DEMAND ANALYSIS (SUMMARY)

A.   Demographic Profile

1.   Located in central India, Madhya Pradesh is the sixth most populous state (77.8 million), and home to over 6% of India's population.[1] With the population's median age at 25 as of 2016, Madhya Pradesh is also one of the youngest states. Madhya Pradesh is largely a rural economy, with 72% of the population living in the rural areas. The state's population is projected to increase to 87.7 million in 2026, an increase of nearly 13% from 2016 (Table 1). It is estimated that between 2016 and 2026 there will be an addition of 0.4 million people in the age 15–29 group and another 7.2 million in the age 30–59 group. With more than half of the population still under age 30 in 2026, Madhya Pradesh is poised to reap the benefits of the demographic dividend by investing in its youth and enhancing their employability.

Table 1: Current and Projected Population Structure for Madhya Pradesh

Age	2016		2026	
	Population (million)	Share (%)	Population (million)	Share (%)
0–14	23.6	30.0	22.6	26.0
15–29	22.5	29.0	22.9	26.0
30–59	25.7	33.0	32.9	38.0
15–59	48.2	62.0	55.9	64.0
Total	**77.8**	**100.0**	**87.7**	**100.0**

Source: Census of India. 2011. *Population Projection for India and States, 2001-2026.*

2.   The 10 districts where the major 10 industrial training institutes (ITIs) are located—on which the proposed Madhya Pradesh Skills Development Project (MPSDP) will focus its support—account for 30% of the total state's population.[2] Several of these districts consist of large urban areas, including Bhopal (81% of population in urban areas), Indore (74%), Gwalior (63%), and Jabalpur (58%). In contrast, districts such as Rewa, Hoshangabad and Shahdol consist of a predominantly rural population. Madhya Pradesh is also composed of a high share of scheduled tribes (21%) and scheduled castes (15%), which together account for nearly one-third of the state's population. It has a gender ratio of 931 females per 1,000 males as compared to 943 females per 1,000 males in India.

3.   The literacy rate in the state has increased from 64% in 2001 to 70% in 2011; yet it is still below the national average of 74%. A large gender disparity is observed in literacy, 80% for males versus 60% for females. The poverty rate declined from 49% to 32% between 2004 and 2012; however, the poverty incidence in the state is still higher than the national average of 22%.[3]

B.   Economic Profile

4.   Madhya Pradesh achieved impressive growth in recent years, which is attributed to the government's concerted efforts to attract private-sector investments, entrepreneurship

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[1]   Government of India, Ministry of Home Affairs, Office of the Registrar General and Census Commissioner of India. 2011. *Census India, 2011.* New Delhi.

[2]   The 10 districts are Bhind, Bhopal, Gwalior, Hoshangabad, Indore, Jabalpur, Rewa, Sagar, Shahdol, and Ujjain.

[3]   Government of India. Planning Commission. 2014. *Report of the Export Group to Review the Methodology for Measurement of Poverty.* New Delhi. http:// planningcommission.nic.in/reports/genrep/pov_rep0707.pdf

promotions, and support to agriculture.[4] The economy grew at an average of 8.0% between FY2012 and FY2018, higher than the national average of 6.9%.[5] This growth rate is also higher than the rates shown by other comparable states (e.g., Bihar, Rajasthan, Uttar Pradesh; Table 2). High economic growth in the state has resulted in per capita income rising by 45%, from $668 to $968 between FY2012 and FY2018.[6]

Table 2: Annual Growth (%) of Gross Domestic Product

	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018	CAGR for FY2012–Y2018[a]
Bihar	3.9	5.0	3.6	7.5	10.3	–[b]	6.1[c]
Madhya Pradesh	**11.4**	**3.8**	**5.2**	**6.2**	**14.0**	**7.3**	**7.9**
Rajasthan	4.5	7.0	7.3	7.0	7.3	7.2	6.7
Uttar Pradesh	4.7	5.8	4.0	8.1	7.2	6.5	6.0
India	5.5	6.4	7.4	8.2	7.1	6.6	6.9

[a] CAGR = compound annual growth rate
[b] Not available
[c] For Bihar, due to data unavailability for FY2018, CAGR was estimated only for FY2012–FY2017.
Source: Reserve Bank of India.

5.   **Primary sector.** The recent economic growth of Madhya Pradesh has largely been driven by the primary sector, which grew at an average of nearly 9% during FY2012–FY2018. The share of the primary sector—which includes mining and quarrying as well as agriculture and allied activities—in the gross state domestic product (GSDP) has risen from 33% in FY2012 to 38% in FY2018.[7] This is in sharp contrast with the pattern for overall India where agriculture's share in national gross domestic product has been declining. Agriculture and allied activities, which include crops, livestock, forestry, and fisheries, account for nearly 90% of GSDP in the primary sector. However, the growth pattern for the sector has not been consistent, with a slump in FY2014, FY2016, and FY2018. One of the common reasons for fluctuating growth stems from frequent droughts and below average rainfall, which often have significant impacts on annual production. Within the agriculture and allied sector, livestock and fishing/aquaculture have grown more consistently, at an average of 19% and 13%, respectively. Yet the shares of these two subsectors in the agriculture and allied sector are relatively small compared to the share of crops. Madhya Pradesh represents an agrarian state, with more than half of the state's working population dependent upon agriculture and allied activities directly and indirectly for livelihood.[8] Direct activities include production of a variety of farm produce, while indirect activities include linkages with the secondary sector in the form of processing primary produce.

6.   **Secondary sector.** The secondary sector in Madhya Pradesh—comprising manufacturing and construction subsectors—grew at an average annual rate of 5.3% during FY2012–FY2018, although its share in GSDP decreased slightly from 27% to 25% during the

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4   The Government of Madhya Pradesh provides distinctive monetary, strategy, and policy incentives for businesses under the Industrial Promotion Policy 2010 and Action Plan, together with strategies and policies for information technology, biotechnology, tourism, and special export zones. To attract investors and promote entrepreneurs, the state government has selected the Trade & Investment Facilitation Corporation Limited (TRIFAC), an agency that offers a single window system for speedy approvals of different clearances and consents.

5   The fiscal year (FY) of the Government of India ends on 31 March. "FY" before a calendar year throughout this document denotes the year in which the fiscal year ends, e.g., FY2018 ends on 31 March 2018.

6   The conversion rate used in this document $1= ₹ 64.5.

7   All data in this section, unless mentioned otherwise, are from the Department of Economics and Statistics, Government of Madhya Pradesh.

8   Government of India, Ministry of Labour and Employment. 2016. *Report on Fifth Annual Employment-Unemployment Survey, 2015–2016.* Chandigarh: Labour Bureau.

same period. The growth of the manufacturing subsector was slow until FY2014, but it soared afterward, achieving the growth rate of 11.9% in FY2016, 7.4% in FY2017, and 10.5% in FY2018. The surge in manufacturing after FY2015 can be attributed to the implementation of the state's Industrial Promotion Policy, 2014 and the subsequent spurt in micro, small, and medium enterprises (MSMEs) in the state. The policy aimed at improving investor facilitation, enhancing ease of doing business, and encouraging private participation have all produced positive results in the sector's growth. Madhya Pradesh has received large investment commitments in manufacturing, food processing, renewable energy, and other priority sectors. A high level of manufacturing growth can play an important role in job creation, as manufacturing can accommodate a large number of skilled and semiskilled workers. The sector can also provide a transitional opportunity for the labor force trapped in agriculture, while every job created in manufacturing can have a multiplier effect of creating two to three additional jobs in related activities.[9]

7.   Similarly, the construction subsector grew at an average annual rate of 3% between FY2013 and FY2018, but its pace of growth has been faster in recent years—4.5% in FY2017 and 5.8% in FY2018 (Table 3). With seven smart cities planned in the state, along with the provision of $77.23 million under the Mukhyamantri Gram Sadak Yojna[10] and $30.9 million for State Rural Road Connectivity Scheme under the State Budget of FY2019, the prospects for this subsector look bright.[11] In addition, the introduction of the Real Estate Regulatory Authority (RERA) and the restructuring of real estate institutions in response to the market slump are expected to help strengthen the construction industry. Similar to manufacturing, construction too has high labor absorption capacity and employs a significant proportion of the workforce. Between FY2012 and FY2016, the share of employment has more than doubled from 6% to 16%, with more than 1,500,000 construction workers registered under the Board of Construction Workers in the state.

Table 3: Size ($ million) and Growth (%) of the Construction Sector

State	Description	FY2012	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018	CAGR between FY2012-FY2018[a]
Bihar	Value	4,189	3,970	4,226	4,034	3,815	3,810	-[b]	
	Growth rate	-	−5.2	6.5	−4.6	−5.4	−0.1	-[c]	−1.0
Madhya Pradesh	Value	5,419	5,037	5,457	5,540	5,583	5,833	6,173	
	Growth rate	-	−7.0	8.3	1.5	0.8	4.5	5.8	3.0
Rajasthan	Value	6,758	6,619	6,987	7,084	7,416	7,543	7,814	
	Growth rate	-	−2.1	5.5	1.4	4.7	1.7	3.6	2.6
Uttar Pradesh	Value	13,159	13,293	13,444	14,314	14,817	15,686	16,251	
	Growth rate	-	1.0	1.1	6.5	3.5	5.9	3.6	3.4
India	Value	120,517	120,938	124,151	129,493	134,332	136,141	143,734	
	Growth rate	-	0.3	2.7	4.3	3.7	1.3	5.6	2.4

[a] CAGR = compound annual growth rate
[b] Not available
[c] For Bihar, due to data unavailability for FY2018, CAGR was estimated only for FY2012–FY2017.
Source: Reserve Bank of India.

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[9]   National Manufacturing Policy 2011, Government of India.
[10]   Prime Minister Rural Road Development Program.
[11]   The seven cities are Bhopal, Indore, Gwalior, Ujjain, Jabalpur, Sagar, and Satna.

8.   **Services sector.** Unlike the national growth pattern or that in other Indian states, the share of services in GSDP is relatively smaller and has marginally declined from 39.1% in FY2012 to 38.7% in FY2018. Yet, the sector as a whole grew at an annual rate nearly 7%, even though this rate is lower than the national average and other similar states. In FY2018, the services sector grew strong, achieving the rate of 9.0%, higher than the national average. Trade, repair, hotels and restaurants; financial services; real estate; transport and storage, and communication services are major growth drivers in the services sector.

C.   Labor Market Profile

9.   **Labor force participation rate**. According to the fifth round of employment and unemployment survey 2015–16, the labor force participation rate (LFPR) for those aged 15 and older in Madhya Pradesh was 46% compared to the national average of 50% (Table 4). Yet, there is a substantial gender gap, with the participation rate of merely 17% for women versus 71% for males. The rate is especially low for women in urban areas. The low LFPR among urban women is likely to due to a combination of several factors: (i) rising educational enrollment of young women; (ii) lack of suitable employment opportunities as women's education and their aspirations increase; (iii) a negative effect of rising household incomes on women's work participation; and (iv) a measurement of LFPR that excludes noneconomic activities where women tend to be engaged in. This is a common pattern often found in developing contexts where women's labor force participation declines with economic development, before it begins to rise again as more suitable work opportunities become available commensurate with women's aspirations.

Table 4: Labor Force Participation Rate (%), 2015–16

| | 18–29 years | | | | | | 15 years and above | | | | | |
| | Madhya Pradesh | | | India | | | Madhya Pradesh | | | India | | |
	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
Rural	64	17	42	71	23	49	73	20	48	77	27	53
Urban	49	7	29	55	16	36	66	9	39	69	16	44
Total	60	15	39	67	21	45	71	17	46	75	24	50

Source: Government of India, Ministry of Labour and Employment. 2016. *Report on Fifth Annual Employment-Unemployment Survey, 2015-16.* Chandigarh, Labour Bureau.

10.   **Workforce participation rate**. Similar to the trend in LFPR, the workforce participation rate in Madhya Pradesh is lower than the national average, 44% compared to 48%. This lower workforce participation in Madhya Pradesh is observed for both males and females (Table 5). And a similar pattern is found among the younger age group of 18–29 year-olds.

Table 5: Workforce Participation Rate (%), 2015–16

| | 18–29 years | | | | | | 15 years and above | | | | | |
| | Madhya Pradesh | | | India | | | Madhya Pradesh | | | India | | |
	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
Rural	60	15	39	63	19	42	71	19	46	74	25	50
Urban	44	6	26	49	12	31	64	8	37	67	14	41
Total	56	13	35	59	17	39	69	16	44	72	22	48

Source: Government of India, Ministry of Labour and Employment. 2016. *Report on Fifth Annual Employment–Unemployment Survey, 2015–16.* Chandigarh, Labour Bureau.

11. Of the total state population, there are 31% main workers, 12% marginal workers, and 57% nonworkers in Madhya Pradesh, as per the Census of India, 2011. Nearly 6.7 million (9%) of the population reported to be seeking or available for work. Of these, 4.3 million (64%) are aged 15–34 years indicating that a significant proportion of the population seeking employment belonged to the youth category (Table 6).

Table 6: Work Profile, Madhya Pradesh and India, 2011 (in million)

Work Status	Madhya Pradesh	India
Total Workers	**31.5**	**481.8**
Main Workers	22.7	362.5
Marginal Workers	8.8	119.3
Nonworkers	**41.0**	**728.9**
Marginal workers seeking or available for work	4.4	55.4
Nonworkers seeking or available for work	2.3	60.7
Seeking or available for work aged 15–34 years	4.3	76.7

Source: Government of India, Ministry of Home Affairs. 2011. Census India. New Delhi: Office of the Registrar General and Census Commissioner of India.

12. The movement of workers away from agriculture and allied activities to industry and services is an indication of structural transformation. The employment share in secondary sector (which comprises manufacturing and construction) has increased from 13% in FY2012 to 22% in FY2016, while the employment share in the tertiary sector has increased from 17% to 23% (Table 7). The employment share in agriculture sector fell from 70% to 55%.

Table 7: Distribution of Employed Persons (aged 15 years and above) by Sector based on National Industrial Classification Code 2008 (% Share)

	Madhya Pradesh				India			
	FY2012	FY2013	FY2014	FY2016	FY2012	FY2013	FY2014	FY2016
Primary	70.2	64.5	61.6	54.9	52.9	50.3	46.9	46.1
Secondary	12.7	17.8	20.9	22.0	19.3	20.3	22.2	21.8
Tertiary	17.2	17.7	17.6	23.1	27.9	29.3	31.0	32.0

Source: Government of India, Ministry of Labour and Employment. *Annual Employment and Unemployment Survey (Round 2–5).*

13. The share of employment by subsector is shown in Table 8. While much of the employment in non-farm sectors is in line with national averages, the employment share in construction in Madhya Pradesh is higher than the national average and dominates nonfarm employment in the state. The employment shares in manufacturing and services overall in Madhya Pradesh are lower than the national averages.

Table 8: Share of Employment by Subsector, FY2016 (%)

Sectors	Madhya Pradesh	India
Primary	**54.9**	**46.1**
Agriculture, forestry, and fishing	54.7	45.7
Mining and quarrying	0.2	0.4
Secondary	**22.0**	**21.8**
Manufacturing	6.2	10.5
Electricity, gas, steam, and air conditioning supply	0.2	0.3
Water supply; sewerage, waste management and remediation activities	0.1	0.3

Sectors	Madhya Pradesh	India
Construction	15.8	11.3
Tertiary	**23.1**	**32.0**
Wholesale and retail trade; repair of motor vehicles and motorcycles	8.7	10.6
Transportation and storage	2.5	4.9
Accommodation and food service activities	1.1	1.6
Information and communication	0.4	0.8
Financial and insurance activities	0.6	1.1
Real estate activities	0.2	0.2
Professional, scientific and technical activities	0.9	0.9
Administrative and support service activities	0.9	1.6
Public administration and defense; compulsory social security	1.1	1.7
Education	3.2	4.3
Human health and social work activities	0.8	1.1
Others	2.4	2.6

Source: Government of India, Ministry of Labour and Employment. *Annual Employment and Unemployment Survey (Round 2–5).*

14. The types of employment, which to some extent indicate the quality of employment, show that the share of wage (or salaried) employment is considerably lower in Madhya Pradesh than the national average (14% versus 21%). On the other hand, the share of self-employment is higher than the national average, 53% versus 47%. Combined with those in casual labor, the majority of the employed (86%) are either in self-employment or in casual labor (Table 9).

Table 9: Type of Employment, FY2016 (%)

Employment Status	Madhya Pradesh	India
Self-employed	53	47
Wage/salaried employee	14	21
Casual labor	33	33

Source: Government of India, Ministry of Labour and Employment. 2016. *Report on Fifth Annual Employment–Unemployment Survey, 2015–16.* Chandigarh: Labour Bureau.

15. A large share of self-employed or those in casual labor further shows that they are mostly concentrated in low wage or low productivity jobs. There is a large difference in income between wage employees and self-employed. Nearly half of self-employed workers earn less than or equal to ₹ 5,000 per month as compared to only 25% of wage employees, showing that wage employment offers higher income opportunities than self-employment within the state (Figure 1). A detailed analysis illustrates that self-employed workers mostly comprise "own account workers" or "unpaid family workers." There is also a high rate of partial employment where people are employed less than 12 months per year: only 43% of the workforce have secure employment in the state against the national average of 61% in FY2016. Both high rates of self-employment and partial employment are indicative of a large share of the workforce engaged in the agriculture sector. In manufacturing and services sectors, nearly 40% and 49% of workers are wage employees, respectively. Given that those engaged in manufacturing and services sectors generally have higher level of education and skills, skills training will be important in responding to potentially growing opportunities in the manufacturing and services sectors.

**Figure 1: Average Monthly Earning Distribution, Madhya Pradesh, FY2016
(Earnings in INR)**
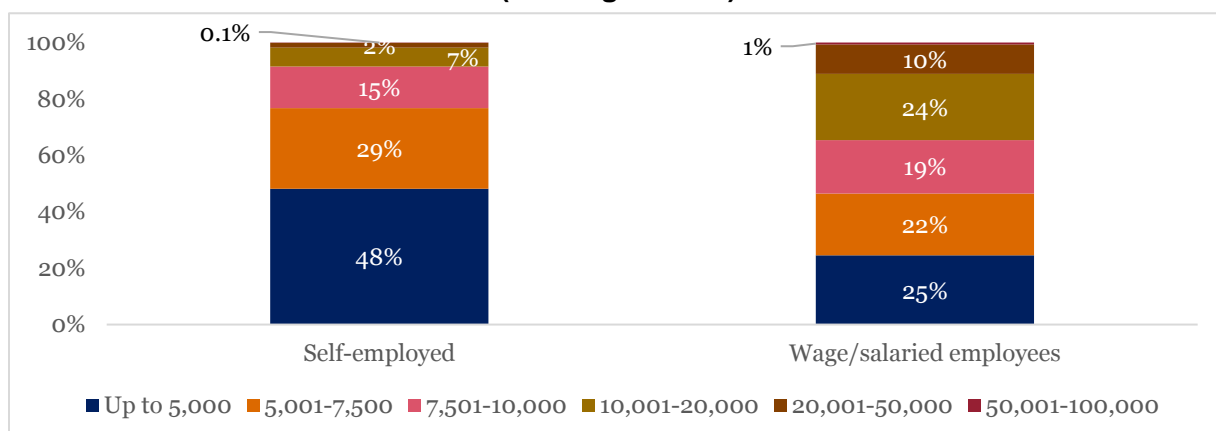
Source: Government of India, Ministry of Labour and Employment. 2016. Report on Fifth Annual Employment–
Unemployment Survey, 2015–16. Chandigarh: Labour Bureau.

16.   **Unemployment rate.** The overall unemployment rate in Madhya Pradesh is lower than
the national average. However, within Madhya Pradesh, the unemployment rate for those aged
18–29 years is more than twice that of the overall unemployment rate (Table 10).

Table 10: Unemployment Rate, FY2016 (%)

	18–29 years						15 years and above					
	Madhya Pradesh			India			Madhya Pradesh			India		
	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
Rural	6	15	8	11	18	13	3	9	4	4	8	5
Urban	11	20	12	12	28	15	4	7	4	3	12	5
Total	7	16	9	11	20	13	3	9	4	4	9	5

Source: Government of India, Ministry of Labour and Employment. 2016. *Report on Fifth Annual Employment–
Unemployment Survey, 2015–16.* Chandigarh: Labour Bureau.

17.   Further, for persons 18–29 years, unemployment rate is highest among those who are
at least graduates (Table 11). The problem of unemployment among the educated is twice as
serious for men (9.9%) compared to women (4.8%). As noted above, many more women than
men are out of the labor force, and hence are not likely to be counted in this unemployment
rate.

Table 11: Unemployment Rate among 18–29 Year-Olds across Education Levels (%)

Education level	Male	Female	Total
Not literate	2.9	2.5	2.6
Below primary	7.1	3.5	4.5
Primary	3.3	3.6	3.4
Middle/secondary/higher secondary	2.9	1.0	2.1
Certificate course at undergraduate level	3.9	–	2.4
Diploma at undergraduate level	2.2	0.7	1.9
Graduate and above	9.9	4.8	7.9

Source: Government of India, Ministry of Labour and Employment. 2016. *Report on Fifth Annual Employment–
Unemployment Survey, 2015–16.* Chandigarh: Labour Bureau.

D.   Priority Sectors and Industrial Scenario

18.   **Priority Sectors.** The priority sectors were identified based on four key parameters: (i) contribution to GSDP; (ii) share in employment in the state with higher potential for future and further employment; (iii) state's comparative advantage measured by its performance in various sectors benchmarked against performance of other states or the national standards; and (iv) investment proposed in the immediate future. The 11 sectors and subsectors that have been identified include agribusiness; manufacturing (precision engineering; manufacturing other than precision engineering); food processing; pharmaceuticals; construction; textiles and apparels; electronic system design manufacturing (ESDM); hospitality; automobile engineering; banking; and financial services and insurance (BFSI).

19.   Indore, the commercial capital of Madhya Pradesh, and the surrounding areas of Indore are a major automotive and engineering hub. Pithampur automotive cluster located about 30 km away from Indore city is a major automotive hub of India. This automotive and engineering hub houses more than 90 large-scale industrial units, and more than 700 small and medium scale industries and auto companies. India's National Automotive Testing Tracks (NATRAX), world's 2nd largest auto testing track, is in Pithampur. Pithampur is also the largest producer of radial tyres under Bridgestone Tyres Limited in India. Major automotive players located in this hub are Larsen and Toubro Limited, Volvo Eicher Motors Limited, Force Motors Limited, Hindustan Motors Limited, Man Trucks India Limited, John Deere Limited, and Mahindra Two Wheelers Limited. Under the automotive and engineering cluster, major related occupations are in the fields of precision machining, automotive technology, automotive servicing and maintenance, mechanical technology, mechatronics, and electrical and electronics technology. India has one of the largest automotive assembly industries in the world, and its auto-components industry is set to become the third largest in the world by 2025. It is expected that the need for skilled workers in the occupational fields discussed above will continue to expand.

20.   **Industrial scenario.** In order to take a structured approach to promoting industrial growth, the Government of Madhya Pradesh has identified six city clusters— Bhopal, Gwalior, Indore, Jabalpur, Rewa, and Sagar. Overall, the state has excellent infrastructure, with 19 industrial development parks, 129 industrial areas, 6 food parks, 8 integrated development centers, 3 dry parks, 1 stone park, 1 information technology park, 1 special economic zone and 1 apparel park.[12] The prominent industries in the project districts are given in the Map.

21.   The total number of registered micro, small, and medium enterprises (MSME) in the state has increased more than four times from 19,894 in FY2013 to 87,071 in FY2017 (Table 12). The year 2015 witnessed huge investments owing to the introduction of the Industrial Promotion Policy of 2014, which rationalized and simplified the procedures for doing business, thereby creating a supportive regulatory and policy framework that attracted private sector participation. The increased investments led to a major rise of more than three times in employment between FY2015 and FY2016.

22.   According to the Madhya Pradesh Trade and Investment Facilitation Corporation Limited (TRIFAC), investments of around $66.30 billion have been proposed between October 2014 and November 2016 and they are expected to create employment for over 7 million persons (Table 13). These investments include only those intentions that were eventually accepted by the Government of Madhya Pradesh.

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[12]   IBEF Report, April 2018.

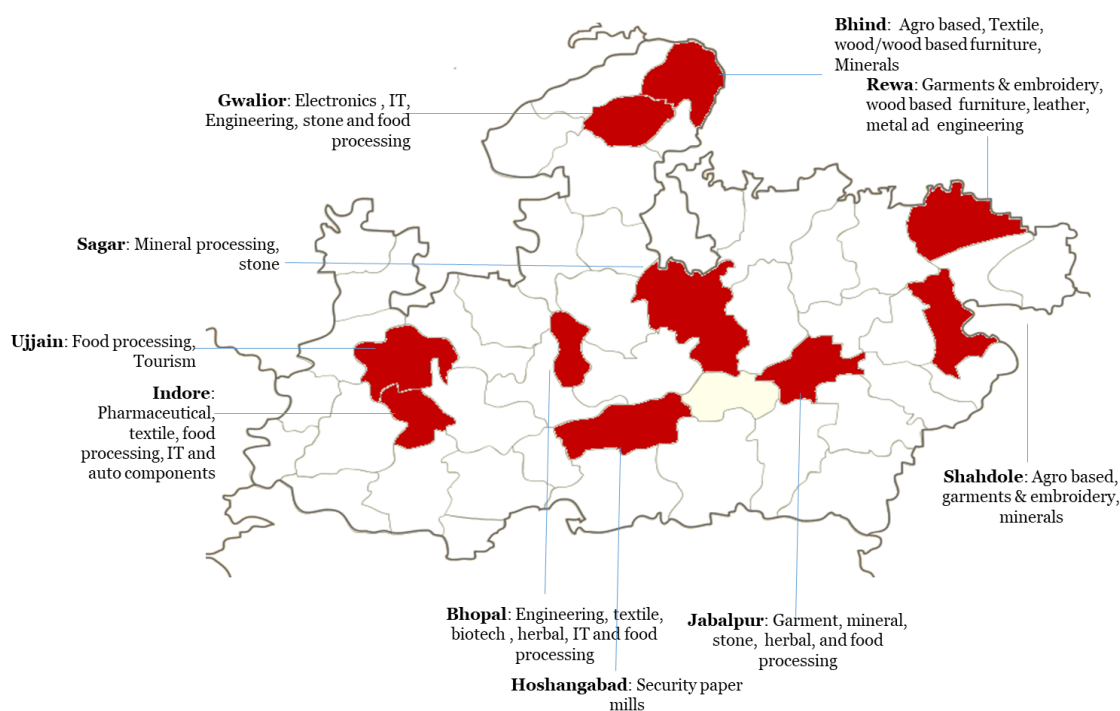**Map: Geographic Distribution of Major Industries in Project Districts**

Bhind: Agro based, Textile, wood/wood based furniture, Minerals

Rewa: Garments & embroidery, wood based furniture, leather, metal ad engineering

Gwalior: Electronics , IT, Engineering, stone and food processing

Sagar: Mineral processing, stone

Ujjain: Food processing, Tourism

Indore: Pharmaceutical, textile, food processing, IT and auto components

Shahdole: Agro based, garments & embroidery, minerals

Bhopal: Engineering, textile, biotech , herbal, IT and food processing

Jabalpur: Garment, mineral, stone, herbal, and food processing

Hoshangabad: Security paper mills

Table 12: Number and Growth of MSME Units in Madhya Pradesh

Year	No. of registered units	Investment (in $ million)	Employment
FY2013	19,894	104.25	47,414
FY2014	18,660	96.20	45,007
FY2015	19,835	116.28	51,571
FY2016	48,179	801.82	194,761
FY2017	87,071	1,480.20	363,812

Source: Department of Micro Small & Medium Enterprises, Madhya Pradesh.

Table 13: Proposed Investments in Project Districts between 2014-2016

Project District	Proposed Investment (in $ million)	Percentage share
Bhopal	11,005.60	20.10
Indore	9,520.95	17.39
Gwalior	3,776.64	6.90
Ujjain	1,416.11	2.59
Rewa	1,335.53	2.44
Sagar	592.82	1.08
Jabalpur	276.29	0.50
Shahdol	232.62	0.42
Hoshangabad	220.11	0.40
Bhind	154.52	0.28
Total investments in project districts	**28,531.17**	**52.12**
Total investments in the state	**66,296.38**	**100%**

Source: Madhya Pradesh Trade and Investment Facilitation Corporation Limited, Government of Madhya Pradesh.

23.   With investments worth around $19.76 billion, manufacturing constituted nearly one third (30%) of the total proposed investments. The state government's focus on urban development is evident from the fact that 200 infrastructure investment projects (around $15.57 billion) were proposed (Table 14).

Table 14: Proposed Investments and Expected Employment across Select Sectors in Madhya Pradesh

Sector	No. of Projects	Proposed Investments ($ million)	Percentage share of total investments	Expected Employment
Agriculture and food processing	620	1,394.27	2.1	3,795,948
Manufacturing	1,214	19,762.38	29.8	2,006,704
Industrial infrastructure (industrial parks)	21	2,655.60	4.0	1,023,780
Energy (conventional +renewable)	115	14,110.48	21.3	230,387
Infrastructure	201	15,566.60	23.5	188,332
Health	30	1,324.07	2.0	125,181
IT (including electronics)	67	5,862.42	8.8	78,503
Tourism	77	489.11	0.7	43,122
Mining	15	4,556.89	6.9	42,173
Education	26	489.00	0.7	39,469
Skill development	18	83.61	0.1	7,905
Bio-technology	3	1.95	0.0	155
Total	**2,407**	**66,296.38**	**100%**	**7,581,659**

Source: Madhya Pradesh Trade and Investment Facilitation Corporation Limited, Government of Madhya Pradesh.

24.   Additionally, investments worth $2.60 billion have been accepted for upgrading of existing industrial parks as well as the establishment of new ones. These investments in industrial infrastructure are expected to create employment for more than 1 million persons.

E.   Skills Demand Analysis

25.   Since the population aged 15–34 years is expected to rise to 30.4 million by 2026 (an increase of 21% from 2011), Madhya Pradesh needs to increase its capacity to deliver skills training and enable new entrants to the workforce to be employable. [13]

26.   The existing training capacity of the state is given in Table 15. Even though the private industrial training institutes (ITIs) in the state have an annual capacity to train 147,545 trainees, the utilization is only 30% primarily because of poor quality of infrastructure, lack of trainers, and high fees. Additionally, the short-term skill training programs (through central or state skill development schemes) are constrained with poor quality training partners, who are not able to provide proper training infrastructure and impart job-ready, industry-relevant skills.

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[13] Report of the Technical Group on Population Projections Constituted by the National Commission on Population, 2006.

Table 15: Training Capacity in Madhya Pradesh

Institution	Annual Capacity (in numbers)	Annual Enrolment (in numbers)	List of Major Trades	Source of Information
Government ITIs	68,692	43,965 (till August 2017)	Fitter, Welder, Electrician, COPA, CNC Machinist, Diesel Machinist	Administrative Report 2017–18 DOTESDE
Private ITIs	147,545	43,844 (till August 2017)		
Government and private polytechnics	31,251	NA	Machinist, Electrical, Electronics, Computer,	
Government and private engineering colleges	71,823	NA	Civil, Mechanical, IT, Electrician	
DDU GKY (MORD)	788,000	570,516 (till 28 February 2018)		http://ddugky.gov.in/
State government schemes: Mukhya Mantri Kaushal Yojana and Mukhya Mantri Kaushal Samvardhan Yojana	450,000	5,700	IT-ITES, Retail, Hospitality, Beauty and Wellness, SMO, two-wheeler and three-wheeler service technician	Ssdm.mp.gov.in

Source: Asian Development Bank.

27. Sector employment elasticity has been used to estimate the overall labor demand in the state. Employment elasticity is a measure of the percentage change in employment associated with a 1% change in economic growth. Based on the data available, the period between FY2012 and FY2016 was considered for the estimation. Table 16 provides a short term (2018–2021) and long term (2021–2024) forecast for labor demand in all sectors in Madhya Pradesh.[14] For estimating the incremental demand in the subsectors within manufacturing, data from the Annual Survey of Industries between 2009-10 and 2015–16 was used.[15]

Table 16: Forecast for Incremental Labor Demand in All Sectors

Sectors	Short term incremental demand (2018-2021)	Long term incremental demand (2021-2024)	Total incremental labor demand (2018-2024)
Construction	784,511	885,850	1,670,361
Manufacturing	469,206	557,065	1,026,271
Agri-business and food processing	*40,301*	*56,096*	*96,397*
Apparel and textile	*37,995*	*54,049*	*92,044*
Automobile and engineering	*11,465*	*13,165*	*24,630*
Electronics system design manufacturing	*11,297*	*13,775*	*25,072*
Pharmaceuticals	*9,792*	*11,869*	*21,661*
Trade, repair, hotels and restaurants	404,808	449,085	853,893
Trade	*359,370*	*372,022*	*731,392*
Accommodation and food services	*45,438*	*47,037*	*92,475*
Logistics	326,147	422,609	748,756
Agriculture and allied	239,147	242,180	481,327

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[14] Due to the multi-dimensional nature of forecasted estimates, the estimates may not match with those expected directly from the GDP growth trends.

[15] The potential realization rates of investment in manufacturing were factored in the range of 30%–40% based on consultations with stakeholders. The realization was distributed across the period under analysis.

Sectors	Short term incremental demand (2018-2021)	Long term incremental demand (2021-2024)	Total incremental labor demand (2018-2024)
Real estate, ownership of dwelling, and professional services	56,872	64,490	121,362
Financial services	29,721	33,552	63,273
Communication	22,944	26,315	49,259
Mining	679	686	1,365
Other services	296,840	332,903	629,743
Total	**2,630,876**	**3,014,735**	**5,645,611**

Source: Asian Development Bank.

28.   As per the methodology described above, it is estimated that the state will have an incremental labor demand of around 2.63 million during the period 2018–2021 and 3.01 million during the period of 2021–2024 in the sectors listed in Table 16. The overall incremental demand is largely driven by high demand in manufacturing, construction, and trade and logistics. Within manufacturing, increasing investments in textiles, food processing, and automobile are expected to create an incremental labor demand of 213,071 between 2018 and 2024.

F.   Sector Demand Analysis

29.   The total incremental labor demand was split into demand for skilled, semiskilled, and unskilled workers following the methodology used in previous sector skill gap studies conducted by the National Skill Development Corporation, international benchmarks, and validated through primary interactions with key stakeholders in each sector.

30.   Table 17 represents the incremental requirement for skilled and semiskilled workforce across all sectors. Among the priority sectors, the incremental demand for skilled workforce is highest in manufacturing (0.25 million) and logistics (0.18 million). Between 2018 and 2024, incremental demand for semiskilled workers is high in manufacturing (0.51 million), construction (0.41 million), trade (0.41 million), and logistics (0.44 million). Increased investments in these sectors have contributed to increased labor demand.

31.   Over the coming years, major infrastructure development and improvement will be taking place. These include physical infrastructures such as roads, railways, airports, power stations, and telecommunications; urban infrastructures such as water supply, sewerage system, solid-waste management, and smart cities; industrial infrastructures such as special economic zones and industrial parks; social infrastructures such as schools, training institutions, and medical facilities. As of 2017, Madhya Pradesh has a total of 18,920 megawatt (MW) of power generation capacity as compared to 8,574 MW in 2011. Renewal energy (hydropower and solar energy) stood at 6,762 MW in 2017 and is expected to increase by another 9000 MW with the ongoing renewal energy projects. In 2015, seven cities in Madhya Pradesh were selected for the Smart Cities initiative. These development projects will result in the need for highly skilled workers to build and maintain these new and enhanced infrastructures and facilities. Major related occupations are in the fields of electrical technology (including renewal energy technology); construction technology (including rapid build technology and building information modeling); and smart building technology such as heating, ventilation, and air conditioning (HVAC), lift and escalator, mechanical and electrical, plumbing and piping.

Table 17: Forecast for Incremental Demand by Skill Level for all Sectors (2018–2024)

Sectors	Demand for Skilled Labor		Demand for Semiskilled Labor		Demand for Unskilled Labor	
	2018-21	2021-24	2018-21	2021-24	2018-21	2021-24
Manufacturing	117,301	139,266	234,603	278,532	117,301	139,266
Apparel and textile	*9,499*	*13,512*	*18,998*	*27,024*	*9,499*	*13,512*
Agri-business and food processing	*10,075*	*14,024*	*20,150*	*28,048*	*10,075*	*14,024*
Automobile and engineering	*2,866*	*3,291*	*5,733*	*6,582*	*2,866*	*3,291*
Electronics system design manufacturing	*2,824*	*3,444*	*5,648*	*6,887*	*2,824*	*3,444*
Pharmaceuticals	*2,448*	*2,967*	*4,896*	*5,935*	*2,448*	*2,967*
Logistics	81,537	105,652	195,688	253,565	48,922	63,391
Construction	78,451	88,585	196,128	221,462	509,932	575,802
Trade, repair, hotels and restaurants	52,625	58,381	182,163	202,088	170,019	188,616
Trade	*46,718*	*51,828*	*161,717*	*179,405*	*150,935*	*156,249*
Accommodation and food services	*14,540*	*16,130*	*28,171*	*31,253*	*2,726*	*2,822*
Agriculture and allied activities	23,915	24,218	119,573	121,090	95,659	96,872
Financial services	17,832	20,131	8,916	10,066	2,972	3,355
Communication	13,767	15,789	6,883	7,895	2,294	2,632
Real estate, ownership of dwelling, and professional services	5,687	6,449	14,218	16,122	36,967	41,918
Mining	204	206	340	343	136	137
Other services	148,420	166,452	118,736	133,161	29,684	33,290
Total	**539,739**	**625,129**	**1,077,249**	**1,244,325**	**1,013,887**	**1,145,280**

Source: Asian Development Bank.

G.   Employer Survey

32.   An employer's survey was conducted to understand the quality of skilled workforce and their ability to respond to the evolving requirements of businesses. The key objectives of conducting the employer survey were to (i) map the existing job roles in high demand, and the emerging job-roles within their respective sectors; (ii) gain insights on the employer's perception of technical skills, generic skills, and work readiness of graduates from various TVET institutions (such as ITIs, polytechnics, engineering colleges); and (iii) gain insights on employers' policies and practices with respect to recruitment, training, employee benefits, and migrant employees.

33.   The findings suggest that hiring based on employee reference is the most common mode of hiring (86%), followed by hiring of applicants who apply through information via advertisements (23%) and local contractors (19%). About one third of sampled employers indicated a preference for hiring TVET graduates, mainly on account of better productivity, easy availability, and lower training expenses. On the other hand, about two-thirds of sampled employers reported to have no preference for TVET graduates. Employers indicated a limited supply of well qualified TVET graduates, noting that they do not observe much difference in terms of productivity between certified and uncertified workers. Overall, only 10%–20% of employers perceive TVET graduates today to be employable.

34.   On analyzing the past trends of hiring in the last 3 years, it is observed that 83% of sampled employers had not hired from any of the TVET Institutions. Majority of employers who

hired graduates from ITIs and polytechnics found that only about half of them are readily deployable at work. According to the employers, the top three skills lacking among the workforce were technical skills (43%), ability to work in teams (33%), and having flexibility in working hours (30%).