education and skill development. Wherever possible, an inter-state comparison of Odisha with the other states and inter-district comparison of the three selected districts with other districts in the state has been made to understand the current scenario more precisely and meaningfully.

3.2 Odisha is termed as the land of opportunities in India. It is one of the major states of India in terms of land area, mineral deposits and population. It is the 9th largest state by area and 11th in terms of population size in India. The Population of Odisha is estimated to be 4.32 crore[12] (4.25 crore according to 2011 Census) in 2016 and most importantly the state has experienced a moderate decline in population growth rate in the recent period at 14.05 per cent during 2001-2011 as compared to 15.94 per cent during 1991-2001 and 20.06 per cent during 1981-91. Out of the total population, the share of SC and ST population is 17.1 and 22.8 per cent respectively. By gender group, male constitutes 50.5 per cent and female constitutes 49.5 per cent of the total population. Out of the total population, around 83.31 per cent lives in rural areas, which is 15 percentage points higher than the all India average and considerably more than that of the developed states like Kerala, Gujarat and Karnataka (**Figure 3.1**). This suggests that only around 17 per cent of the population in Odisha are living in urban areas, which provides ample opportunity for the state government to expand the urban infrastructure of the existing cities and towns and create more employment opportunities for inhabitants of both rural and urban areas. Further, the Census 2011 data on population by age groups suggest that Odisha has relatively more advantage over the other states like Bihar and Madhya Pradesh in terms of percentage share of youth population to total population. **Figure 3.2** shows that the share of youth population (age group 25-34) to total population is 15.9 per cent in Odisha, which is also slightly higher than the all India average ratio. This demographic advantage provides a unique opportunity for the state government to maximise the returns of human capital by

Figure 3.1: Rural population (%) by states

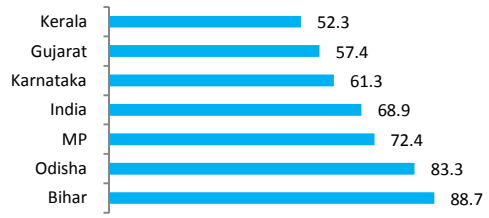


Figure 3.2: Youth population (age 25-34) (% to total population)

[12]Odisha Economic Survey 2016-17

imparting need based training and skill to youth and also by improving the quality of technical and vocational education in the state.

3.2 Economic Progress

3.3 The state is endowed with large deposits of various mineral resources and occupies a significant position in the mineral map of the country with 6.38 per cent of the total value of mineral production of the nation (Odisha Economic Survey, 2015-16). The share of state in national production is 100 per cent in chromite, 50 per cent in iron ore, 35.32 per cent in bauxite, 25.5 per cent in manganese ore and 20.1 per cent in coal. However, despite abundance of mineral resources, long coastline, plentiful inland waters and diverse forest wealth, Odisha has lagged behind as compared to other states in terms of economic growth, poverty alleviation and employment generation in non-farm sectors.

3.4 The growth rate of real GSDP of Odisha was low during the end of the 20th century (Panda, 2008)[13], but it has shown resurgence since 2003-04. During 2003-04 and 2007-08, the GSDP (at constant 2004-05 prices) of the state recorded an impressive double-digit growth rate of 11.0 per cent which was even 1-2 percentage points higher than the national average. The long term growth rate of Odisha (10 years moving average) points to the fact that there has been a paradigm shift in the growth rate from a sub-optimal level of 2.5-3.5 per cent during the pre-2003-04 period to 5 per cent and subsequently 6.5-7.5 per cent during the post-2003-04 period. **Figure 3.3** shows that the position of linear trend line was flat and parallel to x-axis during the pre-2003-04 period but it shows a steep upward rise during the post-2003-04 period, suggesting an upward shift of long term growth rate during the latter period. Higher increase of GSDP growth rate during the post-2003-04 period helped per capita GSDP to rise at a higher rate. **Figure 3.4** illustrates the 10-year long moving average growth rate of per capita GSDP of the state. The figure shows that the growth rate of per capita GSDP accelerated during the post-

Figure 3.3: Long term growth rate of GSDP of Odisha (at 2004-05 prices)

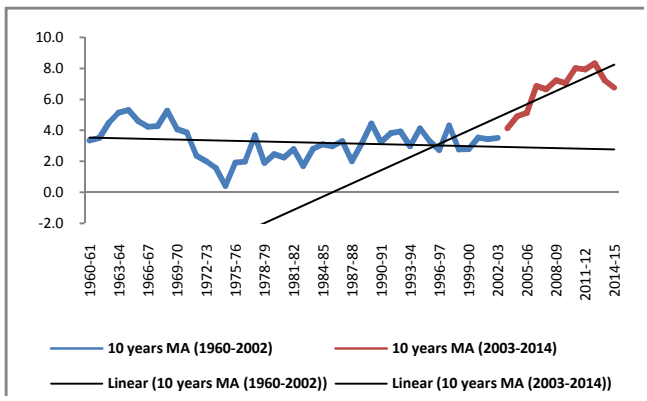
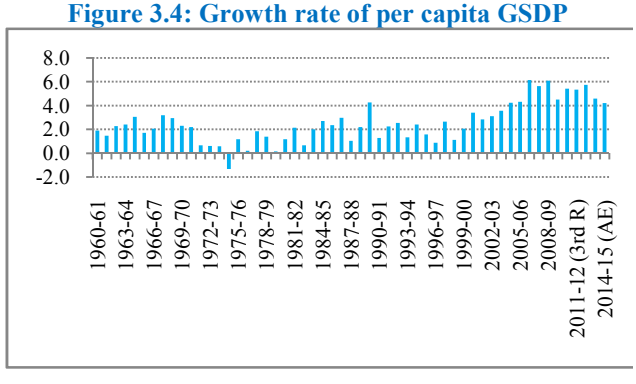


Figure 3.4: Growth rate of per capita GSDP



[13] Manoj Panda (2008), Economic development in Orissa: Growth without inclusion, working paper 208-025, IGIDR, Mumbai. https://core.ac.uk/download/pdf/6257073.pdf

2003-04 period recording on an average 4-5 per cent as compared to 2-3 per cent during the pre-2003-04 period.

3.5 The Central Statistical Office (CSO) has recently revised the GDP data from factor cost to basic prices. With this new measurement, the growth rate of Gross value added (GVA) of Odisha has seen upward revision over the factor cost estimates in some of the years. **Figure 3.5** shows the trends of GVA growth rate, wherein it is found that GVA has recorded on an average 6.2 per cent during the last five years (2012-13 to 2016-17). One important conclusion could be drawn from the trend of growth rate of GSDP, both at factor costs and basic prices estimates, that the long term average growth rate of the State falls between 6-6.5 per cent. Therefore, under business-as-usual scenario or called baseline scenario, the economy of the state is expected to grow within the range of 6-6.5 per cent.

3.6 Under baseline scenario, if we assume that the State economy would grow at 6.3 per cent on an average during the next 10 years, with a break-up growth rate of 6.0 per cent during the period 2017-18 to 2021-22 and at 6.5 per cent during the next five year period 2022-23 to 2026-27. Assuming that the population would increase from 44.4 million in 2016-17 to 46.7 million by the end of 2021-22 and to 49 million by the end of 2026-27, the per capita output/income of the State would increase from the current INR 66,108 in 2016-17 to INR 84,165 in 2021-22 to INR 1,09,772 in 2026-27. From **Figure 3.6** it is found that under the baseline growth rate scenario, the per capita GVA of Odisha is expected to reach INR 1,09,772 in 2026-27 which is still less than what the developed states like Gujarat, Tamil Nadu and Karnataka had achieved in 2015-16. Therefore, for catching up with the growth and development of other states, Odisha needs to grow much faster than the baseline growth rate of 6.3 per cent. Achieving a growth rate which is more than the baseline level is not a tall task for the state as it has previously grown at a double-digit level during the period 2003-04 and 2008-09 largely due to impressive performance of manufacturing and services. Assuming that, the state is expected to achieve 1 percentage point higher growth rate than the baseline level i.e., 7.3 per cent during the next 10 year starting from 2017-18, the per capita GVA of the state would be closer to the current level per capita GVA of

Figure 3.5: Growth rate of GVA (at 2011-12 basic prices)

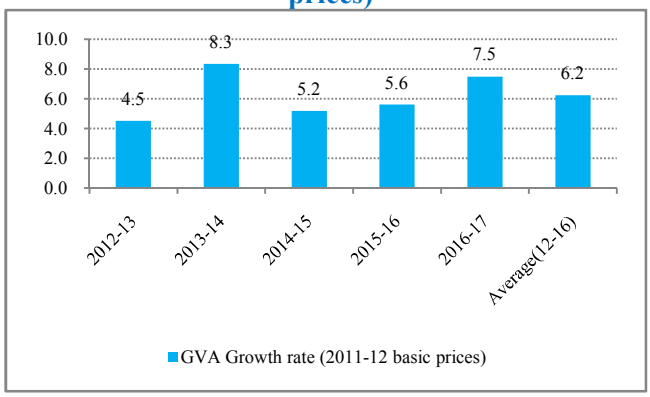
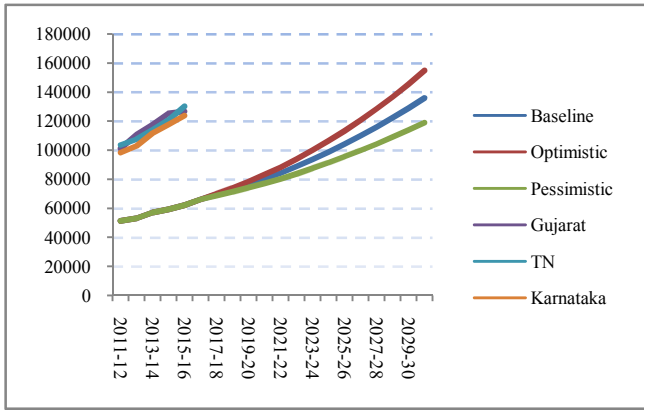


Figure 3.6: Per capita GVA of Odisha vis-a-vis other States



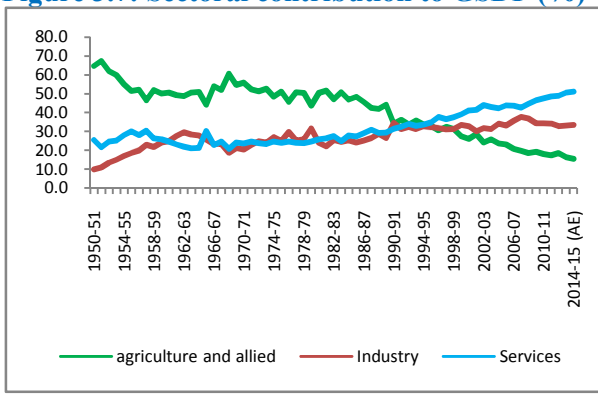
other states by 2026-27 (**Figure 3.6**). Growing less than the baseline level (i.e. under pessimistic scenario), the long run growth rate may slip to 5.3 per cent under the circumstances of natural calamities, policy paralysis or external crisis.[14] This situation would lead to the rise of scarcity of resources, unemployment, distress and poverty.

3.7 The steep rise of long term economic growth rate during the post-2003-04 period was largely on account of trade and industrial reforms pursued by the union and state governments during the 1990s supported well by conducive external environment. These reforms led to a sudden rise and growth of services and industrial activities. Industry led by registered manufacturing sector, mining and quarrying and infrastructure utilities sector recorded resounding growth during the post-reforms period particularly in 2000s. Like the country, the State had also experienced a monotonous expansion of services sector since early 1990s. However, the sector's growth rate was actually picked up during 2000s mainly due to a substantial growth rate recorded in some of the services such as tourism related sectors like travel, trade, hotel and restaurants; infrastructure services like transport and communication; financial and business services like IT and ITes, banking, BPOs and foreign investment; and social services like health and education. The phenomenal rise of services sector along with strong growth in industry led to a declining contribution of agriculture to state GDP.

3.2.1 Agriculture and Allied Sector

3.8 Odisha being an agrarian economy, declining share of agriculture sector to state's GSDP since early 1990s and more so in the 2000s is a matter of concern as around 62 per cent of the workers of the state still continue to depend on the sector for their livelihood. Growth of this sector is important not only for ensuring food security and reduction of poverty in rural areas, but also in sustaining the growth of rest of the economy. As per the five stages of development theory of W. W. Rostow, during the take-off stage the economy transforms from agriculture to production. During this stage, educated individuals start inventing new processes and tools, and access to capital through financial markets and banks make it possible to produce goods and services on a larger scale. Although the state has experienced this positive change during the last two decades, wherein the share of agriculture sector in the state GDP has declined progressively and the growth of high value added sectors such as manufacturing and services have shoot up. But, the state economy has failed in shifting the workers from agriculture to non-agriculture sector. **Figure 3.7** shows that the

Figure 3.7: Sectoral contribution to GSDP (%)



[14] The historical trend in growth rate of the state GDP suggests that the economy of the state has grown below 5 per cent level and even recorded negative growth rate in many years during the post-reforms period. For example, the economy grew (at 2004-05 constant prices) on an average by 5 per cent between 2008-09 and 2013-14. The reasons of such below-par growth rate could be due to the fact that the period is marked with external crisis in 2008-09 – natural shocks like flash floods (Phailin, 2013 and HUDHUD, 2014), drought during 2009 etc.– and industrial distress due to mining ban in 2014 in the state.

economy of Odisha was largely driven by agriculture sector till the late 1990s. Agriculture sector's share was 64.65 per cent during 1950-51 which declined significantly to 34.5 per cent during 1990-91. Despite such large decline, the agriculture sector's share was still higher than other sectors till 1990-91. Since then, baring a couple of years, the share of agriculture sector started falling continuously and fallen far below the share of other sectors. The reasons for decline in agricultural output growth could be due to various factors like lack of irrigation facilities (two-thirds of the net sworn area is un-irrigated), frequent natural calamities, traditional method of cultivation, lack of knowledge in using the modern technology and high yield variety seeds in farming, lack of market and storage facilities for agricultural commodities and low returns on agricultural output. A policy paper of NITI Aayog (2015)[15] suggests that there is a need for green revolution in eastern region of the country as this region has advantages of fertile land and sufficient ground water, the two basic inputs required for improving the productivity. Use of advance technology, high yield variety of commercial crops and expanding the irrigation facilities etc. may increase the production and productivity. The paper also suggests that organic farming should be encouraged in tribal dominated districts of the state as very less percentage of chemical is being used for farming in these districts. Diversification of cropping from rice to other crops such as pulses and oilseeds in the recent past is very encouraging and it must be expanded in the state. The decline in land holding size has become an acute problem in the state which reduces productivity and increases the cost of farming. In this context, the recent development of group farming, that is, small and marginal farmers joining together in land pooling for farming is giving good results, may be replicated across the districts.

3.9 The state has advantages of achieving higher growth and productivity in fishery. Fish production in the state during 2015-16 was 4.69 lakh mts and the value of export was around Rs. 2069.17 crore which is an all time record. The share of fishing and aquaculture in the state GDP at current prices has increased from 1.23 per cent in 2011-12 to 1.88 per cent in 2016-17. It is a well known fact that the state is endowed with rich resource of inland, brackish water and marine area for fishery. Having a long coastline of 480 km with a continental shelf area of 24,000 sq. km along the Bay of Bengal, it offers tremendous opportunities for development of fresh water fisheries, brackish water fisheries and marine fisheries. To effectively utilise these ample resources, the State Government has set a mission of doubling the inland fish production and tripling the present level of export. The State Government has come up with the Odisha Fisheries Policy, 2015 which aims at enhancing the production and productivity of fish using the inland, brackish water and marine resources and doubling the fish production in the next five years; upgrading the infrastructure facilities like Fishing Harbour, Fish Landing Centre (FLCs), cold chain, communication, etc.; encouraging public-private partnership investment across the sector, and generating additional employment opportunities in the rural sector for the fishers, educated unemployed youth and others.

[15] NITI Aayog (2015), Raising Agricultural Productivity and making Farming Remunerative for Farmers, Occasional Paper, 16th December 2015, http://niti.gov.in/writereaddata/files/document_publication/RAP3.pdf

3.2.2 Industrial Development

3.10 Odisha is an industrially backward state. This backwardness is mainly due to inadequate infrastructural facilities, limited supply of capital and lack of technology upgradation etc. Odisha has the resources for setting up more number of medium and large scale units. Promotion and development of medium and large industries need more capital as these industries are capital intensive in nature. Odisha being an undeveloped state is not in a position to mobilize additional capital substantially for setting up of more medium and large industries. During the initial stages of industrialization in the country some medium and large industries were set up in public sector to abridge the regional disparity. Some industries were also set up in the private sector during this period. After the onset of liberalization in the country, foreign investment in different sectors including infrastructure is coming in a big way to the state. Today Odisha is a fast growing industrial economy because of its rich mineral resources attracting huge investments in various sectors such as steel, aluminium, cement, power, etc. Growth in the industrial sector has been a key factor in pushing the growth of Gross Domestic Product (GDP) of the state to a higher trajectory. Industrial promotion and development is the key activity of the Government of Odisha. The State government is keen to create an enabling atmosphere for growth and development in the industry sector with an aim of maximizing value addition, employment generation and revenue augmentation. In order to strengthen the industrial base particularly the manufacturing base, various policy measures are being declared by the state from time to time.

3.11 The state's long coastline, inland water, minerals and natural resources and rich cultural heritage makes it an attractive destination for the industries. The State Government's policy envisages the development of industries at all levels and promotes the state as a manufacturing hub rather than highlighting only its mining industries. The Government has taken proactive measures to attract investments by creating the concept of "Team Odisha" and "Invest Odisha" for industrial facilitation and investment promotion. New Industrial Policy, 2015 and SEZ Policy, 2015 have been implemented by the Government with an aim to attract investment and create industry-friendly atmosphere by extending various fiscal and non-fiscal incentives. There are four PSUs functioning under the Industries Department viz., Odisha Industrial Infrastructure Development Corporation Ltd. (IDCO), Industrial Promotion & Investment Corporation of Odisha Ltd. (IPICOL), Industrial Development Corporation of Odisha Ltd. (IDCOL), Odisha Film Development Corporation Ltd.

3.12 The state has witnessed an industrial upsurge owing to the favourable industrial atmosphere. The State Government of Odisha has invited some of the major industrial houses of the country and of abroad to invest in the state. It has achieved a considerable amount of success as several prime companies have set up their plants in the state. The state is also rich in forest resources which has prompted the growth of several forest based industrial plants. The cottage industry of Odisha includes Sericulture industry, Cotton textile mills, Sugar mills and Rice mills.

The industrial structure of Odisha mainly consists of four categories:

- Medium industries
- Cottage industries

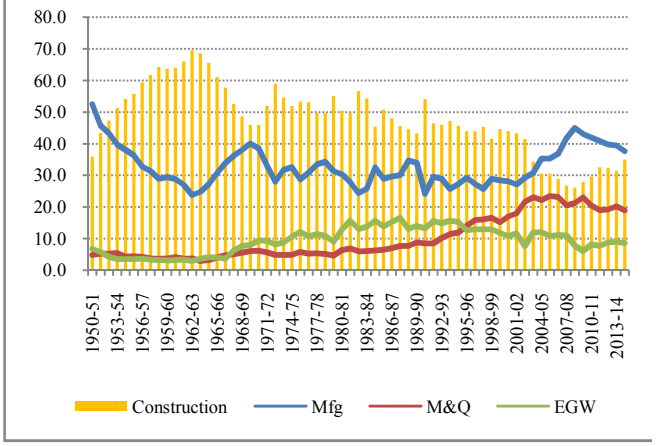
- Large scale heavy industries
- Large scale industries

The large scale medium and large scale heavy industries include:

- Cement industry
- Ceramic Glass plants
- Refractory units
- Ferro Manganese plants
- Aluminium industry
- Fertilizer plants
- Agro based industries
- Chemical industries
- Tyre factories
- Aeronautical industry

3.13 By the broad macro category, industry sector comprises sub-sectors such as manufacturing (registered and unregistered), construction, mining & quarrying and electricity, gas and water supply. During 1950s and '60s, the growth of industry in Odisha was largely driven by construction and manufacturing sector particularly in un-registered manufacturing sector. The sectoral contribution however changed gradually since 1980s. While the share of construction sector declined, that of manufacturing sector remained stagnant throughout 1980s and 1990s. The space created by manufacturing and construction sectors was filled in by mining & quarrying and utilities sectors (**Figure 3.8**). Manufacturing sector's share, which was quite static during the 1980s and 1990s, posted an upward trend during the 2000s owning to much improved performance of registered manufacturing segments and due to economic reforms undertaken by the State Government. The registered manufacturing sector comprises large, medium and small industries. While large and medium industries are driving the output growth of manufacturing sector in the state, MSMEs on the other hand helped in creating more employment opportunities.

Figure 3.8: Sectoral contribution to GSDP (%)



3.2.2.1 Large and Medium Industries

3.14 Large and medium industries are prime movers of industrialisation in the state. As on March 2017, Odisha had 213 large industries operating in 22 districts with a total investment of Rs. 91,97,490 lakh and creating employment opportunity for 1.1 lakh persons with average

employment of 516 per unit. Out of 213, a whopping 147 units belong to Engineering and Basic metal industries[16] followed by 25 units from Glass & Ceramic industries and 14 units from Chemical & Allied industries (**Table 3.1**). The table also shows that maximum investment has taken place in these three sectors with Rs. 85,76,431 lakh, out of which an investment worth of Rs. 77,78,860 lakh alone took place in Engineering and Basic metal industries. The similar trend is also evident in the case of employment generation – highest number of employment (86,645) is recorded in Engineering and Metal based industries followed by (9,524) by Glass & Ceramic industries and (3,614) by Chemical & Allied industries.

Table 3.1: Large & Medium Scale Industries in Odisha since Inception to till 31st March, 2017

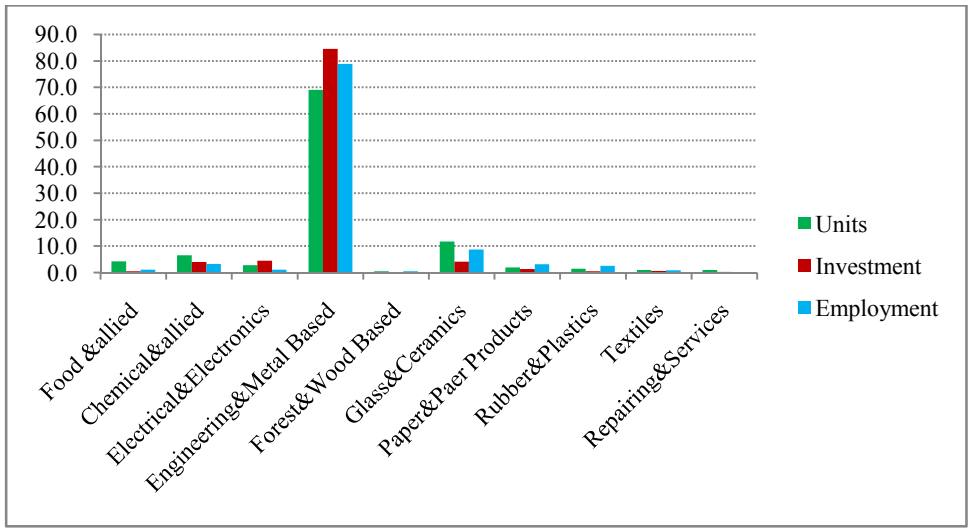
Sl. No.	Category of Industry	Large			Medium		
		No. of units	Investment (Rs. in Lakh)	Emp. generated	No. of units	Investment (Rs. in Lakh)	Emp. generated
1	Food & Allied	9	38450	1174	6	11148	3310
2	Chemical & Allied	14	362432	3614	4	3555	104
3	Electrical & Electronics	6	404228	1237	1	1553	6
4	Engineering & Metal based	147	7778860	86645	15	41167	2554
5	Forest &Wood based	1	6369	552	0	0	0
6	Glass & Ceramics	25	374886	9524	6	15532	1389
7	Paper & Paper Products	4	123107	3485	2	1405	150
8	Rubber & Plastics	3	44358	2727	1	1535	59
9	Textiles	2	51712	933	3	4521	866
10	Repairing & Services	2	13088	0	1	788	0
	Total	213	9197490	109891	39	81204	8438

Source: Directorate of Industries, Government of Odisha

The percentage share of each large industry in terms of number of units, employment and investment is depicted in **Figure 3.9**. The data show that the share of Engineering & Metal industries is 84.6 and 78.9 per cent in investment and employment respectively.

[16] Odisha shares 25 percent of the total iron ore and 52 percent of the bauxite reserves of India which are essential inputs for producing steel and aluminium respectively. Because of this advantage, many big public and private steel and aluminium companies, namely Rourkela Steel Plant, Vedanta, Jindal, Tata, Essar, Bhusan Power and Steel, Sterlite Iron and Steel, Welspun Power & Steel, Uttam Galva Steel, Arcelor Mittal India are operating in the state. The National Aluminium Company Limited (NALCO) and Sesa Sterlite are two big aluminium companies that are operating in Odisha and together these two companies contribute 57 per cent of the total aluminium production in the state.

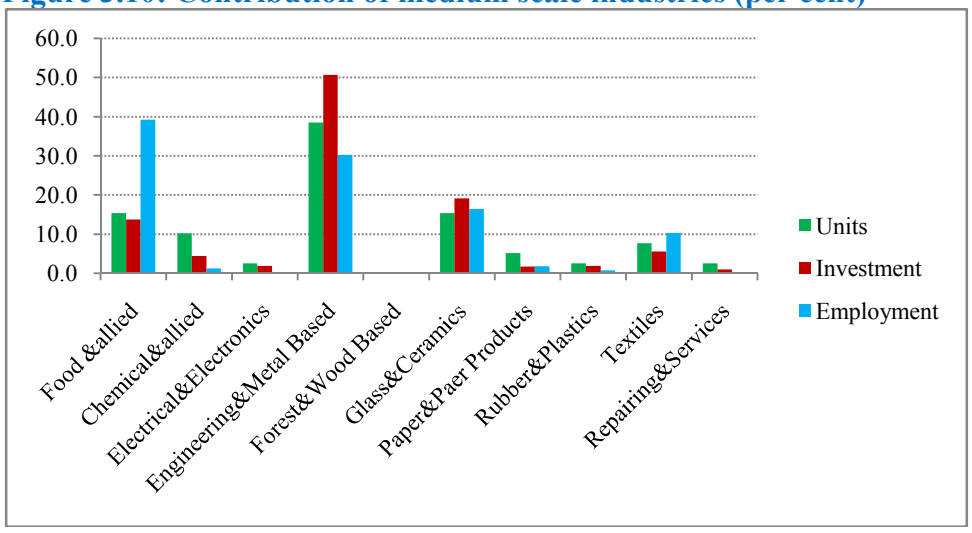
Figure 3.9: Contribution of large scale industries (per cent)



Source: NILERD

3.15 Table 3.1 also shows the number of medium industries in the state. Out of the total 39 industries till March 2017, 15 belong to Engineering and Metal based industries followed by 6 each to Glass & Ceramic and Food & allied industries. In terms of investment and employment generation, the highest contribution comes from these three industries only (**Figure 3.10**).

Figure 3.10: Contribution of medium scale industries (per cent)

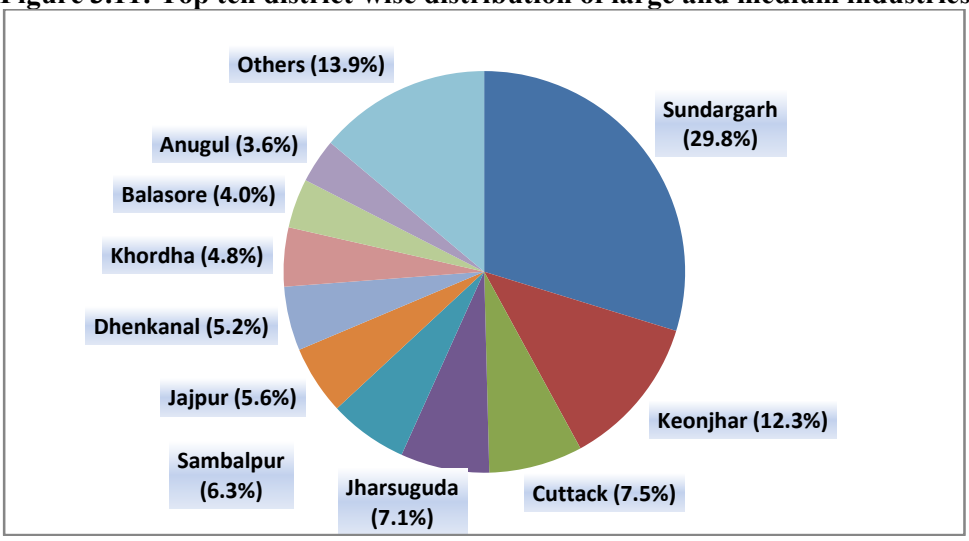


Source: NILERD

3.16 The district-wise distribution of large and medium industries (**Figure 3.11)** suggests that out of the 252 large and medium industries, maximum number (29.8 per cent) of units are located in Sundargarh district, followed by Keonjhar (12.3 per cent), Cuttack (7.5 per cent). Other top ten

districts in respect of number of large and medium industries are Jharsuguda, Sambalpur, Jajpur, Dhenkanal, Khordha, Balasore and Anugul.

Figure 3.11: Top ten district-wise distribution of large and medium industries (per cent)



Source: NILERD

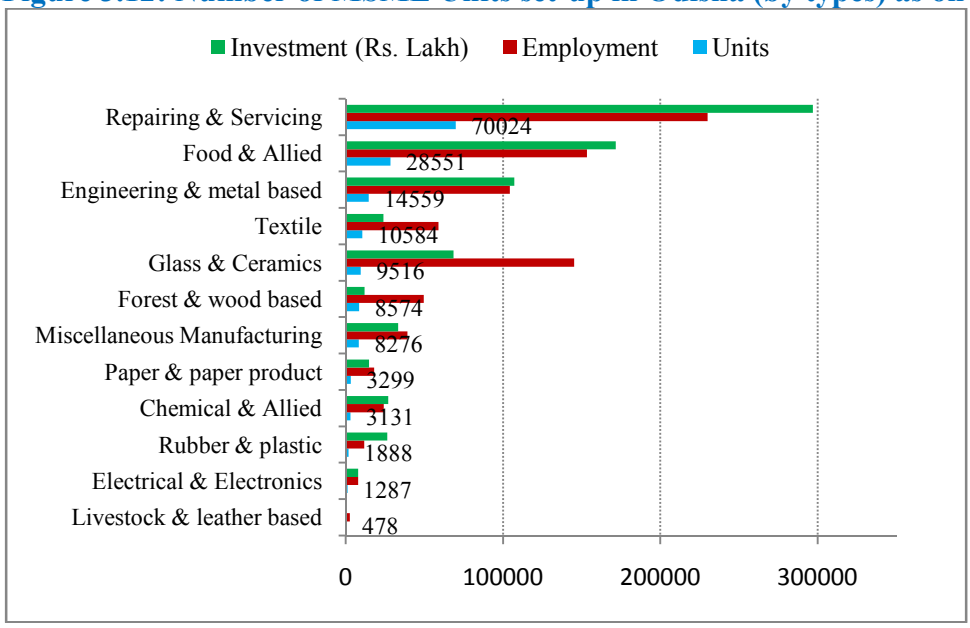
3.17 Although Engineering and Basic metals and Chemical & allied industries dominate the industrial structure of Odisha in terms of number of units and contribution to value added of manufacturing sector, the average employment generation by these units however is quite low as compared to other industries like Food & allied and Glass & Ceramics and Textiles. While each medium size Engineering and Basic metal industries create on an average 170 employment, on the other hand, each unit of Food and allied industries generates 552 employment. Similarly, other labour intensive industries such as Textile and Glass & Ceramics generate 289 and 232 employment respectively. Since, the issue of jobless growth has been a matter of concern for the government, emphasising the development and growth of labour intensive industries like Textile and Food & allied is quite important. Further, these are sectors that have direct link with agriculture sector in a way of using the agricultural products as inputs, enabling the farmers to get better returns by directly selling their produce to food processing and textile units.

3.2.2.2 MSME sector

3.18 Since the focus of the government has been to achieve 'growth with equity', the priority must be given to development of MSME sector which provides employment and livelihood opportunities to million unskilled and semi-skilled labour force residing in rural areas and act as a source of demand for agricultural products. The State Government has initiated various fiscal and non-fiscal incentives under Industrial Policy Resolutions 2001, 2007 and 2015, MSME Development Policy 2009 and related policies for the development of MSME sector. The State Government has also categorized downstream industries as "Thrust sector". Cluster units development approach is being adopted to promote competitiveness of potential sectors (Odisha ES, 2015-16). Data published by Directorate of Economics and Statistics, Government of Odisha show that MSME sector records an upswing trend over the years both in the number of units,

investment and employment generation. **Figure 3.12** illustrates the number of units, employment and investment in MSME sector in Odisha.

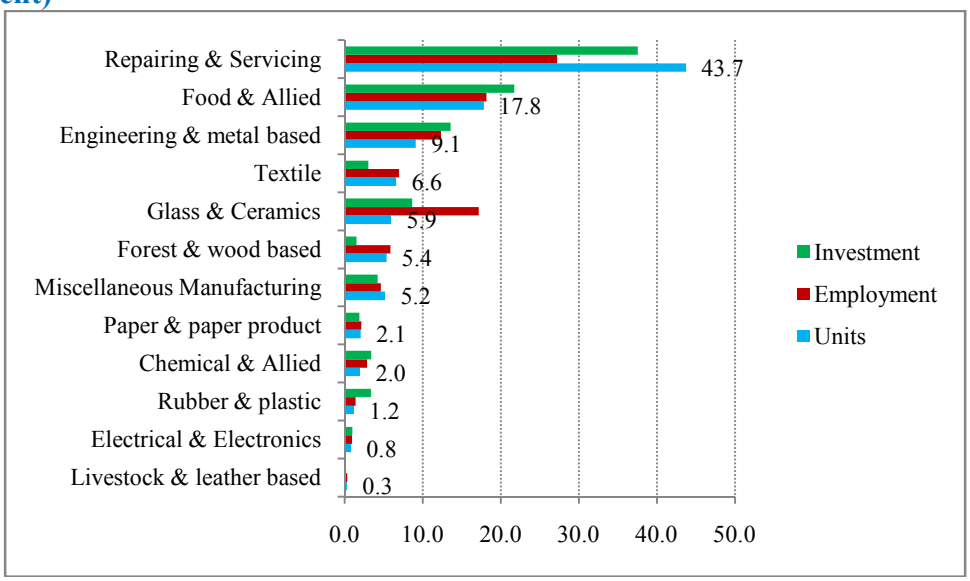
Figure 3.12: Number of MSME Units set-up in Odisha (by types) as on the end of 2016



Source: Directorate of Industries, Government of Odisha

3.19 Data show that by the end of 2016 a record 1,06,167 MSME units have gone into production in the state, out of which maximum 7,00,24 units belonged to Repairing and Servicing sector followed by 28,551 units in Food and allied, 14,559 units in Engineering and metal based, 10,584 units in Textile and 9,516 units in Glass and Ceramic industries. In the case of investment and employment, it is found that Repairing and Services sector top the list with an investment of Rs. 7,90,629 lakh and employment of 8,45,489 persons. Other major industries that have recorded higher investment and employment generations are Food and allied, Engineering and Metal based, Glass & Ceramic and Textile. The percentage share of each industry with respect to number of units, employment and investment is illustrated in **Figure 3.13**.

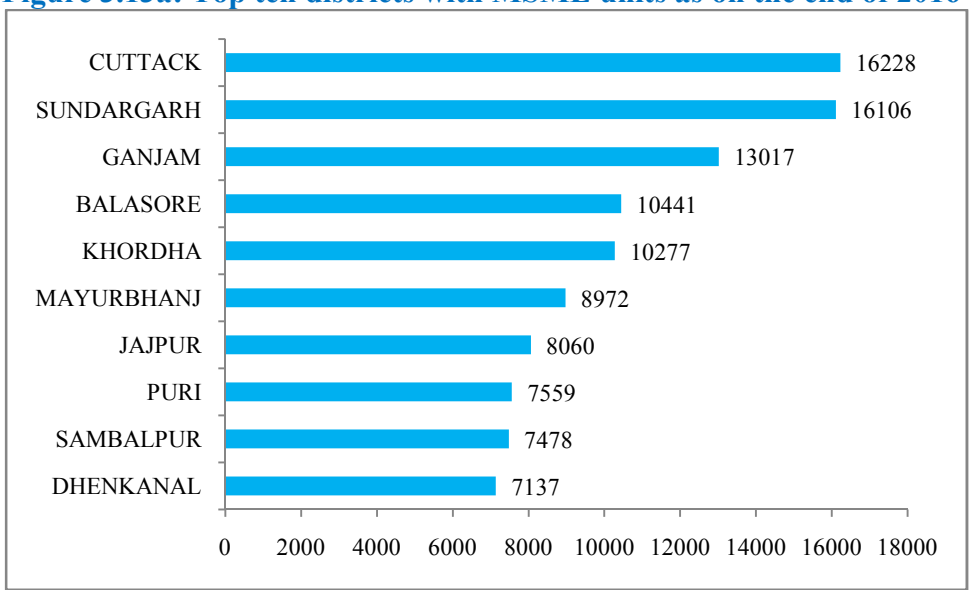
Figure 3.13: Percentage Share of MSME by Type of Industries as on the end of 2016 (per cent)



Source: NILERD

3.20 MSME units are located across all the districts in the state. However, maximum MSME units are located in Cuttack (10.13 per cent) and Sundargarh district (10.1per cent). The list of top ten districts with MSME units is illustrated in **Figure 3.13a**. These top ten districts cover 65.7 per cent of MSME units in the state.

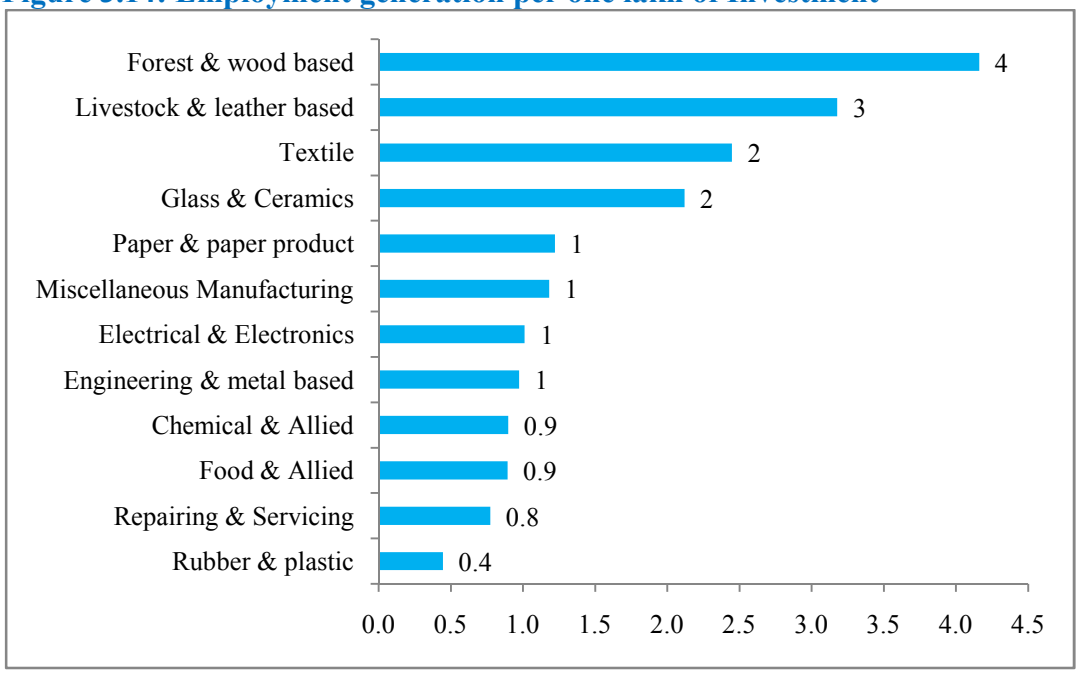
Figure 3.13a: Top ten districts with MSME units as on the end of 2016



Source: Directorate of Industries, Government of Odisha

3.21 Employment per unit of investment shows forest and wood based MSME units are generating maximum number of employment (4 persons) per one lakh rupees of investment followed by leave stock and leather based industries (3 persons), textiles (2 persons), Glass and Ceramic (2 persons). This analysis points to suggest that since labour intensive industries usually investment less in capital and more in labour, the ratio of labour to capital is high as compared to capital intensive industries. Surprisingly, the ratio of labour to capital is found low in some of the labour intensive industries like Rubber & Plastic and Food & allied.

Figure 3.14: Employment generation per one lakh of Investment



Source: NILERD

3.22 The above analysis suggests that youth entrepreneurs in Odisha prefer to start business in repairing and services units mainly due to issues and problems related to literacy, skills, opportunities, marketing, credit facilities etc. (Odisha ES, 2015-16). Other preferable sectors under MSME are engineering and metal based, food and allied, electronics & electrical and glass & ceramic industries due to availability of natural resources and domestic demand. Although the State Government has recently announced various measures to strengthen the MSME sector, some of the problems continued to hamper the development of the sector.[17] The sector is facing serious challenges for its existence owing to international competitions, infrastructural bottleneck and policy issues related to fiscal and non-fiscal. A study by NILERD (2016) finds that the major challenges MSME units are facing today are lack of availability of skilled manpower, lack of

[17] Under MSME Development Policy 2015, the State Government has announced to provide fiscal incentives such as, providing land at concessional rates, interest subsidy, exemption of stamp duty, VAT reimbursement, assistance for technical knowhow and marketing support. A first of its kind policy in the country, the Odisha government announced "Odisha Procurement Preference Policy for micro and Small Enterprises – 2015'' to provide and ensure fair, transparent, consistent and rationally equitable procurement practices of goods and services produced.

incentives from the government and heavy tax burden, lengthy and complex process involved and unfavourable terms & conditions for getting bank loans, infrastructure bottleneck etc.

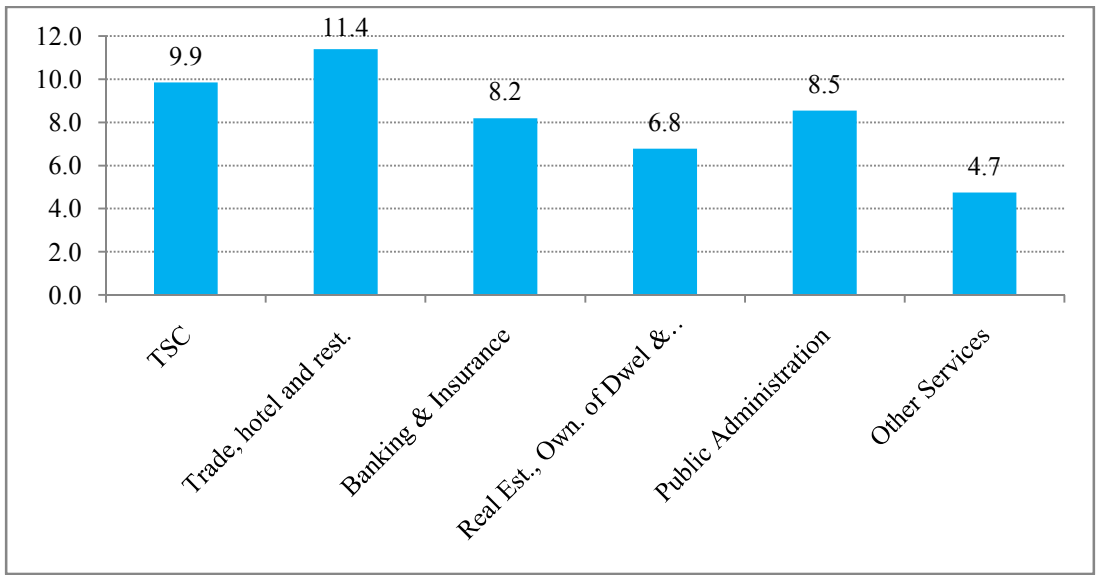
3.2.2.3 Mining and Quarrying Sector

3.23 Odisha being one of the major mineral rich states in the country, the state government has given due importance to the development of mining & quarrying sector. The sector plays a driving force in the industrial development in the state, contributes more than 20 per cent to the industry. The sector provides employment opportunities to different sections including tribal groups. By the end of 2014-15, 47,370 workers were employed directly in major mineral based industrial activities (Odisha ES, 2015-16). Maximum large and medium scale industries in the state are mineral based and they have helped in grooming the ancillary and downstream industries. Till the end of 2014-15, 111 MSME units have been given ancillary status and 555 given vendor status by Central PSUs that include Rourkela Steel Plants (206 Vendors), NALCO (55 units and 248 Vendors), Mahanadi Coal Field Ltd. (51 proven ancillary status), HAL (5 units), IRE Ltd. (36 Vendors) and Nilanchal Ispat Nigam Ltd. (65 Vendors). In order to strengthen the Mining &Quarrying sector, the state government has come up with a new policy called Odisha Mineral Exploration Policy in 2015. The policy focused on increasing the share of mineral sector to state GDP, creating large employment opportunities, judicious distribution of mineral resources, and improving the contribution of the sector to state exchequer. The policy proposes to set up an Odisha Mineral Exploration Corporation with participation of the Odisha Mining Corporation, MCEL and mineral resource based industries of the State.

3.2.3 Service Sector

3.24 This sector comprises sub-sectors such as banking and insurance, real estate etc., public administration, trade, hotels & restaurants, transport, storage & communications and other services. This sector dominates the state's economy with a share of 44 per cent of GSDP as per advance estimate for 2016-17. The sector has been growing at higher rates as compared to other sectors more or less in a stable manner. Between 2012-13 and 2016-17, the sector has grown on an average 8.2 per cent (GVA at 2011-12 prices), which is substantially higher than the growth of other sectors such as Industry (5.2 per cent) and Agriculture and allied (4 per cent) and even 2 percentage points higher than the State's average growth rate of 6.2 per cent during the same period. High growth in services sector was driven more by trade, hotel & restaurant, transport, storage & communication, banking and insurance services and public administration services. **Figure 3.15** depicts the average growth rate of services sub-sectors between 2012-13 and 2016-17 which suggests that tourism related sector such as trade, hotel & restaurants recorded double digit growth rate (11.4 per cent), followed by transport, storage & communication (9.9 per cent), public administration (8.5 per cent) and banking & insurance (8.2 per cent).

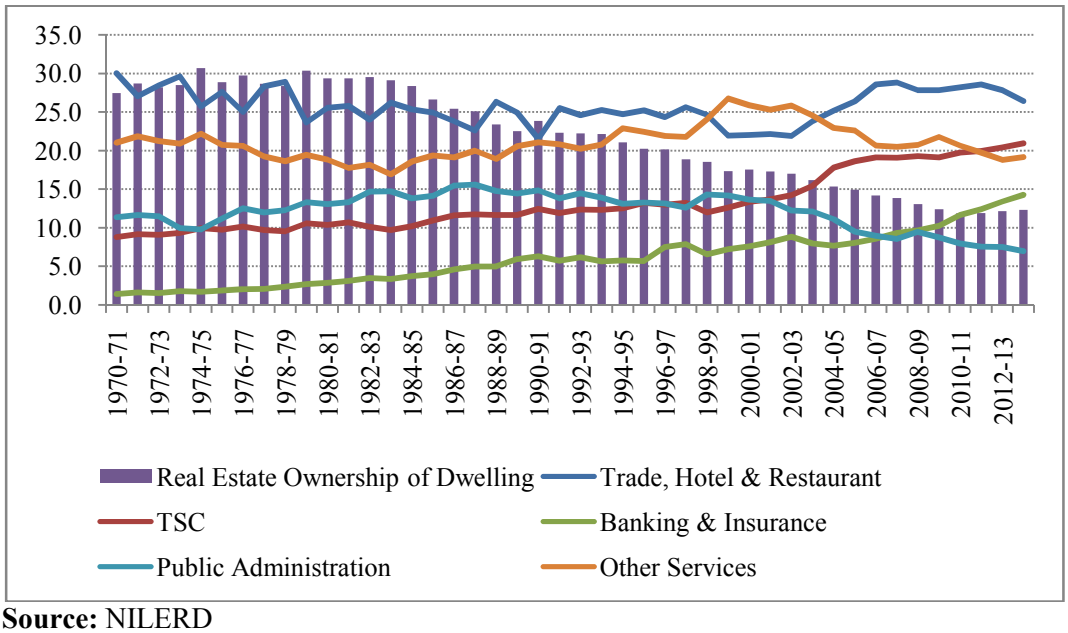
Figure 3.15: Average growth rate of services sub-sectors between 2012-13 and 2016-17



Source: Directorate of Economics and Statistics, Government of Odisha

3.25 The historical trend of sectoral contribution to services sector is depicted in Figure 3.16 suggests that real estate, ownership of dwelling and business services was the largest contributor to the sector during the 1970s and 1980s followed by trade, hotel and restaurant sector.

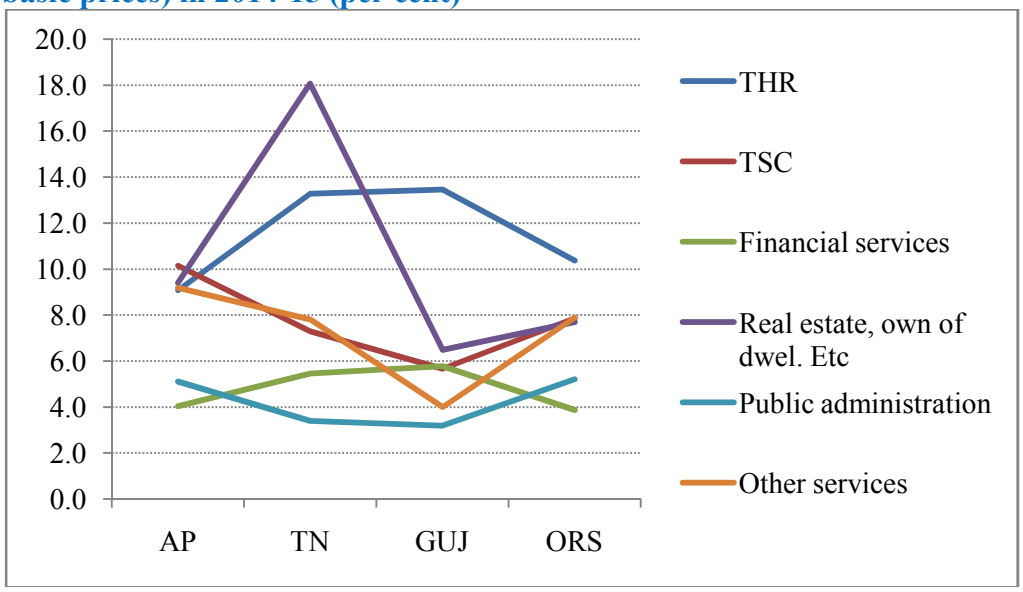
Figure 3.16: Historical contribution of sub-sectors to Service Sector



Source: NILERD

3.26 After the economic reforms launched in early 1990s, a lot of emphasis was given to infrastructure development, social services like health & education and financial services etc. The development of these sectors directly or indirectly helped trade, hotel and restaurant sector to grow faster due to tourism activities and free movements of goods and services. Sectoral contribution suggests that the contribution of sectors such as infrastructure (transport, storage and communication), banking and insurance, other services including health and education, tourism sector like trade, hotel and restaurant have shown improved performance during the post-liberalisation period particularly during the last decade. In comparison to other states, performance of Odisha in terms of the share of services sub-sectors to state GDP shows that the state has performed reasonably well in most of the broad services except real estate, ownership dwelling and business services, in which states like Tamil Nadu, Andhra Pradesh and Karnataka have achieved high growth due to developed IT and ITEs sectors.

Figure 3.17: State-wise services sub-sectors' contribution to State GDP (GVA at current basic prices) in 2014-15 (per cent)



Source: NILERD

3.27 The state could focus on some of the potential services sectors to sustain higher growth in sector. Banking and insurance sub-sector has been steadily growing in the state. Presently, about 80 per cent of all bank branches are located in rural and semi-urban areas. During 2015-16 the number of bank branches grew by 9.13 per cent. Tourism is another promising sector of Odisha. Although travel and hotel industry have performed very well, there still remains unutilized potential that can be exploited to achieve further growth in the sector. The State Government has been taking several measures to promote tourism in the state. Odisha Tourism Policy 2013 and interventions like improved institutional mechanism, marketing support, expanding hotel industries have improved the tourism prospects in the state. Efforts have also been initiated to attract more and more foreign tourists to the state which remains less than one per cent of the total foreign tourists' arrival in the country. For this, direct air connectivity to other states and to foreign countries should be initiated. Infrastructure is another area which is growing steadily in the state but much more needs to be done. Due to lack of world class infrastructure facilities, the

state is unable to reap the benefits of attracting large foreign investment despite having rich mineral base and availability of coal and water.

3.3 Employment Status of the State

3.28 Accelerating growth and expanding employment opportunities are the goals of economic policy of the State. Provision of productive employment for the continuous increase in the labour force is an integral part of inclusive growth policy. Gainful employment is an important condition for food security, economic security and sustainable livelihoods. The actual rate of expansion of labour force in the state usually depends on several factors that include growth of population, working age population, labour force participation rates, educational enrolment at higher levels; and reduction in school drop-out rates. Creation of more and more gainful employment opportunities has therefore been a very high priority for the State Government. However, unlike national or state domestic products and related measures, employment data are not collected annually in India, except for the organized sector. Employment changes are inferred from Census data which is revised at an interval of every ten years. The second source of employment data is from household surveys conducted by the National Sample Survey Organization (NSSO) from time to time.

3.3.1 State of Employment: Census Data

3.29 The Census of India provides a large amount of information on employment at the district, state and national level. It not only estimates the population, but also indicates the status of workers, defined as those who have participated in any economically productive activity at any time during the reference period. Census classifies workers as main and marginal workers. Main workers are those who participated in any economically productive activity for not less than six months during the year preceding the date of enumeration and marginal workers are those who participated in any economically productive activity for less than six months during the reference period. Within marginal workers, three types of workers have been reported namely, marginal workers who worked for less than three months, three to six months and seeking/available for work. Besides main and marginal workers, the Census data also provide information on non-workers seeking/available for work. In this study, while calculating the unemployment, the sum total of workers seeking /available for work under marginal worker and workers seeking /available for work under non-workers has been taken into account.

3.30 In the 2011 Census, the population of Odisha was reported as 4.20 crore – about 3.47 per cent of the population of the country. As per the 2011 population census, the total number of workers was 175.42 lakh, of which 151.04 lakh (86.1 per cent) were in rural Odisha and 24.38 lakh (13.9 per cent) were in urban Odisha. The male workers were 119.03 lakh, which constituted 67.9 per cent of the total workers and female workers were 56.39 lakhs constituting 32.1 per cent of the total workers. The main workers numbered 107.08 lakh constituted 61 per cent of the total workers, while the cultivators were reported as 41.04 lakh (23.4 per cent of the total workers) and agricultural labourers 67.40 lakh (38.4 per cent of the total workers). In rural areas, the percentage of main workers to total workers accounted for 57.1 per cent and in urban areas it was 85.5 per cent. Further, it was also reported that total number of marginal workers

was 68.34 lakh constituting 39.0 per cent of the total workers, out of which 81.9 per cent were engaged for 3-6 months and the balance 18.1 per cent were engaged for less than three months during the reference period.

3.31 A comparison of employment structure of Odisha with all-India during 2001 and 2011 has been reported in T**able 3.2** and the following conclusions have been drawn.

- While the population has increased at CAGR of 1.3 per cent from 3.7 crore in 2001 to 4.2 crore in 2011 for Odisha, on the other hand, it has increased at a higher rate of 1.6 per cent for all-India.
- The data show that total workers have increased both in the case of Odisha and all-India between 2001 and 2011. However, total workers in Odisha has increased at a higher rate of 2.5 per cent from 1.4 crore in 2001 to 1.8 crore in 2011 as compared to 1.8 per cent for all-India from 40.2 crore in 2001 to 48.2 crore in 2011.
- Although total workers have increased both for Odisha and all-India, the composition of workers however varies between the two. While main workers have increased at a higher rate (CAGR) of 1.5 per cent for all-India as compared to 1.0 per cent for Odisha, the reverse is true in the case of marginal workers, which has increased at a higher rate of 3.5 per cent for Odisha as compared to 2.9 per cent for all-India.
- Workforce Participation Rate (WFPR) was found to be 41.8 per cent for Odisha in 2011 which was higher than all-India (39.8 per cent). While WFPR has increased merely 0.7 percentage points for India between 2001 and 2011, the same has increased a whopping 3 percentage points for Odisha during the same period.
- The percentage of variation has been found to be even higher in the case of labour force participation rate (LFPR) with 57 per cent for Odisha as compared to 43.7 per cent for all-India. While the LFPR has actually declined by 2.2 percentage points for India between 2001 and 2011, it has increased by 8 percentage points for Odisha during the same period.
- While unemployment rate (workers seeking/available for work/total population) has incased by 2.8 percentage points from 6.8 per cent in 2001 to 9.6 per cent in 2011 for India, it has increased at a higher rate of 5 percentage points for Odisha from 10.2 per cent in 2001 to 15.2 per cent in 2011.
- The data also show that both female and male workers to total workers are found to be higher in the case of Odisha as compared to all-India. The same is true in the case of agricultural labourers but the opposite trend is found in the case of cultivators.

Table 3.2: Workforce Profile of India and Odisha (for all age groups)

Categories	India		Odisha	
	2001	2011	2001	2011
Total population (in crore)	102.9	121.1	3.7	4.2
Total workers (in crore)	40.2	48.2	1.4	1.8
Total Main workers (in crore)	31.3	36.3	1.0	1.1
Total Marginal workers (in crore)	8.9	11.9	0.5	0.7
Unemployed (crore)	7.0	11.6	0.4	0.6
Total workers (per cent of population)	39.1	39.8	38.8	41.8
Total labour force (per cent of population)	45.9	43.7	49.0	57.0
Unemployed (per cent of population)	6.8	9.6	10.2	15.2
Main workers (per cent of total workers)	77.8	75.2	67.2	61.0
Marginal workers (per cent of total workers)	22.2	24.8	32.8	39.0
male workers(per cent of total male population)	51.7	53.3	52.5	56.1
Female workers (per centof total female population)	25.6	25.5	24.7	27.2
Cultivators (per cent of total workers)	31.7	24.7	29.7	23.4
Agriculture labourers (per cent of total workers)	26.6	30.0	35.0	38.4
Workers engaged in household activities (per cent of total workers)	4.2	3.8	5.0	4.5
Other workers (per cent of total workers)	37.6	41.6	30.3	33.7

Notes: (1) Labour force is defined as sum of workers (main and marginal workers) and unemployed.
(2) Marginal workers include workers worked for 3 to 6 months and less than 3 months.
(3) Workforce implies sum of main and marginal workers.
(4) Unemployed refers to those are seeking for job under marginal workers and non-workers.
Source: Census 2001 and 2011

3.32 Since the focus has recently been on how to maximise the benefits from the demographic advantages of the states having higher percentage share of youth population to total population, we analysed the population and employment status by age-groups, which are illustrated in Table 3.3 and the main findings are summarized below.

Table 3.3: Workforce Profile of India and Odisha by Age Group in 2011

Categories	Age group: 15-59		Age group: 15-24	
	India	Odisha	India	Odisha
Population (in crore)	73.0	2.6	23.2	0.8
Main workers (in crore)	32.4	1.0	5.6	0.1
Marginal workers (in crore)	10.3	0.6	2.9	0.2
Unemployed (in crore)	10.6	0.6	4.7	0.3
Labour force (in crore)	53.3	2.2	13.3	0.6
Total workers (in crore)	42.7	1.6	8.6	0.3
Total workers (per cent of population*)	58.48	60.66	36.94	41.32
Total labour force (per cent of population*)	72.98	83.49	57.19	74.45
Unemployed (per cent of population*)	14.50	22.84	20.25	33.13

Source: Census 2011
Note: * refers to particular age group population

- As per Census 2011, Odisha's population in age strata 15-19 is 2.6 crore or around 3.6 per cent of India's population in the same age group. In the case of youth population (age group 15-24 years), the population of Odisha is 0.8 crore or 3.4 per cent of all-India population in the same age group.
- Total workers to population in the age group 15-59 shows that employment in the state was 60.66 per cent as compared to 58.48 per cent of all-India. Age group 15-24 also shows that the state's employment is higher than all-India level.
- Although workers' share in population is higher in Odisha as compared to all-India, a high ratio of LFPR is becoming a problem for the state. The data show that LFPR in Odisha in the age group 15-14 is 74.45 per cent of the population (same age group), which is considerably higher than all India figure of 57.19 per cent. This suggests that more and more number of youth is entering into the labour market in the state due to higher illiteracy, school dropout, more poverty and low per capita income.
- Due to high LRPR as compared to WFPR, the state has experienced high unemployment rate of 33.13 per cent of the population in the age group 15-24 years as compared to 20.25 per cent for all-India.

3.3.2 State of Employment: NSSO Data

3.33 The rate of unemployment[18] in the state has been falling in the recent years (Economic Survey, Odisha, 2015-16). It has declined from 6.1 per cent in 2004-05 to 4.3 per cent in 2013-14 but it is found to be comparatively higher than all-India average of 3.4 per cent. Rural Odisha absorbs higher proportion of workforce and therefore has a low unemployment rate of 3.8 per cent as compared to the urban area which has a higher unemployment rate of 7.3 per cent during 2013-14. At the sectoral level, agriculture and allied sector with 56 per cent share of total employment in 2011-12 continues to be the main source of employment (**Table 3.4**). Industry (manufacturing and non-manufacturing) constitutes about 23 per cent of total employment in the state, the second highest among the sectors. Within industry, construction sector has emerged as the largest source of employment to the tune of 10 per cent to total employment. Services sector contributes the remaining 22 per cent of employment. Within services, trade and hotel is the biggest source of employment to the tune of 10 per cent of the total employment in the state. The share of employment in the public sector (6.78 lakh) continues to be higher than that of private sector (1.17 lakh). It is worth noting here that the share of women employees in the organised sector has decreased from 16.2 per cent in 2010 to 14.03 per cent in 2014 (Economic Survey, Government of Odisha, 2015-16).

[18] It reflects the portion of the labour force which was available for work during the given reference period but did not get work. Employment and unemployment are estimated based on Usual Principal and Subsidiary Status (UPSS).

Table 3.4: Sector-wise Employment Growth and Contribution in Odisha, 1999-2012

Sector of Employment*	Absolute volume of employment (in lakh)				Change in absolute employment (in lakh)		
	1999-00	2004-05	2009-10	2011-12	1999-2005	2005-2010	2010-12
Agriculture	104.3	106.4	98.7	94.3	2.0	-7.6	-4.4
Manufacturing	14.4	19.1	14.4	16.5	4.7	-4.7	2.1
Non-manufacturing	7.2	11.8	18.2	21.9	4.6	6.4	3.7
Services	23.4	30.7	31.1	36.6	7.2	0.4	5.5
Total	149.4	168.0	162.4	169.3	18.6	-5.6	7.0
Share of employment (in per cent)							
Agriculture	69.85	63.32	60.81	55.71			
Manufacturing	9.66	11.38	8.85	9.75			
Non-manufacturing	4.82	7.05	11.2	12.95			
Services	15.67	18.25	19.14	21.59			
Total	100	100	100	100			

Source: Computed from various rounds of NSSO Data; Based on usual principal and subsidiary status (UPSS)

3.34 Odisha economy is also experiencing structural changes in employment during the past one decade. It is been observed that employment in agriculture sector has been steadily declining since 2004-05. **Table 3.4** shows that employment in agriculture sector has declined in absolute term by 12.1 lakh between 2004-05 and 2011-12. It is also been observed that in contrast to national trends, manufacturing sector in Odisha has witnessed a decline in employment between 2004-05 and 2011-12. The only sector that has achieved greater employment growth is non-manufacturing (construction sector in particular) and services. Total employment in non-manufacturing sector has increased from 12 lakh in 2004-05 to 22 lakh in 2011-12 and employment in services sector has grown from 31 lakh in 2004-05 to 37 lakh in 2011-12.

3.35 The composition of employment by nature of jobs such as self-employed, regular wage employment and casual employment reported in table 3.4a suggests that the composition has changed in favour of regular wage employment, which has increased continuously since 2003-04. Thus, it indicates that the supply and demand for skilled workforce may have increased in the state during the last decade. However, at the same time the proportion of casual employment, which is mostly unskilled workforce, has also marginally gone up between 2003-04 and 2011-12, suggesting that due to lack of sufficient demand of skilled jobs or due to lack of proper skill, people are joining the casual labour market in the state.

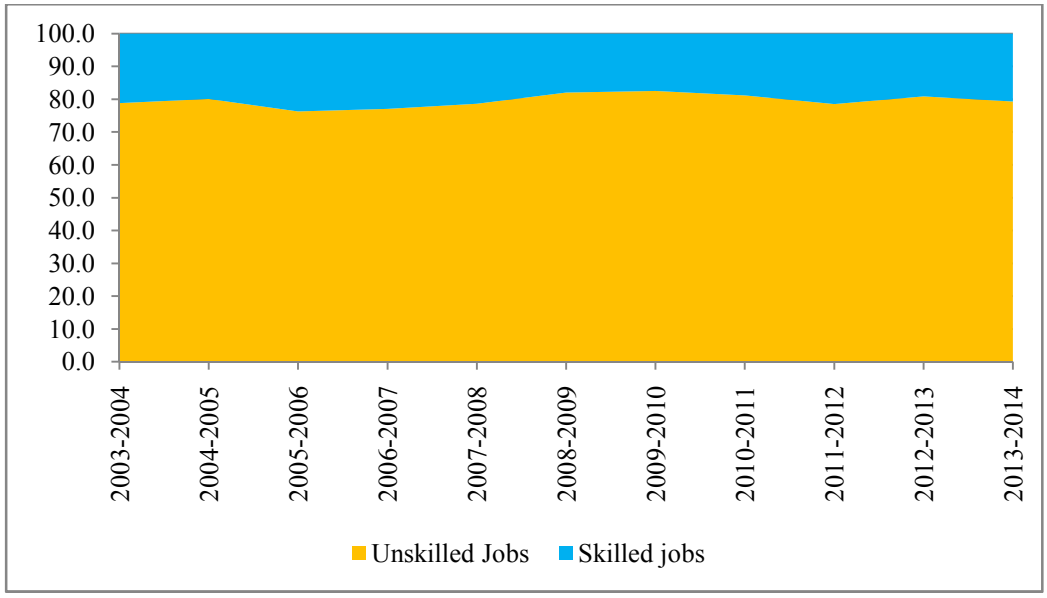
Table 3.4a: Nature of Employment Status in Odisha

Categories	2003-04	2009-10	2011-12
Self-employed	72.05	65.12	67.89
Regular wage employment	8.69	9.85	10.57
Casual employment	19.26	25.03	21.54

Source: NSSO, various rounds (UPSS)

3.36 The demand for skilled jobs in manufacturing sector particularly in organized (registered) has been quite disappointing despite it contributes more than 80 per cent to state's manufacturing sector and recorded an astonishing average growth rate of 20.1 per cent during 2003-04 and 2011-12. The Annual Survey of Industries (ASI) data published by Central Statistical Office (CSO), Government of India suggests that while the proportion of unskilled workers has slightly increased between 2003-04 and 2013-14, the proportion of skilled workers on the other hand slightly declined during the same period. It suggests that despite of industrial revolution taken place in the state and the sector has grown substantially during the post 2003-04 period, the demand for skilled jobs in the sector however has remained stagnant (**Figure 3.18)**. Therefore, for improving the demand prospects of skilled job in the state, the government should focus on creating more skilled jobs particularly in labour intensive segments of manufacturing and services sectors.

Figure 3.18: Composition of skilled and unskilled workforce in registered manufacturing units in the state (% share)



Source: Compiled from ASI data

3.37 While the level of output and employment forms the demand side factors, the supply side factors are mainly described by the status of education and skill development. From the demographic profile of the state it is clear that labour is abundantly available as factors of production to work in combination with other factors. But a large population may not necessarily contribute to economic development when they lack education, skill and technical knowledge, etc. The literacy rate in the state is about 73 per cent (male literacy 81.59 per cent, female literacy 62.46 per cent), a figure that has improved tremendously in the last few years due to consistent efforts of the government (Economics Survey, 2015-16). Literacy rate in Odisha is at par with the national average rate of 72.99 per cent in 2011 Census. However, the distribution of

workers by their level of general education shows that about 58 per cent of the total workforce has either a primary level of education or has no education. The percentage of workers having primary level and no education (combined) is 60.4 per cent in manufacturing sector, about 67 per cent in non-manufacturing sector. However, in the case of services sector, the education level of workers is quite better (**Table 3.5**). In the case of technical education, the situation is even worse across all sectors, where more than 90 per cent of workers do not have technical education. Hence, the state government needs to do a lot of groundwork for improving the technical skills of the labour force in order to make them efficient and productive.

Table 3.5: Distribution of Workers by Level of Education in Odisha, 1999-2012

Sectors of Employment		Percentage Distribution of Workers (UPSS)			
		1999-00	2004-05	2009-10	2011-12
Level of education (general)					
Agriculture	Illiterate	61.5	53.3	41.7	39.7
	Primary	25.0	27.5	30.4	26.8
	Secondary	12.2	17.0	24.2	29.9
	Higher Secondary	0.8	1.1	2.3	2.5
	Graduate & above	0.6	1.1	1.5	1.1
	Total	100	100	100	100
Manufacturing	Illiterate	52.7	45.6	30.6	37.2
	Primary	25.2	25.6	24.2	23.2
	Sub-total	**77.9**	**71.2**	**54.8**	**60.4**
	Secondary	18.5	23.5	36.0	30.7
	Higher Secondary	1.7	3.0	5.3	5.4
	Graduate & above	1.9	2.3	3.9	3.5
	Total	100	100	100	100
Non-manufacturing	Illiterate	48.1	49.9	38.4	36.3
	Primary	28.7	25.6	29.1	30.5
	Sub-total	**76.8**	**75.5**	**67.5**	**66.8**
	Secondary	19.4	20.6	26.1	26.6
	Higher Secondary	1.5	1.8	3.7	3.4
	Graduate & above	2.4	2.1	2.7	3.1
	Total	100	100	100	100
Services	Illiterate	19.9	15.5	11.3	11.2
	Primary	24.8	23.2	21.3	19.8
	Sub-total	**44.7**	**38.7**	**32.6**	**31**
	Secondary	35.3	36.4	36.3	40.7
	Higher Secondary	6.0	8.9	9.3	9.0
	Graduate & above	14.1	16.0	21.8	19.3
	Total	100	100	100	100
Total	Illiterate	53.5	45.3	34.5	32.9
	Primary	25.1	26.3	28.0	25.4
	Sub-total	**78.6**	**71.6**	**62.5**	**58.3**
	Secondary	16.8	21.6	27.8	31.9
	Higher Secondary	1.7	2.8	4.1	4.3
	Graduate & above	2.9	4.0	5.7	5.6
	Total	100	100	100	100

Level of education (Technical)					
Agriculture	No tech. education	99.82	99.78	99.93	99.96
	Below graduate level	0.12	0.13	0.06	0.02
	Graduate & above	0.06	0.08	0.01	0.02
	Total	100	100	100	100
Manufacturing	No tech. education	98.22	98.71	96.29	97.62
	Below graduate level	1.65	0.95	2.85	1.71
	Graduate & above	0.13	0.34	0.85	0.67
	Total	100	100	100	100
Non-manufacturing	No tech. education	97.53	98.48	98.97	99.06
	Below graduate level	1.27	1.45	0.94	0.79
	Graduate & above	1.2	0.07	0.09	0.15
	Total	100	100	100	100
Services	No tech. education	95.15	95.38	95.27	96.59
	Below graduate level	4.19	2.45	2.46	1.45
	Graduate & above	0.66	2.17	2.27	1.96
	Total	100	100	100	100
Total	No tech. education	98.82	98.77	98.61	98.89
	Below graduate level	**0.96**	0.74	0.86	0.59
	Graduate & above	0.22	0.49	0.53	0.52
	Total	100	100	100	100

Source: computed from NSS unit level data, various rounds

3.38 The preliminary data analysis suggests that while demand for labour in Odisha has declined in agriculture sector, it has increased in the services sector. But the share of services sector in total employment is only around 22 per cent. Agriculture sector continues to play a key role in providing employment opportunities with a share more than 55 per cent in total employment. Although total number of employment in manufacturing sector has increased in 2011-12 as compared to 2009-10, its share in total employment has remained stagnant during the last one decade. Various rounds of NSS survey shows that total employment in Odisha has continuously increased from 1999-00 to 2011-12 except in 2009-10. The Economic Survey of Odisha, 2015-16 shows that the unemployment rate in the state has remained high as compared to all-India average. This is true for both rural and urban areas. On the supply side, the workforce participation rate has declined in the rural areas but has increased considerably in the urban areas. This could be due to the high rate of out-migration that has been noticed in the recent years. Further, due to high population growth and low growth rate of state domestic product, it is a major challenge before the state government to provide employment opportunities to all.

3.4 Education and Skill Development Scenario of the State

3.39 Odisha has been historically a forerunner in the field of education, where the ancient university, Puspagiri, is situated which used to attract foreign scholars to study philosophy, astronomy, mathematics and science. The current era is also witnessing a transformation in education & research in the state. Many institutes of national importance and well-known universities have been established in Odisha resulting in an exodus of students from across India and abroad to the state every year. The number of literates in Odisha is 2,67,42,595, out of

which, 2,13,77,915 are recorded in rural areas whereas in urban areas the number of literates recorded as 53,64,680. The literacy rate of Odisha as per 2011 Census is 72.9 per cent. In rural areas the literacy rate is 70.2 per cent whereas in urban areas it is 85.7 per cent. The male rural literacy rate is 79.6 per cent whereas the female literacy rate in rural area is 60.7 per cent. The male literacy rate in urban area is 90.7 per cent and in the case of females the literacy rate is 80.4 per cent. Among the districts the highest literacy rate in rural areas is noticed is in the district of Jagatsinghpur (86.5 per cent) whereas the highest literacy rate in urban areas is recorded in the district of Khordha (91.0 per cent). The lowest literacy rate (43.9 per cent) is recorded in the rural areas of Nabarangpur district whereas the lowest urban literacy rate (74.5 per cent) is recorded in the district of Malkangiri. The highest male literacy rate (92.5 per cent) is recorded in the rural areas of Jagatsinghpur district whereas the highest urban male literacy rate recorded is in the district of Khordha (94.2 per cent). The lowest rural male literacy rate is recorded in the district of Koraput (54.1 per cent) whereas the lowest urban male literacy rate is recorded in the district of Malkangiri (83.4 per cent). The highest female literacy rate in rural areas is noticed in the district of Jagatsinghpur (80.4 per cent) whereas the lowest rural female literacy rate is recorded in the district of Koraput (31.3 per cent). The highest urban female literacy rate (87.5 per cent) is recorded in the district of Khordha whereas the lowest urban female literacy rate (64.9 per cent) is recorded in the district of Malkangiri.[19]

3.4.1 Elementary/Primary Education

3.40 The State Government is committed to the Universalisation of Elementary Education in the state with the aim of fulfilling the constitutional obligation with the assistance of Central Government under the flagship scheme Sarva Siksha Abhiyan (SSA) implemented in 2001-02. Keeping in view the need for Universalisation of Elementary Education, there has been an expansion at Primary and Upper Primary School stage of education in the Government sector especially in rural areas as well as backward areas.

Elementary Education

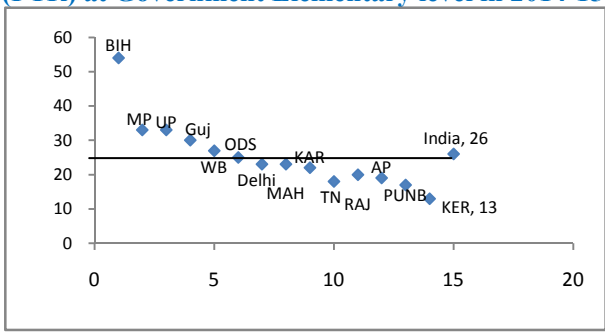
- In Odisha there are 36,760 Primary and 22,795 Upper Primary schools to provide education at elementary level. More 491 New Primary and 490 New Upper Primary schools opened under SSA to provide schooling in un-served areas.
- Primary education which addresses two major target groups, the out of school children during the primary school and the children who were forced to drop out even before completion of primary grade classes due to social and economic factors, shows number of schools (all types) have actually declined from 45890 in 2005-06 to 36399 in 2013-14 but thereafter has recorded marginal increase to 36550 in 2014-15 and 36760 in 2015-16.
- Teacher-pupil ratio in primary education has declined from 1:40 to 1:35 in 2013-14 and further to 1:25 in 2015-16, which suggests that appointment of teachers has increased over the years more than enrolment of students.
- Gross enrolment ratio in primary level (6-11 years) has increased substantially from 92.25 per cent in 2005-06 to 99.20 per cent in 2013-14 but thereafter it has declined to

[19] http://www.odisha.gov.in/schooleducation/Literacy.asp?GL=2&PL=2&SL=1

91.62 per cent in 2015-16 which is a matter of concern despite universalisation of elementary education.

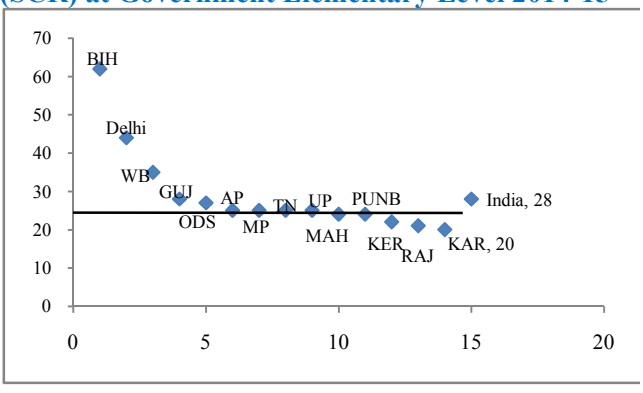
- The state has succeeded in reduction of dropout rate and improvement in retention rates in primary and upper primary education owing to factors such as implementation of Mid-Day-Meal programme, awareness generation, increased community participation, curricular reforms and improvement in school infrastructure. At primary level, the dropout rate declined from 7.39 per cent in 2007-08 to 0.37 per cent in 2012-13. But thereafter it has increased to 1.97 per cent in 2013-14 and further to 2.82 per cent in 2015-16.
- Although overall dropout rates have been reduced substantially in primary level education, it still remains high in schools located at Scheduled Tribes dominated districts.
- Upper primary data show pupil- teacher ratio has declined considerably from 1:40 in 2007-08 to 1:23 in 2015-16. Gross enrolment ratio in Upper Primary level has recorded an improvement from 104.28 in 2007-08 to 107.07 in 2015-16.
- Unified District Information System for Education (UDISE) data for the year 2014-15 evidence that Odisha's performance in elementary level education in terms of pupil-teacher ratio is close to the national level average but still there is a long way to go to be at par with educationally developed states such as Tamil Nadu, Punjab and Kerala (**Figure 3.19**).

Figure 3.19: State-wise Pupil-Teacher Ratio (PTR) at Government Elementary level in 2014-15



- In terms of infrastructure such as classrooms at the elementary level, UDISE data suggest that student-classroom ratio of the state is marginally better than all India average but it is far below the states like Kerala, Karnataka and Rajasthan (**Figure 3.20**).

Figure 3.20: State-wise Student-Classroom Ratio (SCR) at Government Elementary Level 2014-15



- The composite educational development index of Primary and Upper Primary level published by the Ministry of Human Resource Development suggests that Tamil Nadu tops the list followed by Sikkim in second position, Kerala in 10th position and Odisha in 21st position among the states in 2012-13, suggesting that the state needs to work more on universalisation of education at the Elementary level.
- The under-performance of the state in Elementary level (I-VIII) as compared to other states could be due to many factors. In terms of school infrastructure, UDISE data 2014-15 shows that the state did not have girl's toilet in 13,624 schools against 129 in Kerala,

no boy's toilet in 2,661 schools against 27 in Kerala, no drinking water facilities in 1,254 schools against 48 in Kerala, no ramp in 17,654 schools against 557 in Kerala. Although Odisha has done well in reducing the dropout at the primary level from 6.34 per cent in 2009-10 to 2.94 per cent in 2014-15 as per UDISE data, it still remains more than the other states like Karnataka (2.32 per cent), Gujarat (0.76 per cent), Tamil Nadu (0.46 per cent). High dropout evidence in the case of Scheduled Tribe (ST) and Scheduled Caste (SC) students at the Elementary level is a matter of concern for the state. While the dropouts of SC and ST students were 3.8 and 7.41 per cent respectively at the Elementary level of the state in 2014-15, the dropouts of SC and ST students in Maharashtra were 1.9 and 3.59 per cent respectively in the same year.

3.4.2 Secondary Education

3.41 By the end of 2015-16, there were 9,671 high schools including 8,230 Government and aided schools, 1,146 private unaided schools, 179 unrecognised high schools, 97 Central Government schools and 20 other schools run by Ministry of Human Resource Development, Government of India. Under the flagship programme Rastriya Madhyamik Shiksha Abhiyan (RMSA) initiated in 2009-10, the State Government has taken various steps to universalise the secondary education with the aim of providing quality education that will be accessible and affordable to all children in the age group 14-18 years. For improving the quality and skill of children and make them competitive and employable in the formal sector, the State Government has taken a bold step in introducing vocational courses such as automobiles and information technology at the Secondary level. Initially, the vocational course was introduced in 30 selected high schools in the state on pilot basis. Due to positive response received on the course, the State Government has decided to introduce the vocational courses in one school in each 314 blocks from the academic session 2016-17. Some of the important facts at the Secondary school level are outlined below.

- Computer Literacy is being popularized in High schools. Board of Secondary Education has included computer learning as an optional subject in the curriculum for Secondary schools.
- Gross Enrolment Ratio (GER) of the State at Secondary (IX-X) level was 79.4 per cent for boys and 79.8 per cent for girls in 2015-16 as compared to 79.2 per cent for boys and 81.0 per cent for girls at the national level. Kerala's GER at the Secondary level was 102.3 per cent for boys and 102.58 per cent for girls during the same period.
- Dropout rates at the High school level have declined significantly from 49.5 per cent in 2011-12 to 18.7 per cent in 2012-13 and further to 6.02 per cent in 2015-16.
- However, dropout rates for STs and SCs were still higher with 6.15 and 10.52 per cent respectively during 2015-16.
- The Board of Secondary Education (BSE), Odisha regulates various types of examinations. Out of 5.84 lakh students appeared examinations in 2016, 4.88 lakh or 85 per cent passed as compared to 98.5 per cent in CBSE and 98.2 per cent in ICSE.

3.4.3 Higher Education

3.42 The Department of Higher Education of the state looks after education at University, Post-Graduate, Graduate and Higher Secondary level. It also provides Vocational Education in order to prepare the youth for self-employment. The department also promotes professional courses in Government and Private Sector. The department further provides grant to a number of specialized and research institutes like Naba Krushna Choudhury Centre for Development Studies and Institute of Physics. The department is looking after effective functioning of six universities.

Table 3.6: Total Number of Institutions of Higher Education

Sl. No.	Type of Institution	Number
1.	Total number of Government colleges	94
2.	Total No. of Autonomous College	15
3.	Total No. of Lead Colleges	02
4.	Institute of Management and Information Technology, Cuttack	01
5.	Total No. of Aided Colleges	787
6.	Total No. of (+2) Colleges	194

Source: *http://dheodisha.gov.in/Higher-Education/aboutUs.aspx*

Table 3.7 gives a comparative picture of Odisha State and the country in terms of types and number of universities.

Table 3.7: Types and Number of Universities

Categories	Odisha		India	
	2013-14	2014-15	2013-14	2014-15
Central University	1	1	42	43
Central Open University			1	1
Institute of National Importance	3	3	68	75
Others			4	3
State Public University	12	12	309	316
Institute under State Legislature Act			5	5
State Open University			13	13
State Private University	3	3	153	181
State Private Open University			1	1
Deemed University-Government			36	32
Deemed University-Government Aided	2	2	11	11
Deemed University-Private			80	79
Total	21(2.9per cent)	21(2.8per cent)	723	760

From the table it can be seen that Odisha has only 21 institutions of higher learning which is only 2.9per cent of the total universities in India. The state needs to increase the number of Institutions to encourage higher learning in the state.

3.4.4 Vocational and Technical Education in Odisha

3.43 It is a well known fact that many graduates and postgraduates belonging to General, Medical and Engineering streams are either unemployed or under-employed due to lack of skills and employment opportunities. To strengthen the skill development in the state, Skill Development and Technical Education Department (SD&TE), Government of Odisha has decided to set up eight Advanced Skill Development Training Institutes (ASTIs) besides setting up of 30 new industrial training centres (ITIs) with the financial assistance from the Asian Development Bank under Odisha Skill Development Project (OSDP). The mandate of ASTI is to train 2 lakh youths in five years time. These ASTIs are to be set up in the districts Angul, Balasore, Bhubaneswar, Berhampur, Jeypore, Bolangir, Jharsuguda and Rourkela. These ASTIs will impart skill training in 150 trades under 12 priority industry sectors set up by the Government of Odisha. The eight ASTI will act as a Hub and the identified ITIs will act as a Spoke. Thus, training of 2 lakh youths in five years will be bifurcated under the Hub and Spoke model as: 1, 20,000 youths from the new 8 ASTIs functioning as "Hubs"; 50,000 from the ITIs identified as "spokes"; 25,000 under the Recognition of Prior Learning (RPL) and 5,000 under Entrepreneurship support (2016). Prior to the OSDP launch, Odisha State Government had prepared a detailed action plan for Skill Development for the period 2012-17. The 12 key indentified sectors include Construction, Textile/Apparel, Driving, Manufacturing, Health (Paramedics etc), Security Guards, Hospitality, IT/ITES, Retail, Misc. (Telecom, Banking etc). The details on number of youths to be trained in each of the identified sector are presented in the graph below.

3.44 According to the Skill Gap Assessment for the State of Odisha 2012, the tertiary or services sector would require significant skill development in the coming years. The potential areas for skills development in Odisha as per the report are: (i) banking – business correspondents, actuarial experts, financial managers, (ii) education – school teachers (a large number of teachers are required to fulfil the requirements of the RTE); faculty members at the ITIs and colleges, (iii) health care – nursing staff, lab technicians, para health workers, (iv) IT & ITEs – Data Entry operators, BPO, data analysts, IT service providers for HR functions, (v) Media and entertainment – technicians, event managers, media experts for print and electronic media, and (vi) travel and tourism – Drivers (especially of heavy vehicles), mechanics, tourist guides, housekeepers, interpreters, travel agents. To fill the demand gap in these key sectors, the State Government has vigorously worked on promoting vocational and technical education during the recent years.

3.45 The vocational education programme aims at imparting education at the Higher Secondary stage designed to create middle level skilled personnel who can become self employed by starting their own enterprises. Besides self employment, the vocational pass outs may opt for jobs in government/private sectors or may pursue higher studies. The programme is continuing in 231 Government Vocational Junior Colleges (GVJCs) in 20 different Vocational trades with view to produce semi-skilled personnel and to prepare students for self-employment and employment in formal sector as well. Two trades in different areas have been allotted to each GVJC. A student can take admission in one trade only. Out of total 231 GVJCs, 171 are in non-tribal districts and 60 are in tribal districts. All these GVJCs are under the administrative control

of Higher Education Department. Besides that a large number of vocational and technical institutions have come up during the last few years to help equip the youth with employable technical and soft skills. National level institutes like IIT Bhubaneswar, National Institute of Science Education and Research, the Central University at Koraput and the National Law University at Cuttack, IIM at Sambalpur have been set up in the State. Odisha Knowledge Corporation has been established to expand e-education among the youth. The snapshot of vocational education in the state is given below.

- The courses offered in 231 GVJCs in the state are in the line of National Skill Qualifications Framework (NSQF) guidelines.
- 206 Full Time Resource Persons (FTRPs) are actively engaged to impart instruction on vocational trades on contract basis with remuneration of Rs. 9,300/- per month.
- Existing faculties of Science, Arts and Commerce of host colleges are assigned in teaching compulsory and Basic Foundation Courses of Vocational colleges in additional their normal duties.
- The Principal of the host colleges are in-charge of all existing Government Vocational Junior colleges in addition to their normal duties.
- 131 Part Time Resource Persons are engaged to impart instructions to the vocational students in absence of Full Time Resource Persons.
- The Directorate of Vocational Education with its three regional offices located at Bhubaneswar, Berhampur and Sambalpur to monitor the teaching-learning activities of all the 231 Government vocational Junior Colleges of the state.
- In order to facilitate the career placement of vocational students, the Department of Higher Education have made provision for engagement of one school Industry Linkage (SIL) from local industry/farm. At present, there are 30 SIL engaged in creating opportunity for placement of vocational students in their respective farms. Their job is to train the vocational students with required knowledge and skills by taking 90 classes per year with a remuneration of Rs.100/- per period.
- The Union government under MHRD has lunched the National Web Portal of National Apprenticeship Training Scheme (NATS) to provide apprenticeship training to +2 vocational students by bringing the stakeholders includes students and establishment to a single platform through the NATS portal (www.mhrdnats.gov.in).

3.46 The state government has identified some of the important areas for further improvement of vocational education in the state. They are:

- Skill education should be integrated with higher education to maintain continuity for vertical and horizontal mobility to encourage multiple entry and exit.
- Prior learning of skill (informal sector) must be recognized for certification by following due process of evaluation and for better marketability.
- The regular courses should be more skill oriented to increase employable prospectus of the students.
- The students should be allowed to choose their elective subjects from both the vocational academic areas so that no students can be classified as vocational students.
- Compulsory vocational papers and opening general vocational training centres.

- Integration of Micro-Small-Medium scale Enterprises (MSME) with higher education through course development on those subjects.
- Managerial seminars, campus recruitment, stipend/scholarship awards, incentives, fellowship, career counseling etc. to be encouraged.
- Associate degrees are to be introduced to enhance skill and Skill infrastructure in all colleges including soft skills.

3.47 Like Vocational Education, the State government has also put its best effort in improving the technical education and enhancing the quality of technical manpower. Technical education has been promoted through engineering colleges, engineering schools, polytechnics, Industrial Training Institutes (ITIs), Industrial Training Centres (ITCs) and vocational educational institutions and universities. The Directorate of Technical Education and Training (DTET) functions as the nodal agency to plan and implement technical education programmes in the State. At present, there are 2 technical universities (Veer Surendra Sai University of Technology, Burla and Biju Pattnaik University of Technology, Rourkela), 6 Government and 87 private engineering colleges, 30 Government and 117 private engineering schools/polytechnics and 613 ITIs/ITCs, 5 architecture, 1 film & TV institute, 5 Government and 36 private MCA colleges, 3 Government and 59 private MBA colleges, 3 Government and 5 private medical colleges, 1 Government Dental college, 1 Government and 5 private MSC Nursing colleges imparting technical and professional education in the State.

3.48 Despite of various policy initiatives taken by the State government in the recent years, the ground situation on skill development remains bleak. The study team interacted with various stakeholders during the field visit and found that implementation of skill development programme has been a major failure due to lack of coordination among the stakeholders at the grass root level. No attention has been paid on improving the infrastructure, appointing good instructors and most importantly improving the quality of courses. As a result, placement of students has been very poor over the years. There is no coordination among industry, institution and government in redesigning various technical and vocational courses as per the need of the market. Industries in the state are still reluctant to hire students from the State instead employing students from outside the state. School dropouts are attending the skill development courses merely for getting the stipend rather learning from the course, as a result of which they remain unemployed after completion of the course. On quality of vocational education, many studies in the past have also echoed similar views. ILO (2003) reported that the employability of those completing training at state-run ITIs was poor and that only 30 to 40 per cent found employment or become self-employed on completing their training. The reason could be due to training provided in ITIs does not match actual labour market demand. FICCI (2006) did survey of 69 ITIs and found that quality of education is poor in these institutes due to many of them lack the right technical equipment and shortage of trained instructors. Pilz and Wilmshofer (2015) did a study on ITIs in Odisha and reported that these institutes are poorly equipped and that potential students had to travel long distances to them. The study also found a shortage of courses geared to the needs of students and the local employment market. Tara et al., (2016) conducted interview in state-run ITIs in Odisha, Karnataka, Tamil Nadu and Delhi and found that lack of necessary skill of instructors and nature of jobs of instructors (part-time or contractual) affect the quality of education. The study also found that lack of good infrastructure and equipments for

practical classes and too much theoretical curriculum are other factors affecting the quality of education.

3.5 Situation Analysis of three Selected Districts

In this section, we analyse the socio-economic and employment situation of three selected districts under the study such as Ganjam, Jajpur and Sundargarh.

3.5.1 Ganjam District

3.49 Ganjam is one of the developed districts of Odisha. It is ranked 1st in terms of population, 5th biggest district in terms of size and is 6th urbanized district in the state. About 17.60 per cent of its population lives in urban areas compared to 14.99 per cent of state population living in urban areas. In terms of population per sq. km. Ganjam is 9th densely populated district in the state and ranks 14th in terms of sex-ratio in the state. More importantly the population growth of the district has slowed down considerably from 16.8 per cent between 1991 and 2001 to 11.7 per cent between 2001 and 2011, and is expected to decline further in future owing to decline in fertility rate. Another important characteristic of district's population is that maximum percentage (11 per cent) of population belong to age bracket 10-14 followed by 10 per cent in age bracket 15-19 and 9.6 per cent in age bracket 6-9. More importantly, a substantial percentage of population (19 per cent) is young (age bracket 15-24) in the district as compared to 18.4 per cent at the state level, suggesting that the demographic advantages must be transferred into demographic dividend in the district.

Economy

3.50 Although the economy of Ganjam district is basically agrarian and rural based where more than three-fourth of district's population are living in rural area, the growth of the district's economy however is driven by services sector. Sectors like transport, storage and communications, trade, hotel and restaurants, real estate and business services have recorded sizeable growth between period 2005-06 and 2011-12. Being a bright spot of tourism, the district's trade, hotel and restaurant sector has flourished and contributed a whopping 27 per cent to district's services sector growth. Construction sector has experienced massive growth as a result of which the real estate and dwelling activities have expanded significantly post-2005-06 period. The district's economy registered a healthy growth of 8.2 per cent on an average between 2005-06 and 2011-12, which was higher than the average growth rate of the state of 7.2 per cent during the same period. The contribution of the district to state economy has also increased over the period from 6.8 per cent in 2008-09 to 7 per cent in immediate year and further to 7.3 per cent in 2011-12.

3.51 *Agriculture and allied sector*: Agriculture and allied activities are traditional occupations and backbone of district's economy. More than 70 per cent of population of the district depend on agriculture and allied sector. The sector contributed around 13 per cent to district's GDP as compared to its contribution of 17 per cent to state GDP in 2011-12. Nevertheless, Ganjam district ranked 1st in terms of agriculture and allied sector's contribution to state agriculture and allied sector with an average share of 6.5 per cent of state GDP during 2005-06 to 2011-12. The district ranks number one in terms of production of eggs, fish and fruits. It ranks second in terms

of production of meat and milk. The district is well known for its fertile soil and agricultural productivity. A large variety of crops are grown here like paddy, mango, cashew, banana, spices, cotton, til, kandul, maize, screw pine etc. Because of the favourable agro climatic condition, Ganjam has done very well in agriculture sector. It is the largest producer of paddy in the state. Fishery related activities are well developed in district, marine-fishing and fishing from Chilika lagoon. Individual & group fishing activities from village common tank is another potential area in the district.

3.52 *Industry*: Industry contributed 26 per cent to district's GDP as compared to its contribution of 34 per cent to state GDP in 2011-12, largely driven by construction sector with contribution of 75 per cent and only 12 per cent comes from manufacturing sector. The reason for low contribution of manufacturing could be due to absence of large scale industries, which has impeded the growth of small and ancillary industries. However, the district has potential to expand manufacturing base given its strategic locational advantages in terms of connectivity to other states and other districts within the state. The district has also very good infrastructure (road, railway, port, electricity, water supply) for industrial development and export promotion. The district is also rich in mineral resources like limestone, soapstone, chinaclay, fireclay, graphite, granite and quartz which may be used as inputs to develop suitable manufacturing industries.

3.53 *Services*: Ganjam district has done very well in services sector, particularly in tourism linked sectors such as trade, hotel and restaurants, transport and communication. It also performed well in some of the services like real estate, ownership of dwelling those are linked to constriction sector. Services sector of the district contributed on an average 9 per cent to state services sector during the period 2005-06 to 2011-12 which is third highest among the districts in the state. Within the service sector in the district, the share of trade, hotel and restaurants in service sector's GDP is highest, followed by other services (education and health etc.) and transport, storage and communication. Services sector led by transport, storage and communication and trade, hotel and restaurants recorded a robust growth of 9.7 per cent during the period 2007-08 and 2011-12.

State of Employment: Census Data

3.54 The data shows that there was an increase of total workers in the district from 13.1 lakh in 2001 to 15 lakh in 2011 with a decadal growth of 14.5 per cent which is less than the decadal increase of 22.6 per cent for the state. This is also visible from the low increase of work force participation rate (WFPR) from 41.3 per cent in 2001 to 42.6 per cent in 2011. It is also been noticed that while the percentage of main workers to total workers has declined in the district from 62.8 per cent in 2001 to 60 per cent in 2011, the percentage share of marginal workers, on the other hand has increased at same percentage points. Labour force participation rate (LFPR) shows substantial increase from 51.9 per cent in 2001 to 57.9 per cent in 2011. Since WFPR rate has increased lower than LFPR, the percentage of unemployed to total population has jumped from 9.6 per cent in 2001 to 15.4 per cent in 2011 for all age groups. In terms of Gender, while WFPR and LFPR of male workers have increased from 2001 to 2011, WFPR rate of female on the other hand has declined from 2001 to 2011 although their participation in labour market has increased.

3.55 In contrast to all age groups, there is a decline of WFPR in the district from 64.5 per cent in 2001 to 62.5 per cent in 2011 for age group 15-59. On the other hand, LFPR has increased from 81.2 per cent in 2001 to 85.7 per cent in 2011. This has led to significant rise of unemployed as percentage to population of same age group. The participation of youth (age bracket 15-24) in labour market (LFPR) is 75.3 per cent, nearly one percentage point higher than the state average. Similarly, the WFPR of youth in the district is higher by two percentage points than the state average. In case of unemployed, the district has a very high percentage unemployed youth as compared to the state, which is a matter of concern.

State of Employment: NSSO Data

3.56 NSSO data shows that employment in Ganjam district has increased from 13.28 lakh in 2004-05 to 15.25 lakh in 2011-12. There was a marginal decline of 1.33 lakh employment between 2004-05 and 2009-10. Nevertheless, the share of employment of Ganjam district in state total has improved from 7.9 per cent in 2004-05 to 8.7 per cent in 2011-12. This increase of employment in state total has come mainly from agriculture sector (from 7.3 per cent in 2004-05 to 9.1 per cent in 2011-12). Services sector also showed marginal improvement of employment share from 6.5 per cent in 2004-05 to 6.7 per cent in 2011-12. The share of manufacturing and non-manufacturing sector has declined during the above period.

3.57 Like the state, Ganajam district also faces an unusual situation where services sector that contributes around 60 per cent to district's GDP contributes only 17 per cent to total employment. On the other hand, agriculture and allied sector which produces only 13 per cent of district's income absorbs 58 per cent of total employment. Share of Manufacturing in employment has declined significantly from 13.1 per cent in 2004-05 to 5.8 per cent in 2011-12 owing to the fact that sector's share in district's GDP has remained stagnant over the years. Since workers in agriculture sector are mostly unskilled and informal, the effort of shifting workers from agriculture sector to high value added sectors such as services or manufacturing will be a difficult task because these sectors usually require skilled or semi-skilled workers.

3.58 The status of workers by general education shows that a huge 75 per cent of total workers in the district are either illiterate or have education upto primary level, of which 47.5 per cent belong to agriculture and allied sector, 5 per cent belong to manufacturing sector and 5.8 per cent belong to services sector. In case of technical education, the situation is even worse. About 99.4 per cent of workers in the district do not have technical education compared to 99 per cent in the state. Majority of these technically qualified workers are working in services and non-manufacturing sectors. From policy perspective to achieve a high and sustainable double digit growth, it is critical to transform the district's economy from a traditional agriculture sector based economy to a more value added agro processing, services and manufacturing based one. For which, it is imperative to provide the requisite skill training to unskilled workforce engaged in agriculture sector and in other sectors as well to make them efficient and productive.

Education and Skill Development

3.59 The district has done very well in education especially in improving the strength and quality of elementary education. There are many reputed educational institutes in the District like Brahmapur University, Ganjam Law college, Lingaraj Law college, NIST, Khalikote College Brahmapur, R.C.M. Science college Khalikote, Government Science College Chhatrapur,

Maharaja Krushna Chandra Gajapati Medical College, Nursing College, and Pharmaceutical Colleges etc. There are around 115 junior colleges (government and private) in the district that are offering courses in streams such as arts, science and commerce. For technical education, the district has 19 engineering and technology colleges, and 5 polytechnic colleges offering degree and diploma courses. For vocational training, there are 40 private and government ITIs/ITCs and around 13 junior colleges in the district that are offering courses in 20 vocational trades with maximum 2 in each college. Although there are 7 vocational schools under RMSA, these are in nascent stage of full-fledged operational.

3.60 Despite of many reputed educational institutions situated in the district, the secondary and higher secondary education system needs further improvement. The district has achieved good progress in elementary education which is being reflected from the high literacy rate in the district. The total literacy in the district is 71.1 per cent in 2011 which is slightly less than the state average of 72.9 per cent during the same year. More importantly, the decadal increase (10.3 per cent) of literacy rate of Ganjam district is higher than the increase of state literacy rate (9.8 per cent) during the period 2001 and 2011. Gender wise data shows that male literacy rate in the district is substantially higher than the female literacy rate but both are slightly lower than the average literacy rate of male and female in the state.

3.61 Disaggregated information on education shows that highest percentage of population (31 per cent) in the district is falling under the category of just literate or having general education upto primary level followed by 14.2 per cent in the middle level, 4.8 per cent in the secondary level. The lowest percentage of population (0.2 per cent) is having diploma or certificate. More importantly, as per NSSO data 2011-12, Ganjam district has more population at the level of literate or primary education (31 per cent) as compared to the state average of 30.4 per cent. In case of technical education, an astonishing 99.7 per cent of population in the district do not have formal technical education. In other words, a very insignificant percentage of population is having diploma or certificate at the below graduate level (0.14 per cent), diploma or certificate at graduate and above level (0.03 per cent) and degree in technical education (0.13 per cent).

3.62 The above analysis on educational profile of workforce in the district suggests that one-third of total workers are illiterate or having education till primary level and more than 99 per cent of total workers don't have technical education, which is certainly a critical issue as far as skill development is concerned. The government of Odisha has renewed its effort to strengthen the skill development programme in the state, which will enable the unskilled workforce to become employable or self employed. Although, the district has good number of technical and professional institutions, enrolment numbers however have been quite disappointing. AICTE data suggests that total intake of colleges in engineering and technology, management, MCA, Pharmacy and hotel management was 9,283 during 2015-16. Out of which a whopping 48 per cent were vacant, more so in the case of pharmacy followed by engineering and technology and management. The reason could be due to low placement ratio both in the engineering and technology and management courses. In case of ITIs/ITCs, the district has 40 institutions (Government and private) with intake capacity 14,946 in 2015-16. But the capacity utilisation was just around 48 per cent. Only in few courses such as Mechanic (Refrigeration and Air-Conditioner), Fitter, Mechanic (Motor Vehicle) and Mechanic Diesel the seat utilisation is more than 60 per cent. Vocational education is very limited in the district. There are only 13 junior

colleges with intake capacity of 48 per college offering vocational courses. It has been reported that the demand for skilled jobs in the district will be about 13.8 lakh by 2026[20]. But the supply side of skill manpower shows that there is severe shortage. Hence, there is an urgent need for expanding and strengthening the skill development programme in the district.

3.5.2 Jajpur District

3.63 Jajpur district is located in the eastern part of Odisha having an area of 2,899 Sq. Kms and covered with a wide network of rivers with flat land. The district is primarily an agri-zone district and the major growing crop is paddy. More than 75 per cent of the workforce earns their livelihood through agriculture. The district also has plenty of mineral deposits such as Chromite, Iron Ore and Quartzite. For example, Sukinda Block of the district is mountainous and is rich in mineral resources like Chromite, which constitutes 88.32per cent of the total Chromite in Odisha and 75.6per cent in India. The district constitutes 4.35 per cent of the state population and is ranked 7th in terms of population with a population density of 630 and it is 4th most densely populated district in the state. As per Census 2011, the district has a population of 18.26 lakhs of which males and females are 9.26 lakhs and 9 lakhs respectively. The decadal growth rate of population has declined considerably from 17.2 per cent between 1991 and 2001 to 12.5 per cent during 2001 and 2011 and is expected to decline further in future Age group-wise population distribution shows that highest percentage of population is concentrated in the age group 10-14 (10 per cent) followed by 15-19 (9.5 per cent) and 5-9 (8.9 per cent)age groups. More importantly, the district has more (19 per cent) youth population (age group 15-24) than the state (18.4 per cent), suggesting that the demographic advantages must be transferred into demographic dividend in the district.

Economy

3.64 Economy of the district is agrarian in nature and around 65 per cent of the population depends upon this sector as source of their livelihood. Services, manufacturing and mining, however, play a dominant role in the district's economic growth. The economy of the district registered an average growth rate of 6 per cent during 2008-09 and 2011-12, largely contributed by high growth in services and industry sector. The share of services sector in district's GDP is highest (46.4 per cent) followed by industry (42.1 per cent) and the rest (11.5 per cent) by agriculture and allied sector. As the economies of the district and the state have posted a very similar kind of growth, the per capita income of the district at INR 30,527 is very close to state per capita income of INR 30,814 in 2011-12. 1.12

3.65 *Agriculture and allied sector*: Agriculture and allied activities are traditional occupations and the backbone of the district's economy despite its least share in district's GDP. People of Jajpur largely depend upon agriculture as their prime means of livelihood. Out of total employment in the district, around 48 per cent of people are working in agriculture sector, which is highest among the sectors. Paddy is the primary crop in the district. It is traditionally grown in two well defined seasons, namely kharif and dalua. Besides paddy, the district also produces large quantity of other major crops including pulses, vegetables, oil seeds and fruits etc. However, the performance of district's agriculture and allied activities is very disappointing. The

[20] http://www.nsdcindia.org/sites/default/files/files/odisha-skill-gap-report.pdf

district ranked 21st among other districts in the state in terms of agriculture sector's output contribution to total agricultural output of the state during the period 2005-06 and 2011-12. The sector has grown merely on an average by 4.8 per cent during the period 2007-08 to 2011-12. As a result, the sector's share in total GDP of the district has declined over the period from 12.7 per cent in 2007-08 to 11.5 per cent in 2011-12, which is lower than the sector's share of 17.2 per cent at the state level during 2011-12. Despite this gloomy picture the district should focus on improving the output and productivity of agriculture and agro based products as the district already has second highest number of MSMEs (after repairing and services) of food and allied products operating in the district. The district may also focus on fishery and fishery based products as the sector has shown promising upward growth since 2004-05.

3.66 *Industry*: Jajpur District has taken major strides in industrial development due to its locational advantage of easy access to water sources, power supply, road and railway transport. The most industrially developed area of the district is Kalinga Nagar, situated in Danagadi Block, where major public and private steel plants are operating. Being home to mineral resources, big mineral based industries such as Mesco, Neelachal Ispat, Maithan, Tata Steels, Brahmani Rever Pellets Limited and Jindal Stainless Limited have set up their operations in the district. The share of industry was second highest (42.1 per cent) in district's GDP in 2011-12. The growth of industrial sector is driven largely by manufacturing and mining and quarrying sectors with 35 and 39 per cent contribution respectively to the sector. However, the contribution of manufacturing sector to district's total GDP is quite disappointing with only 16 per cent. Within non-manufacturing, except mining and quarrying sector, the share of other sectors is also very low. Sectors like electricity, water supply and gas sector have performed very poorly with growth rate of paltry 0.1 per cent during 2007-08 and 2011-12. As a result, the share of electricity, gas and water supply is the least among the sectors in total industrial GDP of the district. Although the district has sound industrial base compared to other districts, it has failed in achieving full potential growth in industrial sector.

3.67 *Services*: Services sector is the single largest sector of the district in terms of its contribution to total GDP of the district.. The share of services sector was 40.7 per cent in 2007-08 and has increased to 46.4 per cent in 2011-12. The growth rate of services sector has been around 10 per cent during the period 2007-08 to 2011-12, contributed mainly by two key sectors' trade, hotel and restaurants and transport, storage and communication with share of 36 per cent and 20 per cent respectively in 2011-12. These two sectors have grown on an average by 13.3 and 10 per cent respectively between 2005-06 and 2011-12. Banking sector has also registered a high growth rate of around 17 per cent during the above period. It suggests that those services sectors that are strongly linked with manufacturing and industry sector have performed well in the district.

State of Employment: Census Data

3.68 The data shows that there was an increase of total workers by one lakh in 2011 from 4.5 lakh in 2001, with a decadal growth of 22.2 per cent which is close to the decadal increase of 22.6 per cent for the state. The WFPR of the district increased by 2.6 percentage points from 2001 to 2011 which is also close to the state level percentage point increase of 3 per cent. It has also been noticed that while the percentage of main workers to total workers has declined in the district from 77.8 per cent in 2001 to 73.8 per cent in 2011, the percentage share of marginal workers, on the other hand has increased at same percentage points. Labour force participation

rate (LFPR) shows no change from 42.6 per cent in 2001 to 42.5 per cent in 2011. Since WFPR rate has increased and LFPR has remained same, the percentage of unemployed to total population has in fact declined from 15 per cent in 2001 to 12.3 per cent in 2011 for all age groups. Looked from Gender perspective, WFPR and LFPR have increased for both male and female from 2001 to 2011. However, the rate of increase in WPFR and LFPR for female is lower than that of male.

3.69 In contrast to the case of all age groups, employment opportunities for age group 15-59 have increased by higher percentage points (2 per cent) for the district between 2001 and 2011 as compared to 1.7 per cent for the state during the same period. In contrast, LFPR shows an increase by lower percentage points (4.3 per cent) for the district as compared to the state (8.5 per cent). As a result, the unemployment as percentage of population has gone up significantly in the district from 16.1 per cent in 2001 to 18.5 per cent in 2011, which was not the case for all age groups. The unemployment situation for youth population (age group 15-24) recorded at 28.1and 30.2 per cent of population in 2001 and 2011 respectively is even worse.

State of Employment: NSSO Data

3.70 District's employment performance has not been very encouraging as compared to the state. The district contributed merely 3.7 per cent to total employment of the state in 2011-12**.** Prior to this, the employment share of the district in state total was 3.9 per cent in 2004-05 and 3.1 per cent in 2009-10. The total employment of Jajpur was 6.62 lakh in 2004-05 which declined to 4.94 lakh in 2009-10 before increasing to 6.14 lakh in 2011-12. Across the sectors, except non-manufacturing sector (0.05 lakh increase), employment registered a negative growth in agriculture & allied, manufacturing and services sector between 2004-05 and 2009-10. Within non-manufacturing sector, construction sector performed very well in terms of generating more employment opportunities especially in unskilled segments of labour force that had shifted largely from agriculture sector. In contrast, there was a positive increase of employment in all sectors during the period 2009-10 and 2011-12. The highest increase was recorded in services sector (0.55 lakh) followed by agriculture and allied sector (0.52 lakh) and manufacturing (0.27 lakh).

3.71 Unlike the state, the sectoral employment in Jajpur district suggests a decline in the employment share of agriculture by 14.5 percentage points from 62.4 per cent in 2004-05 to 47.9 per cent in 2011-12 while the employment share of manufacturing, non-manufacturing and services sector has increased by 4.0, 2.9 and 7.6 percentage points respectively between 2004-05 and 2011-12. Nevertheless, agriculture sector continued to be the largest employer in the district followed by services sector (30.2 per cent). In case of Odisha, the share of agriculture sector in total employment is 55.7 per cent which is substantially higher than that of Jajpur district. Service sector whose GDP share is around 50 per cent contributes only about 22 per cent of total employment. Gender-wise employment in the district points to the fact that men dominate the job market with a share of 79.4 per cent of total employment in the district and story remains the same across different sectors.

3.72 The status of workers by general education shows that about 15.2 per cent of workers in the district are illiterate and are mostly working in agriculture and manufacturing sectors. Majority (59 per cent) of workers engaged in different sectors in the district, are just literate or have qualification upto primary or middle level. Sixteen per cent of workers have secondary and higher secondary qualification. . The workers those are considered to be skilled as per formal education i.e, diploma and certificate, graduate and above constitute only 9.4 per cent of total workers in the district. Such a scenario suggests that there is huge shortage of skilled labour force in the district across all sectors. In case of technical education, the situation is even worse, as about 98 per cent of workers do not have any technical degree. Only about 3 per cent of workers possess diploma or certificate at below graduation level and merely 0.06 per cent of them have diploma or certificate at the graduation and above level. Across sectors, majority of workers without technical degree are working in agriculture sector (47.9 per cent) followed by services sector (29.9 per cent) and rest in industry sector. From policy perspective, to achieve a high and sustainable double economic growth, it is critical to transform the economy of the district from a traditional agriculture sector based economy to a more value added agro processing, services and manufacturing based economy. For which, it is imperative to provide the requisite skill training to unskilled workforce engaged in agriculture sector and in other sectors as well.

Education and Skill Development

3.73 Jajpur district has achieved a considerable development in education particularly in rural areas as compared to many other districts of the state. The district has around 69 junior colleges (government and private) offering courses in streams such as Arts, Science and Commerce. For technical education, the district has 3 Engineering colleges. There is only one polytechnic institute offering engineering courses. For vocational training, there are no government ITIs in the district. There are however 32 private ITCs offering training in different courses. Some of the important courses offered by ITCs are fitter, electrician, computer knowledge and data entry operator. Importantly, there are around 12 junior colleges in the district that are offering courses in 20 vocational trades with maximum 2 in each college.

3.74 Although the district has done very well in terms of achieving high literacy rate (80.13 per cent) as compared to the state (72.87 per cent), the district however lag behind other districts such as Ganjam and Sundargarh in terms of offering technical and vocational education. The district does not have any specialised colleges in MCA and MBA. Neither the district has medical, dental or pharmacy colleges. The district has performed poorly in terms of diploma or certificate courses as only 1 per cent of its population has done diploma or certificate courses. More importantly, as per 2011-12 data of NSSO, more than 98 per cent of the district's population does not have formal technical education.

3.75 The above analysis on educational profile of workforce in the district suggests that more than 40 per cent of total workers are illiterate or have education till primary level and about 98 per cent of total workers don't have technical education, which is certainly a critical issue as far as skill development is concerned. The government of Odisha has renewed its effort to strengthen the skill development programme in the state, which will enable the unskilled workforce to become employable or self employed. Ironically, the district has only three engineering colleges with intake capacity of 1230 and no professional institutions. AICTE data

suggests that enrolment in three engineering colleges is very high (72.7 per cent) compared to the state level and also other districts because of less number of colleges and more demand. In 2015-16 the district had 32 ITIs/ITCs, with intake capacity of 8044. But the capacity utilisation was just around 49 per cent, even less than the state level (55.6 per cent). Only in two courses such as Electrician and Fitter, the seat utilisation is just above 50 per cent. In all other courses such as Computer Assistant and Welder, the utilisation is even below 20 per cent. There are only 12 junior colleges with intake capacity of 48 per college offering vocational courses. It has been reported that the demand for skilled jobs in the district will be about 3.9 lakh by 2026 (NSDC). In contrast, the supply side of skill manpower shows a severe shortage. Hence, there is an urgent need for expanding and strengthening the skill development programme in the district.

3.5.3 Sundargarh District

3.76 Sundargarh is one of the key industrially developed districts in Odisha. It is the 2nd biggest district in terms of size and 6th biggest in terms of population in Odisha. The district is the 3rd most urbanized district in the state having about 35.26 per cent of its population living in urban areas as compared to 16.7 per cent of the state. The total population of the district according to Census 2011 is 2,093,437, a decadal increase of 14.4 per cent from 1,830,673 in 2001. The population share of the district was 5.0 per cent of the state in 2001 and remained at the same level in 2011 also. Further, maximum percentage (10.4 per cent) of population is in age group 10-14. The youth population (age group 15-24) is 19.1 per cent in Sundargarh as compared to 18.4 per cent in the state, suggesting that the demographic advantages must be transferred into demographic dividend in the district.

Economy

3.77 The economic growth of Sundargarh district is largely driven by forest and mineral based industries comprising large volume of micro, small and medium enterprises as well as large scale industries. It is one of the fastest growing districts in the state. In fact, the district ranked 3rd in terms of average growth rate of GDP during the period 2005-06 and 2010-11. During 2007-08 and 2008-09, the GDP growth rate of Sundargarh district was higher than the state. But it declined thereafter and remained below the state growth rate between 2009-10 and 2010-11 before surpassing the state growth rate again in 2011-12. In terms of contribution to state GDP, the district stands at 1st position during the period 2006-07 and 2011-12. On an average, it contributed about 9.8 per cent to state GDP during the above period. As a result of high economic growth, the district's per capita income surged over the period and it was Rs. 2300 more than the state per capita income in 2011-12. While per capita income of the district has increased on an average 7.1 per cent during 2007-08 and 2011-12, the same has increased only by 5.6 per cent for the state during the above period.

3.78 *Agriculture and allied sector*: Progress of agriculture has not been as rapid as industry in Sundargarh district. Nevertheless, still about 59 per cent of people in the district depend upon agriculture as their livelihood. The GDP growth rate of agriculture sector of the district has fluctuated widely over the period due to unpredictable rainfall, resulting in negative growth rate for many years. The low growth rate of this sector has led to decline in its share in district's overall GDP. It came down from 10.4 per cent in 2007-08 to 8.9 per cent in 2011-12, which was

considerably lower than the state level average of 17 per cent in 2011-12. Paddy is the principal crop of the district along with other crops like Biri, Groundnut, Vegetable, fruits and Spices etc. Agriculture in the district is done through traditional methods. So there is further scope to increase the productivity as well as production from agriculture by adopting modern technology. Since maximum land (40.4 per cent) in the district is covered under hills and forest, it is suitable for growing different horticultural crops also. Floriculture and other commercial cropping can also be introduced in the district. The important non-cropping sector in the district is forest and forest products, which contributes significantly to district economy and play an important role in the economy of this tribal dominated district. The principal forest products of the district are Bamboo, Timber (Bija, Asan, and Sal) and Kendu leaves. The minor forest products like Siali leaves, Myrobalans, char Seeds, Broom Stick, Kusum Seed, Sunari bark; Mahua seed, honey, lac, sabai grass etc. are also available in the district.

3.79 *Industry*: Industry has been the backbone of economic development of the district and contributes more than 58 per cent to its GDP. Manufacturing sector with a whopping share of 64 per cent has contributed significantly to growth of industry followed by mining and quarrying with 24 per cent contribution. The district is home to many SSIs and medium and large industries. It holds 1st rank in terms of maximum number of medium and large industries and 2nd in terms of SSI units in the state. The district is positioned at 1st place in terms of contribution to manufacturing sector of the state. Steel Plant, Fertilizer Plant, Cement factory, Ferro Vanadium Plant, Machine building factory, Glass and China Clay factory and Spinning Mills are some of the major industries which are doing very well in the district. The district also occupies a prominent position in the mineral map of Odisha and is rich in iron ore, manganese ore, lead ore, limestone, dolomite and quartz which are being exported on large-scale. Several other valuable minerals like fireclay, coal and bauxite are also found in the district. As a result, several major mineral based industries such as Odisha Cements Ltd, Hart Fertilizers Ltd, and Odisha Industries Ltd have come up in the district.

3.80 *Services*: The overall contribution of services sector to district's GDP is 32.8 per cent mainly due to consistent high growth posted by the sector over the period. The sector registered a high average growth rate of 8.6 per cent during 2007-08 and 2011-12 which was largely driven by banking and insurance (17.9 per cent), followed by communication (14.9 per cent), trade, hotel and restaurants (10.3 per cent) and road and other means of transport (9.4 per cent). Other than the above sectors, the district has also potential to develop tourism sector as a vast area of the district is full of greenery covered under forest, hills and waterfalls. Places like Rourkela, Vedavyasa, Manikmonda, Manindra dam, Ghogar, Khandadhar and Darjeeng are the important tourist spots of the district. It is found that those services sector that are linked to tourism and manufacturing sector like transport, communication, trade, hotel, restaurant and banking have contributed considerably to the growth of services sector in the district.

State of Employment: Census Data

3.81 Census data shows that there was an increase of total workers in the district from 7.4 lakh in 2001 to 8.7 lakh in 2011 with a decadal growth of 17.6 per cent which is less than the decadal increase of 22.6 per cent for the state. The workforce participation rate (WFPR) has also recorded a marginal improvement from 40.4 per cent in 2001 to 41.7 per cent in 2011, a similar trend is seen in the state wherein the WFPR has increased from 38.8 per cent in 2001 to 41.8 per cent in 2011. It is also observed that while the percentage of main workers to total workers has

declined in the district from 65 per cent in 2001 to 61 per cent in 2011, the percentage share of marginal workers, on the other hand has increased by same percentage points. Labour force participation rate (LFPR) shows substantial increase from 50 per cent in 2001 to 56.3 per cent in 2011. Since WFPR rate has increased lower than LFPR, the percentage of unemployed to total population has jumped from 9.6 per cent in 2001 to 14.5 per cent in 2011 for the all age group. Gender-wise analysis shows that while WFPR and LFPR of male workers have increased between 2001 and 2011, WFPR rate of female workers on the other hand has declined between 2001 and 2011 although their participation in labour market has increased.

3.82 In contrast to all age groups, there is a marginal decline of WFPR in the district from 60.7 per cent in 2001 to 60.2 per cent in 2011 for age group 15-59. On the other hand, LFPR has increased by 6.1 percentage points from 75.7 per cent in 2001 to 81.8 per cent in 2011. This has led to significant rise of unemployed as percentage to population of same age group. The participation of youth (age bracket 15-24) in labour market (LFPR) is 70.6 per cent, nearly four percentage points lower than the state average. Similarly, the WFPR of youth in the district is also lower by two percentage points than the state average. In case of unemployed, the district despite being an industrialized district has a very high percentage of unemployed youth, which is a matter of concern.

State of Employment: NSSO Data

3.83 Like the overall employment trend of the state, Sundargarh district posted a decline in employment from 9.15 lakh in 2004-05 to 8.71 lakh in 2009-10 and then improved to 10.19 lakh in 2011-12. Agriculture and allied sector continued to be the largest employment generating sector in the district despite of its low output share. The sector absorbed 5.1 lakh people in 2011-12 which is 50 per cent of total employment followed by services sector (29 per cent), non-manufacturing sector (13 per cent) and the rest (8 per cent) by manufacturing sector.

3.84 It is pertinent to highlight here that as per growth contribution by sectors, the employment contribution should have been highest in manufacturing sector. In contrast, it is the least employment generating sector in the district. And most surprisingly, employment share of manufacturing sector in the district is lower than the state average in 2011-12. This may be due to people from other districts getting employment in manufacturing sector in the district or lack of skills among the local people thus denying them getting employed in the sector. The services sector which is the second largest sector in the district absorbs 29 per cent of total employment, which is relatively higher than the state average.

3.85 NSSO data suggests that a large chunk of workers (55.4 per cent) in the district as compared to 58.3 per cent of the state are either illiterate or educated upto primary level. Only about 0.5 per cent of workers have done certificate or diploma courses and 5.4 per cent are graduate and above. This suggests that there is lack of skill among the existing workers in the district. Across the sectors, maximum percentage of illiterate workers are working in agriculture sector and then in non-manufacturing and services sector. It is pertinent to mention here that workers who have secondary and higher secondary level education are mostly employed in service sectors. However, the percentage of skill workers with qualifications of diploma or certificate or graduation and above level, is very low in both manufacturing and services sectors. In case of

technical education, the situation is even worse. About 98 per cent of workers in Sundargarh district do not have technical education. The data also shows that more than 50 per cent of workers without technical education are engaged in the agricultural sector. Only about 2 per cent of workers have technical education in the district and most of them are engaged in manufacturing and service sectors. In case of Odisha, only 1 per cent of workers have technical education and are involved in manufacturing, non-manufacturing and service sectors. From policy perspective of achieving a high and sustainable double digit growth, it is critical to expand the skill development programme in the district and create more employment opportunities for people.

Education and Skill Development

3.86 The district has a total literate population of 1,342,222 i.e. 73.34 per cent of total population. Of these 750,147 (81.01 per cent) are males and 592,175 (65.48 per cent) females as per Census 2011. As compared to state literacy levels, the district has done slightly better. However, the disaggregated data suggests that there is wide disparity in literacy level of urban and tribal dominated rural areas in the district. While urban areas represented by cities like Rourkela and Sundargarh had literacy level as high as 85.3 per cent in 2011, the rural areas on the other hand had low literacy rate of 66.6 per cent. The reason for low literacy rate in rural areas is largely due to poor literacy rate in some of the tribal blocks like Bonaigarh, Koida, Lahunipara and Nuagaon.

3.87 As per Odisha Primary Education Programme Authority (OPEPA), there are more than 4600 schools in Sundargarh district. Out of the total number of children in school going age, 3.81 per cent children were out of school in 2009. In case of higher education, there are around 72 junior colleges (government and private) in the district that are offering courses in streams such as arts, science and commerce. The district also has several reputed educational institutions like National Institute of Technology (NIT) Rourkela, Government College Rourkela, S.G. Women's College Rourkela etc. In technical education, the district has 15 engineering schools and colleges. There are three polytechnic institutes offering engineering courses in the district. The government of Odisha has recently signed MoU with NTPC Ltd. for developing a new state-of-the-art polytechnic institute at Darlipali in the district. This new skill development institute would offer diploma course in electrical engineering, mining engineering and instrumentation and controls engineering having intake capacity of 60 seats each in respective streams. In case of vocational education, there is 1 government ITI and 37 private ITCs offering several courses. Some of the important courses offered by ITCs are fitter, electrician and data entry operator. Importantly, there are around 12 junior colleges in the district that are offering courses in 20 vocational trades with maximum 2 in each college.

3.88 Despite of the district doing well in primary and middle education; there is a need for significant improvement at higher secondary level. Disaggregated information on general education shows that 28.6 per cent of population in the district is literate or has education upto primary level followed by 22 per cent in the middle level and 6.9 per cent in secondary level. Only 3.1 per cent of population has qualification of graduation and above as compared to state level average of 3.6 per cent. The district has poor record as far as technical education is

concerned. A whopping 99 per cent of population has no technical education in the district. Merely 0.64 per cent of population have a degree in technical education in the district, followed by 0.21 per cent having diploma or certificate below graduate and 0.11 per cent have diploma or certificate at graduate level and above. This suggests that there is huge shortage of skill labour force in the district which needs to be addressed urgently in order to improve the productivity and efficiency in the production process.

3.89 Although, the district has good number of technical and professional institutions, enrolment numbers however have been quite disappointing. AICTE data suggests that total intake of colleges in engineering and technology, management, MCA, Pharmacy and hotel management was 3,566 during 2015-16. Out of which an alarming 50 per cent were vacant, more so in the case of management and MCA with enrolment ratio of merely 23.3 and 12.2 per cent respectively. The reason could be due to low placement ratio. In case of ITIs/ITCs, the district had 38 institutions (Government and private) with intake capacity of 13,344 in 2015-16. But the capacity utilisation was just about 57 per cent. Except Computer Operator and Programming Assistant, all other course show seat utilisation is more than 60 per cent. In case of courses such as Attendant Operator (Chemical Plant), Laboratory Assistant (Chemical Plant), Mechanic (Motor Vehicle), Tool & Die Maker (Press Tools, Jigs & Fixtures) and Wireman, the seat utilisation is 100 per cent. However, the percentage share of these courses in total seats allotted for all courses is only about 2.2 per cent, which needs to be increased further to fulfil the market demand. About 75.5 per cent of total seats in all ITIs/ITCs are allotted for only two courses such as Fitter and Electrician. Further, there are only 12 junior colleges with intake capacity 48 per college offering vocational courses. It has been reported that the demand for skilled jobs in the district will be about 6.5 lakh by 2026[21]. But the supply side of skill manpower shows that there is severe shortage of it. Hence, there is an urgent need for expanding and strengthening the skill development programme in the district.

3.6 Conclusion

3.90 Odisha is one the natural resources rich states in India contributing a large chunk to national production of chromite, iron ore, bauxite, manganese ore and coal. The economy of the State has experienced a structural shift in economic growth during the post-economic reforms period, particularly during the 2000s. Data on long term (10 years moving average) growth rate of GSDP of the State points to the fact that it has increased from a sub-optimal level of 2.5-3.5 per cent during the pre-2003-04 period to 5 per cent and subsequently 6.5-7.5 per cent during the post-2003-04 period. Such high growth rate of GSDP has been largely driven by industry and services sectors. Industry led by registered manufacturing sector, mining and quarrying and infrastructure utilities sector posted resounding growth during the post reforms period particularly in 2000s. Like the country, the State had also experienced monotonous expansion of service sector since early 1990s. However, the sector's growth rate was actually picked up during 2000s mainly due to substantial growth rate recorded in some of the services such as tourism related sectors like travel, trade, hotel and restaurants, infrastructure services like transport and communication, financial and business services like IT and ITes, banking, BPOs and foreign investment, and social services like health and education.

[21] http://www.nsdcindia.org/sites/default/files/files/odisha-skill-gap-report.pdf

3.91 However, despite of abundance mineral resources, long coastline, plentiful inland waters and diverse forest wealth, Odisha has lagged behind compared to other states in terms of economic growth, poverty and employment generation in non-farm sectors. The agriculture and allied sector which is considered as the backbone of the State for providing food security, employment opportunities and acting as a feeder to MSMEs has seen free fall in economic growth and productivity causing farmers distress, unemployment and price rise in the rural and semi-urban areas. Use of traditional method of cultivation, lack of irrigation facilities, fragmented cultivated land, frequent floods and draughts, cultivation of low-yielding varieties of seeds, low returns on sale of output and lack of technical skill of farmers are some of the important factors that are impeding the growth of the sector. Further shifting of workers from agriculture to non-agriculture sector has not been very successful in the state due to low education and skill of workforce in the agriculture sector. More than 66 per cent of workforce in agriculture sector are illiterate or having education upto primary level. Overall, the distribution of workers by their level of general education shows that about 58 per cent of the total workforce has either a primary level of education and having no education. The percentage of workers having primary level and no education is 60.4 per cent in manufacturing sector, about 67 per cent in non-manufacturing sector. In case of technical education the situation is even worse across all sectors, where more than 90 per cent of workers do not have technical education. In this context, the key challenge for the State government remains is to provide skill and quality education to 4.5 lakh labour force that are entering into the labour market every year.

3.92 The analysis of data of three selected districts under this study such as Jajpur, Ganjam and Sundargarh suggests each of them is having different economic structure. While the economy of first district is driven by services, manufacturing and mining sectors, the economy of second one is driven by services sector and the third one is driven by forest and mineral based industries. But all three districts are having common problems of large proportion of workforce engaged in agriculture sector, high unemployment and shortage of skill manpower. More than 98 per cent of workforce in these districts do have technical education and around 60 per cent of workers are either illiterate or having general education upto primary level. Since the sectoral growth composition is changing rapidly and accordingly the demand for quality of manpower also, for future planning it is important to make the future projections of manpower demand and supply based on the assessment of present skill scenario.

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Chapter 4

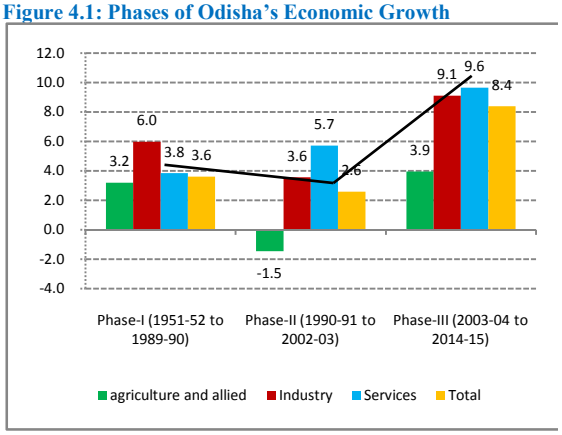
Manpower Demand and Supply in Odisha

4.1 Introduction

4.1 In this chapter we discuss the estimation and projection of manpower demand and supply for the entire State as well as for three selected districts namely Jajpur, Ganjam and Sundargarh. While the demand side projection of manpower is carried out using employment-output elasticity of overall economic growth of the State and sector specific growth and employment elasticities, the supply side of manpower projection is done based on labour force participation rates and attrition rates. The study uses secondary data published by various departments of the state and union governments for the purpose of estimation and projections of manpower demand and supply. In addition, primary data has also been collected from three selected districts to understand the supply and demand positions of manpower and requirement of skilled manpower both at the district and state level. The theoretical literature underlines that the demand for manpower depends usually on the speed of expansion of an economy. In case of developing countries the extent at which labour intensive sectors/sub-sectors grow holds a critical role in determining the future demand of manpower in the economy. This is true particularly in case of developing and emerging economies like India wherein large chunk of workers are engaged in labour intensive sectors like agriculture and allied, construction, manufacturing, hotels, restaurants, trade and transport sectors. Thus, the speed of growth and productivity increase of these sectors would play a critical role in employment generation both in terms of quantity and quality. Like India, the economy of Odisha has experienced a structural change during the past one decade. In this context, for projecting manpower demand, it is quite important to analyse the growth potential of each sector in the state.

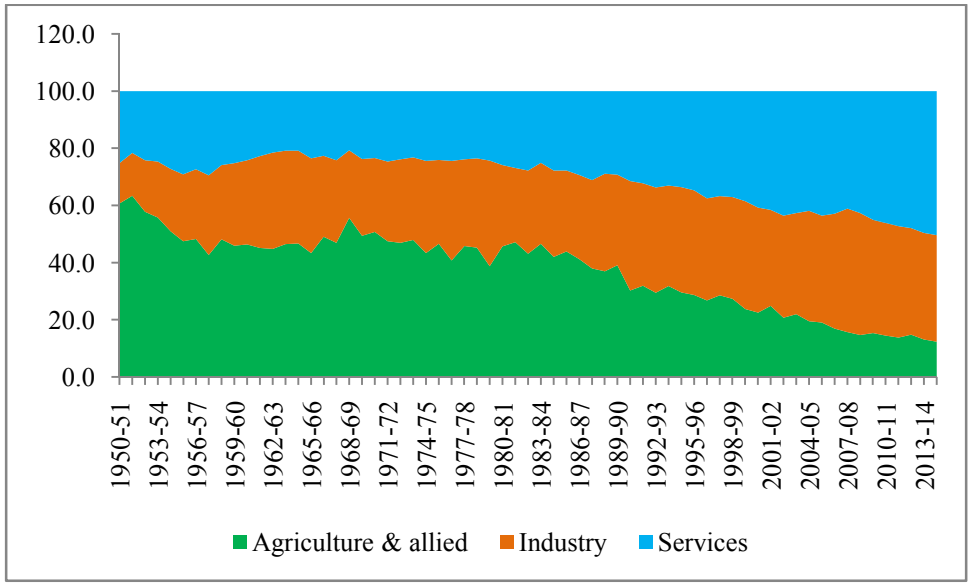
4.2 Oidhsa's economy has experienced a Tick (√) pattern shape of economic growth trend during the past sixty years, comprising three distinct phases of economic growth periods (**Figure 4.1**). The first phase of economic growth period started in 1950-51 and continued till 1989-90. This period witnessed a dominant role played by primary sector and well supported by secondary sector. Together these sectors contributed a whopping 74.7 per cent to state GDP. Out of which the maximum contribution came from the primary sector with a share of 51.3 per cent. While the primary sector registered on an average 3.2 per cent growth, the secondary sector on the other hand recorded 6 per cent growth during the first phase. Primary sector's growth was attributed to good performance of sectors like cropping, animal husbandry and forestry and logging. In case of secondary sector, the growth was driven largely by construction sector (7.75 per cent). The performance of manufacturing sector was not very encouraging with only 5.3 per cent growth rate during the

Figure 4.1: Phases of Odisha's Economic Growth



first phase. Nevertheless, the study finds that the good performance of primary sector had lagged impact on the growth of secondary sector[22]. The second phase of economic growth of the state is seen during time period between 1990-91 and 2002-03. This period witnessed substantial changes in country's economic policies. Indian economy embraced liberalisation and economic reforms in 1991 and its positive impact was visible in some of the industrially developed states like Maharashtra and Tamil Nadu. But Odisha failed to reap the benefits of these policy changes. Instead, the state economy posted a very low economic growth of only 2.6 per cent between 1990-91 and 2002-03. Both the primary and secondary sectors saw significant decline in growth rates during this period. While primary sector recorded a negative growth rate of 1.5 per cent, the secondary sector on the other hand grew only by 3.6 per cent during this phase. The statistical analysis suggests that the current growth performance of secondary sector was determined by the lagged growth performance of primary sector[23]. Due to openness of the economy during the second phase, the tertiary sector started rising posted an impressive growth rate of 5.7 per cent as compared to 3.8 per cent during the first phase. The third or high growth trajectory phase of Odisha's economy began in 2003-04, wherein for the first time the state economy recorded a double digit growth rate of 13.54 per cent. Since then, for many years the growth rate has been at the double digit level. As a result, the average growth rate of the state during 2003-04 and 2014-15 was 8.4 per cent which is substantially higher than the growth rates in the previous two phases. This phase witnessed an upsurge of tertiary activities which was well supported by secondary sector (**Figure 4.2**). Both industry and services recorded a whopping 9.0 per cent plus growth rate during the third phase. Primary sector continued to underperform during this phase due to several natural shocks that severely affected the performance of the sector.

Figure 4.2: Contribution of Sectors to GSDP (%share)



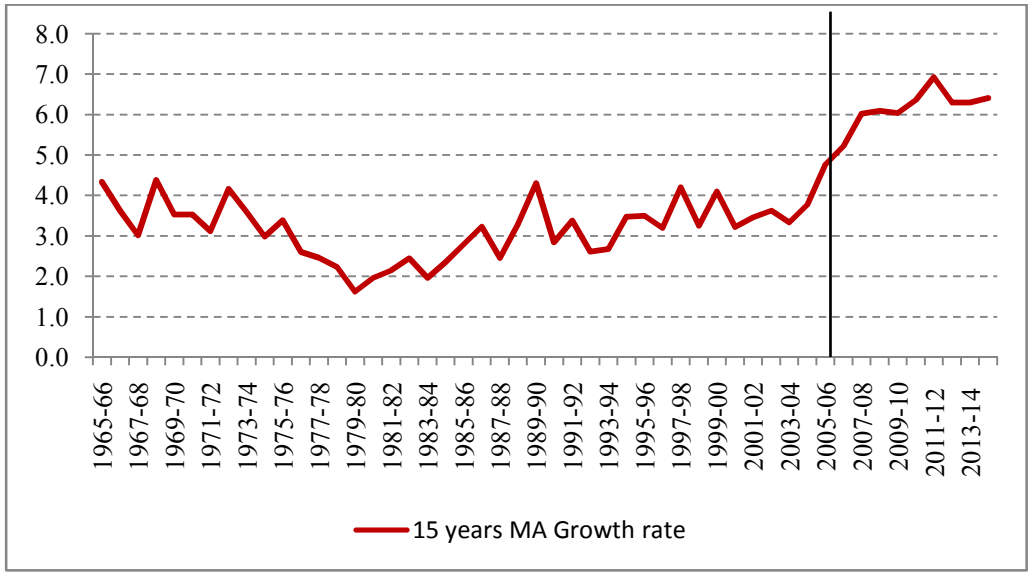
Source: NILERD

[22] Log (Industry)$_t$ = -5.214 + 1.34 Log (agriculture & allied)$_{t-1}$. The coefficient is statistically significant at 1% significance level.

[23] Log (Industry)$_t$ = 0.048 + 1.01 Log (agriculture & allied)$_{t-1}$. The coefficient is statistically significant at 5% significance level.

4.3 An upward rise of state GDP during the post-2003-04 period could be seen from **Figure 4.3**. The figure suggests that since 2005-06 onwards, the long-term growth rate of state GDP (in terms of moving average (MA) growth rate) has passed above 5 per cent level and beyond 6 per cent level from 2008-09 onwards. The state could have achieved a growth rate of above 7 per cent if there was no external financial crisis, natural shocks and policy paralysis that slowdown the growth rate from 2011-12 onwards. The data published by CSO shows that the state economy recorded on an average 6.2 per cent growth rate (at 2011-12 basic prices) between 2012-13 and 2016-17. Thus, considering the rising share of non-agricultural activities, higher public and private investment, higher private spending and improved socio- economic parameters, the state may be able to sustain the long-term economic growth rate of above 6.0 per cent in the future.

Figure 4.3: The long-term growth rate of Odisha (in per cent)



Source: NILERD

4.2 What drives growth in Odisha in the recent time?

4.4 As discussed earlier, the economic growth of the state passes through three distinct phases. Each phase of economic growth is driven by different set of economic activities. **Table 4.1** presents the key sectors that have been driving the economic growth of the state economy in different phases.

i. Phase-I (1950-51 to 1989-90): The state economy registered an average growth rate of 3.6 per cent during this phase. Sectors that played dominant role in economic growth during this phase are cropping and animal husbandry, forestry & logging, manufacturing, construction and real estate. Together these sectors contributed more than 86 per cent to state GDP. The unique feature of this phase is that economic growth of the state was overly dependent upon traditional and rural based sectors. Besides agriculture and forestry and logging sectors, construction activities also concentrated to development of

road, irrigation and housing activities in rural areas. Even manufacturing activities were concentrated to unregistered units located in the rural areas. In terms of employment and productivity, while these sectors provided large employment opportunities to rural population, the productivity was rather low due to limited use of modern technology in production and construction activities. On the other hand, sectors linked to urban areas did not perform well during this phase. The share of urban linked sectors such as registered manufacturing, urban infrastructure, tourism related sectors, IT and ITes, health and education etc. to state GDP was very low under this phase.

ii. Phase-II (1990-91 to 2002-03): During this phase, the government of India launched series of economic reforms in various sectors. The Indian economy registered a relatively better growth during this phase as compared to the previous phase. Sectors particularly those linked to tertiary sector and infrastructure posted healthy growth. Even registered manufacturing sector particularly medium and large industries performed well. But Odisha could not reap the benefits of these economic reforms, and rather showed a lackluster performance, posting a merely 2.6 per cent growth rate during this phase as compared to 3.6 per cent during the previous phase. The reasons could be due to the poor performance of agriculture and industry sectors. While agriculture sector posted negative growth of 1.5 per cent, industry on the other hand grew merely by 3.6 per cent. Since combined contribution of these two sectors' to state GDP was more than 63 per cent, their poor performance led to decline in overall growth of state GDP. Nevertheless, like the Indian economy, the state economy had witnessed large scale urban development during this phase. Economic activities like urban housing, roads, bridges and other infrastructure development, retail trade, tourism, health and education commenced in a big way. As a result, the services sector grew by 5.7 per cent during this phase as compared to 3.8 per cent during the previous phase.

iii. Phase-III (2003-04 to 2014-15): This phase is being named as the golden period of Odisha's economic history[24]. All the high value added sectors displayed a dramatic rise of economic base due to economic reforms, increase of private investment, productivity and efficiency, robust domestic demand and export opportunities. During this phase, the overall economic growth of the state is driven by services and industry sectors. Within industry, after manufacturing sector, mining sector performed very well. Construction sector also performed reasonably well, but like mining sector, the growth rate of construction sector declined substantially during the last few years of this phase due to financial crisis and weak market demand. Services sector evidenced a massive rise of its contribution to state GDP by nearly 10 percentage points from 36.7 per cent during the second phase to 46.1 per cent during the third phase. The sector's continued good performance came mainly from trade, hotel and restaurants, transport, storage and communication, other services like education and health. Our statistical analysis suggests

[24] In fact, it would be more appropriate to limit this period between 2003-04 and 2010-11. During this period the state economy recorded an outstanding 10.41 per cent growth rate, which was more than the national average and even better than some of the advance states in the country. Thereafter, there has been slowing down of economic growth due to trickledown effect of external financial crisis, policy paralysis and sluggish domestic and external demand and frequent natural calamities. Both mining and manufacturing sector posted negative or no growth towards the end of 11th Five Year Plan and beginning of 12th Five Year Plan. The new base data (basic prices) suggests that during 2012-13 and 2016-17, the state GDP has recorded only 6.2 per cent growth rate.

that services sector's high growth rate was positively influenced by high growth rate of industry sector[25].

Table 4.1: Sectoral contribution to GSDP of the State (at 2004-05 prices) (in per cent)

Sectors	Odisha Phase-I: 1950-51 to 1989-90	Odisha Phase-II: 1990-91 to 2002-03	Odisha Phase-III: 2003-04 to 2014-15	India: 2003-04 to 2012-13
1. Agriculture and allied	51.3	31.2	19.6	16.5
2. Industry	23.4	32.1	34.2	28.0
i. Mining & Quarrying	1.1	4.6	7.2	2.4
ii. Manufacturing	6.8	9.1	13.4	15.8
iii. Construction	14.0	14.1	10.4	7.8
iv. Electricity Gas & Water Supply	1.5	4.3	3.2	2.0
3. Services	25.3	36.7	46.1	55.5
i. Transport, Storage and Communication (TSC)	5.4	8.9	12.5	9.4
ii. Trade, hotel and restaurants (THR)	2.3	4.8	8.9	16.4
iii. Banking & Insurance	0.5	2.6	5.0	7.3
iv. Real Estate, Ownership of Dwelling & Business Services	8.5	7.1	6.1	9.2
v. Public Administration and Defence	2.8	5.1	4.0	5.7
vi. Other Services	5.8	8.1	9.6	7.5

Source: CSO, Government of India.

4.5 The above table also shows that the sectoral growth pattern of Odisha during the Phase-III is similar to the growth pattern seen for All India. Although there is variation in sectoral contribution, the share of services and industry in GDP however has been found higher than agriculture both in case of Odisha and All India. The data shows that the contribution of industry (34.25 per cent) to state GDP is about 6 percentage points higher than the All India average on account of higher contribution of mining & quarrying and construction sectors. On the other hand, the contribution of manufacturing in state GDP is still lagging behind than All India average. In case of services, except other services, the contribution of all other type of services to state GDP is far below than that of All India level. Therefore, there is still considerable scope for further improvement in the area of manufacturing and services particularly in the area of trade, hotel and restaurants, and infrastructure services like transport, communication and financial and business services. Achieving higher growth in some of these sectors is possible because these sectors still have low base in the state as compared to other developed states. For example, the

[25] Log $(Services)_t$ = -1.158 + 1.08 Log $(Industry)_{t-}$. The coefficient is statistically significant at 1% significance level.

share of financial services and real estate and business services to state GDP is very low in Odisha as compared to all India average and also compared to states like Tamil Nadu, Gujarat and Karnataka (see Figures A4.1 and A4.2 in **annexure**).

4.6 **Table 4.2** suggests that the contribution of real estate, ownership dwelling and business services to state GDP has actually declined and more so during the Phase-III over Phase-I. Although the share of financial services to state GDP has increased during the Phases-II and III, the pace of increase has been rather slow. In contrast, the sectoral share of TSC, THR, other services and even mining and quarrying and manufacturing have recorded substantial increase in the recent years.

Table 4.2: Changes in Sectoral Contribution of Various Sectors

Sectors	Increase (+)/decrease (-) of sectoral share during Phase –II over Phase-I (in units)	Increase (+)/decrease (-) of sectoral share during Phase –III over Phase-I (in units)
1. Agriculture and allied	-20.1	-31.7
2. Industry	8.7	10.9
i. Mining & Quarrying	3.5	6.1
ii. Manufacturing	2.3	6.6
iii. Construction	0.1	-3.6
iv. Electricity Gas & Water Supply	2.8	1.7
3. Services	11.3	20.8
i. Transport, Storage and Communication (TSC)	3.5	7.1
ii. Trade, Hotel and Restaurants(THR)	2.6	6.6
iii. Banking & Insurance	2.1	4.4
iv. Real Estate, Ownership of Dwelling & Business Services	-1.4	-2.4
v. Public Administration and Defence	2.3	1.1
vi. Other Services	2.3	3.8

Source: NILERD

4.7 Thus, the above analysis suggests that there is evidence of structural shift in economic growth pattern of the state from second to third phase. Further, sectors that have contributed to economic growth during the first two phases are primarily low value added sectors like agriculture, construction and real estate and growth of these sectors was by and large driven by domestic demand with less export component. Moreover, employment generated in these low value added sectors was mostly informal or unorganized. In contrast, the third phase shows a paradigm shift in economic growth pattern from low value added sector to high value added sector whereservices and manufacturing sectors played a dominant role in economic growth. Not only these sectors performed well but also helped in shifting the growth trajectory of the state to a higher level. Since these are high value added sectors, accelerating and sustaining the growth of these sectors in the long run is possible and even feasible under the normal economic conditions. Further, the state has advantage of abundant mineral resources, which provide a

window of opportunities to attract foreign investors to invest in areas such as manufacturing and power. Expansion of industrial base would directly help the services sector to grow. Within the above high growth sectors, the government of Odisha has identified few emerging key priority sub-sectors for future economic growth, these are (i) Agro and Food Processing, (ii) Seafood, (iii) Textiles, (iv) Ancillary and Downstream, (v) Biotechnology, (vi) Petrochemicals Sector, and (vii) IT, ITES and ESDM. The detailed analysis of these sectors is given in the Annexure.

4.3 Manpower Demand Projection of Odisha

4.8 As discussed in methodology, manpower demand projection has been carried out by using top-down approach which explains manpower demand projection for major economic sectors using the output and employment elasticity of each sector. The elasticity is calculated using the past data of gross domestic product at factor prices (2004-05 base) and employment (PS+SS) for the three years 2004-05, 2009-10 and 2011-12. The major sectors included in the analysis for manpower demand projection are illustrated below:

- Agriculture and allied

- Industry
    - Mining & Quarrying
    - Manufacturing
    - Construction
    - Electricity, Gas & Water supply

- Services
    - Transport, Storage and Communication
    - Trade, Hotel and Restaurants
    - Banking & Insurance
    - Real Estate, Ownership of Dwellings & Business services
    - Public Administration and Defence
    - Other Services (includes health, education etc.)

In addition to the above broad sectors, the study also carries out manpower demand projection for state specific emerging sectors as given below.

- Manufacture of food products
- Manufacture of textiles
- Manufacture of other non-metallic mineral products
- Manufacture of basic metals
- Infrastructure
- ICT
- Retail trade
- Travel and tourism

It is pertinent to mention here that manpower demand projection for the above broad sectors is done for three macro scenarios. They are:

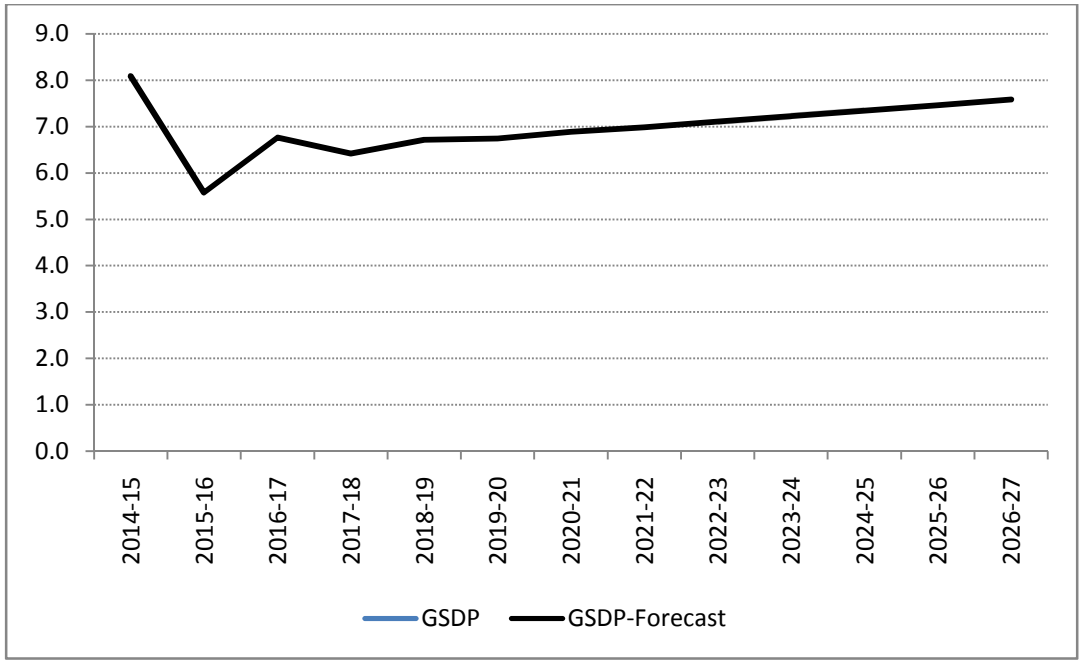
- Baseline Scenario
- Optimistic Scenario and
- Pessimistic Scenario

4.9 The baseline scenario is also called 'business-as-usual scenario' or 'normal scenario'. Under this scenario, it is presumed that the current state of economic situation would evolve in the future as well without much state intervention. In other words, the past policy changes would carry forward to the future without any additional policy intervention. The second scenario is optimistic one. Under this scenario, it is assumed that the economic activities would tend to accelerate due to new economic policies. The trajectory of economic development is expected to shift upward from the baseline scenario due to various positive internal and external factors. In contrast, the pessimistic scenario suggests the state of deceleration of economic activities compared to the baseline scenario. Under this scenario, the economic development is expected to move downward from the baseline due to various policy uncertainties and internal and external crisis.

4.10 Since, manpower demand projection for the future period depends upon the trends of output growth, the first step is to analyse the future growth scenarios of the state of Odisha under the above three scenarios. Under the baseline scenario, the economic growth of Odisha in terms of annual changes in Gross State Domestic Product at constant prices can be projected for the future period using two different approaches. The first approach is projection could be made based on time trend analysis by using either simple trend analysis or using the advance univariate time series techniques. The second approach is based on market information on both pull and push factors and information of current state of the economy, assumptions on future growth scenarios could be made accordingly.

Using the first approach i.e., Univariate time series ARIMA model, the study finds the following economic growth pattern for Odisha for the future period i.e., 2016-17 to 2026-27. **Figure 4.4** shows that economic growth would tend to rise continuously in the future years and the average growth rate would be around 7.0 per cent during the period 2016-17 and 2030-31.

Figure 4.4: GSDP (2004-05 prices) growth rate projection for Odisha



Source: NILERD

However, the drawback of univariate projection is that it takes into account only past behaviour of the series without counting the impact of new policy initiatives and impact of other positive internal and external factors.

4.11 Instead of single univariate method, the present study uses 'Top-down' approach to analyse the future growth scenario. The method explains the growth scenario of broad economic disaggregate sectors to arrive at the overall economic growth for the state. Sector specific growth rate for the future period has been decided based on past performance of the sector, the importance of the sector in the context of the state and country and information available on future growth prospects of the sector in the public domain.

Using the above approach, we have outlined the future growth patterns of broad economic sectors and sub-sectors and their contribution to state GDP during the period 2017-18 to 2021-22 and 2022-23 to 2026-27.

4.12 **Table 4.3** illustrates the growth pattern of broad economic sectors and sub-sectors under the baseline and optimistic scenarios. Under the baseline scenario, the agriculture and allied sector and industry sector are expected to grow by 3.7 and 5.5 per cent respectively during period of 2017 till 2022 and then in the next 5 years. In contrast, services sector is expected to register higher growth of 7.3 per cent and 8.1 per cent respectively, due to tax and other policy reforms. Within industry, manufacturing sector is expected to drive the growth followed by mining and quarrying sectors. The current trends suggest that there has been slowing down of growth of mining and quarrying sector due to policy issues, and it is expected that without substantial efforts from the government, the sector may continue to underperform in the future as well. Lower growth in mining and quarrying sector would affect the growth of manufacturing sector as

most of the industries from latter categories receive inputs from mining and quarrying sector. Although services sector is expected to grow better than other sectors during both the time periods, its growth rate may remain low. Sectors that would drive service sector's growth are transport sector particularly road transport, storage, communication, retail trade, hospitality industry, banking and insurance finance, business services like IT and ITES, health and education.

Table 4.3: Growth Patterns of Broad Economic Sectors under the Baseline and Optimistic scenarios (GSDP at 2011-12 basic prices) (in per cent)

Year	Actual	Baseline Scenario		Optimistic Scenario	
	2011-12 to 2016-17	2017-18 to 2021-22	2022-23 to 2026-27	2017-18 to 2021-22	2022-23 to 2026-27
Mining & Quarrying	5.5	5.0	5.0	6.0	6.0
Manufacturing	7.6	7.1	7.1	7.3	8.1
Construction	5.0	3.0	3.0	3.5	3.5
EGW	2.3	2.5	2.5	3.0	3.0
TSC	9.9	10.0	10.0	11.0	11.0
Trade, Hotel and Restaurants	10.1	8.7	11.1	11.3	12.7
Banking & Insurance	8.6	7.0	7.0	7.5	7.5
Real Est., Own. of Dwel & Busi services	6.8	5.0	5.0	5.5	5.5
Public Administration	9.7	5.0	5.0	5.0	5.0
Other Services	5.9	6.0	6.0	6.5	6.5
Agriculture	4.0	3.7	3.7	4.0	4.0
Industry	5.7	5.5	5.5	6.5	6.5
Services	8.2	7.3	8.1	8.5	9.3
Total	6.2	6.0	6.5	7.0	7.5

Source: NILERD

4.13 Under optimistic scenario, the growth rates of all broad sectors: agriculture and allied, industry and services are expected to be higher than the baseline scenario. This is based on the assumptions that like early 2000s, the state economy may experience increase in factor productivity, business friendly environment and policy reforms. In this regard, recently, the state government has undertaken series of policy reforms in the areas of developing food processing industries, SEZs, skill development, tourism development, IT and ITES and infrastructure development etc. Effective implementation of these reform measures would certainly accelerate the growth rate of industry and services sectors and thus the overall economic growth of the state. Under the optimistic scenario, table 4.3 suggests industry and services sector may grow by more than 1 percentage point over the baseline scenario. Within industry, the new policy measures announced on overall industrial reforms, food processing and special economic zones may help in improving the performance of manufacturing sector, which in turn would drive the overall growth of the sector. In case of services sector, the rise of banking services,

telecommunication, retail trade, IT and ITES and other infrastructure development like expansion of road, railway, air transport, tourism and hospitality industry, social and personal services will play the lead role in driving the overall growth of the sector.

Table 4.3a: Growth Patterns of Broad Economic Sectors under the Baseline and Pessimistic Scenarios (GSDP at 2011-12 basic prices) (in per cent)

Year	Actual	Baseline Scenario		Pessimistic Scenario	
	2011-12 to 2016-17	2017-18 to 2021-22	2022-23 to 2026-27	2017-18 to 2021-22	2022-23 to 2026-27
Mining & Quarrying	5.5	5.0	5.0	4.5	4.5
Manufacturing	7.6	7.1	7.1	5.7	5.5
Construction	5.0	3.0	3.0	2.5	2.5
EGW	2.3	2.5	2.5	2.0	2.0
TSC	9.9	10.0	10.0	9.0	9.0
Trade, hotel and restaurants	10.1	8.7	11.1	6.3	9.1
Banking & Insurance	8.6	7.0	7.0	6.5	6.5
Real Est., Own. of Dwel. & Busi. services	6.8	5.0	5.0	4.0	4.0
Public Administration	9.7	5.0	5.0	4.5	4.5
Other Services	5.9	6.0	6.0	5.5	5.5
Agriculture	4.0	3.7	3.7	3.2	3.2
Industry	5.7	5.5	5.5	4.5	4.5
Services	8.2	7.3	8.1	6.1	7.0
Total	6.2	6.0	6.5	5.0	5.5

Source: NILERD

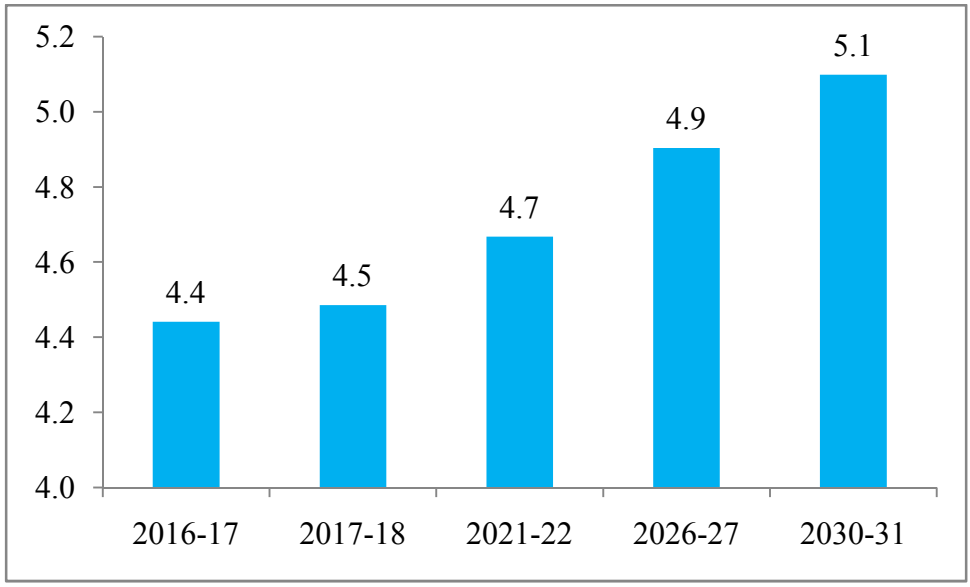
4.14 Under pessimistic scenario, it is assumed that due to unforeseen factors like flood, draught, and other natural calamities and external uncertainty, there will be subdued inflow of foreign capital, low private investment and domestic demand. Weak investment, domestic and external demand would adversely impact the growth of industry and services sector and therefore the overall economic growth of the state. As evident in the past, negative growth in agriculture sector due to natural calamities has had adverse impact on overall development of the state both in terms of growth and employment. The statistical analysis also suggests that agriculture sector has a very strong impact on industry sector in the state. Lower growth in industry would adversely impact the services sector and therefore the overall economic growth of the state. **Table 4.3a** suggests that overall economic growth of the state may grow by less than 1 percentage point under pessimistic scenario as compared to the baseline scenario. All the broad sectors are expected to underperform under the pessimistic scenario as compared the baseline scenario.

Per Capita GSDP under three Scenarios

4.15 It is pertinent to analyse the trends of per capita income of the state under the above three different economic scenarios. This may provide a glimpse of ideas that may be pursued further while designing and planning the long term development strategies for the state. Since, per capita income is an important indicator used for measuring the state of development of an economy, achieving a higher per capita income with inclusive growth should be given more priority. For the long term policy strategy, the state needs to prepare a roadmap for achieving higher per capita income so that it could catch up with other developed states in the future.

4.16 The study uses the exponential growth function to project the monthly population of the state. And then the projected population for the month of October each year is used for further analysis. Projected population for the state for the period 2017-18 to 2030-31 is illustrated in **Figure 4.5**.

Figure 4.5: Population Projection for Odisha (in Crore)

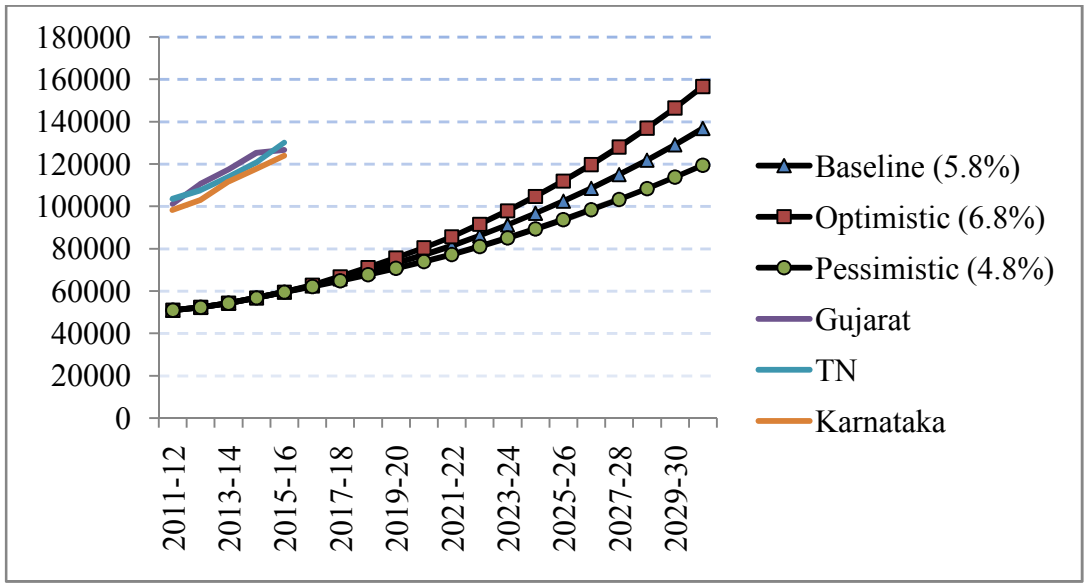


Source: NILERD

The study uses the projected population data to calculate the per capita GSDP for the state under the different growth scenarios. **Figure 4.6** depicts the current trends of per capita income (GSDP) for Odisha and other states for the period 2011-12 to 2015-16 and projected trend of per capita GSDP for Odisha for the period 2017-18 to 2030-31. The figure suggests that the current level of per capita income of developed states like Karnataka, Tamil Nadu and Gujarat is two times higher than the per capita income of Odisha. The reason could be due to the fact that the per capita income of developed states has been growing at a much faster rate of more than 6 per cent per annum as compared to 4-5 per cent of Odisha. If the per capita income of the state is presumed to grow at business as usual scenario of 5.8 per cent per annum during next 14 years, it would surpass the current level of per capita income of Gujarat and Karnataka by 2029-30. This can be achieved a bit earlier i.e., by 2027-28, if the state per capita income increases at a higher pace of 6.8 per cent per annum (under optimistic scenario) during 2017-18 and 2030-31. Under

this scenario, the state is quite likely to surpass the current level of per capita income of Tamil Nadu by 2028-29.

Figure 4.6: Per capita GSDP of Odisha Vis-Vis Other States (in Rupees)



Source: NILERD

4.17 As mentioned earlier, projection of manpower demand at the sectoral level is based on employment-output elasticity. The estimated employment-output elasticity at the sectoral level for two different working age population is reported in **Tables 4.4 and 4.5**. Table 4.4 suggests employment-output elasticity is 0.20 for all age group. While agriculture and allied sector and public administration reported negative employment elasticity, the remaining sectors evidence positive employment-output elasticity.

Table 4.4: Employment and Output Elasticity at the Sectoral Level (all age group)

Agriculture	Mining & Quarrying	Manufacturing	Construction	EGW	TSC	THS	Banking & Insurance	Real Estate, Ownership etc.	Public Administration	Other Services	Total
-0.12	0.77	0.12	1.27	1.15	0.49	0.15	0.21	0.10	-0.05	0.26	0.20

Note: EGW = Electricity, gas and water supply, TSC = transport, storage and communications, THS = trade, hotel and restaurants.
Source: NILERD

The employment-output elasticity for the working age group 15-59 at the sectoral level is given in **Table 4.5**. Data shows that employment elasticity slightly varies between two working age populations.

Table 4.5: Employment and Output Elasticity at the Sectoral Level (age group 15-59)

Agriculture	Mining & Quarrying	Manufacturing	Construction	EGW	TSC	THS	Banking & Insurance	Real Estate, Ownership etc.	Public Administration	Other Services	Total
-0.15	0.93	0.13	1.25	1.15	0.46	0.15	0.18	0.10	-0.05	0.28	0.21

Note: EGW = Electricity, gas and water supply, TSC = transport, storage and communications, THS = trade, hotel and restaurants.
Source: NILERD

4.18 Manpower demand projection at the sectoral level has been carried out using the estimated employment-output elasticity of all age group and economic growth under different growth scenarios. Manpower demand projection for broad economic sectors under baseline scenario suggests that the manpower demand is expected to decline in agriculture and allied sector from 95.5 lakh in 2011-12 to 93.6 lakh in 2016-17 and further to 89.6 lakh in 2026-27 (**Table 4.6**). In contrast, the manpower demand is expected to increase both in industry and services sectors. Incremental manpower demand is expected to increase to 22.9 lakh by the end of 2021-22 and 35.8 lakh by the end of 2026-27.

Table 4.6: Sector-wise manpower requirement for Odisha under baseline scenario (in Lakh)

Year	Agriculture	Industry	Services	Total	Incremental Manpower demand Required (Total)
2011-12	95.5	41.7	37.8	175.0	
2016-17	93.6	52.3	41.7	187.6	12.7
2021-22	91.6	60.1	46.2	197.8	22.9
2026-27	89.6	69.3	51.8	210.7	35.8

Note: Manpower includes employment in Principal and Subsidiary status of all age group.

4.19 Under optimistic growth scenario, the demand for manpower is expected to increase a few lakhs more as compared to the baseline scenario. **Table 4.7** suggests that incremental manpower demand under optimistic growth scenario may increase to 25 lakh by end of 2021-22 and further to 40.6 lakh by end of 2026-27. An important point to be noted here is that while the agriculture and allied sector may witness gradual decline of manpower demand, manufacturing and services sector on the other hand would require more and more manpower in the future due to expansion of economic activities.

Table 4.7: Sector-wise Manpower Requirement for Odisha under Optimistic scenario (in Lakh)

Year	Agriculture	Industry	Services	Total	Incremental Manpower demand Required (Total)
2011-12	95.5	41.7	37.8	175.0	
2016-17	93.6	52.3	41.7	187.7	12.7
2021-22	91.4	61.6	46.9	199.9	25.0
2026-27	89.3	72.9	53.4	215.5	40.6

Note: Manpower includes employment in Principal and Subsidiary status of all age group.

4.20 However, Manpower demand under pessimistic growth scenario suggests that the demand for manpower may decline as compared to the baseline scenario. The incremental demand is expected to reach only 31.8 lakh by end of 2026-27 as compared to 35.8 lakh under the baseline scenario during the same period (**Table 4.8).**

Table 4.8: Sector-wise Manpower Requirement for Odisha under Pessimistic scenario (in Lakh)

Year	Agriculture	Industry	Services	Total	Incremental Manpower demand Required (Total)
2011-12	95.5	41.7	37.8	175.0	
2016-17	93.6	52.3	41.7	187.7	12.7
2021-22	91.9	58.8	45.5	196.2	21.2
2026-27	90.2	66.2	50.4	206.7	31.8

Note: Manpower includes employment in Principal and Subsidiary status of all age group.

4.21 At the sub-sectoral level, the results reported in **Table 4.9** indicate that increase of manpower demand in the future would largely emanate from sectors such as manufacturing, construction, trade, hotel and restaurants, transport, storage and communications and other services like education and health. Latest published data available for the year 2011-12 suggests that manufacturing, construction, retail trade, and tourism and hospitality industry are the major source of manpower demand in the state. These sectors would continue to generate more employment opportunities in the future as well. However, the pace of manpower demand increase may vary across the sectors with a slower increase in sectors such as construction and banking & insurance services. We have also found that state specific emerging sectors like infrastructure, travel and tourism and retail trade would require more manpower or to create more jobs during the said periods.

Table 4.9: Sub-sector wise Manpower demand or Jobs creation under the normal or business-as-usual growth scenario in the State (in Lakhs)*

Sectors and Sub-Sectors	Actual	Projected		
	2011-12	2016-17	2021-22	2026-27
1. Agriculture and allied**	**95.5**	**93.6**	**91.6**	**89.6**
2. Industry	**41.7**	**52.3**	**60.1**	**69.3**
Mining & Quarrying	3.0	3.5	4.3	5.1
Manufacturing	17.1	17.8	18.6	19.4
Construction	21.0	30.1	36.3	43.7
Electricity, water and gas	0.7	0.8	0.9	1.1
3. Services	**37.8**	**41.7**	**46.2**	**51.8**
Transport, storage and communication	6.6	8.3	10.6	13.5
Trade, hotel and restaurants	17.0	18.4	19.6	21.3
Banking & Insurance	1.0	1.1	1.2	1.3
Real Est., Own. of Dwel & Busi services	0.9	0.9	0.9	0.9
Public Administration	2.2	2.1	2.1	2.1
Other Services	10.1	10.9	11.8	12.7
Total (1+2+3)	**175.0**	**187.7**	**197.8**	**210.7**
Total Population	**422.2**	**444.1**	**466.8**	**490.3**
Emerging Sectors				
1. Manufacture of food products	1.55	1.51	1.65	1.80
2. Manufacture of textiles	0.37	0.42	0.45	0.48
3. Manufacture of other non-metallic mineral products	1.67	1.87	2.21	2.60
4. Manufacture of basic metals	1.46	1.91	2.45	3.13
5. Infrastructure	7.28	9.13	11.53	14.56
6. ICT	0.81	0.88	0.95	1.04
7. Retail trade	11.41	12.96	14.57	16.40
8. Travel and tourism	17.50	20.81	24.72	29.35

Note:

* Total manpower demand or jobs creation includes both skilled and unskilled jobs.

** The NSSO data shows that employment growth in agriculture sector in Odisha was negative in 2009-10 and 2011-12 as workers are slowly shifting from agriculture to non-agriculture sector, which is a positive development for a growing State. Since employment-output elasticity of agriculture sector is negative, the overall employment in the sector is expected to decline 2017-18 to 2021-22 and during 2022-23 till 2026-27.

Source: NILERD

Table 4.10: Sub-sector wise Manpower demand or Jobs creation under the Optimistic growth scenario in the State (in Lakhs)

Sectors and Sub-Sectors	Actual	Projected		
	2011-12	2016-17	2021-22	2026-27
1. Agriculture and allied**	**95.5**	**93.6**	**91.4**	**89.3**
2. Industry	**41.7**	**52.3**	**61.5**	**72.8**
Mining & Quarrying	3.0	3.5	4.4	5.5
Manufacturing	17.1	17.8	18.7	19.6
Construction	21.0	30.1	37.4	46.4
Electricity, water and gas	0.7	0.8	1.0	1.1
3. Services	**37.8**	**41.7**	**46.9**	**53.4**
Transport, storage and communication	6.6	8.3	10.9	14.1
Trade, hotel and restaurants	17.0	18.4	20.1	22.1
Banking & Insurance	1.0	1.1	1.2	1.3
Real Est., Own. of Dwel & Busi services	0.9	0.9	0.9	0.9
Public Administration	2.2	2.1	2.1	2.1
Other Services	10.1	10.9	11.9	12.9
Total (1+2+3)	**175.0**	**187.7**	**199.9**	**215.5**
Total Population	**422.2**	**444.1**	**466.8**	**490.3**
Emerging Sectors				
1. Manufacture of food products	1.55	1.51	1.67	1.84
2. Manufacture of textiles	0.37	0.42	0.46	0.50
3. Manufacture of other non-metallic mineral products	1.67	1.87	2.25	2.72
4. Manufacture of basic metals	1.46	1.91	2.55	3.41
5. Infrastructure	7.28	9.13	11.81	15.27
6. ICT	0.81	0.88	0.96	1.06
7. Retail trade	11.41	12.96	14.75	16.81
8. Travel and tourism	17.50	20.81	25.14	30.36

Source: NILERD

4.22 The composition of demand for manpower at sub-sectoral levels and emerging sectors under optimistic and pessimistic growth scenarios are given in **Tables 4.10 and 4.11**. Like the baseline scenario, both optimistic and pessimistic scenario suggests that higher demand for manpower for the future period are expected to come mostly from manufacturing, constriction, trade, hotel and restaurants, transport, storage and communication services and other services. But overall job creation/manpower requirement under pessimistic scenario is expected to be lower than the baseline and optimistic scenarios.

Table 4.11: Sub-sector wise Manpower demand or Jobs creation under the Pessimistic growth scenario in the State (in Lakhs)

Sectors and Sub-Sectors	Actual	Projected		
	2011-12	2016-17	2021-22	2026-27
1. Agriculture and allied**	**95.5**	**93.6**	**91.9**	**90.2**
2. Industry	**41.7**	**52.3**	**58.7**	**66.1**
Mining & Quarrying	3.0	3.5	4.2	5.0
Manufacturing	17.1	17.8	18.4	19.0
Construction	21.0	30.1	35.2	41.1
Electricity, water and gas	0.7	0.8	0.9	1.0
3. Services	**37.8**	**41.7**	**45.5**	**50.4**
Transport, storage and communication	6.6	8.3	10.4	12.9
Trade, hotel and restaurants	17.0	18.4	19.3	20.7
Banking & Insurance	1.0	1.1	1.2	1.3
Real Est., Own. of Dwel & Busi services	0.9	0.9	0.9	0.9
Public Administration	2.2	2.1	2.1	2.1
Other Services	10.1	10.9	11.7	12.6
Total (1+2+3)	**175.0**	**187.6**	**196.1**	**206.7**
Total Population	**422.2**	**444.1**	**466.8**	**490.3**
Emerging Sectors				
1. Manufacture of food products	1.55	1.51	1.63	1.75
2. Manufacture of textiles	0.37	0.42	0.44	0.47
3. Manufacture of other non-metallic mineral products	1.67	1.87	2.16	2.49
4. Manufacture of basic metals	1.46	1.91	2.34	2.87
5. Infrastructure	17.06	17.82	18.43	19.05
6. ICT	7.28	9.13	11.26	13.88
7. Retail trade	11.41	12.96	14.39	16.00
8. Travel and tourism	17.50	20.81	24.30	28.38

Source: NILERD

4.23 The expected manpower demand or job creation by Odisha vis-à-vis other developed states under the business-as-usual scenario are given in Table 4.12. It is found that except Maharashtra, the job creation in other two developed states such as Punjab and Tamil Nadu is expected to remain sluggish due to slow economic growth. Like Odisha, Maharashtra on the other hand is expeted to achieve high economic and employment growth. The results show that number of jobs in Maharashtra is expected to touch 510.9 lakh in 2021-22 from 488.1 lakh in 2011-12 and increase further to 522.6 lakh in 2026-27.

Table 4.12: Manpower demand or Jobs creation under the Business-as-usual growth scenario in States (in lakhs)

States	Actual	Projected		
	2011-12	2016-17	2021-22	2026-27
Odisha	**175.0**	**187.7**	**197.8**	**210.7**
Punjab	109.7	111.9	114.2	116.5
Tamil Nadu	321.0	324.5	328.2	331.9
Maharashtra	488.1	499.4	510.9	522.6

Source: NILERD

4.4 Demand and Supply Gap Projection of Odisha

4.24 In this section, we discuss the manpower demand and supply gap for the state. Since it is difficult to capture the supply of manpower at sectoral and sub-sector levels, the demand-supply gap analysis is done only at the aggregate level for the state. Further, we make an attempt to estimate and project skilled job demand for the whole state. Such analysis is done for three working age population groups such as 'All age' group, age group of 15-59 years and those in 15-24 years[26].

Table 4.13: Manpower (Supply minus Demand) Gap for Odisha (All age group) (in numbers)

Items	2011-12	2016-17	2021-22	2026-27
Population	42222936	44407731	46677562	49033982
Total worker demand	17496259	18757843	19783168	21072329
Incremental worker demand		1261584	2286909	3576070
Worker gap (supply minus demand)	**430705**	**629632**	**637277**	**648686**

Source: NILERD

4.25 The demand – supply gap of workers or number of jobs for all Age group is illustrated in **Table 4.13**. Total demand for manpower at the state level was around 175 lakh in 2011-12, which is 4.3 lakh less than total manpower supply during the same year. The demand – supply gap for the future period is expected to rise gradually from the 4.3 lakh to around 6.4 lakh in 2021-22 and further to 6.5 lakh in 2026-27. The reason could be due to the fact that the rate of declining employment in primary sector has not been equally compensated by increasing employment in non-agriculture sectors. As a result, the unemployment or demand-supply gap of manpower is expected to rise in the future. In order to reduce the demand-supply gap, it is important to factor in the growth intensity of some of the labour intensive sectors such as construction, retail trade, tourism and hospitality, infrastructure and manufacturing. These sectors must grow at a faster rate than the baseline level. As discussed earlier, the demand for manpower increases at a higher rate under optimistic scenario than the baseline scenario due to higher economic growth. Thus, the analysis suggests that the demand-supply gap of manpower

[26] The skilled job has been defined using the occupational classification of workers.

tends to get reduced when an economy grows at a much faster rate over and above the baseline growth scenario.

Table 4.14: Manpower (Supply minus Demand) Gap for Odisha (age group 15-59 years) (in numbers)

Items	2011-12	2016-17	2021-22	2026-27
Population	26008298	27912782	29938755	31841684
Total worker demand	15835214	17006055	17955852	19156257
Incremental worker demand		1170841	2120639	3321043
Worker gap (supply minus demand)	**411722**	**625969**	**635882**	**651269**

Source: NILERD

4.26 It can be seen from **table 4.14** that the manpower demand – supply gap would increase at a higher pace for working age group of 15-59 years than for other age groups. Data shows that the demand –supply gap was around 4.1 lakh in 2011-12 and is expected to rise to around 6.3 lakh in 2016-17 and further to 6.5 lakh in 2026-27. It means more and more people in age group of 15-59 years would become unemployed.

Table 4.15: Manpower (Supply minus Demand) Gap for Odisha (age group 15-24 years) (in numbers)

Items	2011-12	2016-17	2021-22	2026-27
Population	7775095	8364484	8993155	9663277
Total worker demand	2887977	3136105	3559416	4123092
Incremental worker demand		248128	671439	1235116
Worker gap (supply minus demand)	**283569**	**322449**	**331107**	**358234**

4.26 Since youth population would play a key role in economic development of the state in terms of innovation, entrepreneurship and knowledge, it is important to know the demand-supply scenario of this group, which may be used in formulating the future growth strategies. In this context, the present study makes an attempt to analyse the demand-supply scenario of youth population in age group of 15-24 years. The results in **table 4.15** point to the conclusion that the ratio of demand-supply gap of manpower to total population of age group 15-24 is higher than all age group and age group 15-59. In other words, the unemployment level among the youth population would be high in the state, which is a matter of concern. There are several factors that are causing high unemployment among the youth population in the State. Firstly, the quality of general, technical and professional education in the state is not upto the mark as compared to some of the developed states in the country, which needs to be strengthened in order to make the labour force in the state more competitive in the open market. Secondly, the youth population in the State particularly those having qualification till matriculation or graduation level are lacking knowledge in technical and vocational education. As a result of which, they are unable to meet market requirement in terms of knowledge and experience. Thirdly, a large segment of youth population in the State are engaged in the agriculture sector. However, to improve the productivity and income of the sector, there is a need for improving the farming skill of youth

population. Similarly, efforts need to be made for providing skill and training to school drop-outs for self-employment. Finally, the market information on jobs, education, career guidance etc. is not properly reaching to the rural areas. Thus, youth in the rural areas are quite unaware about their career development and employment opportunities available in the market. In this regard, efforts on strengthening the awareness programmes like conducting seminar, conference, workshop, job mela, and advertisement through electronic and print media must be expanded.

4.27 The total geographical region of Odisha has been divided into three parts for the analysis of manpower and supply and the gap. They are southern, northern and central regions[27]. **Table 4.16** reports the scenario of manpower demand and supply of each region. Amongst three regions, the demand for manpower or job creation expected to come more from southern region followed by northern and central regions. In 2011-12, the demand for manpower was around 83.8 lakh in southern region as compared to around 56.0 lakh in northern region, which is expected to increase to 101.2 and 68.9 lakh in 2026-27 respectively. Similar to demand, the supply of manpower was more in southern region as compared to the northern region. The demand-supply gap of manpower was 1.7 lakh for southern region in 2011-12 which is expected to reach around 2.8 lakh in 2026-27. In case of northern region, the demand –supply gap is expected to increase from 1.8 lakh in 2011-12 to 2.4 lakh in 2026-27.

Table 4.16: Region-wise Manpower (Supply minus Demand) Gap (all age group) (in numbers)

Regions	2011-12	2016-17	2021-22	2026-27
	Manpower Demand			
Odisha	17496259	18757843	19783168	21072329
Southern Region	8377784	9000504	9501076	10119194
Central region	3520769	3695303	3856047	4065590
Northern region	5597707	6062036	6426045	6887546
	Manpower Supply			
Odisha	17926964	19387475	20420445	21721016
Southern Region	8546166	9278396	9781546	10399665
Central region	3606363	3819176	3982956	4195379
Northern region	5774436	6289903	6655943	7125972
	Manpower Gap (Supply-Demand)			
Odisha	430705	629632	637277	648686
Southern Region	168382	277892	280470	280471
Central region	85594	123873	126909	129790
Northern region	176730	227867	229898	238426

Source: NILERD

[27](i) Northern region: Sambalpur, Bargarh, Jharsuguda, Deogarh, , Balangir, Subarnapur (Sonepur), Dhenkanal, Angul, Keonjhar and Sundargarh, (ii) Southern region: Ganjam, Gajapati, Kandhamal, Boudh, Kalahandi, Nuapada, Koraput, Rayagada, Nabarangpur and Malkangiri (iii) Central region: Cuttack, Jagatsinghpur, Kendrapara, Jajpur, Puri, Khordha, Nayagarh, Balasore, Bhadrak and Mayurbhanj.

4.4.1 Skill Gap (Demand minus Supply) Analysis

4.28 In this section, the study analyses the projection of skilled manpower requirement or creation of skilled jobs and skill gap across different sectors for the state based on the information collected from the NSSO data and the primary survey. **Table 4.17** underlines the skill manpower requirements across sectors in the state under the baseline or business-as-usual scenario during the period 2011-12 to 2026-27. Total skilled manpower requirement of the state is expected to increase from 77.7 lakh in 2011-12 to 110.4 lakh in 2021-22 and further to 131.3 lakh in 2026-27, with expected demand from all economic sectors with profound increase from infrastructure sector followed by travel and tourism, ICT, retail trade and metal based industries sectors.

Table 4.17: Sector wise Skill Manpower Requirement under Business-as-usual Scenario (in lakhs)

Sectors	2011-12	2016-17	2021-22	2026-27
1. Agriculture and allied	**17.0**	**19.1**	**21.3**	**23.8**
2. Industry	**31.0**	**40.7**	**49.8**	**61.5**
Mining & Quarrying	2.0	2.6	3.3	4.3
Manufacturing	14.4	15.6	16.9	18.3
Construction	14.0	21.8	28.7	37.8
EGW	0.6	0.7	0.9	1.0
3. Services	**29.6**	**34.0**	**39.3**	**46.0**
TSC	5.7	7.4	9.7	12.8
Trade, hotel and restaurants	12.0	13.6	15.4	17.8
Banking & Insurance	0.9	1.0	1.1	1.3
Real Est., Own. of Dwel & Busi services	0.6	0.6	0.7	0.7
Public Administration	1.9	1.9	2.0	2.0
Other Services	8.5	9.3	10.3	11.4
Total	**77.7**	**93.7**	**110.4**	**131.3**
	Emerging Sectors			
1. Manufacture of food products	0.40	0.44	0.47	0.51
2. Manufacture of textiles	0.21	0.23	0.25	0.27
3. Manufacture of other non-metallic mineral products	0.35	0.38	0.41	0.45
4. Manufacture of basic metals	0.55	0.95	1.03	1.12
5. Infrastructure	6.34	8.16	10.61	13.80
6. ICT	0.49	2.42	3.13	4.06
7. Retail sector	1.14	1.92	2.52	3.38
8. Travel and tourism	1.40	4.20	5.03	6.11

Source: NILERD

As compared to business-as-usual scenario, the demand for skilled jobs under the optimistic scenario is expected to be higher due to higher economic growth. The demand for skilled jobs would increase from 77.7 lakh in 2011-12 to 112.2 lakh in 2021-22 and further to 135.7 lakh in 2026-27 (Table 4.18). Under this scenario, both industry and services sector are expected to demand for higher skilled jobs as compared to their demand under baseline scenario.

Table 4.18: Sector wise Skill Manpower Requirement under Optimistic growth Scenario (in lakhs)

Sectors	2011-12	2016-17	2021-22	2026-27
1. Agriculture and allied	**17.0**	**19.1**	**21.3**	**23.7**
2. Industry	**31.0**	**40.7**	**51.0**	**64.5**
Mining & Quarrying	2.0	2.6	3.4	4.6
Manufacturing	14.4	15.6	17.0	18.6
Construction	14.0	21.8	29.6	40.2
EGW	0.6	0.7	0.9	1.1
3. Services	**29.6**	**34.0**	**39.9**	**47.4**
TSC	5.7	7.4	10.0	13.4
Trade, hotel and restaurants	12.0	13.6	15.7	18.4
Banking & Insurance	0.9	1.0	1.2	1.3
Real Est., Own. of Dwel & Busi services	0.6	0.6	0.7	0.7
Public Administration	1.9	1.9	2.0	2.0
Other Services	8.5	9.3	10.4	11.6
Total	**77.7**	**93.7**	**112.2**	**135.7**
	Emerging Sectors			
1. Manufacture of food products	0.40	0.44	0.48	0.52
2. Manufacture of textiles	0.21	0.23	0.25	0.27
3. Manufacture of other non-metallic mineral products	0.35	0.38	0.41	0.45
4. Manufacture of basic metals	0.55	0.95	1.04	1.14
5. Infrastructure	6.34	8.16	10.86	14.47
6. ICT	0.49	2.42	3.20	4.24
7. Retail sector	1.14	1.92	2.58	3.50
8. Travel and tourism	1.40	4.20	5.14	6.36

Source: NILERD

4.29 Sector wise skill gap for the state is given in **table 4.19**. Results suggest that skill gap for the state is expected to rise from 74.2 lakh in 2011-12 to 94.6 lakh in 2021-22 and further to 109.4 lakh in 2026-27. In case of industry-wise, highest skill gap is being reported for industry followed by services and agriculture and allied sectors. Within industry, the skill gap is more severe in case of construction sector followed by manufacturing sector.

Table 4.19: Sector wise Skill Gap (Demand minus Supply) under Business-as-usual growth Scenario (in lakhs)

Sectors	2011-12	2016-17	2021-22	2026-27
1. Agriculture and allied	**16.7**	**18.7**	**20.9**	**23.3**
2. Industry	**29.8**	**38.4**	**46.1**	**56.3**
Mining & Quarrying	1.9	2.4	3.0	3.8
Manufacturing	13.4	14.1	14.6	15.1
Construction	13.8	21.4	28.0	36.9
EGW	0.6	0.6	0.6	0.7
3. Services	**27.7**	**27.0**	**27.6**	**29.7**
TSC	5.5	6.7	8.6	11.1
Trade, hotel and restaurants	11.5	12.1	13.0	14.4
Banking & Insurance	0.8	0.8	0.7	0.6
Real Est., Own. of Dwel & Busi services	0.5	0.3	0.2	0.0
Public Administration	1.7	1.4	1.1	0.8
Other Services	7.8	5.6	4.1	2.7
Total	**74.2**	**84.1**	**94.6**	**109.4**
	Emerging Sectors			
1. Manufacture of food products	0.38	0.40	0.41	0.42
2. Manufacture of textiles	0.20	0.21	0.21	0.22
3. Manufacture of other non-metallic mineral products	0.33	0.34	0.35	0.37
4. Manufacture of basic metals	0.49	0.86	0.89	0.92
5. Infrastructure	6.02	7.28	9.17	11.80
6. ICT	0.45	2.32	2.96	3.82
7. Retail sector	1.09	1.78	2.29	3.04
8. Travel and tourism	1.32	3.99	4.67	5.61

Source: NILERD

As compared to the baseline scenario, the results under the optimistic scenario suggest further rise of skill gap in industry and services sector (Table 4.20). Agriculture sector on the other hand shows that skill gap remains more or less the same under optimistic scenario as compared to baseline scenario. The reason could be due to possible migration of skilled workforce from agriculture to non-agriculture and from cropping to non-cropping activities. Being one of the emerging industrially developed states in the country, the industry sector of the state is expected to demand a lot more skilled manpower in the future particularly in the area of mineral based industries, repairing and services activities, chemical and petro products, food processing, textile etc. In contrast, the supply of skilled manpower for these sectors is scanty. The existing engineering students both at the diploma and under graduation level and graduation level are lacking proper industrial skills to fit into directly in the industrial sector. As the primary data evidence very little in-house training activities done by the industries, a lot more needs to be done for the students at the college and institutions level in improving the curriculum at par with international standard and providing them much more needed industrial and practical skills

through enhancing the apprenticeship training. The skill gap is expected to be much greater in services sector than industry, as the former sector required significant proportion of skilled workforce for most of the activities. The most promising sectors within the services sector are retail trade, ICT, travel and tourism and hospitality, education and health related services and transportation and logistics.

Table 4.20: Sector wise Skill Gap (Demand minus Supply) under Optimistic growth Scenario (in numbers)

Sectors	2011-12	2016-17	2021-22	2026-27
1. Agriculture and allied	**16.7**	**18.7**	**20.8**	**23.2**
2. Industry	**29.8**	**38.4**	**47.3**	**59.4**
Mining & Quarrying	1.9	2.4	3.1	4.1
Manufacturing	13.4	14.1	14.7	15.3
Construction	13.8	21.4	28.9	39.2
EGW	0.6	0.6	0.6	0.7
3. Services	**27.7**	**27.0**	**28.3**	**31.1**
TSC	5.5	6.7	8.8	11.8
Trade, hotel and restaurants	11.5	12.1	13.3	15.1
Banking & Insurance	0.8	0.8	0.7	0.6
Real Est., Own. of Dwel & Busi services	0.5	0.3	0.2	0.0
Public Administration	1.7	1.4	1.1	0.8
Other Services	7.8	5.6	4.2	2.8
Total	**74.2**	**84.1**	**96.4**	**113.7**
	Emerging Sectors			
1. Manufacture of food products	0.38	0.40	0.41	0.43
2. Manufacture of textiles	0.20	0.21	0.22	0.23
3. Manufacture of other non-metallic mineral products	0.33	0.34	0.36	0.37
4. Manufacture of basic metals	0.49	0.86	0.90	0.93
5. Infrastructure	6.02	7.28	9.43	12.48
6. ICT	0.45	2.32	3.03	4.01
7. Retail sector	1.09	1.78	2.34	3.17
8. Travel and tourism	1.32	3.99	4.78	5.86

Source: NILERD

4.5 Findings from Primary Survey and Discussion with Stakeholders

4.30 In this section, we discussed some of the important inferences obtained from the field survey, which was carried out in three districts i.e. Ganjam, Jajpur and Sundargarh that represent the southern, central and northern regions of the state respectively. Although the sample size

taken for these three districts does not exactly represent the entire population of the state, and therefore the survey findings may not be a representative one, but they may be used as indicative inferences about the state. Besides the field survey, the study team had also visited various districts for interaction and discussion with district level officers, industry associations and village youth to understand the manpower, skill development and employment scenario in the state and districts as well. Some of the important inferences drawn from the above discussions are outlined below (the details of FGDs and workshop reports are given in annexure).

- Employment by source of industries point that maximum percentage (ranging between 70 to 90 per cent) of workers are engaged in small scale manufacturing industries in the state. Employment in large scale industries is found very high in case of Sundargarh, wherein more than 30 per cent of industry workers are working in large scale industries. The percentage contribution of medium industries to total industrial employment is very less in the state. It suggests that transformation of industries from small to medium scale has not been really happening at the ground level in the state. The state government should thoroughly look into this issue and initiate appropriate tax policies that would encourage small scale industries to grow.
- It is found that maximum employment within the small scale industries has been generated in sectors like food and allied, repairing and services, glass and ceramics, engineering and metal and textile enterprises in the state.
- In terms of skilled and unskilled jobs in the state, the discussion with industry association reveals that more than 50 per cent jobs in the state are unskilled.
- The proportion of skilled workers is found more in other services sectors that includes health and education, repairing and servicing, banking and business services, engineering & metal, textile and miscellaneous manufacturing.
- In case of future demand for skilled jobs by sectors, it is found that more skilled jobs would be created/needed in the area of engineering and metal, repairing and servicing, agro and food processing, tourism and hospitality, wholesale and retail trade and food and beverage services, construction materials and building hardware, electronics and IT, transportation and logistics.
- With regards to the state of technical and vocational education in the State, as per household survey less than one percent of household members have reported having diploma/certificate education and less than 0.5 per cent having technical education.
- Both the household survey and focus group discussions with the youth reveal that given an opportunity, female members expressed their preference for skill training in the area of tailoring, embroidery, nursing, computer science, textile designing, and craft course, the male members required skill training in agro and food processing, textile designing, driving, mobile repairing, plumbing, automobile repairing, mechanical, computer science and hospitality.
- Focus group discussions with youth in the rural and urban areas indicate that many youths are dropping out from school in secondary and senior secondary levels due to poor financial condition of their family. Since they do not get right kind of skill education at school level, they go for small part-time jobs to support their family. However they are unemployed for maximum time of the year, and as a result they remain below the poverty line and suffer deprivation.
- It was pointed out by the youth that although they had heard about the skill development programmes initiated by the state government but have never realized the same in true

sense, as the local governments at the district and Panchayat levels have never informed them of any government schemes on skill development. The local governments hardly conduct any awareness programmes on skill development.

- On the issue of preference for working place after completing the training course, girls pointed out that it would be difficult for them to go beyond own district. Whereas boys were willing to go anywhere within or outside the state. But there was concern on low salary, which makes it difficult to survive outside the district or state. They pointed out that they were willing to work on low salary but it has to be within the district.

2.31 **Potential sectors:** On the issue of potential sectors that require skilled manpower in the future for improving productivity, growth and contribution to state GDP, various stakeholders pointed out that the following sectors may be promoted and strengthened:

(i) Primary sector:

Agro and food processing[28]; floriculture[29] especially demand for exotic flowers like Dutch roses, orchids, Birds of Paradise, carnations, lilies and gerberas are mostly sought after for marriage decorations, other flowers like marigold, water lily, jasmine, China rose and aparajita are used for rituals. Horticulture products especially mangoes, cashew nuts and ground nuts; fisheries and animal husbandry are important sectors that need further development.

(ii) Secondary sector:

Manufacture of basic metals, Manufacture of automobile and automobile components, textile, forest & wood based products, chemicals and pharmaceuticals, construction material and building hardware, electronics and IT hardware and glass & ceramics.

(iii) Tertiary sector:

Repairing and servicing of automobile and home appliances, Education and skill development, Healthcare, ICT, Tourism and hospitality, transportation and logistics.

[28] Odisha is one of the leading producing states of vegetables, plantation crops and rice. The state is among the top three cashew producers, second largest producer of fruits which include Mango, Banana, Guava and Pomegranate. The state also has doubled its milk production between 2003-04 and 2013-14. By end of 2016, 28551 MSME units in Food and allied were operating in the state. Besides that a large number of unorganised units are also operating in agro and food processing sector in the state. Workers engaged in these units are mostly unskilled and use low end technology both in production and processing activities. Strengthening this sector through modern technology, imparting of required skill and creation of a value chain model of marketing the product, the sector would not only double the income of farmers but also generate large number of employment opportunities particularly in the rural areas.

[29] Annually, the State's flower trade is estimated to be around Rs 200 crore as estimated by the Horticulture wing of Agriculture Department. But Odisha continues to depend on West Bengal, Andhra Pradesh and Bangalore to meet 70 per cent of the overall flower demand, the rest is being grown in places like Khurda, Berhampur, Tangi, Nischintakoili, Rourkela, Jharsuguda, Boudh, Sambalpur and Koraput.

4.6 Manpower Demand and Supply Projection for Ganjam District

4.32 Ganjam district is mainly an agrarian and rural based economy where more than three-fourth of district's population are living in rural areas. It stands first rank among the districts of the state in terms of agriculture and allied sector's contribution to state's agriculture and allied sector. It also ranks 1st among the districts in the state in terms of production of eggs, fish and fruits and second in terms of production of meat and milk. A large variety of crops are grown in the district such as paddy, mango, cashew, banana, spices, cotton, til etc. To improve the productivity and output of agriculture sector, storage facilities, irrigation development and use of advance technology may be given priority. Thus, sectors such as agro and food processing, fisheries, poultry and animal husbandry are some of the key sectors under the primary sector which may be given priority and promoted in the district.

2.33 Data suggests that industrial base is weak in the district as it contributes 26 per cent to district's GDP as compared to the sector's contribution of 34 per cent to GDP at the state level. The contribution of manufacturing is low, may be due to absence of large scale industries, which has impeded the growth of small and ancillary industries in the district. Sectors such as Engineering and Metal, Repairing and Servicing (particularly Mechanic in Refrigeration and Air-Conditioner, Mechanic in Motor Vehicle and Mechanic Diesel) which are key areas may be strengthened because the district is rich in mineral resources like limestone, soapstone, chinaclay, fireclay, graphite, granite and quartz.

4.34 It is evident that the district's economy is considerably driven by services sector contributed by transport, storage and communications, trade, hotel and restaurants, real estate and business services. Being a bright spot of tourism, the district's trade, hotel and restaurant sector has flourished and contributed a whopping 27 per cent to district's services sector growth. Construction sector including infrastructure such as housing, road, railway, port, electricity etc. has recorded a substantial progress in the district, which has helped the real estate and dwelling activities to expand substantially during the post-2005-06 period. The district has also progressed very well in terms of education particularly in higher education and health sector. Thus, sectors such as tourism and hospitality, IT and ITES, retail trade, education and medical services may be further expanded in the district.

4.35 For projecting the future demand of manpower in the district both at aggregate and disaggregated levels, it is important to know the future pattern of economic growth both at sectoral and sub-sectoral levels and employment-output elasticity of each sector. Based on the top-down approach, the gross domestic product of the district at constant 2004-05 prices has been derived for different point of time under three growth scenarios namely baseline or business-as-usual, optimistic and pessimistic. Growth trends of the district under baseline and optimistic scenarios are illustrated in **table 4.21**. It is expected that GDP of the district may grow on an average by 5.8 per cent during the period 2011-12 and 2016-17, 6.0 per cent during 2017-18 and 2021-22 and 6.5 per cent during 2022-23 and 2026-27 under the baseline scenario. At the sectoral level, the baseline scenario suggests that agriculture and allied sector would continue to underperform due to various infrastructure constraints, whereas, industry may perform slightly better driven by building and building materials, food processing, engineering and metal, repairing and services. Services sector is expected to grow by 6-7 per cent under baseline scenario driven by services such as tourism and hospitality, transport, storage and

communications, real estate and business services, financial and banking services and other services such as health and education.

4.36 Under optimistic scenario, GDP may rise at a higher rate by 7.0 per cent during 2017-18 to 2021-22 and 7.5 per cent during the next 5 years. At the sectoral level, industry and services are expected to grow at a higher rate as compared to the baseline scenario. At the sub-sectoral level, we assume higher growth for manufacturing sector with assumption that the recent industrial policy implemented by the state government may encourage large and medium industries to set up their units in the district. In case of services sector, the state may focus on making the tourist destinations in the district world class and may also focus on introducing variety of tourism activities in accordance with seasons similar to Kerala or Sri Lankan Model. This will help the service sector to grow beyond 7-8 per cent per annum.

Table 4.21: Growth Patterns of Broad Economic Sectors under the Baseline and Optimistic scenarios (Ganjam GDP at 2004-05 constant prices) (in per cent)

Sectors	Baseline Scenario			Optimistic Scenario		
	2011-12 to 2016-17	2017-18 to 2021-22	2022-23 to 2026-27	2011-12 to 2016-17	2017-18 to 2021-22	2022-23 to 2026-27
Mining & Quarry.	4.8	5.5	5.5	4.8	6.5	6.5
Manufacturing	4.5	5.2	5.2	4.5	6.7	6.7
Construction	7.0	7.0	7.0	7.0	8.0	8.0
EGW	4.6	4.5	4.5	4.6	5.0	5.0
TSC	6.4	6.5	6.5	6.4	7.5	7.5
THR	6.6	7.3	9.4	7.8	9.3	10.9
Bank.& Insurance	6.7	7.0	7.0	6.5	8.0	8.0
Real Est., Own. of Dwel & Busi serv.	3.3	5.0	5.0	3.3	5.5	5.5
Public Admn.	7.1	5.0	5.0	6.5	5.0	5.0
Other Services	6.9	6.0	6.0	6.3	6.5	6.5
Agriculture	4.0	3.0	3.0	4.0	3.5	3.5
Industry	6.4	6.5	6.5	6.4	7.5	7.5
Services	6.0	6.5	7.1	6.2	7.5	8.1
Total	**5.8**	**6.0**	**6.5**	**5.9**	**7.0**	**7.5**

4.37 **Table 4.22** provides information on economic growth scenario of the district under pessimistic scenario. Under this scenario, we assume the growth will be lower than the baseline scenario by 1 percentage point owing to lower growth predicted across all the three broad economic sectors namely agriculture and allied, industry and services. Agriculture and allied sector is expected to grow by 2.5 per cent during the study period as compared to 3 per cent under baseline scenario during the same Plans. The reason for low growth in agriculture and allied sector could be due to severe drought or flood, which may impede the sector's growth as has happened frequently in the past. Since agriculture and allied sector is linked to other sectors, the growth of industry and services may also show lower growth under pessimistic scenario as compared to the baseline scenario.

Table 4.22: Growth Patterns of Broad Economic Sectors under the Baseline and Pessimistic scenarios (Ganjam GDP at 2004-05 constant prices) (in per cent)

Sectors	Baseline Scenario			Pessimistic Scenario		
	2011-12 to 2016-17	2017-18 to 2021-22	2022-23 to 2026-27	2011-12 to 2016-17	2017-18 to 2021-22	2022-23 to 2026-27
Mining & Quarry.	4.8	5.5	5.5	4.8	4.5	4.5
Manufacturing	4.5	5.2	5.2	4.5	4.2	4.2
Construction	7.0	7.0	7.0	7.0	6.0	6.0
EGW	4.6	4.5	4.5	4.6	3.5	3.5
TSC	6.4	6.5	6.5	6.9	5.5	5.5
THR	6.6	7.3	9.4	6.3	5.4	7.7
Bank.& Insurance	6.7	7.0	7.0	6.5	6.5	6.5
Real Est., Own. of Dwel & Busi serv.	3.3	5.0	5.0	3.3	4.0	4.0
Public Admn.	7.1	5.0	5.0	6.5	4.5	4.5
Other Services	6.9	6.0	6.0	6.3	5.5	5.5
Agriculture	4.0	3.0	3.0	4.0	2.5	2.5
Industry	6.4	6.5	6.5	6.4	5.5	5.5
Services	6.0	6.5	7.1	5.9	5.5	6.1
Total	**5.8**	**6.0**	**6.5**	**5.7**	**5.0**	**5.5**

Employment-Output Elasticity

4.38 To predict the future manpower demand, we estimate employment-output elasticity for workers of all age group and workers of age group 15-59. The elasticities are reported in **tables 4.23 and 4.24**.

Table 4.23: Employment and Output Elasticity at the Sectoral Level of Ganjam District (all age group)

Agriculture	Mining & Quarrying	Manufacturing	Construction	EGW	TSC	THS	Banking & Insurance	Real Estate, Ownership etc.	Public Administration	Other Services	Total
-0.10	0.53	0.12	0.54	0.84	0.43	0.32	0.40	-0.92	0.15	0.26	0.04

Table 4.24: Employment and Output Elasticity at the Sectoral Level of Ganjam District (age group 15-59)

Agriculture	Mining & Quarrying	Manufacturing	Construction	EGW	TSC	THS	Banking & Insurance	Real Estate, Ownership etc.	Public Administration	Other Services	Total
-0.20	0.53	0.15	0.61	0.84	0.43	0.34	0.40	-0.92	0.16	0.26	0.06

Like the state, Ganjam district also faces an unusual situation where services sector that contributes around 60 per cent to district's GDP contributes only 17 per cent to total employment. On the other hand, agriculture and allied sector which produces only 13 per cent of district's income absorbs 58 per cent of total employment. Share of manufacturing in employment has declined considerably over the period. Since workers in agriculture sector are mostly unskilled and informal, the effort of shifting workers from agriculture sector to high value added sectors such as services or manufacturing will be a difficult task because these sectors usually require skilled or semi-skilled workers. Therefore, an effort has to be made in skilling the labour force of unorganised sector and make them employable either in organised sector or self-employable.

4.39 Manpower demand under baseline scenario suggests that the demand for employment in the district is expected to increase from 15.25 lakh in 2011-12 to 17.99 lakh in 2026-27, with incremental demand of 2.74 lakh by 2026-27. However, demand for employment in agriculture sector would decline from 8.84 lakh in 2011-12 to 8.41 lakh in 2026-27. On the other hand, the demand for employment is expected to rise both in industry and services from 3.87 and 2.53 lakh in 2011-12 to 6.10 and 3.48 lakh in 2026-27 respectively (**Table 4.25**).

Table 4.25: Sector-wise Manpower Requirement for Ganjam under baseline scenario (in Lakh)

Year	Agriculture	Industry	Services	Total	Incremental Manpower demand Required (Total)
2011-12	8.84	3.87	2.53	15.25	
2016-17	8.67	4.48	2.80	15.95	0.70
2021-22	8.54	5.22	3.10	16.86	1.61
2026-27	8.41	6.10	3.48	17.99	2.74

Note: Manpower includes employment in Principal and Subsidiary status of all age group.

4.40 Under the optimistic scenario, the manpower demand is expected to increase more than the baseline from 15.25 lakh in 2011-12 to 18.37 lakh by 2026-27 with an incremental demand of 3.12 lakh by 2026-27. In contrast, manpower demand is expected to remain low under pessimistic scenario from 15.25 lakh in 2011-12 to 17.63 lakh in 2026-27 with an incremental demand of 2.39 lakh till 2026-27 (**Tables 4.26 and 4.27**).

Table 4.26: Sector-wise Manpower Requirement for Ganjam under Optimistic scenario (in Lakh)

Year	Agriculture	Industry	Services	Total	Incremental Manpower demand Required (Total)
2011-12	8.84	3.87	2.53	15.25	
2016-17	8.67	4.48	2.81	15.96	0.71
2021-22	8.52	5.34	3.17	17.03	1.78
2026-27	8.37	6.39	3.61	18.37	3.12

Note: Manpower includes employment in Principal and Subsidiary status of all age group.

Table 4.27: Sector-wise Manpower Requirement for Ganjam under Pessimistic scenario (in Lakh)

Year	Agriculture	Industry	Services	Total	Incremental Manpower demand Required (Total)
2011-12	8.84	3.87	2.53	15.25	
2016-17	8.67	4.48	2.79	15.95	0.70
2021-22	8.56	5.10	3.04	16.71	1.46
2026-27	8.46	5.83	3.35	17.63	2.39

Note: Manpower includes employment in Principal and Subsidiary status of all age group.

4.41 Manpower demand for disaggregated sector under baseline scenario shows that within industry, the major chunk of demand is expected to come from construction sector (2.70 lakh in 2011-12 to 4.69 lakh in 2026-27) followed by manufacturing (0.89 lakh in 2011-12 to 0.97 lakh in 2026-27) and least demand comes from utilities sector (0.02 lakh in 2011-12 to 0.04 lakh in 2026-27). Within service sector, the demand is expected to be highest in sectors like trade, hotel and restaurants (0.88 lakh in 2011-12 to 1.27 lakh in 2026-27) followed by other services (education, health etc.), and transport, storage and communication (**Table 4.28**).

4.42 In case of optimistic scenario, manpower demand of the district is expected to increase more than the baseline scenario due to higher economic growth. The results show that manpower demand under optimistic scenario may increase from 15.25 lakh in 2011-12 to 18.37 lakh in 2026-27 (**Table 4.29**). Within industry, a major chunk of manpower demand is expected to come from construction and manufacturing sectors. In case of services, sectors such as other services, tourism and hospitality sector and transport, storage and communication and banking services are expected to create more demand for employment during the study period. Although demand for manpower is expected to decline in agriculture and allied sector due to lower growth, the

sector may still create more than 50 per cent of manpower demand in the district. Therefore, it is important to provide requisite skill to manpower engaged in agriculture activities and make them efficient, skilled and technically sound so that they would be able to operate and maintain machinery and equipments that are used in agricultural and food processing activities. Further, technically sound agricultural labourers would have a better chance of getting jobs in non-agriculture sector during the off-seasons of cultivation and would be able to earn more wage income offered by non-agriculture sector. Besides that training would also help the agricultural labourers to become self-employed in food processing or retail sector.

Table 4.28: Sub-Sector wise Manpower Requirement for Ganjam under baseline scenario (in Lakh)

Sectors	2011-12	2016-17	2021-22	2026-27
Agriculture	8.84	8.67	8.54	8.41
Mining & Quarrying	0.26	0.30	0.34	0.40
Manufacturing	0.89	0.91	0.94	0.97
Construction	2.70	3.24	3.90	4.69
Electricity, gas and water supply	0.02	0.03	0.03	0.04
Transport, storage and communication	0.48	0.55	0.63	0.72
Trade, Hotel and Restaurants	0.88	0.98	1.10	1.27
Banking & Insurance	0.10	0.11	0.13	0.15
Real Est., Own. of Dwel & Busi. services	0.03	0.03	0.02	0.02
Public Administration	0.12	0.12	0.13	0.13
Other Services	0.93	1.02	1.10	1.18
Total	15.25	15.95	16.86	17.99

Table 4.29: Sector-wise Manpower Requirement for Ganjam under Optimistic scenario (in Lakh)

Sectors	2011-12	2016-17	2021-22	2026-27
Agriculture	8.84	8.67	8.52	8.37
Mining & Quarrying	0.26	0.30	0.35	0.42
Manufacturing	0.89	0.91	0.95	0.99
Construction	2.70	3.24	4.00	4.94
Electricity, gas and water supply	0.02	0.03	0.03	0.04
Transport, storage and communication	0.48	0.55	0.64	0.75
Trade, Hotel and Restaurants	0.88	1.00	1.15	1.37
Banking & Insurance	0.10	0.11	0.13	0.15
Real Est., Own. of Dwel & Busi. services	0.03	0.03	0.02	0.02
Public Administration	0.12	0.12	0.13	0.13
Other Services	0.93	1.01	1.10	1.19
Total	15.25	15.96	17.03	18.37

4.43 Under the pessimistic scenario, the overall manpower demand in the district is expected to increase from 15.25 lakh in 2011-12 to 17.63 lakh in 2026-27 but the pace of increase is rather slow as compared to baseline scenario (**Table 4.30**). While the increase in demand for manpower is expected to remain tepid across all non-agriculture sectors due to low growth, the decline of manpower in agriculture sector would also remain low due to same reason. There will be a slow transition in shifting of labourers from agriculture to non-agriculture sector under the pessimistic scenario.

Table 4.30: Sector-wise Manpower Requirement for Ganjam under Pessimistic scenario (in Lakh)

Sectors	2011-12	2016-17	2021-22	2026-27
Agriculture	8.84	8.67	8.56	8.46
Mining & Quarrying	0.26	0.30	0.33	0.38
Manufacturing	0.89	0.91	0.94	0.96
Construction	2.70	3.24	3.80	4.45
Electricity, gas and water supply	0.02	0.03	0.03	0.04
Transport, storage and communication	0.48	0.55	0.62	0.70
Trade, Hotel and Restaurants	0.88	0.97	1.06	1.20
Banking & Insurance	0.10	0.11	0.13	0.14
Real Est., Own. of Dwel & Busi. services	0.03	0.03	0.02	0.02
Public Administration	0.12	0.12	0.13	0.13
Other Services	0.93	1.01	1.08	1.16
Total	15.25	15.95	16.71	17.63

Manpower Demand – Supply Gap

4.44 The manpower demand – supply gap under all age group and age bracket 15-59 are reported in **tables 4.31 and 4.32**. It is found that the gap was around 24.3 thousand in 2011-12 which is expected to increase to around 35.4 thousand in 2021-22 and 35.9 thousand in 2026-27, whith a cumulate gap of 1.31 lakh between 2011-12 and 2026-27. In case of age bracket 15-59, the gap was 24.3 thousand in 2011-12 which increased to 39.9 thousand in 2021-22 and further to 42.6 thousand in 2026-27, whith a cumulate gap between supply and demand of 1.45 lakh manpower between 2011-12 and 2026-27.

Table 4.31: Manpower demand – supply gap (supply minus demand)Gap for Ganjam (all age group) (in numbers)

Items	2011-12	2016-17	2021-22	2026-27
Population	3545462	3688308	3833739	3981599
Total worker Demand	1524972	1595320	1686134	1798966
Incremental worker demand		70348	161162	273994
Worker gap (supply minus demand)	24285	35138	35389	35925

Table 4.32: Manpower Supply- Demand Gap for Ganjam (age group 15-59) (in numbers)

Items	2011-12	2016-17	2021-22	2026-27
Population	2176621	2318670	2467949	2624661
Total worker Demand	1401950	1466166	1558362	1678020
Incremental worker demand		64216	156412	276071
Worker gap (supply minus demand)	24285	37784	39893	42565

4.45 The demand-supply gap of manpower for the population of age group 15-24 in the district is reported in **Table 4.33**. Data shows that total population of youth (15-24) was around 20.4 thousand in 2011-12, which is expected to increase to 24.99 thousand in 2021-22 and to 26.55 thousand in 2026-27. Incremental demand for workers in age group 15-24 is expected to rise faster from around 20 thousand by 2016-17 to more than 86 thousand by 2026-27. However, the supply of labour force in age group 15-24 has increased significantly in recent years. As a result, despite of rising demand, the demand-supply gap is expected to widen from around 20 thousand in 2011-12 to 26 thousand in 2026-27.

Table 4.33: Manpower Supply-Demand Gap for Ganjam (age group 15-24) (in numbers)

Items	2011-12	2016-17	2021-22	2026-27
Population	677726	731988	789940	851774
Total worker Demand	274553	294890	324380	361088
Incremental worker demand		20338	49827	86535
Worker gap (supply minus demand)	20421	23172	24989	26547

4.6.1 Skill Gap (Demand minus Supply) Analysis

4.46 This section deals with the analysis of skill manpower requirement and skill gap across sectors for the Ganjam district during the two 5 year periods. **Table 4.34** suggests that skilled job requirement for the district is expected to increase from 9.96 lakh during 2016-17 to around 15.09 lakh during 2026-27. In case of agriculture and allied sector, the skilled jobs requirement is expected to decline marginally from 0.60 lakh during 2016-17 to 0.59 lakh during 2026-27. This decline in skill requirement is largely visible in the area of traditional cropping. On the other hand, the table shows skill requirement is expected to rise both in industry and services. Within industry, large increase is visible both in manufacturing and construction. And within services, the increase of skilled jobs is reported in the case of transportation services, banking and financial services, trade, hotel and restaurants and other services like health, education and personal services.

Table 4.34: Sector wise Skilled Manpower Requirement for Ganjam (in numbers)

Sl. No.	Sectors	2011-12	2016-17	2021-22	2026-27
1.	Agriculture	59779	59659	59540	59421
2.	Industry	137484	170154	208386	257611
(ii)	Manufacturing	44834	54350	66562	82286
(i)	Construction	74724	90584	110937	137143
3.	Services	549973	676027	841446	1054398
(i)	Transport, storage and communication	22417	27175	33281	41143
(ii)	Trade, hotel and restaurants	149447	199285	231859	294858
(iii)	Banking & Insurance	7500	32000	40000	50000
(iv)	Other Services	348192	390392	503025	627255
4.	**Total**	**821960**	**996426**	**1220310**	**1508574**

Skill gap across important sectors for the Ganjam district are reported in **Table 4.35**. The skill gap of the district is expected to widen from 3.07 lakh during 2011-16 to 5.39 lakh during 2011-26. Agriculture sector is mostly likely would experience a decline in skilled manpower in the cropping sectors and an increase in the non-cropping sectors. Industry, on the other hand is expected to demand for more skilled jobs than required supply particularly in the MSME segments. Currently, there are a few large and medium industries are operating in the district. It is expected that the district administration would take the necessary steps in bridging this deficit, which in turn would require more skilled jobs for large and medium industries particularly food processing and mineral based industries, manufacturing and services of automobiles etc. Services sector would require more skilled jobs than industry as the district is one of the fastest growing ones in terms of services sector led by important services line education, health, travel, trade and tourism, transportation and logistics, retail trade and ICT etc.

Table 4.35: Sector wise Skill Gap (Demand minus Supply) (in numbers)

Sl. No.	Sectors	2011-16	2011-21	2011-26	2011-30
1.	Agriculture	(569)	(1229)	(1888)	(2438)
2.	Industry	25995	56217	97432	140162
a	Manufacturing	4991	11773	22067	33418
(i)	Manufacture of food products	265	611	1080	1564
(ii)	Manufacture of textiles	127	303	585	904
(iii)	Industry relate to non-metallic mineral products	89	210	393	595
(iv)	Mineral based Industries	163	384	720	1090
3.	Infrastructure	6580	11524	18692	26401
4.	Services	108179	252148	443650	639061
(i)	ICT	8353	19506	34472	50011
(ii)	Retail trade sector	3605	8611	15730	24091
(iii)	Travel and tourism	7137	16296	28089	39860
5.	**Total**	**133605**	**307136**	**539194**	**776784**

Findings from Primary Survey

4.47 The survey covers 186 manufacturing and service units, 150 households and 45 educational institutions in the districts. The purpose of the survey is to understand the manpower demand and supply situation in the district, current skill development scenario and future requirements and potential areas in which skill training is to be provided. Some of the important findings of the study are outlined below.

- Out of total sample establishments, 47 per cent were registered and 53 per cent were unregistered. Further, out of total units covered 57 per cent were manufacturing units and 43 per cent were services units.
- Out of total workers employed, the results suggest that a large chunk of workers (about 84 per cent) were from within the district, 13.7 per cent from other districts (within the state) and remaining 2.3 per cent from outside the state.
- In case of sources of hiring manpower, we found that maximum (around 94 per cent) people were hired from the open market and the remaining 6 per cent were hired from the vocational institutions, suggesting that the ratio of placement to enrolment needs to be improved substantially in order to attract more students to the profession which has not been the case at present.
- Employment by source of industries shows that a whopping 93.3 per cent were employed in small scale industries, 3.7 per cent in medium industries and 2.9 per cent in large industries. It suggests that there is a need for increasing the number of large and medium industries in the district, which will support the small and ancillary industries to grow.
- Employment by industry type within the small scale industries show that maximum people were employed in food and allied (24.5 per cent) followed by repairing and services (24.3 per cent), glass and ceramics (19.6 per cent), engineering and metal (9.3 per cent) and textile (6.7 per cent).
- Composition of skilled and unskilled workers in the district shows that the percentage of skilled workers to total workers has increased from 55.1 per cent in 2013-14 to 58.3 per cent in 2015-16. On the other hand, the percentage of unskilled workers has declined during the same period.
- The proportion of skilled workers is found highest in other services (84.9 per cent) followed by textile (82.9 per cent), wholesale and retail trade (82.5 per cent), repairing and servicing (82.4 per cent), miscellaneous manufacturing (79.5 per cent), engineering & metal based (67.7 per cent), tourism and hospitality (60.4 per cent), food and beverage service activities (56.9 per cent), food and allied (52.6 per cent) and glass & ceramics (36.3 per cent)
- On requirements of skilled workers, respondents from all sample industries reported that they need 9.9 per cent more skill workers over the current level. The highest skill workers are required in the sectors such as engineering and metal, repairing and servicing, food and allied, tourism and hospitality, wholesale and retail trade and food and beverage services.
- In response to the question whether there is future plan of expanding the business, an overwhelming 60 per cent enterprises reported in favour of it, out of which more than 60 per cent reported they need additional skilled manpower for expanding their business.
- It is found that enterprises hardly conduct in-house training programmes for their own employees, where 93.4 per cent said no in-house training has been conducted. This

suggests that the district administration must step-in for imparting the skill development programme in the district.

- Lack of vocational and technical education in the district is evident from the survey data as only 0.69 per cent of household members have reported having diploma/certificate education and merely 0.28 per cent having technical education. More than 50 per cent household members are illiterate or having education upto primary level. (**Figure A4.1**).
- The responses (from both rural and urban areas) from household survey reveal that highest percentage of female members preferred training needs in the area of tailoring (57 per cent), followed by computer science (13.5 per cent), textile designing (8.7 per cent) and craft course (5.8 per cent). In case of males highest percentage reported training needs in mechanical (24 per cent), computer science (18 per cent), building maintenance (8 per cent) and textile designing (6 per cent) (**Table A4.1**).

4.48 To sum up, being a strong agrarian economy, Ganjam district has advantages of expanding the base of food processing industries and other agriculture based products. Currently, 2571 (9 per cent of state) food and allied MSME units with investment of Rs. 107.4 crore are already operating in the district. These units create a major chunk of employment (24.5 per cent of total employment in MSME units) in the district. The Directorate of Industries, Government of Odisha reported that the district has advantage of developing food processing and agro-based industries in the area of salt, spices, dal milling, oil milling, khadsari, sugar, fishery based, dairy and dairy products, cashew and corn flakes. As per The New Food Processing Policy 2016, Government of Odisha the sector has potential to achieve CAGR of 11 per cent in next 10 years and would attract investment of USD 33 billion and generate employment of 9 million in the state. Under this new policy, the state government has proposed to set up one food processing park and common facilities in terms of warehouses, cold storage, laboratories in Ganjam district. The policy also emphasizes on capacity building in terms of skilling of human resources required for food processing industry with the support of Odisha Skill Development Authority, Director, Employment and Director, Technical Education and Training. According to the Directorate of Industries, Government of Odisha, the district has also distinct advantages in developing manufacturing units related to forest based products such as coir, cane manufacturing, leaf plates and cups, broom sticks, non-edible oil etc. Therefore, there is need for renewing an important step towards creating world class physical infrastructure and imparting quality manpower that would support the development of food processing industries and other agriculture based industries in the district.

4.49 Industrial development has not picked up in the district despite the strategic advantage for development of industries. Except, construction sector, the share of manufacturing both in GDP and employment is quite low as compared to the state. The reason for low contribution of industry could be due to absence of more large scale industries in the district, which has impeded the growth of small and ancillary industries. The focus must be given on inviting large manufacturing industries (both government and private) to the district. Due to the strategic locational advantage of the district in terms of connectivity to other states and other districts within the state, expanding the manufacturing base would not be that difficult unlike the other districts. The district is also rich in mineral resources like limestone, soapstone, chinaclay,

fireclay, graphite, granite and quartz which may be used as inputs to develop suitable manufacturing industries.

4.50 The district is doing very well in services sector. It is one of the best educational hubs in the state as compared to other districts in the southern region. There are good numbers of engineering and medical colleges located in the district in addition to the Berhampur University, one of the most prestigious universities in the state imparting degrees to large number of graduate and post-graduate students every year. However, it is found that the secondary and higher education system needs further improvement in terms of quality and quantity. For vocational education, the district has large number of ITIs/ITCs and also vocational junior colleges. However, the employment opportunities are limited due to absence of large scale industries. As a result, most of the students are migrating to other districts after obtaining vocational/technical education. Besides developing large industries to support the educational system, there is need for strengthening other service sectors like IT/ITES, tourism and hospitality, trade and hotel industries, transportation, communication and banking and financial institutions. Our findings suggest that the demand for employment in services sectors is expected to rise faster in the future for which, the requisite number of skilled manpower supply must be created through imparting training as per the requirement of these sectors.

Key skill development areas: Food and allied, Engineering and Metal, Repairing and Servicing (particularly in Mechanic in Refrigeration and Air-Conditioner, Mechanic in Motor Vehicle and Mechanic Diesel), Tourism and Hospitality, Tailoring, Computer Science, Textile designing, Craft course, and Wholesale and Retail trade.

4.7 Manpower Demand and Supply Projection of Jajpur District

4.51 Jajpur is primarily an agri-zone district, where more than 75 per cent of the workforce earns their livelihood through agriculture. The district is also well known for its rich mineral deposits such as Chromite, Iron Ore and Quartzite. Being a mineral rich district, sectors such as manufacturing, mining and services play a dominant role in the district's economic growth. The share of services sector in district's GDP is 46.4 per cent, highest among the sectors followed by industry (42.1 per cent) and agriculture and allied sector (11.5 per cent).

4.52 Despite being an agrarian economy, Jajpur district has failed to strengthen the agriculture in terms of productivity, output and growth of the sector. The district ranked 21st among other districts in the state in terms of agriculture sector's output contribution to total agricultural output of the state during the period 2005-06 and 2011-12. Paddy is the primary crop in the district. Besides paddy, the district also produces large quantity of other major crops including pulses, vegetables, oil seeds and fruits etc. Most of the workers engaged in agriculture sector are illiterate or are literate upto primary level. About 99 percent of them are unskilled. This suggests that any initiative of using the advance technology in cultivation and procurement process will be quite difficult unless workers in the sector be trained on various techniques. Further, unless farmers get requisite training, it would be difficult to shift them or create employment opportunities for them in non-agriculture sector. The past data suggests that most of these unskilled workers were working in construction activities like road construction, digging of ponds or canals and building construction during off-season. These types of construction

activities do not need skilled workers. The employment opportunities of unskilled workers in construction sector, however has declined recently due to slow growth of the sector and also due to gradual use of modern technology in place of manpower. Therefore, an effort must be made to shift the agricultural labourers to manufacturing sector particularly in agro based industries that need semi-skilled and skilled workers. The best way to make the agricultural labourers more productive is by enhancing their skill and knowledge in agricultural mechanisation and self-employment in retail trading and food processing. In agro based products, the district has second highest number of MSMEs (after repairing and services) of food and allied products, which may be further strengthened by creating all infrastructure facilities like storage facilities, electricity and water supply and proper transport connectivity etc. The district may also focus on fishery and fishery based products as the sector has shown promising growth since 2004-05.

4.53 In industrial development, the district has taken major strides due to its locational advantage of easy access to water sources, power supply, road and railway transport. The most industrially developed area of the district is Kalinga Nagar where major public and private steel plants are operating. These industrial units have generated employment opportunities in large number in the district. However, during the field visit, it was pointed out by various stakeholders that industrial unit in Kalinga Nagar does not engage local youths and have not hired local youths for last few years. These units do not reveal their manpower requirements openly but secretly hire candidates as per their requirement from outside the state. Further, these units outsource the construction work to Contractors who also prefer candidates from outside the state apprehending that the local candidates may pose problem for any silly issue. Mineral based industries such as engineering and metal based, glass and ceramics, chemical and allied and agro based industries such as food processing, textiles and rubber and leather based industries should be given more priority in the district.

4.54 Services sector is the single largest sector of the district contributing more than 50 per cent to district's economy. It had registered double digit growth during 2007-08 and 2011-12, led by higher growth in trade, hotel and restaurants and transport, storage and communication. Other potential service sectors of the districts are IT and ITES, banking and insurance services, health and education and real estate development services. Ironically, being the largest contributor to district GDP, the sector absorbs only about 22 per cent of total employment. The reason could be that the sector requires mostly skilled labour, which is not available in the district. The efforts must be made to increase the skill development in services like tourism and hospitality, retail and wholesale trades, repairing and maintenance services, healthcare, banking and insurance services.

Employment-Output Elasticities

4.55 The above discussion suggests that there is need for strengthening the potential sectors that would significantly contribute to growth and employment in the district. For the projection of future manpower demand, we have estimated the employment-output elasticities of each sector. This has been done for workers in all age group and for age group 15-59. The results are reported in **Tables 4.36 and 4.37**. Overall elasticity for all age group and age group 15-59 was 0.72 and 0.23 respectively. Except agriculture and allied sector, the elasticity is found positive for all other sectors suggesting positive relationship between economic growth and employment.

Table 4.36: Employment and Output Elasticity at the Sectoral Level of Jajpur District (all age group)

Agriculture and allied	Mining & Quarrying	Manufacturing	Construction	EGW	TSC	THS	Banking & Insurance	Real Estate, Ownership etc.	Public Administration	Other Services	Total
-0.20	0.86	0.26	0.92	1.22	0.19	0.15	1.10	0.10	0.85	0.39	0.72

Table 4.37: Employment and Output Elasticity at the Sectoral Level of Jajpur District (age group 15-59)

Agriculture	Mining & Quarrying	Manufacturing	Construction	EGW	TSC	THS	Banking & Insurance	Real Estate, Ownership etc.	Public Administration	Other Services	Total
-0.25	0.85	0.52	0.97	1.22	0.21	0.23	1.30	0.10	0.85	0.33	0.23

4.56 Another important factor required for projecting the future manpower demand is future economic growth of each sector and sub-sectors. Based on top-down approach, the future economic growth of each sector/sub-sectors of Jajpur districts under baseline and optimistic scenarios are reported in **Tables 4.38 and 4.39**. Under baseline scenario, the economic growth of district is expected to remain around 5 per cent between 2011-12 and 2016-17. It may register a higher growth of 6.5 during 2017-18 to 2021-22 and 7 per cent during 2022-23 to 2026-27. Within broad sectors, agriculture and allied sector is expected to grow more than 5 per cent during both the periods. The growth rate of industry and service sector is also set to rise in next two five Year Plans. Within industry, mining and quarrying and manufacturing sector may register substantial growth in coming years as compared to other sectors. In case of services, tourism and hospitality industry, transport, storage and communication, banking and insurance are some of the services may record considerable growth during the two periods.

Table 4.38: Growth Pattern of Broad Economic Sectors under the Baseline and Optimistic scenarios (Jajpur GDP at 2004-05 constant prices) (in per cent)

Sectors	Baseline Scenario			Optimistic Scenario		
	2011-12 to 2016-17	2017-18 to 2021-22	2022-23 to 2026-27	2011-12 to 2016-17	2017-18 to 2021-22	2022-23 to 2026-27
Mining & Quarry.	4.5	5.0	5.0	5.1	6.0	6.0
Manufacturing	5.8	8.4	9.1	5.6	8.1	10.0
Construction	3.7	4.0	4.0	4.5	5.0	5.0
EGW	2.8	3.0	3.5	4.0	3.5	4.0
TSC	5.5	6.0	6.0	5.5	7.0	7.0
THR	4.7	10.9	11.2	5.6	12.5	12.4
Bank. & Insurance	6.0	6.0	6.0	6.0	7.0	7.0
Real Est., Own. of Dwel & Busi ser.	3.1	3.5	3.5	3.1	4.0	4.0
Public Admn.	3.3	3.5	3.5	3.0	3.5	3.5
Other Services	4.5	4.5	4.5	4.1	5.0	5.0
Agriculture	6.1	5.2	5.2	6.1	5.5	5.5
Industry	5.1	6.0	6.5	5.1	7.0	7.5
Services	4.7	7.3	7.8	5.0	8.3	8.8
Total	**5.0**	**6.5**	**7.0**	**5.1**	**7.5**	**8.0**

4.57 Under the optimistic scenario, it is assumed that the same set of sectors under industry and services are expected to register higher growth if the reform measures that have been carried out in the recent past will be implemented effectively in the state and district as well. The state government must focus on improving the ease of doing business, attracting large foreign investment, implementing project on public-private partnership mode and effective monitoring of ongoing projects. Under this scenario, it is assumed that the economic growth of the district may rise from 5.1 per cent during 2012-13 to 2016-17 to 7.5 per cent during 2017-18 to 2021-22 and further to 8 per cent during 2021-22 to 2026-27.

4.58 The pessimistic scenario reflects the situation of economic crisis due to external or internal factors. Under this scenario, it is assumed that the growth rate of district's GDP will be less than the baseline case. The district's economy may grow by 5.5 per cent during the first time period and 6 per cent during the next 5 year period due to low growth across all sectors. It is assumed that agriculture, industry and services to register less growth by one percentage point under the pessimistic scenario as compared to baseline scenario.

Table 4.39: Growth Pattern of Broad Economic Sectors under the Baseline and Pessimistic scenarios (Jajpur GDP at 2004-05 constant prices) (in per cent)

Sectors	Baseline Scenario			Pessimistic Scenario		
	2011-12 to 2016-17	2017-18 to 2021-22	2022-23 to 2026-27	2011-12 to 2016-17	2017-18 to 2021-22	2022-23 to 2026-27
Mining & Quarry.	4.5	5.0	5.0	5.1	4.5	4.5
Manufacturing	5.8	8.4	9.1	5.6	6.6	7.6
Construction	3.7	4.0	4.0	4.5	3.5	3.5
EGW	2.8	3.0	3.5	4.0	2.5	3.0
TSC	5.5	6.0	6.0	6.2	5.0	5.0
THR	4.7	10.9	11.2	4.0	9.6	10.1
Bank. & Insurance	6.0	6.0	6.0	6.0	5.5	5.5
Real Est., Own. of Dwel & Busi ser.	3.1	3.5	3.5	3.1	2.5	2.5
Public Admn.	3.3	3.5	3.5	3.0	3.0	3.0
Other Services	4.5	4.5	4.5	4.1	4.0	4.0
Agriculture	6.1	5.2	5.2	6.1	4.2	4.2
Industry	5.1	6.0	6.5	5.1	5.0	5.5
Services	4.7	7.3	7.8	4.5	6.3	6.8
Total	**5.0**	**6.5**	**7.0**	**4.9**	**5.5**	**6.0**

4.59 Manpower demand projection for the district across three broad economic sectors namely agriculture and allied, industry and services under the baseline scenario is illustrated in **Table 4.40**. The table suggests that total manpower requirement of the district would increase from 6.41 lakh in 2011-12 to 7.23 lakh in 2026-27 with incremental increase of 0.14 lakh during 2012-13 to 2016-17 and 0.82 lakh during 2022-23 to 2026-27.

Table 4.40: Sector-wise Manpower Requirement for Jajpur under baseline scenario (in Lakh)

Year	Agriculture	Industry	Services	Total	Incremental Manpower demand Required (Total)
2011-12	3.07	1.40	1.94	6.41	
2016-17	2.89	1.58	2.08	6.55	0.14
2021-22	2.74	1.82	2.28	6.84	0.43
2026-27	2.60	2.11	2.52	7.23	0.82

Note: Manpower includes employment in Principal and Subsidiary status of all age group.

4.60 In case of optimistic scenario, the manpower demand is expected to increase more than the baseline scenario due to higher economic growth. The demand for manpower may increase from 6.41 lakh during 2011-12 to 7.4 lakh during 2026-27 (**Table 4.41**). Within the three broad sectors, the demand for manpower will mainly come from services and agriculture sectors. However, while the demand for manpower is expected to increase in services sector, it may decline in agriculture sector. Industry shows continuous increase of demand for manpower in the district.

Table 4.41: Sector-wise Manpower Requirement for Jajpur under Optimistic scenario (in Lakh)

Year	Agriculture	Industry	Services	Total	Incremental Manpower demand Required (Total)
2011-12	3.07	1.40	1.94	6.41	
2016-17	2.89	1.58	2.08	6.55	0.14
2021-22	2.73	1.87	2.31	6.91	0.51
2026-27	2.59	2.22	2.59	7.40	0.99

Note: Manpower includes employment in Principal and Subsidiary status of all age group.

Table 4.42: Sector-wise Manpower Requirement for Jajpur under Pessimistic scenario (in Lakh)

Year	Agriculture	Industry	Services	Total	Incremental Manpower demand Required (Total)
2011-12	3.07	1.40	1.94	6.41	
2016-17	2.89	1.58	2.07	6.54	0.13
2021-22	2.77	1.78	2.25	6.80	0.39
2026-27	2.66	2.02	2.46	7.13	0.72

Note: Manpower includes employment in Principal and Subsidiary status of all age group.

4.61 The results of pessimistic scenario reported in **table 4.42** point to the fact that demand for manpower in agriculture sector declines at a snail's pace as compared to the baseline scenario. The reason could be due to low growth in non-agriculture sector, which impedes employment growth in the sector.

4.62 The distribution of total manpower demand of the district across sub-sectors under the baseline scenario suggests that manufacturing and construction are major contributors to manpower demand within the industry (**Table 4.43**). Surprisingly, being one of the leading districts in the state in terms of mineral and mining, the sector has very little demand in terms of manpower. The reasons could be that the sector either employs manpower from outside the district or use of technology in place of manpower in the mining process. Within services sector,

tourism and hospitality, transport, storage and communications and other services are the leading sector may require more manpower in the future.

Table 4.43: Sub-Sector wise Manpower Requirement for Jajpur under baseline scenario (in Lakh)

Sectors	2011-12	2016-17	2021-22	2026-27
Agriculture	3.07	2.89	2.74	2.60
Mining & Quarrying	0.03	0.04	0.05	0.06
Manufacturing	0.89	0.96	1.07	1.21
Construction	0.45	0.55	0.66	0.79
EGW	0.03	0.04	0.04	0.05
TSC	0.37	0.39	0.42	0.44
Trade, Hotel and Restaurants	0.82	0.85	0.92	1.00
Banking & Insurance	0.09	0.12	0.16	0.23
Real Est., Own. of Dwel & Busi. services	0.05	0.05	0.05	0.05
Public Administration	0.05	0.05	0.06	0.07
Other Services	0.56	0.61	0.67	0.73
Total	6.41	6.55	6.84	7.23

4.63 Manpower demand at sub-sectoral level under optimistic and pessimistic scenarios are reported in **Tables 4.44 and 4.45**. The optimistic scenario suggests that demand for manpower in agriculture and allied sector is expected to decline in the future. On the other hand, manufacturing, construction, tourism and hospitality, retail trade, transportation, banking and insurance, health and education may demand more manpower in the future. In contrast, the pessimistic scenario suggests that although these sectors may require more manpower in the future, the quantum of demand is rather less as compared to the baseline and optimistic scenario.

Table 4.44: Sub-Sector wise Manpower Requirement for Jajpur under Optimistic scenario (in Lakh)

Sectors	2011-12	2016-17	2021-22	2026-27
Agriculture	3.07	2.89	2.73	2.59
Mining & Quarrying	0.03	0.04	0.05	0.06
Manufacturing	0.89	0.96	1.08	1.24
Construction	0.45	0.55	0.69	0.86
EGW	0.03	0.04	0.05	0.06
TSC	0.37	0.39	0.42	0.45
Trade, Hotel and Restaurants	0.82	0.85	0.94	1.03
Banking & Insurance	0.09	0.12	0.17	0.25
Real Est., Own. of Dwel & Busi. services	0.05	0.05	0.05	0.05
Public Administration	0.05	0.05	0.06	0.07
Other Services	0.56	0.61	0.67	0.73
Total	6.41	6.55	6.91	7.40

Table 4.45: Sub-Sector wise Manpower Requirement for Jajpur under Pessimistic scenario (in Lakh)

Sectors	2011-12	2016-17	2021-22	2026-27
Agriculture	3.07	2.89	2.77	2.66
Mining & Quarrying	0.03	0.04	0.04	0.05
Manufacturing	0.89	0.96	1.05	1.15
Construction	0.45	0.55	0.65	0.76
EGW	0.03	0.04	0.04	0.05
TSC	0.37	0.40	0.42	0.44
Trade, Hotel and Restaurants	0.82	0.84	0.90	0.98
Banking & Insurance	0.09	0.12	0.16	0.22
Real Est., Own. of Dwel & Busi. services	0.05	0.05	0.05	0.05
Public Administration	0.05	0.05	0.06	0.07
Other Services	0.56	0.61	0.65	0.71
Total	6.41	6.54	6.80	7.13

4.64 The above analysis indicates that the demand for manpower is expected to increase in the future as the economy of the district progresses. This has been evident both at the aggregate and sectoral levels except for agriculture sector. On the other hand, as explained earlier, the supply side of manpower has been analysed only at the aggregate level. The results suggest that the supply of manpower is higher than demand for manpower in the district. The gap was 12.9 thousand for all age group in 2011-12. It is expected to increase to around 16.7 thousand in 2021-22 and further to 17.5 thousand in 2026-27. For age group 15-59, it may reach to 19.4 thousand in 2026-27 from around 13 thousand in 2011-12 (**Tables 4.46 and 4.47**).

Table 4.46: Manpower Supply- Demand Gap for Jajpur (all age group) (in numbers)

Items	2011-12	2016-17	2021-22	2026-27
Population	1836495	1917595	2000623	2085514
Total worker demand	640870	654985	684324	722771
Incremental demand		14114	43453	81900
Worker gap (supply minus demand)	12894	16145	16665	17452

Table 4.47: Manpower Supply- Demand Gap for Jajpur (age group 15-59) (in numbers)

Items	2011-12	2016-17	2021-22	2026-27
Population	1141855	1214272	1290214	1369770
Total worker demand	549524	572387	620705	685818
Incremental demand		22862	48318	65113
Worker gap (supply minus demand)	12994	17726	18383	19434

In case of youth population in age group 15-24, the demand-supply gap (**Table 4.48**) was around 7 thousand in 2011-12, which may increase to around 9 thousand in 2026-27.

Table 4.48: Manpower Supply- Demand Gap for Jajpur (age group: 15-24) (in numbers)

Items	2011-12	2016-17	2021-22	2026-27
Population	355456	383675	413792	445903
Total worker Demand	68331	74402	86444	100253
Incremental worker demand		6071	18113	31922
Worker gap (supply minus demand)	6977	7695	8444	8948

4.7.1 Skill Gap (Demand minus Supply) Analysis

4.65 In this section we discuss the findings of skilled jobs demand and skill gap for various sectors during the period between 2016-17 and 2026-27. It is found that total requirement of skilled manpower of the district across all sectors is expected to increase from 3.54 lakh in 2016-17 to 4.93 lakh in 2026-27 (**Table 4.49**). Although agriculture sector absorbs substantial proportion of total workforce in the district, its demand for skilled jobs would likely to decline in the future especially in the cropping activities instead may marginally improved in allied activities particularly in fishing and poultry and dairy. On the other hand, the table shows skill requirement is expected to rise both in industry and services. Industry's requirement of skilled manpower would likely to increase from around 0.65 lakh during 2016-17 to 0.91 lakh during 2026-27. Within industry, large increase is visible both in manufacturing and construction. And within services, the increase of skilled jobs is reported in the case of transportation services, banking and financial services, trade, hotel and restaurants and other services like health, education and personal services.

Table 4.49: Sector wise Skilled Manpower Requirement for Jajpur (in numbers)

Sl. No.	Sectors	2011-12	2016-17	2021-22	2026-27
1.	*Agriculture*	62923	61984	61060	60150
2.	*Industry*	55365	64816	76260	90555
(i)	Manufacturing	20187	22703	26712	31720
(ii)	Construction	25955	29190	34344	40782
3.	*Services*	170104	197535	244284	302431
(i)	Transport, storage and communication	8652	9730	11448	13594
(ii)	Trade, hotel and restaurants	57678	64867	76321	90627
(iii)	Banking & Insurance	6500	19460	22896	27188
(iv)	Other Services	78240	82072	108433	141115
4.	**Total**	**314347**	**353525**	**415949**	**493919**

4.66 The results of skill gap across important sectors for the Jajpur district are reported in **Table 4.50**. It is found that the skill gap of the district would likely to increase from the current level of 0.2 lakh during 2011-16 to 0.95 lakh during 2011-26. Sector wise results indicate that

agriculture sector is expected to experience declining of skill requirement in the future particularly in the cropping sectors. Industry, on the other hand is expected to demand for more skilled jobs than required supply particularly in the large scale and MSME segments. Despite of being one of the rich districts in terms of deposits of natural resources, the performance manufacturing sector is quite disappointing in terms its contribution to district's gross domestic product. The demand for jobs of manufacturing sector is also not encouraging. Currently, there are no medium industries are operating in the district. It is expected that the government may take necessary steps to strengthen the medium scale industries, which in turn would require more skilled jobs. In manufacturing segments, food processing and mineral based large industries would drive the demand for skilled jobs in the district. Therefore, supply of skill manpower related food processing industries and mineral based industries may be improved. Services sector is the backbone of growth of the district. It is expected that the skill gap of services sector may increase from 0.12 lakh during 2011-12 to 0.77 lakh during 2011-26, which is contributed by sectors such as travel, trade and tourism, transportation and logistics, retail trade and ICT, and other services (education and health).

Table 4.50: Sector wise Skill Gap (Demand minus Supply) for Jajpur (in numbers)

Sl.No.	Sectors	2011-16	2011-21	2011-26
1.	Agriculture	(69)	(170)	(200)
2.	Industry	5931	12976	22871
a	Manufacturing	716	2475	5232
(i)	Manufacture of food products	65	180	335
(ii)	Manufacture of textiles	3	34	94
(iii)	Industry relate to non-metallic mineral products	36	124	262
(iv)	Mineral based Industries	50	173	366
3.	Infrastructure	2605	3643	5395
4.	Services	11820	38792	77220
(i)	ICT	9688	12046	15121
(ii)	Retail trade sector	1501	3970	7344
(iii)	Travel and tourism	10257	13143	16947
5.	**Total**	**15943**	**48213**	**94745**

Findings from Primary Survey

4.67 The primary survey covers 197 manufacturing and services establishments, 150 households and 43 educational institutions in the districts. The main findings of the survey are given below.

- Out of total number of sample units, 52 per cent were registered and 48 per cent were unregistered. Manufacturing units constitute 53 per cent of total sample and the rest are service units.

- The survey findings show that 83 per cent of total workers were from within the district, 14.8 per cent from other district (within the state) and 2.2 per cent from outside the state.
- For source of employment, the data shows that 91.3 per cent of people were hired from the open market and the rest 8.7 per cent were hired from the vocational institutions.
- Industry –wise employment shows that 81.4 per cent were employed in small scale industries and rest (18.6 per cent) were employed in large industries. No employment was reported from medium industries as no such industries were operating in the district.
- Employment within the small scale industries show that maximum people were employed in repairing and services (40.2 per cent) followed by food and allied (13.9 per cent), engineering and metal (12.1 per cent), glass and ceramics (10.9 per cent), and textile (9.7 per cent).
- In case of skill composition of workers, we found the percentage of skilled workers to total workers has increased from 50.1 per cent in 2013-14 to 53.2 per cent in 2015-16. On the other hand, the percentage of unskilled workers has declined during the same period.
- The proportion of skilled workers is found highest in miscellaneous manufacturing sector (64.3 per cent) followed by textile (64.1 per cent), engineering and metal based (63 per cent), repairing and servicing (61 per cent), wholesale and retail trade (57.9 per cent), other services (51 per cent). Sectors such as food and allied, food and beverage services, glass and ceramic and tourism and hospitality reported less than 50 per cent of skilled workers.
- In case of demand for skill workers, respondents from all enterprises reported that they need 8.2 per cent more skill workers over the current level. The highest skill workers were required in the sectors like engineering and metal, repairing and servicing, wholesale and retail trade, food and beverage services and other services (education and health etc.).
- In response to the question whether there is future plan of expanding the business, an overwhelming 59 per cent enterprises reported in favour of it, out of which about 56 per cent said they need additional skill manpower for their business expansion.
- The study found that enterprises hardly conduct in-house training programmes for own employees, where 92.5 per cent said no in-house training has been conducted. Therefore, there is need for government intervention in expanding the skill training programme in the district.
- The lack of vocational and technical education in the district is evident from the survey data whereby only 0.8 per cent of household members reported having diploma/certificate education and merely 0.5 per cent having technical education. About 45 per cent household members are illiterate or having education upto primary level (**Figure A4.2**).
- Household survey also points to the fact that highest percentage of female members preferred training in the area of tailoring (59.2 per cent), followed by textile designing (15.8 per cent), education (11.8 per cent) and computer science (10.5 per cent), while highest percentage of male members reported training needs in mechanical (19.2 per cent), computer science (18 per cent), textile designing (14.2 per cent) and electrician (11.5 per cent) (**Table A4.2**).

4.68 Overall, the above analysis suggests that Jajpur district is primarily agrarian economy and more than 60 per cent of district's population depends upon this sector. However, services sector

(trade, hotel and restaurants; transport, storage and communication and banking and finance), manufacturing and mining play a dominant role in the district's economic growth. The district has a plenty of mineral deposits such as Chromite, Iron Ore and Quartzite, which has attracted large number of mineral based industries to the district. As per Census 2011, the district has a population of 18.26 lakhs of which males and females are 9.26 lakhs and 9 lakhs respectively. As compared to the state, the district has very low urban population around 7.4 per cent as compared to 16.7 per cent of the state. Nevertheless, the share of urban population of the district has increased at higher pace by around 3 percentage points between 2001 and 2011 as compared to 1.7 percentage points in case of the state during the same period. Age -wise population distribution shows highest percentage of population is concentrated in the age group 10-14 (10 per cent) and then in 15-19 (9.5 per cent). More importantly, the district has more youth population (19 per cent) in age group 15-24 than the state (18.4 per cent), suggesting that the demographic advantages must be transferred into demographic dividend in the district. In order to achieve the high economic growth rate of 7-8 per cent and sustaining it for medium to long-term, it is necessary to improve the productivity and efficiency of exiting manpower, especially the youth population, which is possible through imparting skill training programme and improving the quality of education in schools and colleges.

4.69 However, the district faces critical challenge in the area of technical and vocational educations. It seems there is lack of interest among the students for pursuing technical and vocational education. This is evident from the seat utilisation capacity of ITIs operating in the district with only around 49 per cent, which is less than the state level (55.6 per cent). In only two courses Electrician and Fitter, the seat utilisation is just above 50 per cent. In all other courses such as Computer Assistant and Welder, the utilisation is even below 20 per cent. Further, due to few placements, the demand for vocational courses has remained unattractive. Workers engaged in different economic activities in the district show that majority of them (59 per cent) are having qualifications of just literate or upto primary or middle level. The rest of workers those are considered to be skilled as per formal education i.e, diploma and certificate, graduate and above constitute only 9.4 per cent of total workers in the district. The situation is even worse in case of technical education. Nearly 98 per cent of workers do not have technical education in the district. Only about 3 per cent of workers possess diploma or certificate at below graduation level and merely 0.06 per cent of them are having diploma or certificate at the graduation and above level. The district does not have any specialised colleges in MCA and MBA, neither any medical, dental or pharmacy colleges.

4.70 The district has potential to grow faster in manufacturing sector particularly in the activities like food and allied, automobile, repairing and services, engineering and metal and textile. Already there are 990 units of food and allied MSMEs units are operating in the district. Ironically, while the Jajpur district produces highest quantity of groundnut, there is no processing unit in the district. Setting up processing units would not only add the value to the district's economy but also create employment opportunities for local people. As the demand for repairing and services and textile is expected to increase in the district, the demand for skilled labour as evident from the field survey may also rise. Therefore, skill development programme in the area of mechanical, crafts and textile courses needs to be enhanced. Further, the district witnessed major surge of urbanisation during the last decade which provides an opportunity for expansion of trade, hotel and restaurants, communication, banking and finance and also education and health services. The necessary skill development programmes in these areas may be initiated.

Key Skill Development areas:

Skill development in sectors such building construction, mechanical, electrician, tailoring, textile designing, computer science, wholesale and retail trade, food and beverage services.

4.8 Manpower Demand and Supply Projection of Sundargarh District

4.71 The economic growth of Sundargarh district is largely driven by forest and mineral based industries comprising large volume of micro, small and medium enterprises (highest after Cuttack district) as well as large scale industries. It is one of the key industrially developed and fastest growing districts in the state. Industry contributes more than 58 per cent to its GDP. The district is the 3rd most urbanized district in the state having about 35.26 per cent of its population living in urban areas as compared to 16.7 per cent of the state. The youth population (age group 15-24) is 19.1 per cent in Sundargarh as compared to 18.4 per cent in the state, suggesting that the demographic advantages must be transferred into demographic dividend in the district. But the challenge for the district is that the distribution of income, wealth and development in terms of education, health and urbanisation is quite skewed. Large percentage of development has happened only in and around a few cities. For example, while cities like Rourkela and Sundargarh have literacy level as high as 85.3 per cent, the rural areas particularly tribal population dominated areas on the other hand have low literacy rate of 66.6 per cent. Further, despite of being one of the best industrially developed district in the state, the district's manufacturing sector has not been able to create expected level of employment opportunities for local inhabitants. The sector contributes only 8 per cent of total employment in the district. On the other hand, agriculture and allied sector whose share is only around 9 per cent of district's GDP absorbs around 50 per cent of total employment.

4.72 The growth of agriculture and allied sector has not been as rapid as industry in Sundargarh district, although more than 50 per cent of people in the district still depend upon agriculture as their livelihood. The GDP growth rate of agriculture sector of the district has fluctuated widely over the period due to unpredictable rainfall, resulting in negative growth rate for many years. The low growth rate of this sector has led to decline in its share in district's overall GDP. Paddy is the principal crop of the district along with other crops like Biri, Groundnut, Vegetable, fruits and Spices etc. Cultivation in the district is done through traditional methods. Hence, there is further scope for improving the productivity through adopting modern technology. As maximum land (40.4 percent) in the district is covered under hills and forest, it is suitable for growing different horticultural crops also. Floriculture and other commercial cropping can also be introduced in the district. The important non-cropping sector in the district is forest and forest products, which contributes significantly to district economy and play an important role in the economy of this tribal dominated district. The principal forest products of the district are Bamboo, Timber (Bija, Asan, and Sal) and Kendu leaves. The minor forest products like Siali leaves, Myrobalans, Char Seeds, Broom Stick, Kusum Seed, Sunari bark; Mahua seed, honey, lac, sabai grass etc. are also available in the district. The focus may be given on expanding the base of labour intensive agro based industries like textile, handicrafts, food processing etc., which would not only increase the rural income but also create large employment opportunities for the local people.

4.73 The industrial sector has done extremely well in the district as it contributes highest to the state industrial product. Being a mineral rich district, many large, medium and small scale industries have come up in the district. Steel Plant, Fertilizer Plant, Cement factory, Ferro Vanadium Plant, Machine building factory, Glass and China Clay factory and Spinning Mills are some of the major industries which are doing very well in the district. The focus may be given on developing micro and ancillary industries which are usually dependent more on labour inputs than capital and act within the framework of hub and spoke model.

4.74 Unlike Ganjam and Jajpur districts, the share of services sector to district's GDP is low in case of Sundargarh. The sector contributes only 32.8 per cent to district's GDP. Sectors such as banking and insurance, communication, trade, hotel and restaurants and road and other means of transport are major contributors to service sector. Other than these sectors, the district has also potential to develop tourism sector as a vast area of the district is full of greenery covered under forest, hills and waterfalls. Places like Rourkela, Vedavyasa, Manikmonda, Manindra dam, Ghogar, Khandadhar and Darjeeng are the important tourist spots of the district.

Employment-Output Elasticities

4.75 For the projection of future manpower demand, we have estimated the employment-output elasticities of each sector/sub-sectors. The estimation is done using the employment data of all age group and age group 15-59. The results are reported in **tables 4.51 and 4.52**. Elasticities for all age group and age group 15-59 are found to be 0.28 and 0.23 respectively. Except sectors such as agriculture and allied, real estate, ownership and dwelling, public administration, the elasticity is found positive for all other sectors suggesting positive relationship between economic growth and employment.

Table 4.51: Employment and Output Elasticity at the Sectoral Level of Sundargarh District (all age group)

Agriculture	Mining & Quarrying	Manufacturing	Construction	EGW	TSC	THS	Banking & Insurance	Real Estate, Ownership etc.	Public Administration	Other Services	Total
-0.05	0.63	0.40	0.62	0.10	0.20	0.30	0.56	-0.10	-0.05	0.11	0.28

Table 4.52: Employment and Output Elasticity at the Sectoral Level of Sundargarh District (age group 15-59)

Agriculture	Mining & Quarrying	Manufacturing	Construction	EGW	TSC	THS	Banking & Insurance	Real Estate, Ownership etc.	Public Administration	Other Services	Total
-0.07	0.53	0.25	0.51	0.21	0.25	0.30	0.57	-0.07	-0.04	0.08	0.23

4.76 Another factor that is used for projecting the future manpower demand is future economic growth of each sector and sub-sectors. Based on top-down approach, the future economic growth scenario of each sector/sub-sectors of Sundargarh district under baseline and optimistic scenarios are reported in Table **4.53**. Under baseline scenario, the economic growth of the district is expected to remain around 7 per cent during 2012-13 to 2016-17 and may continue to remain at the same level during the next five years (2017-18 to 2021-22) and registering a higher growth rate of 7.5 per cent during 2022-2027. Within broad sectors, agriculture and allied sector is expected to grow around 4 per cent during 2017-21 and 2022-2026. In contrast, industry and services sectors are expected to register higher growth during the same periods. Within industry, mining and quarrying and manufacturing sector are expected to register substantial growth in coming years as compared to other sectors. In case of services, transport, storage and communication, banking and insurance and tourism and hospitality industry are some of the services may record higher growth 2017-21 and 2022-2026..

4.77 Under the optimistic scenario, it is assumed that sectors that are expected to do well in the future under the baseline scenario would continue to perform well under the optimistic scenario as well with assumption that reform measures that were undertaken by the government in the recent past will further boost the economic growth of these sectors. The government may focus on improving ease of doing business, attracting large foreign investment, implementing project on public-private partnership mode and effective monitoring of ongoing projects. Under this scenario, it is assumed that the economic growth of the district may rise from 7.0 per cent during 2012-2016 to 8.0 per cent during 2017-2021 and further to 8.5 per cent during 2022-2026.

Table 4.53: Growth Patterns of Broad Economic Sectors under the Baseline and Optimistic scenarios (Sundargarh GDP at 2004-05 constant prices) (in per cent)

Sectors	Baseline Scenario			Optimistic Scenario		
	2011-12 to 2016-17	2017-18 to 2021-22	2022-23 to 2026-27	2011-12 to 2016-17	2017-18 to 2021-22	2022-23 to 2026-27
Mining & Quarry.	8.6	9.0	9.0	8.6	10.0	10.0
Manufacturing	7.8	7.1	7.5	7.8	8.0	8.5
Construction	7.0	6.5	6.5	7.0	7.5	7.5
EGW	7.8	5.0	5.0	7.8	5.5	5.5
TSC	6.5	8.5	8.5	6.5	9.5	9.5
THR	6.4	6.0	8.5	7.6	7.8	9.9
Bank. & Insurance	7.0	8.0	8.0	6.8	9.0	9.0
Real Est., Own. of Dwel & Busi serv.	4.0	5.0	5.0	4.0	5.5	5.5
Public Adm.	2.5	3.0	3.0	2.6	3.0	3.0
Other Services	5.0	5.5	5.5	4.6	6.0	6.0
Agriculture	4.3	4.0	4.0	4.3	4.5	4.5
Industry	7.9	7.5	7.8	7.9	8.5	8.8
Services	5.8	6.8	7.6	6.1	7.8	8.6
Total	**6.9**	**7.0**	**7.5**	**7.0**	**8.0**	**8.5**

4.78 As explained earlier, the pessimistic scenario reflects the situation of economic crisis due to external or internal factors. Under this scenario, it is assumed that the growth rate of district's GDP will be less than the baseline level. The district's economy may grow by 6.0 per cent during 2017-21 and 6.5 per cent during 2022-2026 due to low growth across all sectors (**Table 4.54**). It is assumed that agriculture, industry and services to register less growth by one percentage point under the pessimistic scenario as compared to baseline scenario.

Table 4.54: Growth Patterns of Broad Economic Sectors under the Baseline and Pessimistic scenarios (Sundargarh GDP at 2004-05 constant prices) (in per cent)

Sectors	Baseline Scenario			Pessimistic Scenario		
	2011-12 to 2016-17	2017-18 to 2021-22	2022-23 to 2026-27	2011-12 to 2016-17	2017-18 to 2021-22	2022-23 to 2026-27
Mining & Quarry.	8.6	9.0	9.0	8.6	8.0	8.0
Manufacturing	7.8	7.1	7.5	7.8	6.1	6.5
Construction	7.0	6.5	6.5	7.0	5.5	5.5
EGW	7.8	5.0	5.0	7.8	4.0	4.0
TSC	6.5	8.5	8.5	7.0	7.5	7.5
THR	6.4	6.0	8.5	5.2	3.9	6.8
Bank. & Insurance	7.0	8.0	8.0	6.8	7.5	7.5
Real Est., Own. of Dwel & Busi serv.	4.0	5.0	5.0	4.0	4.0	4.0
Public Adm.	2.5	3.0	3.0	2.6	2.5	2.5
Other Services	5.0	5.5	5.5	4.6	5.0	5.0
Agriculture	4.3	4.0	4.0	4.3	3.5	3.5
Industry	7.9	7.5	7.8	7.9	6.5	6.8
Services	5.8	6.8	7.6	5.5	5.8	6.6
Total	**6.9**	**7.0**	**7.5**	**6.8**	**6.0**	**6.5**

4.79 Manpower demand projection for the district across three broad economic sectors namely agriculture and allied, industry and services under the baseline scenario is illustrated in **Table 4.55**. The table suggests that total manpower requirement of the district would increase from 10.19 lakh in 2011-12 to 12.24 lakh in 2026-27 with incremental increase of 0.56 lakh during 2012-2016 and 2.06 lakh during 2022-2026.

Table 4.55: Sector-wise Manpower Requirement for Sundargarh under baseline scenario (in Lakh)

Year	Agriculture	Industry	Services	Total	Incremental Manpower demand Required (Total)
2011-12	5.10	2.13	2.96	10.19	
2016-17	5.05	2.56	3.14	10.74	0.56
2021-22	5.00	3.05	3.36	11.40	1.21
2026-27	4.95	3.65	3.65	12.24	2.06

Note: Manpower includes employment in Principal and Subsidiary status of all age group.

4.80 The optimistic scenario suggests that manpower demand is expected to increase more than the baseline scenario due to higher economic growth. The demand for manpower may increase from 10.19 lakh during 2011-12 to 12.53 lakh during 2026-27 (**Table 4.56**). Within the three broad sectors, the demand for manpower will come equally from all sectors. However, while the demand for manpower is expected to increase in services and industry sectors, it may decline in agriculture sector.

Table 4.56: Sector-wise Manpower Requirement for Sundargarh under Optimistic scenario (in Lakh)

Year	Agriculture	Industry	Services	Total	Incremental Manpower demand Required (Total)
2011-12	5.10	2.13	2.96	10.19	
2016-17	5.05	2.56	3.15	10.76	0.57
2021-22	4.99	3.13	3.41	11.53	1.34
2026-27	4.94	3.84	3.76	12.53	2.34

Note: Manpower includes employment in Principal and Subsidiary status of all age group.

4.81 The results of pessimistic scenario reported in **table 4.57** points to the fact that demand for manpower in agriculture sector may decline at a lower rate as compared to the baseline scenario. The reason could be due to low growth in non-agriculture sector, which impede employment growth in the sector.

Table 4.57: Sector-wise Manpower Requirement for Sundargarh under Pessimistic scenario (in Lakh)

Year	Agriculture	Industry	Services	Total	Incremental Manpower demand Required (Total)
2011-12	5.10	2.13	2.96	10.19	
2016-17	5.05	2.56	3.12	10.73	0.54
2021-22	5.01	2.97	3.30	11.28	1.09
2026-27	4.96	3.47	3.54	11.97	1.78

Note: Manpower includes employment in Principal and Subsidiary status of all age group.

4.82 Distribution of total manpower demand across sub-sectors under the baseline scenario suggests that manufacturing and construction are major contributors to manpower demand within the industry (**Table 4.58**). Surprisingly, being one of the leading districts in the state in terms of mineral and mining, the sector has very little demand in terms of manpower. The reasons could be either that the sector employs manpower from outside the district or use of technology in place of manpower in the mining process. Within services sector, tourism and hospitality, transport, storage and communications and other services may require more manpower in the future.

Table 4.58: Sub-Sector wise Manpower Requirement for Sundargarh under baseline scenario (in Lakh)

Sectors	2011-12	2016-17	2021-22	2026-27
Agriculture	5.10	5.05	5.00	4.95
Mining & Quarrying	0.12	0.16	0.21	0.28
Manufacturing	1.01	1.18	1.36	1.58
Construction	0.96	1.19	1.45	1.77
EGW	0.03	0.03	0.03	0.03
TSC	0.66	0.71	0.77	0.84
Trade, Hotel and Restaurants	0.84	0.91	1.00	1.13
Banking & Insurance	0.18	0.21	0.26	0.33
Real Est., Own. of Dwel & Busi. services	0.13	0.13	0.13	0.13
Public Administration	0.28	0.28	0.28	0.28
Other Services	0.87	0.89	0.92	0.95
Total	**10.19**	**10.74**	**11.40**	**12.24**

4.83 Manpower demands at sub-sectoral level under optimistic and pessimistic scenarios are reported in **Tables 4.59 and 4.60**. The optimistic scenario suggests that demand for manpower in agriculture and allied sector is expected to decline in the future. On the other hand, manufacturing, construction, tourism and hospitality, retail trade, transportation, banking and insurance, health and education are sectors may demand more manpower in the future. In contrast, the pessimistic scenario suggests that although these sectors would require more

manpower in the future, the quantum of demand will be rather less as compared to the baseline scenario.

Table 4.59: Sub-Sector wise Manpower Requirement for Sundargarh under Optimistic scenario (in Lakh)

Sectors	2011-12	2016-17	2021-22	2026-27
Agriculture	5.10	5.05	4.99	4.94
Mining & Quarrying	0.12	0.16	0.22	0.30
Manufacturing	1.01	1.18	1.39	1.64
Construction	0.96	1.19	1.49	1.87
EGW	0.03	0.03	0.03	0.03
TSC	0.66	0.71	0.78	0.85
Trade, Hotel and Restaurants	0.84	0.93	1.04	1.21
Banking & Insurance	0.18	0.21	0.27	0.35
Real Est., Own. of Dwel & Busi. services	0.13	0.13	0.13	0.13
Public Administration	0.28	0.28	0.28	0.28
Other Services	0.87	0.89	0.92	0.95
Total	**10.19**	**10.76**	**11.53**	**12.53**

Table 4.60: Sub-Sector wise Manpower Requirement for Sundargarh under Pessimistic scenario (in Lakh)

Sectors	2011-12	2016-17	2021-22	2026-27
Agriculture	5.10	5.05	5.01	4.96
Mining & Quarrying	0.12	0.16	0.21	0.26
Manufacturing	1.01	1.18	1.33	1.52
Construction	0.96	1.19	1.41	1.66
EGW	0.03	0.03	0.03	0.03
TSC	0.66	0.71	0.76	0.82
Trade, Hotel and Restaurants	0.84	0.90	0.95	1.05
Banking & Insurance	0.18	0.21	0.26	0.32
Real Est., Own. of Dwel & Busi. services	0.13	0.13	0.13	0.13
Public Administration	0.28	0.28	0.28	0.28
Other Services	0.87	0.89	0.91	0.94
Total	**10.19**	**10.73**	**11.28**	**11.97**

4.84 Analysis so far indicates that the demand for manpower is expected to increase in the future as the economy of the district progresses. This has been evident both at the aggregate and sectoral levels other than agriculture sector. On the other hand, as explained earlier, the supply side of manpower has been analysed only at the aggregate level. The results suggest that the supply of manpower is likely to be higher than demand in the district. The gap was 27.9 thousand for all age group in 2011-12. It is likely to increase to 31 thousand in 2021-22 and

further to 32.8 thousand in 2026-27. For age group 15-59, the gap may reach 38.8 thousand in 2026-27 from 27.9 thousand in 2011-12 (**Tables 4.61 and 4.62**).

Table 4.61: Manpower Supply - Demand Gap for Sundargarh (all age group) (in numbers)

Items	2011-12	2016-17	2021-22	2026-27
Population	2106115	2217279	2332382	2451426
Total worker demand	1018926	1074483	1140415	1224451
Incremental worker demand		55557	121489	205525
Worker gap (supply minus demand)	27869	30819	31011	32838

Table 4.62: Manpower Supply - Demand Gap for Sundargarh (age group 15-59) (in numbers)

Items	2011-12	2016-17	2021-22	2026-27
Population	1327728	1426421	1531185	1642280
Total worker demand	910367	951671	1000521	1061771
Incremental worker demand		41304	90154	151405
Worker gap (supply minus demand)	27869	37027	37848	38799

In case of youth population in age group 15-24, the demand-supply gap reported in **table 4.63** was around 24.6 thousand in 2011-12, which may increase to 32.4 thousand in 2026-27.

Table 4.63: Manpower Supply - Demand Gap for Sundargarh (age group: 15-24) (in numbers)

Items	2011-12	2016-17	2021-22	2026-27
Population	404019	439027	476675	517122
Total worker demand	159609	170835	190306	211518
Incremental worker demand		11225	30697	51908
Worker gap (supply minus demand)	24603	27708	30519	32420

4.8.1 Skill Gap (Demand minus Supply) Analysis

4.85 The demand for skilled jobs for Sundargarh district for the period 2011-12 to 2026-27 is reported in **Table 4.64**. The results show that the demand for skilled jobs in the district is 5.24 lakh in 2016-17 which is expected to increase to 7.47 lakh in 2026-27. The demand for skilled jobs in the district is largely driven by services sector followed by industry and agriculture. Although agriculture sector absorbs highest proportion of total workforce in the district, its demand for skilled jobs would likely to decline in the future. On the other hand, the results show skill requirement is expected to rise both in industry and services. Industry's requirement of skilled manpower would likely to increase from 1.03 lakh during 2016-17 to 1.47 lakh during 2026-27. Within industry, large increase is visible both in manufacturing and construction

sectors. In case of services sector, the increase of skilled jobs is reported more for sectors like transportation services, banking and financial services, trade, hotel and restaurants and other services (health, education and personal services).

Table 4.64: Sector wise Skilled Manpower Requirement for Sundargarh (in numbers)

Sl. No.	Sectors	2011-12	2016-17	2021-22	2026-27
1.	*Agriculture*	30616	31389	32181	32994
2.	*Industry*	86725	103199	122570	147294
(i)	Manufacturing	40757	48035	57051	68559
(ii)	Construction	36681	43231	51346	61703
3.	*Services*	290230	345762	415763	505306
(i)	Transport, Storage and Communication	16303	19214	22821	27424
(ii)	Trade, hotel and restaurants	61136	72052	85577	102839
(iii)	Banking & Insurance	10871	43231	51346	61703
(iv)	Other Services	175020	179561	218365	268090
4.	**Total**	**444252**	**523581**	**621860**	**747297**

4.86 Skill gap across important sectors for the Sundargarh district are reported in **Table 4.65.** The results show that the skill gap in the district is expected to widen from 0.33 lakh during 2011-16 to 1.56 lakh during 2011-26. Skill gap in agriculture sector is expected to decline in the future owning to migration of workers from traditional farming to more value added activities like fishery, dairy, poultry and non-farming activities. Large skill gap of manpower is being reported in the services sector from 0.24 lakh during 2011-16 to 1.20 lakh during 2011-26, which is considerably driven by sectors like travel and tourism, ICT, retail trade and infrastructure sectors. Industry sector's skill gap is expected to increase from 0.09 lakh during 2011-16 to 0.38 lakh during 2011-26. Out of total skill gap in industry, around 40% is contributed by manufacturing sector and the rest by construction, mining and quarrying and electricity, gas and water supply. Within manufacturing, around 45 per cent of skill gap is contributed by mineral based industries in the district. Other emerging sectors like food processing and infrastructure are also facing shortage of skilled manpower supply.

Table 4.65: Sector wise Skill Gap (Demand minus Supply) for Sundargarh (in numbers)

Sl.No.	Sectors	2011-16	2011-21	2011-26
1.	Agriculture	(53)	(126)	(218)
2.	Industry	9034	20965	38249
(a)	Manufacturing	3278	8294	15802
(i)	Manufacture of food products	131	332	632
(ii)	Manufacture of textiles	98	249	474
(iii)	Industry relate to non-metallic mineral products	492	1244	2370
(iv)	Mineral based Industries	983	2488	4741
3.	Infrastructure	993	1930	3989
4.	Services	23692	61853	119556
(i)	ICT	13774	17469	22149
(ii)	Retail trade sector	5050	10199	17777
(iii)	Travel and tourism	10118	12865	16530
5.	**Total**	**32726**	**82817**	**157805**

Findings from Primary Survey

- The primary survey covers 196 manufacturing and services establishments, 150 households and 54 educational institutions in the district. The main findings of the survey are given below.
- Out of total sample units of establishments, 68 per cent were registered and 32 per cent were unregistered and 51 per cent were manufacturing units and 49 per cent were services units.
- Data shows that about 63.8 per cent of workers were from within the district, 32.4 per cent from outside the district (within the state) and the reaming 3.8 per cent were from outside the state.
- About 73 per cent of total workers were hired from the open market and the rest 27 per cent were hired from the vocational institutions.
- It is found that highest number of people were employed in small scale industries (67.6 per cent) followed by 31.4 per cent in large industries and only 1 per cent in medium industries.
- Employment by industry types within the small scale industries show that maximum people were employed in repairing and services (28.7 per cent) followed by engineering and metal (27.9 per cent), glass and ceramics (18.2 per cent), and food and allied (7.7 per cent).
- The percentage of skilled workers to total workers has increased from 48.8 per cent in 2013-14 to 51.3 per cent in 2015-16. On the other hand, the percentage of unskilled workers has declined during the same period.
- At the sectoral level, the proportion of skilled workers is found highest in engineering and metal based (59.2 per cent) followed by repairing and servicing (53.6 per cent), textile (52.9 per cent), food and allied and other services (51.9 per cent). Other sectors like miscellaneous manufacturing sector, wholesale and retail trade, food and beverage

services, glass and ceramic and tourism and hospitality have reported less than 50 per cent of skilled workers.

- In case of demand for skill workers, respondents from all units reported that they need 9.1 per cent more skill workers over the current level. The highest skill workers were required in engineering and metal, food and allied, repairing and serving, food and beverage services and other services (education and health etc.) and tourism and hospitality.
- In response to the question whether there is future plan of expanding the business, about 59.5 per cent of enterprises reported in favour of it and out of these about 57.2 per cent said they need additional skill manpower for the purpose.
- In case of training conducted in-house, the study found that enterprises hardly conduct in-house training programmes for own employees, where 85.3 per cent said no in-house training has been conducted.
- Lack of vocational and technical education in the district is evident from the survey data that only 2 per cent of household members reported having diploma/certificate education and merely 1 per cent having technical education. About 50.2 per cent household members are illiterate or having education upto primary level. (**Figure A4.3**)
- Sundargarh, household survey points to the fact that highest percentage of female responded preferred training in the area of tailoring (52.8 per cent), followed by computer science (22.2 per cent), textile designing (9.2 per cent). In case of male members, highest percentage of them reported need for training in mechanical (39.2 per cent), electrician (13.5 per cent), computer science (9.5) and automobile mechanic (9.5). (**Table A4.3**).

4.87 To sum up, Sundargarh district is one of the most advance districts in the state in terms of high economic growth, per capita income and urban development. Literacy level is higher in case of male and females as compared to many tribal inhabited districts in the State. Reduction of gender gap in education is also reported in rural areas. However, the growth and development have been quite uneven between the urban and rural areas. The literacy rate varies widely between urban and rural areas. The district has a total literacy rate of 73.34 per cent (Census 2011), in which urban areas represented by cities like Rourkela and Sundargarh have literacy level as high as 85.3 per cent, the rural areas on the other hand have low literacy rate of 66.6 per cent. The reason for this may be that the district has a large tribal population; and almost half of this population is living in rural areas. Therefore, there is urgent need for improving the livelihood of rural population and bringing them into mainstream, which would help the district economy to sustain its high growth momentum in the medium to long run. NSSO data suggests that more than half of the workers (55.4 per cent) in the district are either illiterate or have education upto primary level as compared to 58.3 per cent at the state level. Only a minuscule (0.5 per cent) of workers has done certificate or diploma courses. This suggests that there is lack of skill among the existing workers in the district. Across the sectors, maximum percentage of illiterate workers are working in agriculture sector and then in non-manufacturing and services sector. Ironically, a whopping 98 percent of workers in the district do not have technical education.

4.88 Although agriculture and allied sector absorbs more than half of the workers in the district, the progress of the sector, however has not been as rapid as that of industry. The district has potential to strengthen the agriculture and allied sector as it has abundant land as well as

favourable climate for agriculture and vegetable cultivation which leads to productivity. Since maximum land in the district is covered under hills and forest, it is suitable for growing different horticultural crops also. Focus may also be given on higher production of floriculture and other commercial cropping such as mango, banana, litchi and spices like ginger and turmeric. The important non-cropping sector like forest and forest products may be also given due importance as 40.4 per cent of the total area of the district is covered under forest. The principal forest products like Bamboo, Timber (Bija, Asan, and Sal) and Kendu leaves contribute significantly to the district's economy and more importantly as the main source of income earning for tribal population. Developing the fishery sector in the district may also be looked into as there are large numbers of water bodies in rural pockets. Improving the productivity of agriculture and allied sector depends on use of technology and imparting skill training to agricultural workers. *Krishi Vigyan Kendras* in the district are currently engaged in imparting training through 70-100 training programmes in year, which need to be strengthened and expanded further. The major hurdle that the agriculture and allied sector is facing in the district is that younger generation are not willing to work in this, as revealed by survey findings and case studies.

4.89 The district occupies a prominent position in the mineral map of Odisha and is rich in iron ore, limestone, manganese, dolomite, and fire clay. There are many large mineral based industries operating from the district that contribute significantly to district's economic growth. It is also found that maximum numbers of MSMEs are also located in the district. Despite being one of the top industrial districts in the state, the employment contribution of manufacturing sector is very disappointing. The sector has least contribution to employment in the district. And most surprisingly, employment share of manufacturing sector in the district is lower than the state average in 2011-12. The reason may be either that people from other districts get employment in manufacturing sector in the district or lack of skills among the local people thus denying them getting employed in the sector.

4.90 Developed cities in the district offer plenty of opportunities for service sector expansion in the area of trade, hotel and restaurant, communication and banking and finance, education and health services. It is also found that service sectors those are linked to tourism and manufacturing sector like transport, communication, trade, hotel, restaurant and banking have contributed considerably to the growth of services sector in the district. Since 40 per cent area of the district is full of greenery covered under forest, hills and waterfalls, places like Rourkela, Vedavyasa, Manikmonda, Manindra dam, Ghogar, Khandadhar and Darjeeng could be developed as tourist destinations. In services, the district is facing major challenge in the area of water supply and health and sanitation. Due to being home to large number of industries and mining activities, the ground water is getting contaminated day by day, creating a lot of life threatening water diseases. This will have negative impact on resources and productivity of workers. Health and nutrition services are also another issue in the district. This issue although looked into through Anganwadi Centres has not been implemented well, due to poor infrastructure facilities. The district is home to 3705 Anganwadi Centres, of which only 29.4 per cent centre have toilet facilities and 27 per cent have water facility.

Key Skill Development areas:

Agriculture and allied – agro and high value added food products, forestry and fishery, (2) Industry – tailoring, textile designing, mechanical, electrician, automobile mechanical, engineering and metal and food and allied (3) Services – tourism and hospitality, computer skill, healthcare and education.

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Chapter 5

Conclusions and Recommondations

From the primary and secondary data analysis, it has been ascertain that the percentage of skilled labour force in the state is low but is positively increasing over the years. It is also found that the demand for manpower in the state is expected to increase in the future, so as the supply of manpower. Unless the state's economy grows at a higher rate, the demand for manpower will continue to grow relatively lower than the supply of manpower, leading to higher unemployment. In order to achieve higher economic growth, the state government has focused on improving the performance of potential sectors such as agro and food processing, manufacture of automobile and automobile components, textile, forest & wood based products, chemicals and pharmaceuticals, construction material and building hardware, electronics and IT hardware and glass & ceramics, repairing and servicing of automobile, electronics, and IT hardware items, education and skill development, healthcare, IT & ITES, tourism and hospitality, transportation and logistics. Since agriculture and allied sector, the most labour intensive ones is seen of declining in employment over the period, resulting negative employment-output elasticity, offsetting such decline of employment would be possible through increasing employment in non-agriculture sectors. It has also been suggested that for achieving inclusive growth in the state, it is utmost important to create more employment opportunities in the agriculture and allied sector. This is possible through increasing the productivity and output of the sector by diversification of cropping and creating a value chain model of marketing system for agricultural produced commodities. Focus may also be given on improving the productivity of agricultural labourers through imparting skill and training in various farming and allied activities. Although the state government has already initiated various training programmes in agriculture activities, the impact has been limited only to urban areas. During the household survey, the study team interacted with farmers in rural areas and found that many of them are not aware about the training programmes. They also said that they have purchased tracker and tiller machines on loan for their own use and also renting it out to repay the loan. But due to lack of knowledge on repairing and maintenance of machines, it affects their earnings in case the machine breaks down. They suggested that training on repairing and maintenance of machines should be made compulsory at the time of purchasing the machine. They also pointed out that due to lack of knowledge on cultivation of high yield variety of seeds and input use, the return per hectare of land has been low. Similarly, farmers also need skill training support from the government in the area of horticulture, floriculture, fisheries, organic farming, forest based products to maximise the return. To address these issues, the state government may assigns the work to Krish Vigyan Kendras (KVKs) located in each district to conduct training and awareness programmes particularly at the Panchayat/block levels. Besides training in agro and food processing, households members also expressed their willingness to have training in areas of tailoring, embroidery, nursing, computer science, textile designing, and craft course, driving, mobile repairing, plumbing, automobile repairing, mechanical, computer science and hospitality. In non-agriculture sectors such as manufacturing and services sector, the respondents reported that more skilled jobs in the future may come from sectors such as engineering and metal, repairing and servicing, agro and food processing, tourism and hospitality, wholesale and retail trade, and food and beverage services, construction material and building hardware, electronics and IT, transportation and logistics. Therefore, skill training programmes on these sectors may be given more priority.

Some of the key findings of the study are outlined below.

A. Findings at the State Level

- *Sectoral imbalance in employment and output:* From the data analysis we found that the state faces a peculiar situation in terms of sectoral employment contribution that while agriculture and allied sector contributes only about 16 per cent to state GDP (NAS estimates), it absorbs a substantial workforce of around 55 per cent (NSSO estimates). On the other hand, high value added sectors such as industry and services together contribute a whopping 84 per cent to state GDP but absorb only 45 per cent of total employment.
- *Skill status of workforce:* It is found that workforce in agriculture sector is largely unskilled with no or little formal or informal skill training as about 66.5 per cent of total workforce in the sector is having either primary education or no education. Therefore, shifting the agricultural labour directly to manufacturing or services sector (except manual work in manufacturing units, retail shops, small restaurants and domestic help activities etc.) is going to be quite a difficult task as the latter sectors mostly require semi-skilled or high skilled workforce. Technical education status of the workforce is even worse in the state, where more than 90 percent of workers do not have technical education.
- *Training capacity and the concerns:* Roughly 4.5 lakh people join the labour force every year in the state. Further, while the demand for skilled workers is expected to reach around 131.3 lakh by 2026 from 93.7 lakh in 2016, the state has capacity to provide technical training to only 1.23 lakh people per year. Hence, the state government needs to expand the existing mechanism of skill development programmes in the state.
- *Employment by industry and skill composition:* Establishments survey suggests that maximum percentage of workers ranging between 70 to 90 per cent are engaged in small scale manufacturing industries in the state. The contribution of medium industries to total industrial employment is very less in the state. Within SMEs, maximum employment has been generated in food and allied, repairing and services, glass and ceramics, engineering and metal and textile enterprises. The data also suggests that more than 50 per cent jobs in the state are unskilled. The proportion of skilled workers is found more in sectors like health, education, banking and business services, repairing and servicing, engineering & metal, textile, and miscellaneous manufacturing.
- *Future skill demand and training required:* Respondents from establishment survey reported that demand for more skilled jobs in the future may come from sectors such engineering and metal, repairing and servicing, agro and food processing, tourism and hospitality, wholesale and retail trade and food and beverage services, construction material and building hardware, electronics and IT, transportation and logistics. Therefore, skill training on the above sectors may be given more priority.
- *Preferred training areas and concerns:* Household survey reveals that household members need skill training in the areas of tailoring, embroidery, nursing, computer science, textile designing, and craft course, mechanical, driving, mobile repairing, plumbing, automobile repairing and hospitality. Youth in rural areas reported that they heard about the skill development programmes initiated by the state government but have never realized the same in true sense, as the local governments at the district and Panchayat levels have never informed them of any government schemes on skill development.

Manpower Demand Projection

- *Growth Scenarios:* Three economic growth scenarios have been considered for estimation and projection of manpower demand. They are baseline or business-as-usual, optimistic and pessimistic scenarios. In the line of long term or potential growth rate of the state, it is expected that gross state domestic product (at 2011-12 basic prices) of the state would grow on an average by 6% during the period 2017-18 to 2021-22 and 6.5% during 2022-23 and 2026-27 under the baseline scenario. On the other hand, the growth rate is expected to accelerate under optimistic scenario in view of various economic reforms measures initiated by the state government. We assume 7% and 7.5% growth rates under optimistic scenario during the two study tme periods. In contrast, the pessimistic scenario may evidence lower growth rates of 5.0% and 5.5% during 2017-2021 and 2022-2026 due to policy uncertainty, natural calamities and external factors.
- *Manpower demand under baseline:* Under baseline scenario, the demand for employment in the state is expected to increase from 175 lakh in 2011-12 to 210.7 lakh in 2026-27, with incremental demand of 35.8 lakh by 2026-27. Out of which, demand for employment in agriculture sector would decline from 95.5 lakh in 2011-12 to 89.6 lakh in 2026-27. On the other hand, the demand for employment is expected to increase both in industry and services from 41.7 and 37.8 lakh in 2011-12 to 69.3 and 51.8 lakh in 2026-27 respectively.
- *Manpower demand under alternative scenarios:* Under the optimistic scenario, the manpower demand may touch 215.5 lakh by 2026-27 from 175.0 lakh in 2011-12 with an incremental demand of 40.6 lakh by 2026-27. In contrast, manpower demand is expected to remain low under pessimistic scenario from 175.0 lakh in 2011-12 to 206.7 lakh in 2026-27 with an incremental demand of 31.8 lakh till 2026-27.
- *Manpower demand at sector/sub-sectoral levels:* Under baseline, manpower demand for disaggregated sector shows that within industry, higher demand is expected to come from construction sector (21 lakh in 2011-12 to 43.7 lakh in 2026-27) followed by manufacturing (17.1 lakh in 2011-12 to 19.4 lakh in 2026-27). Within service sector, the demand is expected to be highest in sectors like trade, hotel and restaurants, transport, storage and communication, other services (education, health etc.), and banking and insurance.

Manpower Supply Projection

- The supply of manpower for all age group is expected to touch around 193.9 lakh in 2016-17 from 179.3 lakh in 2011-12. It may rise further to 204.2 lakh in 2021-22 and 217.2 lakh in 2026-27. With this, the demand-supply gap of workers may increase from 4.3 lakh in 2011-12 to around 6.3 lakh in 2016-17, and may increase further to 6.5 lakh in 2026-27.
- For age group 15-59, the supply of manpower is expected to touch 198.1 lakh in 2026-27 from around 176.3 lakh in 2016-17. Therefore, the demand-supply gap of manpower may increase from 4.1 lakh in 2011-12 to 6.3 lakh in 2016-17 and further to 6.5 lakh in 2026-27.

Demand for Skilled jobs and Skill Gap

- ❖ Results indicate that the demand for skilled job for all age group may increase to 93.7 lakh in 2016-17 to 131.3 lakh in 2026-27. Across sectors, highest demand for skilled jobs is expected to come from industry (40.7 lakh in 2016-17 to 61.5 lakh in 2026-27) followed by services sector (34.0 lakh in 2016-17 to 46.0 lakh in 2026-27).
- ❖ Our estimates suggest that the incremental or cumulative skill gap for the state would touch 25.73 lakh during 2016-17 and 2026-27. The skill gap in all three sectors such as agriculture sector, industry and services is expected to increase over the years. Services sector driven largely by travel and tourism, retail services, ICT, infrastructure, banking and insurance and other services (education and health) are expected to face higher skill gap due to more demand for skilled personnel in the future.
- ❖ The skill gap for the potential sectors such as metal based industries, food processing, textile, travel and tourism, retail sector and ICT are found as 0.92, 0.42, 0.22, 5.61, 3.04, 3.82 lakh respectively by 2026-27.

B. Findings at the District Level

a. Ganjam District

Ganjam district is mainly an agrarian economy where more than three-fourth of district's population are living in rural area. It stands 1st among the districts of the state in terms of agriculture and allied sector's contribution to state's agriculture and allied sector. Industrial base is weak in the district as it contributes 26 per cent to district's GDP as compared to the sector's contribution of 34 per cent to GDP at the state level. But the sector however absorbs a quite reasonable proportion of employment of 25 per cent. Out of total employment, a whopping 93.3 per cent of workers are employed in small scale industries and the rest in medium and large industries. It suggests that there is a need for increasing the number of large and medium industries in the district, which will support the small and ancillary industries to grow. Within the small scale industries, it is found that maximum people are employed in food and allied (24.5 per cent) followed by repairing and services (24.3 per cent), glass and ceramics (19.6 per cent), engineering and metal (9.3 per cent) and textile (6.7 per cent).

The primary survey carried out in the district suggests that out of total workers employed in various enterprises, about 84 per cent were from within the district, 13.7 per cent from other districts (within the state) and remaining 2.3 per cent from outside the state. The survey results also indicate that maximum people employed in different enterprises were hired from the open market. About 94 per cent of workers in different enterprises were hired from open market and the remaining 6 per cent were hired from the vocational institutions, suggesting that the placement ratio in vocational institutions needs to improve substantially in order to attract more students to the profession which has not been the case at present.

In case of skill composition workers in different enterprises in the district, the survey results suggest that the proportion of skilled workers is more in sectors such as other services (education and heath etc.), repairing and servicing, engineering & metal based textile, miscellaneous manufacturing, and wholesale and retail trade. More importantly, the findings suggest that the percentage of skilled workers to total workers has increased from 55.1 per cent in 2013-14 to 58.3 per cent in 2015-16. It is also found that enterprises need more skilled workforce in the

future in the area of engineering and metal, repairing and servicing, food and allied, tourism and hospitality, wholesale and retail trade, food and beverage services and computer and data entry operators. Since enterprises hardly conduct in-house training programmes for their own employees, where 93.4 per cent reported no in-house training has been conducted, the district administration must step-in for imparting the skill development programme in the district. To understand the types of skill programmes required by households for either self-employment or regular jobs, the households survey carried out both in rural and urban areas suggested that they need skill training in the subject of tailoring, computer science, textile designing and craft course, mechanical, repairing and maintenance and hospitality.

Manpower Demand and Supply Projection

The results of manpower demand and supply scenarios of the district during 2017-2021 and 2022-2026 are summarized below.

- *Baseline scenario:* Under baseline, manpower demand in the district is expected to reach 17.99 lakh in 2026-27 from 15.25 lakh in 2011-12, with an incremental demand of 2.74 lakh by 2026-27. However, while the demand for manpower in agriculture sector would decline from 8.84 lakh in 2011-12 to 8.31 lakh in 2026-27, in opposite, the demand for manpower both in industry and services is expected to rise from 3.87 and 2.53 lakh in 2011-12 to 6.10 and 3.48 lakh in 2026-27 respectively.
- *Optimistic and Pessimistic scenarios:* Under optimistic scenario, the manpower demand is expected to increase more than the baseline from 15.25 lakh in 2011-12 to 18.37 lakh by 2026-27 with an incremental demand of 3.12 lakh by 2026-27. In contrast, manpower demand is expected to remain low under pessimistic scenario from 15.25 lakh in 2011-12 to 17.63 lakh in 2026-27 with an incremental demand of 2.39 lakh till 2026-27.
- *Disaggregated sectors:* Manpower demand for disaggregated sector under baseline scenario point to the fact that within industry, the major chunk of demand is expected to come from construction sector (2.70 lakh in 2011-12 to 4.69 lakh in 2026-27) and manufacturing sector (0.89 lakh in 2011-12 to 0.97 lakh in 2026-27). In case of services sector, higher demand is expected to come from trade, hotel and restaurants (0.88 lakh in 2011-12 to 1.27 lakh in 2026-27), other services (education, health etc.), and transport, storage and communication.
- As compared to baseline scenario, the incremental demand for manpower under optimistic scenario may increase 0.25 lakh more in case of construction sector and 0.02 lakh in case of manufacturing sector. In contrast, as compared to baseline, under pessimistic scenario incremental demand for manpower is expected to decline by 0.24 and 0.01 lakh for construction and manufacturing sectors respectively. Similar increase/decrease of incremental manpower demand is evident for sectors like trade, hotel and restaurants, other services (education, health etc.), and transport, storage and communication under optimistic/pessimistic scenarios as compared to the baseline scenario.
- The supply of manpower for all age group is expected to touch around 16.3 lakh in 2016-17 from 15.5 lakh in 2011-12. It may rise further to 17.2 lakh in 2021-22 and 18.3 lakh in 2026-27. With this, the demand-supply gap of workers may increase from 24 thousand in 2011-12 to around 35 thousand in 2016-17 and thereafter may remain slightly higher till 2026-27.

- Since the proportion of youth population to total population is higher in the district as compared to state level, the supply of manpower in age group of 15-24 years is expected to increase substantially higher than the supply of manpower in case of all age groups. It is estimated that supply of workers may be around 15 lakh in 2016-17 and increase further to 17.2 lakh in 2026-27.Therefore, the demand-supply gap of manpower in age group 15-24 may increase from 24.3 thousand in 2011-12 to 37.8 thousand in 2016-17 and further to 42.6 thousand in 2026-27.

Demand for skilled jobs and Skill Gap

- Since the district has resources to grow faster in the future particularly in the area of human development, tourism and hospitality, financial services, infrastructure development, industry, food processing, fishery and animal husbandry, the demand for skilled jobs is expected to increase substantially. It is estimated that the demand for skilled job for all age groups may increase from 9.96 lakh in 2016-17 to 15.08 lakh in 2026-27.
- The results show that while the demand for skilled jobs is expected to decline in the agriculture sector (5.96 lakh in 2016-17 to 5.94 lakh in 2026-27), it would increase for services (6.76 lakh in 2016-17 to 10.54 lakh in 2026-27) and industry (1.7 lakh in 2016-17 to 2.58 lakh in 2026-27).
- Skill gap of the district is expected to increase from 3.07 lakh in 2016-17 to 7.77 lakh in 2026-27. Increase of skill gap in the district is mainly driven by services sector and industry to the tune of 4.44 and 0.97 lakh respectively during 2011-26.

b. Jajpur District

Economy of Jajpur district is mainly agrarian in nature, where around 48 per cent of people are working in agriculture sector, which is highest among the sectors. However, services, manufacturing and mining play a dominant role in the district's economic growth. Services sector is the single largest sector of the district in terms of its contribution (52 per cent) to GDP but it absorbs only about 22 per cent of total employment. Industry contributes around 40 per cent to district's GDP and also absorbs a quite substantial amount of employment (30 per cent). Within industry, the data reveals that maximum percentage of industrial workers (81.4 per cent) are employed in small scale industries and rest 18.6 per cent are employed in large industries. In case of small scale industries, maximum people were employed in repairing and services (40.2 per cent) followed by food and allied (13.9 per cent), engineering and metal (12.1 per cent), glass and ceramics (10.9 per cent), and textile (9.7 per cent). Further the study found that maximum (83 per cent) of total workers were from within the district and a quite substantial portion of 14.8 per cent from other district (within the state). In case of source of employment, it is found that maximum people were hired from open market and less from vocational institutions. The survey data shows that 91.3 per cent of people were hired from the open market and the rest 8.7 per cent were hired from the vocational institutions.

As per the objectives of the study, information related to skills was collected from enterprises and households. Enterprise survey in the district reveals that high proportion of skilled workers were found in miscellaneous manufacturing sector, engineering and metal based, repairing and servicing, other services, textile, wholesale and retail trade and tourism and hospitality. In case of demand for skill workers, respondents from all enterprises reported that they need 8.2 per cen

more skill workers over the current level. The highest skill workers were required in the sectors like engineering and metal, repairing and serving, wholesale and retail trade, food and beverage services and other services (education and health etc.). Further the study found that the proportion of skilled workers to total workers has increased from 50.1per cent in 2013-14 to 53.2 per cent in 2015-16. An overwhelming percentage of enterprises (59 per cent) reported in favour of future expansion of business, out of which about 56 per cent said they need additional skill manpower for their business expansion. In case of household survey, the results show that members of households required skill training in the area of tailoring, textile designing, computer science, mechanical, plumber, and electrician.

Manpower Demand and Supply Projection

The results of manpower demand and supply scenarios of the district during 2017-2021 and 2022-2026 are summarized below.

- Manpower demand under baseline scenario suggests that the demand for employment in the district is expected to increase from 6.41 lakh in 2011-12 to 7.23 lakh in 2026-27, with incremental demand of 0.82 lakh by 2026-27. Out of which, while the demand for manpower would decline in agriculture sector from 3.07 lakh in 2011-12 to 2.6 lakh in 2026-27, on the other hand, the demand for manpower is expected to increase both in industry and services from 1.40 and 1.94 lakh in 2011-12 to 2.11 and 2.52 lakh in 2026-27 respectively.
- Under optimistic scenario, the manpower demand is expected to go up more than the baseline from 6.41 lakh in 2011-12 to 7.40 lakh by 2026-27 with an incremental demand of 0.99 lakh by 2026-27. In contrast, manpower demand is expected to increase at a slower rate under pessimistic scenario from 6.41 lakh in 2011-12 to 7.13 lakh in 2026-27 with an incremental demand of 0.72 lakh till 2026-27.
- Manpower demand for disaggregated sector under baseline scenario shows that within industry, more demand for manpower demand is expected to come from manufacturing sector (0.89 lakh in 2011-12 to 1.21 lakh in 2026-27) followed by construction sector (0.45 lakh in 2011-12 to 0.79 lakh in 2026-27) and least demand comes from utilities sector (0.03 lakh in 2011-12 to 0.05 lakh in 2026-27). Within service sector, the demand is expected to be highest in sectors such as trade, hotel and restaurants, other services (education, health etc.), transport, storage and communication and banking and finance.
- Under optimistic scenario, the demand for manpower is expected to increase in sectors such as manufacturing, construction, trade, hotel and restaurants, banking and insurance services and transport, storage and communication as compared to baseline due to better growth prospects. The opposite is true under pessimistic scenario where demand for manpower in these sectors is expected to decline as compared to the baseline due to low growth of output.
- The results suggest that manpower supply for all age group is expected to touch around 6.7 lakh in 2016-17 from 6.5 lakh in 2011-12. It may rise further to 7.0 lakh in 2021-22 and 7.4 lakh in 2026-27. Thus, the demand-supply gap of workers may increase from 12.9 thousand in 2011-12 to around 17.7 thousand in 2016-17, and thereafter may remain slightly higher till 2026-27.
- In case of age group 15-59, the supply of manpower is expected rise from 5.6 lakh in 2011-12 to 5.9 lakh in 2016-17 and further to 7.02 lakh in 2026-27. Therefore, the

demand-supply gap of manpower may increase from around 13 thousand in 2011-12 to 17.7 thousand in 2016-17 and further to 19.4 thousand in 2026-27.

Demand for skilled jobs and Skill Gap

- The demand for skilled job particularly in manufacturing and services sector is expected to rise in the future due to continuous rise of economic base of these sectors in the district. It is estimated that the demand for skilled job for all age group may increase from 3.54 lakh in 2016-17 to 4.94 lakh in 2026-27.
- Skill gap is expected to rise to 0.94 lakh during 2026-27 from 0.16 lakh during 2011-16. Sectors which are expected to register higher skill gap are services and industry by 0.77 and 0.23 lakh respectively by 2026-27. Potential sectors for the districts namely ICT, retail, and travel and tourism are expected to experience skill gap to the tune of 0.15, 0.0.07 and 0.17 rspectively by 2026-27.

c. Sundargarh District

The economic growth of Sundargarh district is largely driven by forest and mineral based industries comprising second highest volume of MSME units in the state and also destination of many large scale industries. Industry contributes more than 58 per cent to its GDP. But the challenge for the district is that the distribution of income, wealth and development is quite skewed, wherein development has happened only in and around a few cities. Further, despite of being one of the best industrially developed district, manufacturing sector's contribution to employment in the district is quite disappointing with contribution of only 8 per cent. On the other hand, agriculture and allied sector whose share is only around 9 per cent of district's GDP absorbs around 50 per cent of total employment. The performance of services is also not upto the mark given there is strong lagged impact from industry/manufacturing to services sector. Employment data suggests that highest number of people were employed in small scale industries (67.6 per cent) followed by 31.4 per cent in large industries and only 1 per cent in medium industries. Employment by industry types within the small scale industries show that maximum people were employed in repairing and services, engineering and metal, glass and ceramics and food and allied. As compared to other two districts in the study, the data reveals that employment opportunity for local inhabitants in industry sector is less. Data shows that about 63.8 per cent of workers were from within the district, 32.4 per cent from outside the district (within the state) and the remaining 3.8 per cent were from outside the state. In case of hiring people from different source, enterprise data suggests that unlike other districts, vocational education institutions in the district are important source of skilled labour force to industry and services sectors. About 73 per cent of total workers were hired from the open market and the rest 27 per cent were hired from the vocational institutions. However, vocational institutions in the district particularly government ones are enrolling majority of students from outside the district. That's why local students don't get good quality education and hence do not get work opportunities in local industries.

With regards to skilled workforce scenario in the district, the data shows the percentage of skilled workers to total workers has increased from 48.8 per cent in 2013-14 to 51.3 per cent in 2015-16 in the district. At the sectoral level, the proportion of skilled workers is found highest in engineering and metal based industries, repairing and servicing, other services (health and

education etc.), miscellaneous manufacturing sector, textile and food and allied and tourism and hospitality. In case of demand for skill workers, respondents from all units reported that they need 9.1 per cent more skill workers over the current level. The highest skill workers are required in engineering and metal, food and allied, repairing and serving, food and beverage services and other services (education and health etc.) and tourism and hospitality. Household data reveals that there is lack of vocational and technical education in the district as only 2 per cent of household members reported having diploma/certificate education and merely 1 per cent having technical education. Household members reported skill training need in the area of tailoring, computer science, textile designing and craft design, mechanical, electrician, automobile mechanic, hospitality and agro processing.

Manpower Demand and Supply Projection

The results of manpower demand and supply scenarios of the district during 2017-2021 and 2022-2026 are summarized below.

- Manpower demand under baseline scenario suggests that the demand for employment in the district is expected to increase from 10.19 lakh in 2011-12 to 12.24 lakh in 2026-27, with incremental demand of 2.06 lakh by 2026-27. Out of which, demand for employment in agriculture sector would decline from 5.1 lakh in 2011-12 to 4.95 lakh in 2026-27. On the other hand, the demand for employment is expected to increase both in industry and services from 2.13 and 2.96 lakh in 2011-12 to 3.65 and 3.65 lakh in 2026-27 respectively.
- Under the optimistic scenario, the manpower demand is expected to increase more than the baseline from 10.19 lakh in 2011-12 to 12.53 lakh by 2026-27 with an incremental demand of 2.34 lakh by 2026-27. In contrast, manpower demand is expected to remain low under pessimistic scenario from 10.19 lakh in 2011-12 to 11.97 lakh in 2026-27 with an incremental demand of 1.78 lakh till 2026-27.
- Manpower demand for disaggregated sector under baseline scenario shows that within industry, the major chunk of demand is expected to come from construction sector (0.96 lakh in 2011-12 to 1.77 lakh in 2026-27) followed by manufacturing (1.01 lakh in 2011-12 to 1.58 lakh in 2026-27) and least demand comes from utilities sector (0.03 % by 2026-27). Within service sector, the demand is expected to be highest in sectors like trade, hotel and restaurants (0.84 lakh in 2011-12 to 1.13 lakh in 2026-27) followed by other services (education, health etc.), and transport, storage and communication.
- In comparison to baseline scenario, the demand for manpower under optimistic scenario shows 0.10 lakh increase in case of construction sector followed by 0.06 lakh increase for manufacturing sector. The opposite is true under pessimistic scenario where demand is expected to decline by 0.11 lakh for construction and 0.03 lakh for manufacturing as compared to baseline. Similar increase/decrease of incremental demand is also evident for sectors like trade, hotel and restaurants, other services (education, health etc.), and transport, storage and communication under optimistic/pessimistic scenarios as compared to the baseline scenario.
- Our estimate suggests that manpower supply for all age group is expected to touch around 11.05 lakh in 2016-17 from 10.5 lakh in 2011-12. It may rise further to 11.7 lakh in 2021-22 and 12.6 lakh in 2026-27. With this, the demand-supply gap of workers may

increase from 27.9 thousand in 2011-12 to around 30.8 thousand in 2016-17, and may increase further to 32.8 thousand to 2026-27.

- In case of age group 15-59, the supply of manpower is expected to rise more than all age groups due to higher LFPR. It is estimated that supply of workers may be around 15 lakh in 2016-17 and increase further to 17.2 lakh in 2026-27.Therefore, the demand-supply gap of manpower may increase from 27.9 thousand in 2011-12 to 37.0 thousand in 2016-17 and further to 38.8 thousand in 2026-27.

Demand for skilled jobs and Skill Gap

- As the economy of the district progresses, the demand for skilled job particularly in manufacturing and services sector is expected to rise. It is estimated that the demand for skilled jobs for all age group bracket may increase from 5.24 lakh in 2016-17 to 7.47 lakh in 2026-27 and further to 8.70 lakh in 2030-31.
- Skill gap for the district would likely to increase from 0.83 lakh during 2011-16 to 1.58 lakh during 2011-26, which is largely driven by services to the tune of 0.24 and 1.20 lakh respectively during the same period. Industry sector is expected to face shortage of skill by 0.38 lakh during 2011-26. Potential sectors like mineral based industries may experience skill shortage of 0.05 lakh during 2011-26.

Policy action plan for three Districts

Districts/ State	**Potential Sectors**	**Suggestions**
Ganjam		
1.	*Primary Sector* (a) Food processing: Being the highest contributor to the state's agricultural output, the district's agricultural sector throws huge potential in the area of food processing. The district produces a large quantity of fruits like mango, cashew, banana, pineapple etc. The demand for floriculture especially rose plantation is growing exponentially. The production of milk and eggs has also increased substantially. Since youths are unwilling to work in the traditional farming, they may be engaged in food processing sector by providing them right skill training. (b) Fishery: Ganjam is one of the largest fish producers in Odisha having abundant natural resources for producing marine, brackish-water and fresh-water fish. The sector has potential to grow by 8-10% in the next decade. However, during discussion	(a) The district has cold storage facilities only at 3 places – Chikiti, Berhampur and Huma, which may be strengthened. Setting of food processing parks, mega food parks and roping in institutions like ITIs/Polytechnics to enhance the skills of youth in the sector is indeed very critical. It is found during the survey that food processing companies are facing various challenges such as lack of availability of workforce at the pre-processing stage. The meat and poultry sub-segments are facing severe shortage of staff in deboning. Initiating skill training on the basic hygiene and sanitation practices and food machinery such as canning, dehydration and handling frozen foods etc. was suggested. (b) In order to tap the untapped growth of the sector, it was suggested that existing credit facilities to the sector must be expanded. Majority of the people in the community are unaware about the existing credit schemes in the sector due to illiteracy and lack of knowledge regarding market. There is a need for up-gradation and modernization of fishery harbours, fish landing centers, post-harvest and market infrastructure. Government should also plan for introducing minimum support price policy for fish

	with fisher-folk community, it was found that the sector faces serious challenges of lack of formal credit to fishermen who usually borrow from traders/middlemen paying an exorbitant interest rate varying from 36% to 50% per annum. Other challenges include absence of fishery development clusters, lack of processing infrastructure, lack of proper cold storage facility at the village level, ice plants, low skill and education of fishermen community etc. (c) *Forest:* Around 37 per cent of the total area of the district is covered by forest and it produces a large quantity of forest goods like Bamboo, medicinal products, Jhuna, Mahul, Lakha, Sal leaves etc. Scheduled Tribes (STs) population (constituting 3.4 per cent of the total population) in the district largely depends on forest goods for their livelihood. Importantly, women constitute more than 50 per cent of the total ST population in the district. Since the workforce in the forest sector is by and large unskilled and unorganized, they need special training to improve their productivity and livelihood. Lack of availability of proper retail or wholesale Mandis (market) and low prices of forest produce are some of the critical factors affecting the livelihood of the people.	and marine products and setting up of community-based cooperatives to help the fishermen to bargain for better prices and bypass the middle men. Skill training was suggested by the community as more than 90% of them have no formal training in fishery farming. Skill training in the area of fish breeding, mussel culture, fish-feed preparation, fish processing, fishing boat building, pituitary gland collection, preservation, maintenance of brood stock, sexing and selection of brood fish, preparation of pituitary extract, injection to brooders and breeding, collection of eggs and hatching, spawn collection, rearing of spawn etc. may be initiated and strengthened. (c) As found from the household survey, people need special skill training in how to use modern technology in collection and processing of various forest products like Honey, Sal leaves, Mahul etc. Like cereals and pulses, there should be minimum support prices for the forest goods also. Setting up of retail and wholesale Mandis for the forest good is also critical. The Odisha Bamboo Development Agency jointly with the Department of Handlooms, Textiles & Handicrafts must come up with nurturing clusters for forest goods in the district and find a way to improve the quality, design and better packaging of the forest goods which can be sold out at higher prices in national and international markets.
2.	<u>*Secondary Sector*</u> The industry sector has a great potential to grow faster due to locational advantages of the district in terms of water and road connectivity. But, except construction, the performance of other sectors is quite disappointing. Absence of large and medium scale industries is probably impeding the growth prospects of small and ancillary industries. Although the district has many educational and training institutions like engineering and technology colleges, ITIs/ITCs but due to lack of good placement, more than 50 per cent of seats of these institutions remain vacant.	Focus must be given on the three key areas of skill training such as quality, employability and employment opportunities simultaneously. The district may focus on imparting skill training in demand based industries like manufacturing of brake linings, clutch plates, varnish and plastic materials. Skill training should also be imparted for some of the potential downstream demand-driven industries such as ceramic and pottery products, wielding electrodes, flooring tiles, abrasive papers and bromine etc. Some of the labour intensive industries such as brass and bell metal, stone, straw and bamboo crafts require further trainings in designing.

	Nevertheless, the district's manufacturing sector has a good prospect of growth in the area of food processing, textile, mineral based industries, handicrafts and construction and building materials. The industry sector is expected to face a skill gap to the tune of 1.4 lakh by 2030.	
3.	*Tertiary Sector* The district's economy is considerably driven by services activities like transport, storage and communications, trade, hotels and restaurants, real estate and business services. The district has huge potential in various types of tourism like health tourism, adventure tourism, nature tourism, water tourism etc.	During the meeting with the district officials it was suggested to enhance the scale of tourism in the district, the tri-junction area covering Bhanjanagar-Surada-Daringbadi must be developed as a tourist centre. The district also has huge potential in nurturing health tourism not only in Allopathic but also in Ayurveda and Homeopathy. Kerala type of tourism model relating to health, water and nature may be replicated in the district. The government should also encourage people to develop clean villages like Mawlynnong village in Meghalaya for tourism and self-livelihood by linking it with the Swachh Bharat Abhiyan. Skill training should be imparted for creating self and formal employment in the area like healthcare, transportation, ICT, trade and hospitality, nursing, teachers and trainers, banking and insurance, salesman for retail sector, security guard, tourist guide, interpreter and travel agents.
Jajpur		
1.	*Primary sector* Besides paddy, the district produces a large quantity of other major crops like pulses, vegetables, oil seeds, groundnuts, and fruits etc., which provides a unique opportunity to the district to expand the food processing sector. The district may also focus on fishery and fishery based products, dairy and poultry as these sectors have shown promising growth in the recent years.	In agro-based products, the district has second highest number of MSMEs (after repairing and services) of food and allied products, which may be further strengthened by creating good infrastructure facilities like cold storage, electricity, water supply and proper transport connectivity etc, and for which, the requisite skill training must be imparted through KVK. It was also found that although the district produced a large quantity of groundnut, but no processing centres are available to extract groundnut oil. Similarly, only a few processing units are available for oilseeds, which may be further strengthened by providing credit and other facilities to MSMEs. Adequate skill development is required in fishery sector like fish breeding, fish-feed preparation, fish processing, and poultry farming
2.	*Secondary Sector* The district has plenty of mineral deposits such as Chromite, Iron Ore and Quartzite. Hence, mineral based industries such as engineering; metal based industries such as glass and	Despite being one of the mineral rich districts, Jajpur has no Government ITIs to meet the requirements of the skilled human resource for the industry sector. There are only three engineering colleges and one polytechnic institute in the district. Skill development is required in the area of mining

	ceramics, chemical, and allied and agro-based industries such as food processing, textiles and leather based industries should be given higher priority in the district.	engineering, mining safety, metallurgy engineering, mechanic mining, mine electrician, drilling engineering and fitter leveling alignment balancing. Skill development is also required in automobile and automotive sectors, food processing and chemical and biotechnology.
3.	*Tertiary sector* The sector contributes more than 50 per cent to district's economy led by higher growth in trade, hotels and restaurants and transport, storage and communication. Other potential service sectors of the district are IT and ITES, banking and insurance services, health and education and real estate.	Urbanization is rapidly growing in the district which would boost the demand for various services like, education and health services, hospitality, transportation, banking and financial services, IT & ITES, construction and real estate. Skills need to be imparted to help people to utilize these opportunities.
Sundargarh		
1.	*Primary sector* The district has not done well in agriculture sector particularly in cereals and pulses. Maximum land in the district is covered under hills and forest, which is conducive for growing different horticultural crops. Other promising sectors are floriculture and other commercial cropping such as mango, banana, litchi and spices like ginger and turmeric. Steps must also be taken to enhance forest products like Bamboo, Honey, Timber (Bija, Asan, and Sal) and Kendu leaves.	From the discussion with district level officers it was found that skill training in the area of horticulture, floriculture, fisheries, organic farming, forest based products requires support from the government to maximise the return. To address these issues, the state government may assign the work to Krishi Vigyan Kendras (KVKs) located in the district to conduct training and awareness programmes particularly at the Panchayat/block levels. KVKs in the district are currently engaged in imparting training through 70-100 training programmes in a year, which needs to be strengthened and expanded further. The major hurdle that the agriculture sector is facing in the district is that younger generation is not willing to work in the sector; hence they should be trained and engaged in agro-processing units.
2.	*Secondary Sector* The district is positioned at 1st place in terms of contribution to manufacturing sector of the state. Maximum numbers of large and medium mineral based industries are located in the district and performing very well. But there is a need for expanding the base of ancillary and downstream industries in the district. Lack of interest among the students for pursuing technical and vocational education is a concern as the seat utilisation capacity of ITIs operating in the district is only around 49 per cent, which is less than the state level (55.6 per cent).	Developing and providing skills to the youth in ancillary and downstream industries such as Oxygen Gas/Acetylene gas, Refractory materials, Refractory Bricks, Lancing Pipes, Steel casting, Foundry, Nut, Bolts, Rivets and Fastners, Structural Fabrication workshops, Grease, Hard Coke, Lime, Repair and Maintenance Workshops etc. needs to be focused on. These industries are usually labour intensive ones and would act within the framework of hub and spoke model with large and medium industries.

3.	*Tertiary sector* Rapid urbanization in the district offers plenty of opportunities for service sector expansion in the area of trade, hotels and restaurants, communication and banking and finance, education and health services. It is also found that those service sectors that are linked to tourism and manufacturing sector like transport, communication, trade, hotel, restaurant and banking have contributed considerably to the growth of the district. The district is facing major challenge in the area of water supply and health and sanitation. Due to rapid rise of industrial and mining activities, the ground water is getting contaminated day by day, creating a lot of life threatening water borne diseases.	Positive growth of industrialization in the district, has led to rapid urbanization and therein more migration of people to the area. This calls for setting up of more number of enterprises in the service sector like Diesel Engine Repairing Centre, Auto Rickshaw Servicing unit, Nursing Home/Clinic, Cold Storage, Dry Cleaning, Laundry, Health Club, Digital Photo Processing Laboratory, Gas Welding/Spray Painting, Goldsmithy etc. Since 40 per cent area of the district is full of greenery covered under forest, hills and waterfalls, places like Rourkela, Vedavyasa, Manikmonda, Manindra dam, Ghogar, Khandadhar and Darjeeng could be developed as tourist destinations, for which training may be imparted for employment as security guard, tourist guide, interpreter and travel agents.

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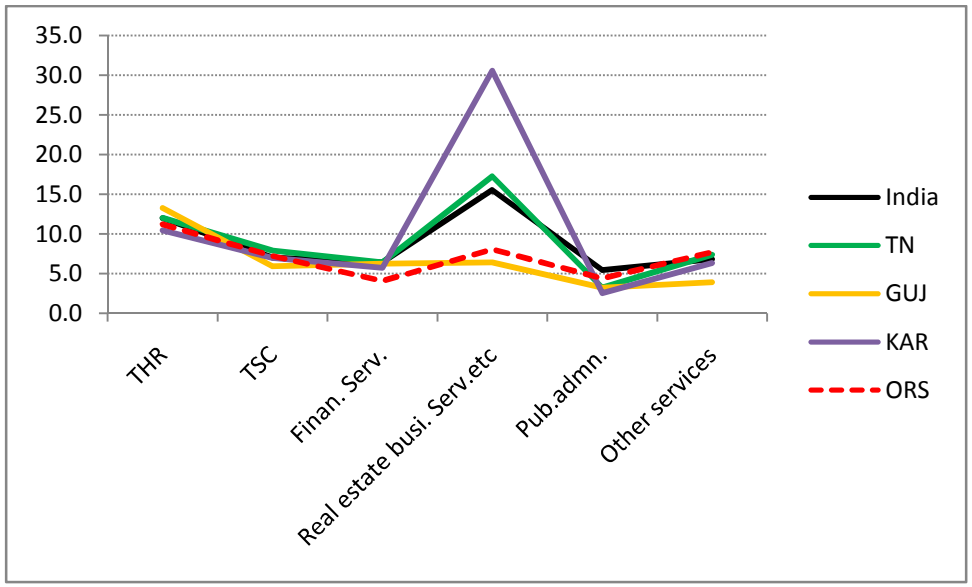
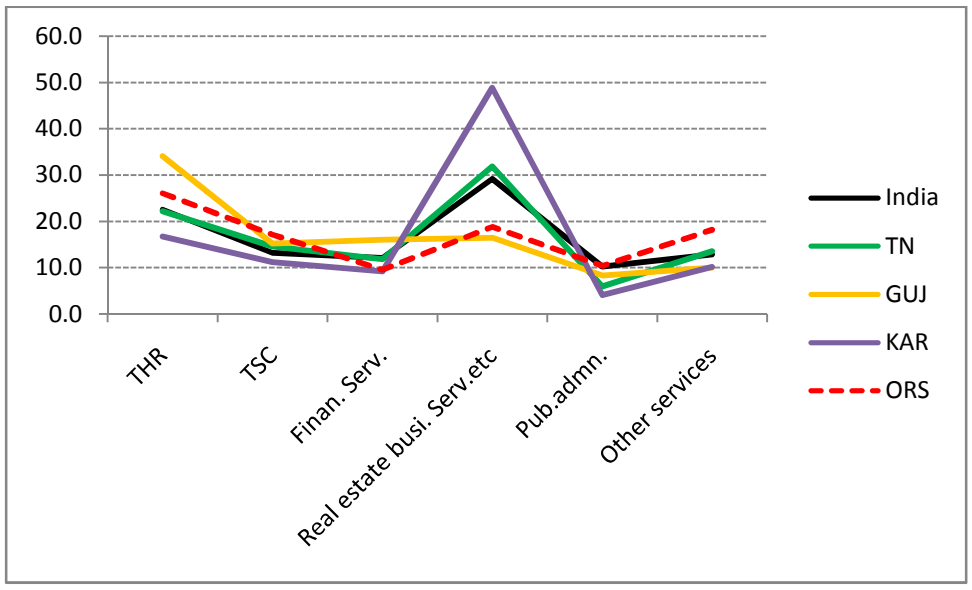
Annexure

Figure A4.1: Share of Service sub-sectors to GDP (%)



Note: THR = trade, hotel and restaurants, TSC = transport, storage and communications.

Figure A4.2: Share of Service sub-sectors to Services GDP (%)



Note: THR = trade, hotel and restaurants, TSC = transport, storage and communications.

Focus Group Discussion (FGD) at Village Kanheipur, Block Khallikote, Ganjam District

A Focus Group Discussion (FGD) was conducted at village Kanheipur located in Khallikote block of Ganjam district, Odisha on 28th September, 2016 with reference to the study "Manpower Planning in Odisha" conducted by NILERD for Planning & Convergence Department, Government of Odisha. Kanheipur is situated at a distance of about 30 kms from Chhatrapur, the district headquarter of Ganjam and about 45 kms from Berhampur, a leading commercial town of the district. The group comprised of 10 participants that included five dropout girls, four dropout boys and some community members headed by the President of one of the SHGs operating in the village. The programme was attended by Dr. K.C. Pradhan, Joint Director, National Institute of Labour Economics Research and Development (NILERD) and Dr. Saroj R. Mania, Consultant, NILERD of Manpower Project.

At the outset, the group participants were briefed about the purpose of the programme and its objective. Some of the important questions presented to the group for discussion are given below:

What are the factors that force the students to stay out of school? Are the drop out students working anywhere or looking for any job. If they are currently working, then what types of problems/challenges are faced by them in the job? Are the current skills sufficient/ not sufficient to perform the job? Are they looking for any skill enhancement trainings? Are they aware about government skill enhancement schemes? If government provides training to school dropout students, what kind of training/ skill enhancement are they are looking for from the government. After training whether they want to work in the district or the state or want to move out of Odisha.

During the discussion it was found that except two all the participants were school drop outs and were not going to school or any other educational institution. Six of the school drop outs had studied till secondary level, two till higher secondary level and one had left school at upper primary level. Poor financial condition of the family was cited as the principal reason for discontinuation of studies by most of school dropouts while two girls cited poor teacher quality as the main reason for dropping out of school. Only two boys from the group were working, all

the rest were sitting idle at home and were unoccupied. One of these boys was working in plumbing sector in Mumbai and the other was working in the packaging unit of a Pharmaceutical Company located in Hyderabad.

When asked about the possibilities of them getting a job in the present day situation, most of them felt that if they will be given the opportunity to get skilled and get certificate, then they may have a chance of getting engaged in some work. The two boys who were working stated that in the absence of having a professional recognition/ formal certification they find it difficult to justify their ability. Besides, they face the problems pertaining to their health and physical wellbeing as they were staying alone far-away from homeland. Despite the consoling engagement of two out of the total, almost all mentioned that they need further orientation to upgrade their skill for any such viable engagement. Moreover, the general reflection was, given an opportunity they would prefer to study further as the financial constraint of their family stood as an impediment in the process of their formal studies and afterwards they can look for any job. Furthermore, the boys and girls present in the discussion stated that although they have heard about the skill development programmes initiated by the Government but have never realized the same in true sense, as the local government has never informed them of any government schemes for skill development. Moreover, the girls opined that given an opportunity they would prefer to undertake skill development training in the trades like; tailoring and embroidery where as the boys stated trades like driving, mobile repairing and plumbing. It was felt that the group members were hopeful of getting some employment/engagement in the district if skill training were provided to them. There was a wide variation in the statement of the boy and girl participants pertaining to the preference of the area of operation after skill training, the boys were willing to go anywhere within or outside the state for any such employment/ engagement whereas the girls hesitated to go beyond the district.

Moreover, the final suggestion of the group members of both genders was to have some support to carry forward the left out formal studies and then to undertake some skill training programme for any such job.

Focus Group Discussion at Patana Sahi, Ward No: VII, Khallikote NAC, Ganjam District

A Focus Group Discussion (FGD) of Ganjam district was conducted at Patna Sahi on 28th September, 2016. This habitation is located in Ward No- VII, of Khallikote NAC area. The group consisted of 12 participants from both the genders. While interacting with the participants it was revealed that three of them were continuing in the formal stream of education; Bibek Das was studying in Class VIII, Rinki Das in Class X and Muna Das was at Higher Secondary level, the rest were school drop outs. The programme was attended by Dr. K.C. Pradhan, Joint Director, National Institute of Labour Economics Research and Development (NILERD) and Dr. Saroj R. Mania, Consultant, NILERD of Manpower Project.

Before commencement of the formal discussion, the study team appraised everybody about the background of this programme and its objectives. Some of important questions were discussed in the FGD are as follows:

1) What are the factors that forced the students to stay out of school?
2) Are the drop out students working anywhere or looking for any job?
3) If they are currently working, then what types of problems/challenges are faced by them in the job?
4) Are the current skills sufficient/not sufficient to perform the job?
5) Are they looking for any skill enhancement trainings?
6) Are they aware about government skill enhancement schemes?
7) If government provides training to school dropout students, what kind of training/ skill enhancement are they are looking for from the government.
8) After training whether they want to work in the district or state or want to move out of Odisha.

As mentioned before, except three participants the rest had dropped out from formal schooling after class 6th, 7th, 8th, 9th and 10th as revealed during the course of the discussion. When enquired about the reasons for dropping out of school it was revealed that financial constraint was the main reason for the discontinuation of their studies. As regard to their present engagement the dropout participants had worked in the construction projects undertaken in Khallikote area as labourers but the nature of their engagement was not regular so they did not have constant income source. They also mentioned that they went outside the district to work in

the construction projects, however there was no certainty of getting such engagements/ jobs and even if they get any such opportunity it was not regular. Regarding skill training the girls opined that given an opportunity, they were willing to undergo tailoring and nursing training whereas the boys expressed their interest for learning driving, mobile repairing and automobile repairing. The participants are hopeful that after skill enhancement they may get some engagement opportunity. Regarding the skill development programmes they stated to have some knowledge about the Government organized skill programmes for unemployed youth from Television and friends. However, they do not have any idea about vocational training programme. As regards the skill development training and possibility of any job/engagement the dropout participants wished to have some support for getting regular engagement opportunity and source of income but the three participants who are still studying expect financial support to continue their studies without interruption. We find that the boys are willing to work outside the district and the state but the girls are willing to work within the district or nearer district.

Focus Group Discussion (FGD) at Village Danagadi, Block Danagadi, District- Jajpur

A FGD was conducted at village Danagadi located in close proximity to the industrial hub "Kalinga Nagar" of Jajpur district, Odisha on 26th October, 2016. This village is situated at a distance of about seven kms from Jajpur town, the head quarter of the district. The group consisted of 12 dropout participants of whom seven were girls and rest were boys.

At the outset, the group participants were informed about the purpose of the programme and its objective. Then the participants told about their village. It was revealed that the village has about 500 households which consist of families from all the categories i.e. General caste, OBC and SC & ST. However, it was further revealed that some families from outside the district and state have also settled in this village on economic ground due to nearby industrial setups. The

villagers pursue different occupations like; farming, wage earning, trading and service etc. Due to the nearby industrial hub many families of the village pursue some petty business. There are many poor families whose lands have been acquired for the industrial purposes but they have not been benefited properly but few families have been compensated with some jobs in the companies in lieu of their land.

It was found that all the participants are primary/upper primary school dropouts excepting two of which one dropped out at Secondary level and the other at Higher Secondary level. At present none of them is going to school or any other educational institution for further studies.. As regards to their educational attainment, it was revealed that 10 persons have attended Primary/ Upper Primary level, one each has gone up to secondary and higher secondary level. As regards the reasons of their dropout they stated some pertinent causes like; a) poor financial condition of the family, b) poor educational performance leading to regular failure in the examinations and c) taking care of young siblings when both the parents go for wage earning as factors responsible for the discontinuation of their studies. Of course both the boys and girls were made to leave education due to the first two points but the last point mostly focuses at the girls. Regarding their present engagement, it was revealed that the boys were engagedin construction activities under the contractors like helping hands in masonry activities, painting the building, working as casual labourers in industries and some also participate in farming activities of their family. In case of girls, it was revealed that they usually do not go out for any work but two to three girls stated that they were engaged in tailoring activities at home. The group participants told that the girls dropped out mostly to take care of household chores and their younger siblings as their parents go out for some wage earning, and in case of very poor families the grownup girls also go to work as helpers in masonry works. Regarding availability of jobs the boys told that they usually get 10 to 12 days engagement opportunity in a month and the girls engaged in tailoring also get to work for about 10 days in a month. As regards the problems or challenges faced in the current jobs the participants viewed non availability of regular work , inadequate wage i.e. Rs. 200-250 per day and late payment of wages by the contractors as major issues. When they were asked about up gradation of skills for the current jobs the boys vehemently disagreed since they felt compelled to pursue their current activities but given an opportunity they would prefer to do some other gainful activity. However, they all agreed to undergo some skill enhancement training hoping that after orientation they may get the opportunity of some regular source of income. Regarding the skill development programmes/ schemes of Government they said that as per their understanding those trainings were meant for the educated people and as they were not adequately qualified they did not think of that as an option. Further regarding the availability of vocational training programmes in their area they were aware that that MESCO Company has set up an ITI and there are some private ITIs also in their vicinity and some of their friends were also getting training in Jindal Company but those were not for them, because as per their understanding "for those programmes minimum 10^{th} pass and more money is required where they fail". However, in the present situation they are willing to undergo some skill training provided it is free and having provision of stipend during the training period. Moreover, they highlighted some trades as dearer to them, the boys preferred to undergo trainings in the non-farm sector activities like; electric wiring, repair of mobile phone, repair of household electrical appliances, plumbing, tractor and motor bike repairing etc. where as in the farm sector they opted for training in poultry, diary, goat rearing, fishery and improved agricultural practices etc. The girls preferred to undertake skill development training in the trades like; tailoring, beautician,

sales man ship, jeweler, diamond cutting and Paper bag making etc. Moreover, the group members were very hopeful of getting some employment/engagement in the district if skill trainings are provided because of proximity to the Kalinga Nagar industrial hub. They further stated that if Government can make arrangements for providing either soft loan or placement scope in some industries then it would be beneficial for them. Finally, they were asked about their opinion pertaining to the preference of the area of operation after skill training. It was reported that the boys expressed to go beyond the district and even the state if there is opportunity for any such employment/ engagement whereas the girls restricted only to their own district.

Focus Group Discussion (FGD) at Chunabhati Sahi located in Ward No: 22 of Vyasanagar Municipality, District - Jajpur

A FGD was conducted at Chunabhati Sahi located in Ward No: 22 of Vyasanagar Municipality, Jajpur district on 25th October 2016. The group consisted of 12 school drop out boys but practically 8 to 9 boys participated in the discussion while the rest were simply listening and nodding their heads. During discussion it was revealed that except for two participants who discontinued their studies at the secondary level, the rest dropped out of school at the upper primary level.

At the outset, the team leaders' elaborated in detail about the purpose of the programme and its objectives. As discussed before all the participants of the discussion were school dropouts at different levels. When enquired about the causes of their dropout, the financial constraint of the family, chronic infirmity, demise of the main bread earner of the family and also to pay attention to the household affairs of the family in absence of the parents emerged as the main factors responsible for the discontinuation of studies. As regards to their present engagement it was revealed that seven participants are working in some construction projects as Mason, two were casual electrical fitters while others were engaged in the task of collecting coal from the railway yard which was used mostly for household cooking and the surplus if any was being sold. Regarding the challenges in their prevailing occupations they were of the view that these engagements were not regular in nature so they did not have assured earning opportunity. In a month they were engaged for 12-15 days at best and the same came down to 5-6 days during monsoon. In this regard, they further added that for their daily engagement they congregate at an earmarked place in the market from where the contractor picked them for work as per his requirement. Besides, many industries have tendered their construction works to big companies those are having their own work force as a result of this their engagement and income are uncertain. When discussed about their skill, the members opined that they are not at all skilled and they would be pleased to undergo some skill development training. However, their problem is they have to supplement the income of their family so if training programmes can be conducted in the evening hours then they can work in the morning hours and attend the evening training programmes. Some of participants thought that provision of some stipend during the training would be beneficial for them. When asked about their knowledge pertaining to any

Government skill enhancement programme/scheme they emphatically denied. However, they were well aware of the vocational training programmes undertaken in ITI and ITC located in their area and regarding these training programmes they have heard from their friends and community members. But in order to enroll in such programmes some qualification and course fees are required, thus these courses are out of their reach. Furthermore, regarding skill training they opined that given an opportunity they would prefer to enhance their skill in the trades like; masonry work, electrical work, plumbing, welding, driving, motor & bike repairing, repairing of electrical gadgets like TV, fridge, Air-conditioner and leather & paper bag making etc. whereas according to them the girls would prefer to undergo training in tailoring.

Regarding the opportunity of getting some job after the training they were positive due to the location of the Kalinganagar industrial belt in their vicinity. However, in their view Government should make strict policies to engage local human resources on priority basis in the locally operating companies. Besides, for starting some enterprise arrangements may be made to provide soft loans with simplified terms. Some participants also told they do not have any land of their own and so they have been living in a piece of encroached land. Thus, necessary measures may be taken to provide loan to the landless people too, since they cannot produce any land record for sanction of loan. Finally, regarding their preferred areas of work place they viewed that "they can go anywhere within the state but their preference is for the cities/towns like; Cuttack, Bhubaneswar. Balasore, Rourkela and Keonjhar.

Focus Group Discussion (FGD) at Village - Kantiamura, Block Bargaon, Dist-Sundargarh

On 11th November, 2016 a Focus Group Discussion (FGD) was conducted at village Kantiamura located under Tudalaga Gram Panchayat of Bargaon block in Sundargarh district, Odisha. This village is situated at a distance of about 20 kms from the district headquarter Sundargarh and about 80 kms from Rourkela, the steel city of the state. The group consisted of 12 participants of which seven were girls and the rest were boys.

At the outset, the group participants were briefed about the purpose of the discussion and its objective. During conversation it came to the fore that barring three who are still continuing their studies the rest are dropped out at different levels of schooling. As regards the educational attainments of the dropout participants, it was revealed that one boy had discontinued his studies after higher secondary level, one of the boys and girls dropped out at secondary level and the remaining six left studies at upper primary level. When asked about the factors responsible for their dropping out of the educational system they reported the following grounds.

i) Poor performance in studies and repeated failure in the examinations.
ii) Financial constraints of family forced them to quit education and get involved in some economic activities to supplement family income.

iii) Chronic illnesses of the principal earning member forced them to stay out of school.

iv) Some female participants asserted that to take care of their younger siblings they left schooling.

v) Two participants opined that, due to the introduction of e-admission system they failed to get seat in their preferred nearby colleges because of which they discontinued their studies.

Regarding their present engagement, it was reported that one third of the participants are engaged in construction works as labourer and five persons are doing some household chores like assisting mothers in domestic activities, facilitating father in managing the tiny enterprise and also extending helping hands in the farming activities of their family. In this regard the extension of support to the mothers is being done by the girls and the same to the father and family as a whole is being done by the boys. As regards the scope of their engagement they opined that the wage labour work in construction sector is not a sustainable means of earning since there is no certainty of getting work every day and even though some one may get the opportunity of working continuously, still after 10 to 15 days he will have to take a break due to the hardship of the work. Besides, owing to lack of experience in farming activities the local farm owners do not prefer to employ them and so they do some errand farming activities in their own fields and sometimes work as exchange labourer in the village. When asked about the problems they confront within the current job the group members working outside told they do not get work regularly and whatever they get under the Mason is for a short term with a limited work load. This indicates they do not have assured source of income. Besides, the work of wage labour in the construction sector is a tedious job having severe hardship. So in this area of activity they can not engage themselves continuously but take ample rest which hampers the continuity of work delivery and income as well. When the focus of discussion was shifted to learn about the skill they possess pertaining to the work they are engaged in and their intent to undergo any such skill improvement orientation programme they viewed that "we do not have any developed skill in this field and we are considered as unskilled workers." However, they unanimously expressed their willingness to undergo any such training but asked where will it be held and in which areas/trades. This depicts their desire to undertake training in contemplation of getting regular earning opportunity. Afterwards, when asked if they had knowledge about government supported skill development scheme they expressed their ignorance about the prevalence of any such programme. They however expressed desire to be associated with any orientation/ skill enhancement programme ca run by government. Moreover, as regards to their area of interest those participants who had secondary level and above preferred to be trained in computer basics. When asked the reasons of their preference to computer learning, they said that in this digital age without computer knowledge one will have to depend on others. As they are from rural area their scope of getting computer learning is very limited. They can't afford the course fees of computer education which is being offered in the urban areas. So they are interested in the field of computer. They further pointed out that learning computer can help one to be self employed or getting employed in others enterprise. Apart from computer, some participants expressed their interest to enhance their skill in tailoring and dress designing. Some others preferred welding, mobile repairing, bike repairing, DJ sound management, beautician and horticultural trainings. Finally, the participants working as construction

labourer opted for masonry training. It was found that that the group members are hopeful of getting engagement opportunity in the district in the fields of construction, mobile repairing, bike repairing etc., if skill enhancement trainings are provided but for the other preferred sectors there is limited placement scope in the district. When asked about their expectations from the government, they mentioned that government should provide subsidized finance/loan to trained youths for starting their own enterprise. Besides, it should make provisions for the employment of trained people in both the public and private sectors jobs. As regards the preference of the area of engagement after training the boys viewed that they are willing to go anywhere within the state and beyond also but the girls opined that their first priority is their home district Sundargarh and at best they may go to the neighbouring district Jharsuguda.

SUGGESTIONS:

The final suggestion of the participants was that during the training period they should get stipend to avoid the financial burden on their family. It was also noticed that the training providing agencies often demand bribe through their middle men for getting enrolled and also for giving certificate which should be strictly avoided. Government should take necessary measures for ensuring proper placement to the successful trainees and financial assistance to those who look for starting their own enterprise.

Focus Group Discussion (FGD) at Chhend Basti located in Ward No: 25 of Rourkela Municipal Corporation, in Sundargarh District

The Focus Group Discussion (FGD) in the urban area of Sundargarh district was conducted on 10th November 2016 at Chhend Basti, located in Ward No- 25, of Rourkela Municipal Corporation under Sundargarh district. The group consisted of 11 girls dropped out from the educational stream at different levels of schooling. During discussion it was revealed that two of the eleven participants had discontinued their studies after higher secondary level, one after secondary level and the remaining eight dropped out at the upper primary level.

At the outset, the organizers' explained in detail about the purpose of the group discussion and its objectives. As mentioned earlier all the participants of the discussion were dropouts at different levels of schooling. When enquired about the causes of their dropout, various reasons were placed by the participants but the imperative points were the financial constraint of the family, chronic sickness of the main bread earner of the family and to take care of the younger siblings etc. Besides, another important factor as told by some participants was that their fathers remained inebriated every time and did not facilitate in continuing their studies. Parents did not give importance to girl's education Because of which some girls were compelled to discontinue their studies.

As regards to their present engagement it was revealed that couple of girls were doing tailoring work, four girls were engaged in household chores, two were working as daily workers at the nearby spice factory named as Gruhasti Udyog and the rest were sitting idle at home . According to the participants it is not at all easy to get suitable job. There are jobs available in their locality for casual labourers in construction sector for which they were misfit. However, they were looking for some opportunities in established enterprises. As regards the challenges in the current job, the couple of girls doing tailoring work opined that they lack improved skill of dress designing. Similarly, the two girls working in spice factory stated that "they are only stitching the packets for which no training is required. But they were getting low wages and irregular work. If they would be oriented in machine operation then they could get work regularly and earn more income." So they feel that their skills are not updated. Those who are not working they wanted to undergo some skill development training in order to have some scope of gainful employment. When asked about knowledge pertaining to any Government skill enhancement programme/scheme they denied having any such idea. When the group members were asked about any such vocational training programmes undertaken in their area they stated that persons coming under SC/ST category are getting regular trainings, which is being imparted near Friday market Chhend, Rourkela. Besides they pointed out that there are two ITIs in their area which provide technical trainings. However, the ITIs collect high amounts of course fees, but the training which is being provided in Friday market is free of cost and backed by stipend. They were apprised of these training programmes by their friends and relatives. Further, regarding skill development training, they mentioned that given an opportunity they would prefer to undergo training in the fields of tailoring, dress designing, embroidery, beautician training, salesman training and basic computer training. As regards the opportunity of getting some engagement after the

training they expressed that “they feel the scope is wide open for trained persons since they belong to Rourkela Steel City, which is a Municipal Corporation having large numbers of enterprises/setups of different nature and magnitude.” When they were asked about their preferred areas of engagement few opined that they can migrate to anywhere within the state and outside as well. Moreover, more numbers of participants viewed that “they want to work within the district, especially within their home town Rourkela where there is enough scope of getting job”. Finally, the participant suggested that the trainings which are supposed to be provided by the Government should be accessible and affordable. Candidates belonging to every group and category should be given equal importance. There should not be any biasness or discrimination amongst the candidates. Information relating to training venues, commencement period, eligibility of candidates, documents required for selection of admission and course fees should be disseminated widely.

Proceedings of the workshop on "Manpower Planning in Odisha' held at Ganjam District on 01.05.2017

A Workshop on **Skill Development and Manpower Planning for Ganjam District** was held on 01.05.2017 at 10.30 A.M at Collectorate Conference Hall, Chatrapur, Ganjam District.

At the outset, Shri S. K. Mishra, ADM (Gen), Ganjam welcomed all the participants. While addressing the audience he mentioned that India is currently the largest youth population country in the world. Thus the country faces a challenge of skilling this large population. He emphasized that the standard of living of people cannot improve with low GDP and high population growth. In order to achieve higher GDP growth, we need to focus on farming sector which is plagued by unskilled labour, the need is to provide necessary skills to the agricultural manpower. Manpower engaged in the agriculture sector should be converted into skilled manpower by providing special training, increasing literacy rate and for accomplishing this a roadmap of skilled manpower is to be prepared. The ADM also requested participants to actively participate in the workshop and to give their valuable suggestions/opinions on the process of transferring the unskilled labour force to skilled labour force in different sectors.

The Deputy Director, P&C Deptt, Odisha, Bhubaneswar briefed about the workshop being organized by the National Institute of Labour Economics Research and Development(NILERD) and for this three districts namely Jajpur, Ganjam and Sundergarh have been selected as sample districts for the study.

The Deputy Director (P&S), DPMU, Ganjam mentioned that NILERD, Delhi an autonomous institute under NITI Aayog has been entrusted with the study and preparation of Report on 'Manpower Planning In Odisha' and NILERD has already collected the primary/ Secondary Data and the suggestions and opinions of participants regarding this study are highly desired which is the objectives of the workshop.

Dr. S.R.Mania, Consultant, NILERD briefed about the study of Manpower Planning in Odisha and Ganjam and it's requirement.

Dr. P. C. Parida, Director, NILERD made PowerPoint presentation on Rationale of the Study of Manpower Planning in Odisha, it's objectives, Situation Analysis, Estimation and projection of Manpower Demand and Supply, Challenges, Data sources and Skill Development Programmes of Ganjam.

After the PowerPoint presentation the following suggestions were shared in the workshop by the DLOs:

1. Shri B. K. Acharya, DFO, Ghumsur(S), Bhanjanagar was enquired about percentage of educated unemployment in Odisha and Ganjam. He clarified that the Agriculture and Forest department are the allied sectors. Earlier 37% of the forest areas were used for the collection of forest product for the livelihood purpose, but now it has stopped. The labour force of forest sector are unskilled and unorganized and a separate developmental study should be made on unskilled workforce with the special plan for making them skilled in agriculture and forestry sectors with the help of Information Technology and Training.
2. The Director, ISRD-Child line expressed that the labour problem in Ganjam is a chronic problem for more than a decade. About 74% of existing labour problem in the

district is known, whereas 26% is unknown, because high percentage of people in age group 11-18 are not present in the village. It is important to study why people from the district are migrating to other states while the refugees at Chandragiri are staying permanently in the district and maintaining a very good livelihood. He also said that planning for prevention of draught in Ganjam needs to be made. He pointed out that the district has huge potential for tourism development. For example, Bhanjanagar-Surada-Daringbadi, the triangle area must be developed as a tourist place in the District. Provision of employment opportunities for the students of Technical Institute should be within the district. Skilled manpower is to be prepared in every sector like agriculture, horticulture, and Industry etc.

3. The District Information Officer, NIC clarified that the skill development programmes with the cashless transaction training for digital payments are now being given to the manpower in different sectors of the district.
4. The Executive Engineer, RWD-I, Berhampur emphasized the requirement of the skilled labour force for rural contractors, Job oriented study for the students. The Executive Engineer, RWD-II, Berhampur emphasized on labour social security issues.
5. The Asst, Director, Horticulture, Ganjam pointed out that in floriculture, particularly Rose flower production has high market demand. The district has a lot of scope for rose plantation with adoption of new technology. Using the skilled labour force, the District will be able to export the Rose flower to Bangalore and other places. He also pointed out that the district has achieved high growth in Potato production. The installation of 3 cold storage facilities at Chikiti, Berhampur and Huma, the preservation of potato and other perishable commodities for longer time period has been possible, which has directly helped the farmers to sale their products at higher prices.
6. The Principal, Parala Maharaja Engineering College, Berhampur suggested about the clear definition of the skilled development, immigrant should be stopped, proper training should be given and finally, the mind setup of the manpower should be changed.

The workshop ended with vote of thanks to the chair and the participants.

Minutes of the workshop on "Manpower Planning in Odisha' held at Jajpur District on 25.04.2017

- **Mr. Braja Gopal Acharya**, O.A.S, PD, DRDA (Project Director, District Rural Development Agency) chaired the workshop in absence of the District Collector Mr. Ranjan Kumar Das. The dignitaries present on the Dais were; Mr. Braja Gopal Acharya, Chairman, Dr. P. C. Parida, Director, NILERD, Dr. S. R. Mania, Consultant, NILERD, Mr. Debraja Satapathy, Deputy Director, Planning & Convergence Deptt. Govt. of Odisha and Mr. Amulya Kumar Mohanty, Dy. Director, DPMU, Jajpur.
- Mr. Amulya Kumar Mohanty, Dy. Director DPMU Jajpur began the proceeding by welcoming the dignitaries and the participants of the workshop. He emphasized on the importance of Manpower Planning for the district as well as the state And in the light of the same the significance of the workshop.
- **Mr. B. G. Acharya,** in his inaugural address discussed the Skill Development Policy initiated by the Honorable Prime Minister of India and its context in the workshop. He also mentioned the following.
    - The State Government of Odisha has given due importance on skill development aspect for which it has constituted a body called Odisha Skill Development Authority (OSDA) and has appointed a distinguished Skill Development Expert Mr. Subrato Bagchi as its Chairman.
    - Any country, state or city doing skill development training will have better development scenario as compared to those not doing this training programme.
    - He told that all the line departments of the state govt. like; Agriculture, Horticulture, Animal Husbandry, Fisheries, Forestry and Mining etc. should come forward to provide need based skill trainings in their specific fields for the sustainable employment of the unemployed youth. In this regard, he further stated that this initiative by state government requires support and involvement of likeminded people.

- **Dr. P. C. Parida**, Director, NILERD made a presentation about the initiatives taken by the institute for the study "Manpower Planning in Odisha"
  After Dr. Parida's presentation, the participants were asked to give their comments and suggestions on the subject. The following comments and suggestions emerged from the deliberations.

    - **i) Mr. A. Mishra** from the Rural Development Deptt., Jajpur District told that the local industries are engaging unskilled and semiskilled workforce from outside the state rather engaging the local trained youths. That's why skill development training has not been very successful in the district due to scarcity of employment opportunities for local youths even after completing skill training.
    - **ii) Mr. B. B. Dhall, Jt. Director, Industries & G.M, Regional Industries Center, Kalinganagar** stated that out of 500 students passed out in vocational trades from the local institutions, only 98 got placements. He also

pointed out that although there are number of Pvt. ITIs running in the locality; students from these institutions are not able to get placement in the local Industries. He also expressed concern that many unskilled youth in the locality are taking admission in skill training programmes only to get stipend from the government but were not interested in learning. He further suggested that in order to make skill trainings productive, the minimum eligibility should be high school.

- **iii) Mr. B. B. Nayak, Principal, Govt. ITI, Jajpur**, stated that Pvt. ITIs have about 50%,enrolment due to less scope for placement within the district or state. Even those getting placement outside the state, are being offered less than Rs.8000/pm which is inadequate for normal livelihood. As a result, the local students are not showing interest to go outside the state for jobs.
- **iv) The Dist. Employment Officer** suggested that the large Industries in their district are not involved in campus placement due to mismatch between skills of the trainees and their requirements. So placement/job related training programmes have not been very successful. He further stated that the Kalinganagar Industrial hubs, which are supposed to engage local youths have not hired any local youths for last few years.
- **V) Ms. S. Jena, Asst. Exe. Engineer, RWS&S,** told that the local Industries do not reveal their manpower requirements openly but secretly hire candidates as per their requirement from outside the state. Their motive is not to give employment to the local candidates. Regarding the farming community, she expressed concern that the middlemen take advantage of the produce at the cost of actual producer i.e. farmers. This is because of lack of storage facilities available with farmers due to which they sell their produce at much lower prices to middlemen. So to address this problem, Govt. should plan for arranging storage facility for the local agricultural produce which would benefit the farmers.
- **Mr. Kishore Kumar Rout, Director SBI Rural Self Employment Training Institute, Jajpur** stated that all help is being extend to train unemployed youth to be self employed Entrepreneurship Development Training Programme (EDP) training programmes are being conducted.
- **Mr. S. S. Panda, DDM NABARD** viewed that all the big units located in the district have their head quarters outside the state and so they decide and prefer to employ candidates from outside. Besides, the semi-skilled persons are engaged by Labour Contractors who also prefer candidates from out side apprehending that the local candidates may pose problem for any silly issue. Further, he opined that planning for making Kalinganagar a Big Municipality will help in improving GDP.
- **Mr. Rajib Lochan Das, DDA (Deputy Director of Agriculture) Jajpur** articulated that although Paddy is the main khariff crop but the district is unable to produce advanced variety rice. Further, Sun flower was promoted in this district but failed to achieve the objective. Many farmers were given training on mushroom cultivation but very few practiced this. Finally, he opined that in every production the producer decides the rate but in case of agricultural produce the middle (marketing) man decides the price and takes

the most benefit.

- **Mr. Ajaya Kumar Sahoo, Asst. Conservator of Forest** opined that Odisha is a mineral rich state without having the final production unit. The young are going outside the state for jobs with low salary. For instance, local Engineers and Diploma holders are being paid low packages in JINDAL but this company is paying more to the Engineers/ technocrats from outside the state. Industry contributes to air and water pollution in the locality, causing health problems but not providing employment opportunities to local people. He also pointed out that Kalinga Nagar Industrial town may be contributing more to state GDP but not providing any benefit to the local people in terms of jobs.

Finally the work shop was ended with a vote of thanks and all the participants were requested to take their lunch, arranged at the circuit house.

Proceedings of the workshop on "Manpower Planning in Odisha' held at Sundargarh District on 21.04.2017

The District Level Workshop on Manpower Planning in Odisha was held on 21.04.2017 at 09.00 AM in the Pragati Mandap, DRDA, **Sundargarh**.

Dr. S.R. Mania, Consultant, NILERD welcomed DD(P&S), DPMU, Sundaragrh, welcomed the dignitaries media and participants of the workshop.

Collector, Sundargarh and the Chief Guest of the workshop welcomed all the participants and requested District Level Officers (DLOs to make available all project proposals and planning strategies for the skill development of the manpower of Sundargarh district. He also emphasized that though agriculture sector engaged large number of people but they were mostly unskilled despite of availability of skill development opportunities in the district. The Collector also highlighted the importance of imparting training to the farmers in area of implementation of Solar Energy, Pumping of Diesel system as well as Eco-system for development of Agriculture Sector. The Collector further emphasised that people engaged in primary sector do not possess the skills for value addition of the Minor Forest Produce and as a result they are cheated by the middle man who gain at their expense.

Thereafter Dr. P. C. Parida, Director, NILERD, New Delhi thanked the Collector for his valuable suggestions and guidance for skill development towards manpower planning of Sundargarh district. After his welcome address to the house he made a powerpoint presentation on Manpower Planning in Odisha with special study on Sundargarh district.

After the power point presentation, Dr. Parida requested the participants to give their opinion and suggestion.

On the request of the Project Director, DRDA the GM, DIC, Sundargarh said that the data shown in the presentation is correct. During discussion the PD, DRDA directed the GM, DIC to upload his activities on the proper website.

Sri. J.P. Singh, ACF, Bonai, informed that for proper skill development the people living in unauthorized places within his jurisdiction should be imparted training.

Dr. Haraprasad Mahapatra, Representative of the Sundargarh Engineering School, Kirei informed that only theoretical opportunities are available without practical facilities in the school.

After detailed discussion about Sundargarh Engineering School, Kirei, the DD (P&S), DPMU, Sundargarh suggested that the course module of the school should be revised taking approval of the competent authority and as per the requirement of the industries of Sundargarh district so that skill development is line with industry requirements, This will increase the rate of employment in the district.

Asst. Director, Fisheries, Sundargarh informed that during rainy season there is seedling facility available in the district.

The Lecturer of Botany department of the Womens' College Sundargarh informed that the students of Botany department as well as of other departments do not get adequate practical facility about their subject matter He requested the AD(Fisheries) to include the students in some of their schemes for imparting skill development training.

The representative of India Can Education Pvt. Ltd informed that although they provide employment after completion of any skill upgradation training, the candidates are reluctant to put

their service outside their native area. He also informed that due to low salary i.e. about `6000/- per month most of the candidates hesitate to work outside their home town.

Lastly the workshop ended with vote of thanks by the DD(P&S), DPMU, Sundargarh.

News clip on workshop

ଦକ୍ଷତା ବୃଦ୍ଧି ଓ ମାନବ ଶକ୍ତିର ସଦଉପଯୋଗ ସଂପର୍କିତ କର୍ମଶାଳା

ସୁନ୍ଦରଗଡ଼, ୨୧।୪(ଅଫିସ): ସ୍ଥାନୀୟ ପ୍ରଗତି ମଣ୍ଡପଠାରେ ଦକ୍ଷତା ବୃଦ୍ଧି ଓ ମାନବ ଶକ୍ତିର ବ୍ୟବହାର ଉପରେ ଏକ କର୍ମଶାଳା ଅନୁଷ୍ଠିତ ହୋଇଯାଇଛି । ପ୍ରାରମ୍ଭରେ ନୂଆ ଦିଲ୍ଲୀସ୍ଥିତ ଜାତୀୟ ଶ୍ରମ ଅର୍ଥନୀତି ଗବେଷଣା ଓ ଉନ୍ନୟନ ପ୍ରତିଷ୍ଠାନର ପରାମର୍ଶଦାତା ଡ଼.ସରୋଜ ରଞ୍ଜନ ମାଣିଆ କର୍ମଶାଳାର ଆଭିମୁଖ୍ୟ ସଂପର୍କରେ ସୂଚନା ଦେଇଥିଲେ । ଏହି କର୍ମଶାଳାରେ ଜିଲାପାଳ ଭୂପିନ୍ଦର ସିଂ ପୁନିଆ ମୁଖ୍ୟଅତିଥି ଭାବେ ଯୋଗଦେଇ କହିଲେ ସୁନ୍ଦରଗଡ଼ ଜିଲା ଏକ ଆଦିବାସୀ ବହୁଳ, ଜଙ୍ଗଲ ସଂପଦ ପୂର୍ଣ୍ଣ, କୃଷି ବହୁଳ, ଖଣି ଖାଦାନରେ ଭରପୁର । ଏହି ଜିଲାରେ ମାନବ ଶକ୍ତିର ଦକ୍ଷତା ବୃଦ୍ଧି ଓ ସଦଉପଯୋଗ ହୋଇପାରିଲେ ଶିକ୍ଷା, ଅର୍ଥନୈତିକ ଅଭିବୃଦ୍ଧି ହେବା ସହ ଲୋକଙ୍କ ଚଳଣିରେ ମଧ୍ୟ ଉନ୍ନତି ହେବ ବୋଲି କହିଥିଲେ । ଉକ୍ତ ପ୍ରତିଷ୍ଠାନର ନିର୍ଦ୍ଦେଶକ ଡ଼.ପି.ସି.ପରିଡ଼ା, ସୁନ୍ଦରଗଡ଼ ଜିଲାର ବିଭିନ୍ନ କ୍ଷେତ୍ରରେ ଯଥା ଶିକ୍ଷା, ବୈଷୟିକ ଅନୁଷ୍ଠାନ, କୃଷି, ଶିଳ୍ପ କ୍ଷେତ୍ରରେ ଅନୁସନ୍ଧାନ ମୂଳକ କରାଯାଇଥିବା ତଥ୍ୟ ଉପରେ ରାଜ୍ୟ ଓ ଅନ୍ୟ ରାଜ୍ୟ ସହ ତୁଳନାତ୍ମକ ବିବରଣୀ ଉପସ୍ଥାପନ କରିବା ସହ ଅଧାରୁ ପାଠ ପଢ଼ା ଛାଡୁଥିବା ବା ଅଳ୍ପ ଶିକ୍ଷିତ ଯୁବ ବର୍ଗଙ୍କୁ ପ୍ରବର୍ତ୍ତାଇବା ସହ ଉପଯୁକ୍ତ ତାଲିମ ଦେବା ଓ ଏଥିପାଇଁ ଚାହିଦା ସୃଷ୍ଟି କରିବାକୁ ଜିଲା ପ୍ରଶାସନକୁ ପରାମର୍ଶ ଦେଇଥିଲେ । ଉପନିର୍ଦ୍ଦେଶକ ଦେବରାଜ ଶତପଥୀ ରାଜ୍ୟ ଯୋଜନା ଓ ସମନ୍ୱୟ ବିଭାଗର ପ୍ରତିନିଧି ଭାବରେ ଯୋଗ ଦେଇଥିବାବେଳେ ଉକ୍ତ କର୍ମଶାଳାରେ ପ୍ରକଳ୍ପ ନିର୍ଦ୍ଦେଶକ ଜିଲା ଗ୍ରାମ୍ୟ ଉନ୍ନୟନ ସଂସ୍ଥା ସୁରେନ୍ଦ୍ର କୁମାର ମୀନା ଓ ସମ୍ପୃକ୍ତ ବିଭାଗୀୟ ଅଧିକାରୀବୃନ୍ଦ ଯୋଗଦେଇଥିଲେ । ଜିଲା ଯୋଜନା ଓ ପରିସଂଖ୍ୟାନ ବିଭାଗର ଉପନିର୍ଦ୍ଦେଶକ ଶ୍ରୀକାନ୍ତ ଦଳେଇ କର୍ମଶାଳାକୁ ପରିଚାଳନା କରିବା ସହ ଧନ୍ୟବାଦ ଅର୍ପଣ କରିଥିଲେ ।

Focus Sectors Identified by Government of Odisha

The identified sectors are:

(1) Biotechnology

India is considered to be among the top 12 biotechnology destinations in the world and 3rd biggest biotechnology industry in the Asia Pacific region. The Indian biotech industry is seen to have high potential and is expected to grow at a rate of 28% driven by a range of factors such as growing demand, intensive R&D activities and strong government support.

Odisha is being increasingly seen as a favorable investment destination as has been highlighted by various RBI and World Bank reports. The State abounds in biodiversity rich areas such as Chilika lake, Bhitarkanika, Simplipal hills and many more. Odisha has a robust research and education infrastructure in the biotechnology sector such as the Institute of Life Sciences, Bhubaneswar, Regional Medical Research Centre, Regional Plant Resource Centre, National Institute of Science Education and Research.

The State is developing a state-of-the-art Biotech Pharma IT park over an area of 65 acres in Andharua, Bhubaneswar in a PPP mode with an investment of USD 20 million. This park will house a Biotechnology Incubation Centre spread over an area of 30,000 sq.ft.
In a first of its kind in Odisha and one amongst 12 bioincubators supported by Government of India, the KIIT-TBI Bioincubator is an initiative to foster techno-entrepreneurship in the field of biotechnology. It provides holistic ecosystem for nurturing ideas into commercially feasible ventures in various areas of life sciences.

Other developments in this sector include development of 2 more biotech parks, one at Khurda district and another Marine Biotechnology park at Ganjam district. In addition to this, a sub-scheme "Germplasm and DNA bank" has been prepared for development of Germplasm and DNA/Gene bank in the State. The Industrial Policy Resolution 2015 accords priority sector status to the biotechnology sector and provides several unique incentives to the investing units.

1.1 (2) Agro and Food Processing

Food industry is a $3.2 trillion industry worldwide. Only 6% of the processed food is currently traded worldwide. However, in the past two decades the global imports have increased at a CAGR of 5.56%, indicating an increase in processed food trading.

India is the 4th largest exporter of all agricultural products. India is also a major producer of grains, vegetables, fruits and animal products. With all these produces, Indian food processing industry is worth $135 billion and is expected to grow at a CAGR of 10%.

Odisha is one of India's agriculturally rich states. It is one of the largest producer of fruits, rice, pulses and major crops in the country. Odisha has 363,000 hectares of area under agriculture and horticulture, which has been increasing over the years. The state houses a large poultry industry, which is recognized as an agricultural activity. The State has excellent potential in developing value added products from dairy.

With all the available resources, Odisha intents to be a major destination for investments in the agro/food processing sector. The state has identified agro and food processing infrastructure as a priority sector for interventions. As an initial step to encourage food processing infrastructure, the state houses 274,000 MT of cold storage facilities.

Recognizing the potential of Food processing industry, the state has formulated an exclusive Food processing policy in 2013 itself, providing incentives to units willing to set up food processing investments in the state. To provide fillip to the Food processing industry, the policy provides a one-time capital grant towards development of Food Parks.

To encourage investments in the sector, two Mega Food Parks are under development. These exclusive parks being developed in Rayagada and Khurda offer plug and play infrastructure with cold storage facilities, testing labs, skill development centers creating a complete ecosystem to the development of the industry.

The state has also identified the sector as a priority sector, as part of the IPR – 2015 and is according special incentives to the investor units.

Opportunities are abound in the field of rice processing, support infrastructure, vegetable processing and poultry sectors. Odisha welcomes investments in this sector and shall provide 'single point' services to the interested investors. Further details and information about the sector and incentives are available in the detailed profile.

1.2 (3) Petrochemicals Sector

India is the fourth largest consumer of crude oil and petroleum products in the world. India is also the third largest producer of chemicals in Asia.

The sector has been growing significantly over the past few years. This can be substantiated by the 400% increase in the value of chemical exports from Odisha over years the last 2 years (2013-14 and 2012-13). PCPIR region in Paradip is being developed as world class infrastructure to provide a conducive business environment and promote and attract exclusive investments in the Petroleum, Chemicals, Petrochemicals and allied sector. It is one of the only four proposed PCPIRs in India and is also located near one of the largest freight ports in India, which provides a gate way to all the markets in Indo-China and eastern Asia.

Spread across an area of nearly 68,000 acres and with envisaged investment of USD 43.74 billion in numerous sectors such as Petroleum & Petro-Chemicals Sector, Chemicals & Fertilizers, Ancillary Sectors, Housing & Allied Infrastructure and External Infrastructure and it is one of the largest integrated investment regions in India.

Indian Oil Corporation Limited (IOCL), India's biggest state-owned oil gas corporation is the anchor tenant of the project and has also committed to Petrochemical feedstock such as Polypropylene, Mono Ethylene Glycol, Paraxylene-Purified Terephthalic Acid (PTA) Complex and Petcoke Gasification from its refinery. The development shall be State-of-art with a combination of production units, public utilities, logistics, environmental protection mechanisms, residential areas and administrative offices and robust Infrastructure with efficient road network, effective water supply system and all modern facilities. The Industrial Policy also recognizes the sector as a Priority Sector and will incentivize all investments in this sector.

Further details and information about the sector and incentives are available in the detailed profile.

1.3 (4) IT, ITES and ESDM

IT/ITES and ESDM sector is a new industry, changing the face of knowledge economy. With the growing need for IT and hardware solutions across the globe, this sector has seen phenomenal growth in the recent past. Madhay Pradesh has launched a new policy recently to develop the sector[30].

India is one of the major contributors to the international IT services market. The IT industry is expected to grow by 15% in the future and India will be a major software exporter.

Odisha has attracted some of the largest IT companies in India. Bhubaneswar is home to the four largest IT companies in India, TCS, Infosys, Wipro and Mahindra Satyam. The State has created state-of-the-art infrastructure facilities equipped with plug-n-play facilities and abundant power supply to ensure smooth operation of IT sector.

Odisha has developed IT specific SEZs to cater to the demand of the sector. Large IT infrastructure initiatives such as Info Park, Info valley, Infocity and IT investment regions are under development giving a fillip to the IT/ITES sector.

Recognizing the strong footprint of the IT sector the state has identified ESDM as a priority sector. The presence of IT ecosystem coupled with an exclusive electronics manufacturing cluster shall establish Odisha as a major destination for ESDM investments.

The state has an exclusive ICT policy providing incentives and creating a sound ecosystem to the startup movement. The IPR 2015 identifies IT/ITES and ESDM as focus sectors.

Recognizing the importance of ESDM the government has announced a special incentive package scheme for the sector comprising of subsidy on fixed capital investment for plant & machinery, exemption from Entry Tax on acquisition of machinery and equipment, Training subsidy, etc.

Further details and information about the sector and incentives are available in the detailed profile

[30] http://mpsedc.com/Uploaded%20Document/Whats%20New/IT%20Policy%202016.pdf

1.4 (5) Textiles

India is among the ten largest exporters of apparels in the world. India also ranks second in cotton and silk production, while leading the world in jute production. India is one of the cheapest countries in terms of cost competitiveness of the materials.

Odisha has a long history of textile industry. The handlooms of Odisha have gained worldwide acclaim and reputation for design and quality. Various designs have existed in Odisha such as Sambalpuri, Bomkei and Berhampuri. Odisha is also famous for its Ikat type of weaving.

Odisha is planning to setup two textile parks to encourage investments in these regions. These are integrated textile parks with common facilities and infrastructure to support the entire value chain in the sector. With abundance of cotton, the parks will have regular supply of raw materials. The State also proposes to setup cotton processing, spinning and weaving, textile and garment plants for investment across State.

The State has also created provisions for setup of technical textiles manufacturing, made from synthetic fibers for industrial uses, at the PCPIR in Paradip. The IPR identifies textiles as a Priority sector and provides many incentives for the investing units including technical textiles.

Further details and information about the sector and incentives are available in the detailed profile

1.5 (6) Seafood

India is the second largest producer of seafood in the world with its 8,118 km long coastline. India is also one of the largest exporters of shrimps to the markets of Europe, Japan and US. The exports has also seen an unprecedented 42.6% growth over 2013-14.

Odisha, with its long coastline of 480 km, has setup suitable infrastructures facilities to enable seafood processing such as marine fish landing centers, processing plants, marine crafts, ice plants, cold storages and peeling sheds.

An exclusive Sea Food Park is under development to boost the opportunities in the sector. The Greenfield cluster at Deras houses state-of-the-art common infrastructure for collective processing of seafood products. It houses exclusive common facilities for sea food processing like cold storage, pre-processing center, block ice factory, skill development center, polythene unit, R&D center, etc. It is the only such facility on the east coast of India. With all the required infrastructure and utilities available, this park will provide the necessary base to setup a competitive seafood unit.

The Industrial Policy 2015 has identified seafood processing as a thrust sector and has made special incentives for the development of this sector. Other than IPR, the Odisha Food Processing policy also provides for various incentive schemes for investors in this sector. Further details and information about the sector and incentives are available in the detailed profile.

1.6 (7) Ancillary and Downstream

In India, the metal industry has witnessed an exponential growth. As one of the largest growing economies, India is a major consumer of metals such as steel, stainless steel and aluminium. India is the largest consumer of sponge iron in the world, second largest consumer of stainless steel and third largest consumer of finished steel. India is also the fourth largest crude steel producer and fifth largest aluminium producer in the world.

Odisha with its bountiful natural resources has always been the favorite investment destination in the metals sector. Odisha is the largest Aluminium producing State in the country with 54% of the aluminium smelting capacity. It is also the largest Stainless steel producer of the country and has 20% of the Steelmaking capacity of India.

With all the available resources, Odisha has huge potential for ancillary and downstream industries in the metal sector. The Government has been pro-active and pushing the envelope to come up with an array of Investment regions and Industrial Parks such as the Kalinganagar National Investment and Manufacturing Zone, Downstream Aluminum Park at Angul, Downstream Steel Park at Angul, Stainless Steel Industrial Park at Kalinganagar, etc. The industrial parks would have committed feedstock from the mother plants in the vicinity and world class infrastructure with enabling ecosystem.

Figure A4.1: Education Profile of household members in Ganjam district

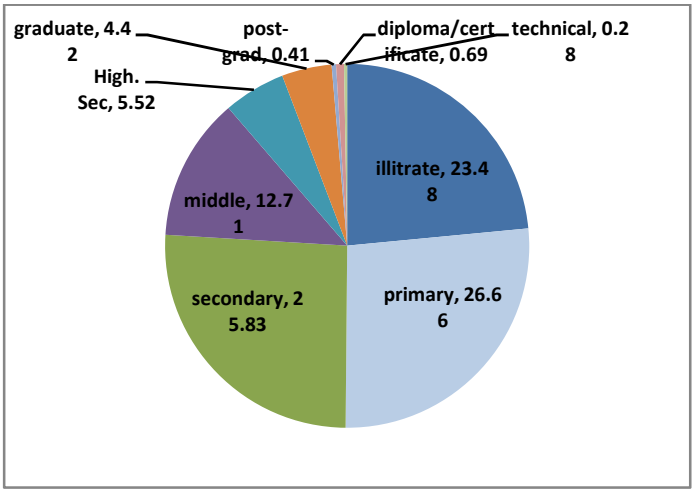


Table A4.1: Households response on preferred area of training in Ganjam district

Categories	Female	Male
Automobile mechanic		4.0
Beauty and wellness	4.5	
Building maintenance		8.0
Business management	3.9	2.0
Education	2.8	5.0
Medical laboratory technical		2.0
Repair and maintenance of electrical domestic appliances		4.0
Tailoring	57.0	5.0
Civil Engineering		4.0
Computer Science	13.5	18.0
Craft Course	5.8	
Crop Production		
Driving		
Data Entry Operator		
Electrician		5.0
Hospitality	3.9	3.0
Information Technology		
Inland Fishing		2.0
Mechanical		24.0
Mechanical Engineering		2.0
Office Management		2.0
Soft Skill		2.0
Textile Designing	8.7	6.0
Travel and Tourism		2.0
Total	100.0	100.0

Source: NILERD

Figure A4.2: Education Profile of household members in Jajpur district

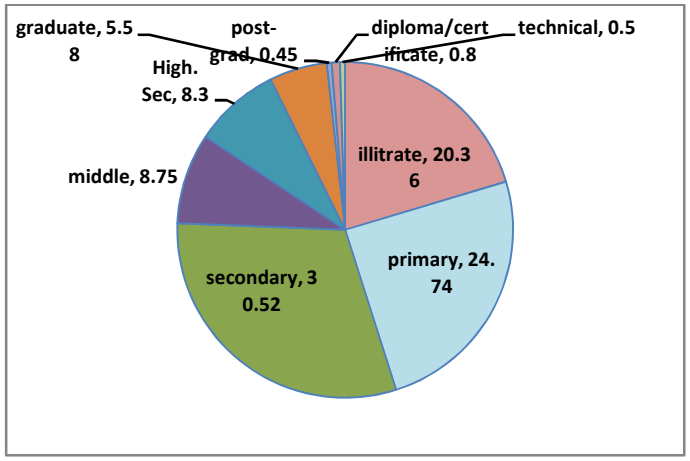


Table A4.2: Households response on preferred area of training in Jajpur district

Categories	Female	Male
Automobile Mechanic		2.6
Beauty and Wellness	1.3	
Building Maintenance		
Business Management		1.3
Education	11.8	7.7
Medical Laboratory Technical		
Repair and Maintenance of Electrical Domestic Appliances		1.3
Tailoring	59.2	5.1
Civil Engineering		
Computer Science	10.5	18.0
Craft Course	1.3	9.0
Crop Production		7.7
Driving		2.6
Data Entry Operator		
Electrician		11.5
Hospitality		
Information Technology		
Inland Fishing		
Mechanical		19.2
Mechanical Engineering		
Office Management		
Soft Skill		

Textile Designing	15.8	14.1
Travel and **Tourism**		
Total	100.0	100.0

Source: NILERD

Figure A4.3: Education Profile of Household Members in Sundargarh district

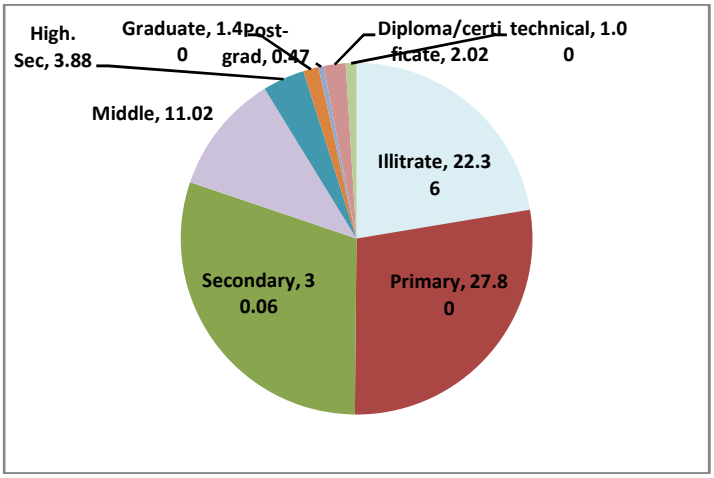


Table A4.3: Households Response on Preferred Area of Training in Sundargarh District

Categories	**Female**	**Male**
Automobile Mechanic		9.5
Beauty and Wellness	2.8	
Building Maintenance		
Business Management	2.8	1.4
Education	1.4	4.1
Medical Laboratory Technical	5.6	
Repair and Maintenance of Electrical Domestic Appliances		2.7
Tailoring	52.8	6.8
Civil Engineering		
Computer Science	22.2	9.5
Craft course		5.4
Crop Production		1.4
Driving		4.1
Data Entry Operator		1.4
Electrician		13.5
Hospitality		
Information Technology	2.8	
InlandFishing		

Mechanical		39.2
Mechanical Engineering		
OfficeManagement		
Soft Skill		
Textile Designing	9.7	1.4
Travel and Tourism		
Total	100.0	100.0

Source: NILERD

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NATIOANAL INSTITUTE OF LABOUR ECONOMICS RESEARCH AND DEVELOPMENT
(NITI Aayog, Government of India)
Narela, Sector A-7, Institutional Area, Delhi-110040

Schedule for Establishment
(For the study on Manpower Planning in Odisha)

State_____District_____Block_____Town/Village _____

1. Identification Particulars

1.1 Name of the Establishment														
1.2 Address														
1.3 Email						**1.4** Phone Number (Respondent)								
1.5 Name of the Proprietor														
1.6 Location of establishment	Rural	1	Urban	2	**1.7** Year of Establishment		**1.8** Age		**1.9** Sex	Male	1	Female 2		
1.10 Owners general education	Not literate	1	Below primary	2	Primary	3	Secondary	4						
	Higher secondary	5	Graduation	6	Post graduation & above	7								
1.11 Owners technical education	No technical education	1	Diploma or certificate	2	Technical degree	3	Others (specify)							
1.12 Whether enterprise is registered?	Yes	1	No	2	**1.13.** If Yes, Under whom (Please specify)									
1.14 Ownership pattern	Central Government	1	State	2	Central Public Sector	3								

			Government		Undertaking	
	State Public Sector Undertaking	4	Private	5	Others entity (please specify)	
1.15 Activity of the enterprise	Main activity (specify)		Subsidiary activity (specify)			
1.16 Main Products/services						

2. Total Investment and turnover

Year	2015-16	2014-15	2013-14
Total Fixed Investment (Rs.) as on*			
Total Turnover (Rs.)			

* as on March of each year

3. Employee Information

3.1 Total No. of employees as on date of survey

Workers	**From own district**		**From other district**		**Total**	
	Male	**Female**	**Male**	**Female**	**Male**	**Female**
Total						
Regular						
Contractual/part time						
No. of employees from vocational institute						
No. of employees from open market						

3.2 No. of employees by classification of workers

Classification of workers	No. of Employees						Required No. of Employees	Reason for shortage	Minimum qualification required	Are you getting desired qualified persons (Yes-1 /No-2)	
	From own district			From Other district						From district	Other district
	Male	Female	Total	Male	Female	Total					

3.3 No. of employees during last 2 years by workers categories								
Classification of workers	2013-14				2014-15			
	No. of Employees			Required No. of Employees	No. of Employees			Required No. of Employees
	Male	Female	Total		Male	Female	Total	

3.4 Whether the establishment is facing any difficulty in getting persons of requisite qualifications/skills in any area	Yes	1	No	2
If yes, please give details:				
Area of shortage of skills	Level of skills (in terms of education/ training)			

3.5 Distribute the total workers in enterprise by educational level and emoluments (2015-16)

SL No.	Education level of employees	Number of employees			Average Minimum Gross Emoluments	
		Male	Female	Total	At entry level (Rs.)	Experienced person (Rs.)
1	Post Graduate & above (technical/professional)					
2	Post graduate & above (others)					
3	Graduates (technical/professional)					
4	Graduates (Others)					
5	Diploma (Technical/ Professional)					
6	Certificate (Technical/ Professional)					
7	Certificate (Others)					
8	Higher Secondary(vocational)					
9	Others					
a	Higher Secondary (general)					
b	Secondary					
c	Below Middle					
d	Not literate					
	Total					

4. Additional skill requirements in future

4.1 Are you planning to expansion/ modernization / diversification of your establishment during next 5 years?	Yes	1	No	2
4.2 If Yes, then do you anticipate any additional requirements of skilled personnel?	Yes	1	No	2

4.3 If Yes, could you please indicate the additional number of skilled manpower required in next 5 years:

SI. No	**Trade / Skills**	**Additional no. required**

5. Facilities for Skill development

5.1 Do you provide any type of training?	Yes	1	No	2
(If Yes, please fill 5.2)				

5.2 Details of in-house training programmes organised during 2015-16																					
Sl No	Workers categories	Area of training programmes organised				Number of trainees attended															
						In-house training programmes								Trainees sent to other training institutes							
		1	2	3	4	1		2		3		4		1		2		3		4	
						M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
1																					
2																					
3																					
4																					
5																					
Total																					

6. Comments and suggestions

6.1 Any comments and suggestions on scope for expansion of the industry, emerging/potential sectors in the district and skill related issues.

……
……

……
……

6.2 General/Unique observations of the interviewer……

……
……

Name of the Supervisor ……

Name of the Investigator……

Signature with date……
Signature with date...……

(Visiting card of the officer may please enclosed with the filled in questionnaire)

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NATIONAL INSTITUTE OF LABOUR ECONOMICS RESEARCH AND DEVELOPMENT

(NITI Aayog, Government of India)
Narela, Sector A-7, Institutional Area, Delhi-110040

Schedule for Household Survey
(For the study on Manpower Planning in Odisha)

Household Details											
1. Name of the State:			**2.** Region/District:			**3.** Block Name:					
4. Village Name											
5. Religion	Hindu		Muslim	Christian	Others						
6. Social Group	ST		SC				OBC	Others			
7. Household Size (total number of persons)	Male		**8.** Land holdings	Agricultural (in acres)							
	Female			Residential (sq. fts.)							
	Total			Others (if any)							
9. Type of dwelling	Pucca		**10.** House Ownership	Own		**11.** Number of rooms in the dwelling	Living rooms				
	Semi Pucca										
	Kachha			Rented			Other rooms				
	Hut										
12. Type of Toilet used by the household members	Toilet within house (Open)		**13.** Sources of light and cooking	Electricity							
	Toilet within house (Flush)			Kerosene							
	Toilet within house (Manual)			LPG							
	Toilet in closed pit			Charcoal							
	Toilet in open pit			Wood							
	Toilet in the field			Other							
14. Source of water for household use	Tube well		**15.** Types of Household	Self-employed in agriculture							
	Protected spring			Self-employed in non-agriculture							
	Unprotected spring			Agricultural labour							

	Packed/Bottled				Regular worker (Service sector)	
	River/lake/pond etc.				Regular worker (Industry sector)	
					Others	
16. Monthly Expenditure (Rs)	On food items		On Children's education		On Health care	

17. Particulars of the Household Members									
Sl. No	Name	Relation to head	Sex (M/F)	Age (Yrs)	Marital status (M/U/W/S)	Level of Education	Employment status **(Y/N)**	Average monthly income (Rs.)	Pursuing Study **(Y/N)**
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									

18. Details about Education and Training

Sl. No	**Name of family members**	**Formal Course/training**					**Informal education/training taken**		**Working area and training required**	
		Course Name	Completed **(Y/N)**	Pursuing higher study **(Y/N)**	Did not complete **(Y/N)**	Reasons for not completing studies	Area of training (**please specify**)	Duration of training (**please specify**)	Preferred Area	Training required in preferred area **(Y/N)**
a. General Education										
1										
2										
3										
4										
5										
b. Technical Education details										
1										
2										
3										
4										
c. Vocational Education details										
1										
2										
3										
4										
d. Professional Education										
1										
2										
3										
4										

19. Employment/Unemployment Details of the family members															
Srl. No	Age (yrs)	Sex (M/ F)	Employment status **(Y/N)**	Number of months worked in the last year **(Please Tick √)**			Type of employment **(Please Tick √)**			Sector of employment **(Please Tick √)**					In case of Allied/ Manufacturing/ Service sectors provide details
				More than 6 months	More than 1 month but less than 6 months	Less than 1 month	Self-emp.	Casual/temporary/daily wage basis	Regular salaried	Agriculture	Allied sectors	Mining/ quarrying	Manufacturing units	Service sector	
1															
2															
3															
4															
5															
6															
7															
8															
9															
10															
11															
12															

Employment/Unemployment Details of the family members (continued…)											
Srl. No	Age (yrs)	Sex (M/F)	Employment status **(Y/N)**	Whether current employment is based on the qualification? **(Y/N)**	Whether registered with the employment exchange? **(Y/N)**	provide reasons for being not-employed **(Please Tick √)**					
						Non-availability of Jobs	Non-availability of appropriate Jobs	Did not opt. due to low salary	Did not opt. due to far-off place	Training is not adequate for employment	Others specify
1											
2											
3											
4											
5											
6											
7											
8											
9											
10											
11											
12											

20. Out-Migration Details of the family members																
Srl. No	Age (yrs)	Sex (M/ F)	Whether migrant? **(Y/N)**	Period since leaving home **(Please Tick √)**			Current residence of the migrants				Reasons for Migration **(Please Tick √)**				
				If more than 6 months mention the year of leaving	More than 1 month but less than 6 months	Less than 1 month	Within the district **(Y/N)**	Within Odisha but outside the district of domicile **(Y/N)**	Outside Odisha but within India (mention name of the state)	Out-side India (mention Country Name)	search for Jobs	Transfer of jobs	Start up a business	Higher Education	Other
1															
2															
3															
4															
5															

Name of the Supervisor ……

Name of the Investigator……

Signature with date……
Signature with date...…….

(Visiting card of the officer may please enclosed with the filled in questionnaire

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