

Jobful Growth for Chhattisgarh 2019-2024



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Acronyms

ADB	Asian Development Bank	PIM	Participatory Irrigation Management
DMF	District Mineral Foundation	PMGSY	Pradhan Mantri Gram Sadak Yojana
INC	Indian National Congress	TGA	Total Geographical Area
LWE	Left-Wing Extremism	WUA	Water Users' Associations
MNREGA	Mahatma Gandhi National Rural Employment Guarantee Act		

Executive Summary

- Chhattisgarh is undergoing jobless growth. Few jobs are being generated compared to the demand for employment. This situation is unsustainable and dangerous.
- In order to achieve full employment over the next five years, the challenge for public policy is to create conditions for the generation of 15 lakh jobs. This document is an effort to think how these jobs might be created.
- We find that jobs can be created in the areas of natural resource regeneration, urban infrastructure, tourism, and logistics. Jobs can also be created by filling up vacant positions in the state government.
- Land as well as water and forests in Chhattisgarh suffer from degradation and ecological stress. This degradation can be countered by a large-scale public program to restore those natural resources. This can create about 7 lakh new jobs over the next five years.
- Chhattisgarh requires many more small towns and dynamic rural areas. The creation of roads, bridges, buildings, and houses in these towns and villages can generate 3 lakh jobs for unskilled, semi-skilled, and skilled labourers.
- Chhattisgarh is very well placed in the job-intensive growth sectors of tourism and logistics. In tourism, it can go beyond just sightseeing, and offer unique experience-based tourism to high-spending Indian tourists. It can also leverage its central position, along with the passage of the GST, to grow the logistics sector. These sectors should be able to generate 4 lakh jobs over the next 5 years with a supportive policy environment, with investment largely funded by the private sector.
- There are about 80,000 vacancies in the state government in Chhattisgarh, including positions such as school teachers and policemen. Filling these jobs not only provides high quality employment, but also facilitates better public service delivery.
- In addition to these new initiatives, Chhattisgarh should continue to promote its economic growth through investments in skilling, infrastructure, and public services.
- In agriculture, policy should encourage shifting to crops that lend themselves to value addition, as well as investment in complementary industries such as agri-warehousing and food processing. Greater irrigation facilities, and improving the capacity for participatory irrigation management, can lead to higher agricultural output and more jobs.
- Attracting investments and know-how from relatively new sources (such as China), more effective plug-and-play industrial facilities, and enabling safe skilling and housing for workers, can help Chhattisgarh create many new manufacturing jobs.
- Our calculations indicate that the target of complete employment over the next five years can be achieved at a cost of 9% of state government budget.

Context

Chhattisgarh is the tenth-largest state in the country, with an area of 135 thousand square kilometers, accounting for over 4% of India's total area. About 2.9 crore people, around 2.1% of the national population, live in the state.¹ It is more rural than average, with only about 23% of the population living in urban areas.² The state also has a high tribal population—about 31% of the population are members of Scheduled Tribes.³ The per capita income (as of 2017-18) is just above Rs 92,000, which is lower than the national average.⁴ In fact, Chhattisgarh has the highest poverty rate in the country, with 40% of its population below the poverty line in 2012.⁵

1.1 Economic Structure

Chhattisgarh is distinctive in terms of its economic structure. Compared to India, Chhattisgarh presents an interesting contrast, as shown in Figure 1.

A few features jump out. Firstly, the share of services is much higher in India: above 60% versus about 35% in Chhattisgarh. The industries sector accounts for a much higher share in Chhattisgarh as compared to the country as a whole—40% against 20%. Agriculture is also more significant in Chhattisgarh as compared to India.

Apart from the levels, the trends are also different. There is a gradual but steady decline in the share of agriculture and industry in India, matched by a growth in the services sector. In Chhattisgarh, on the other hand, it appears that services and agriculture are slowly gaining in share in recent years as

compared to industries, though the picture is complicated by high variance.

This picture portrays an interesting fact: in most economies, as they develop, the services sector occupies more and more space, while agriculture and industry diminish, relatively speaking. This kind of economic transformation has happened at the national level in India as well. But in Chhattisgarh, it appears that this transformation has not yet happened. Services form a small part of the economy, even as industry, driven by mining and quarrying, accounts for a bigger part of the economy.

What would be the sectoral shares of the Chhattisgarh economy if we did not consider the mining and quarrying industry? Would it continue to be as distinctive? Figure 2 provides the answer. In this figure, we have removed the mining and quarrying

1 UIDAI 2019.

2 Census Commissioner 2013.

3 MTA 2013, p. 121, Table 1.6.

4 MoSPI 2018.

5 WB 2016.

sector from the ‘Industry’ category, and renormalised the numbers. The figure indicates that if it were not for the mining and quarrying sector, services would be as important as industry. If we further discounted the manufacture of metal and mineral products, the economy of Chhattisgarh would resemble the Indian

economic structure even more, with the services sector being the largest.

1.2 Jobless growth

Chhattisgarh has grown at a low rate during the past few years. During the period 2012–13 to 2017–18, the state Gross State Value Added (GSVA) has grown at only

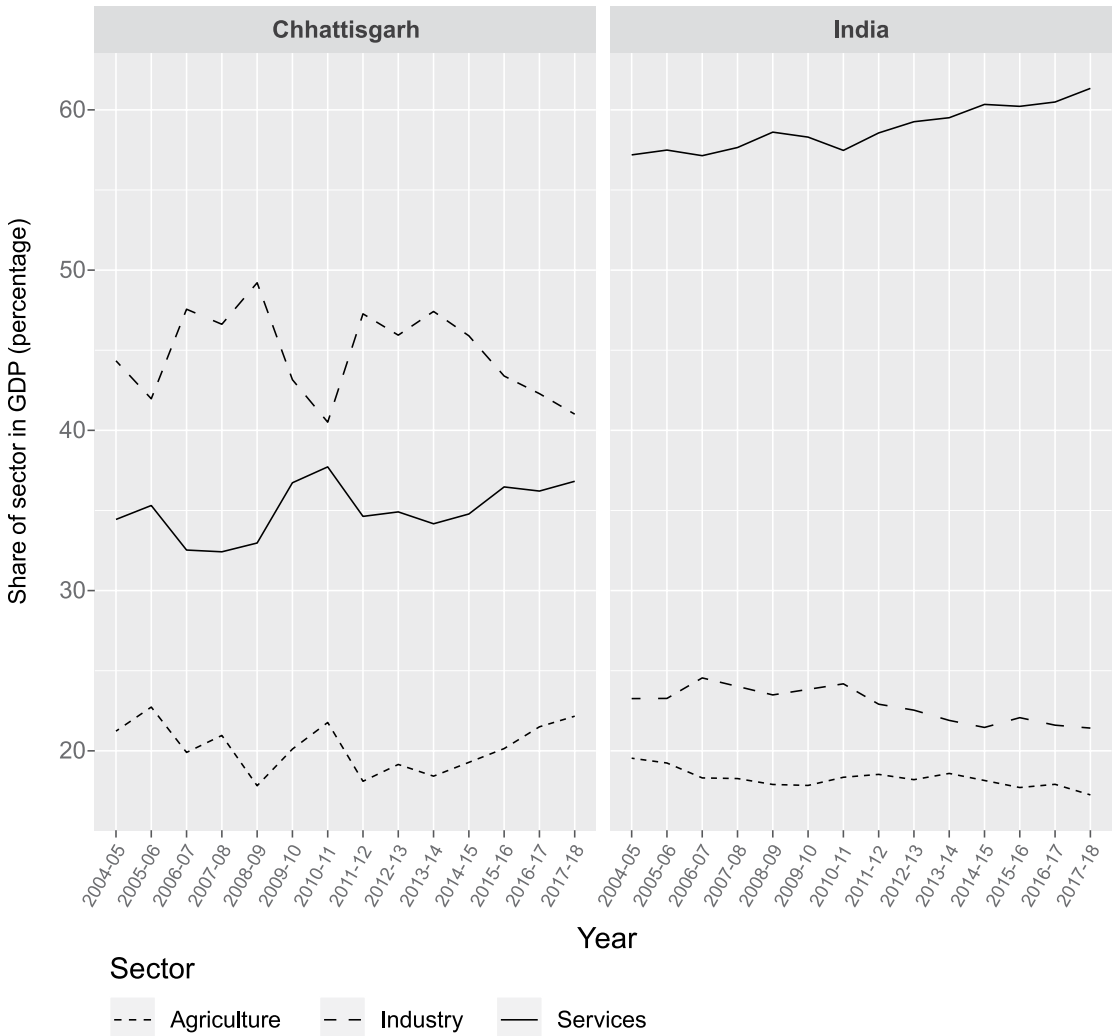


Figure 1: Sectoral share in GDP, Chhattisgarh vs. India

Sources: Chhattisgarh 2004-5 to 2010-11: DES (2014, p. 69 of 124) and 2011-12 onwards: DES (2018, Table 3.13). India: RBI (2019)

6.5%.⁶ During this period, the increase in employment has not been commensurate. Further, there has been a return towards agriculture, which acts as a default reservoir of underemployed labour.

In 2009-10, about 63.5% of the state's workers were employed in the agriculture sector.⁷ During that period, that sector accounted for 20.11% of the state's output.⁸ By 2015-16, the fraction of workers in the

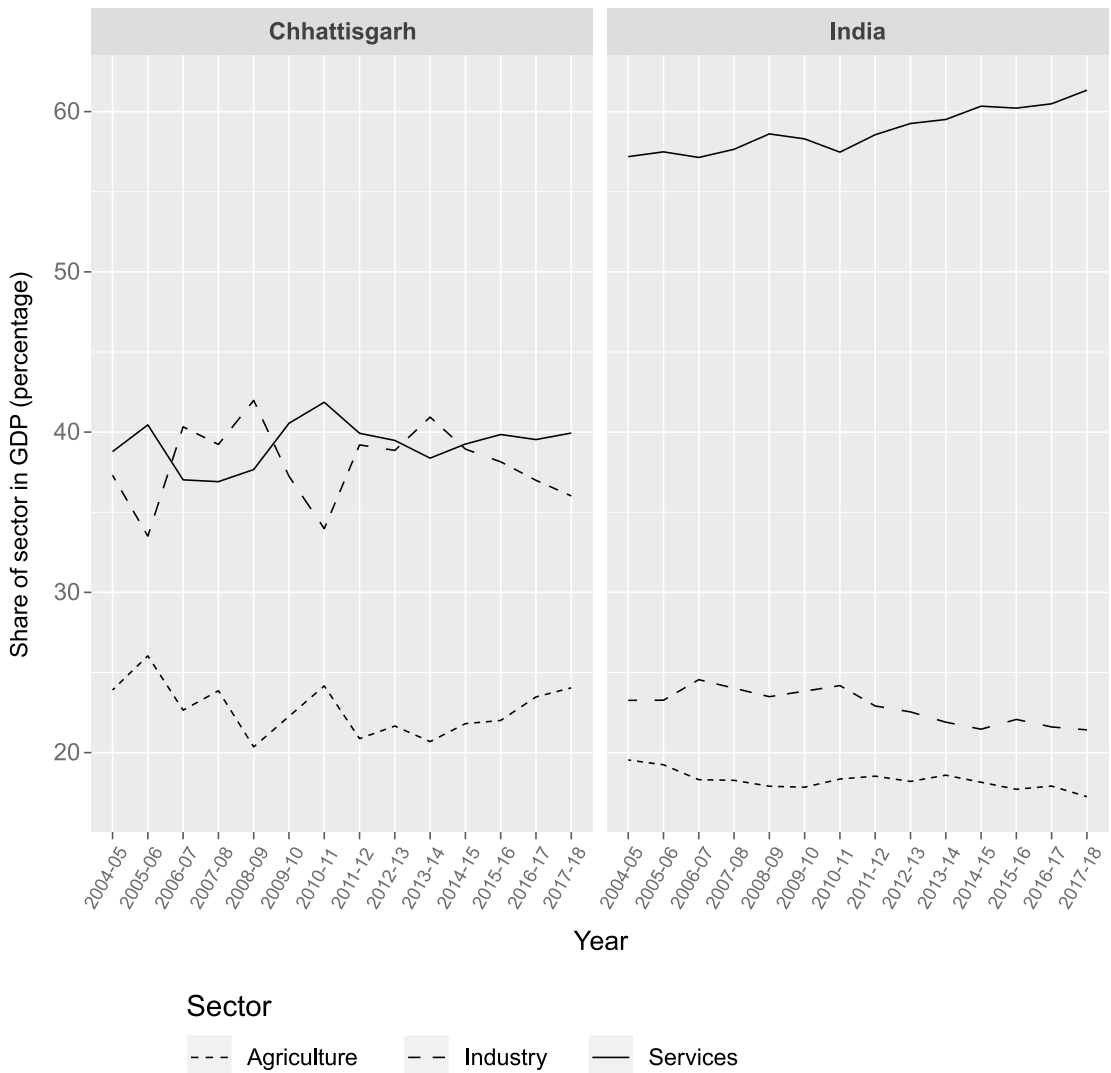


Figure 2: Sectoral share in GDP, Chhattisgarh (without mining and quarrying) vs. India.
 Sources: Chhattisgarh 2004-5 to 2010-11: DES (2014, p. 69 of 124) and 2011-12 onwards: DES (2018, Table 3.13). India: RBI (2019)

⁶ DES 2018, Table 3.1.

⁷ Labour Bureau 2010, Table 12.1.

⁸ DES 2014, p. 69 of 124.

agriculture sector had increased to 74.5%.⁹ But the share of the sector in the output of the state remained almost static, at 20.14%.¹⁰

This is a clear demonstration of jobless growth. This implies a decline in the relative productivity of the average worker in the agriculture sector, and points to the inability of the industrial and service sectors to generate employment.

This is accompanied by premature deindustrialisation. There has been a significant drop in the industries sector, from a peak of 49.21% in 2008-09 to 41.01% in 2017-18. This is driven by a drop in manufacturing and in the mining and quarrying subsectors.

The unemployment rate is as high as 11.3%, and currently about 11 lakh people need employment.¹¹ This labour force will continue to grow, adding another 8 lakh persons seeking employment in the five years from 2019 to 2024.

This is set against a background where the current growth model is creating practically very few new jobs. We estimate that the “business as usual” growth will not create more than 5 lakh jobs. The remaining 15 lakh people will be unemployed.

1.3 Forests and Minerals

Chhattisgarh is a heavily forested state. The forest area in the state is recorded to be 55,547 sq. km, which is 41% of the geographical area of the state.¹² These forests

are also the source of major rivers like Mahanadi, Narmada, and Indravati.

Chhattisgarh is also exceptionally rich in minerals. Twenty-eight known varieties of minerals are found in the state including precious stones, diamonds, iron ore, coal, limestone, dolomite, tin ore, bauxite and gold. Some are large proven reserves of limestone, which can be used for cement manufacturing. Some of the highest quality iron ore deposits in the world is found at Bailadila. The bauxite ore of aluminium is found abundantly. The largest share of mineral revenue is contributed by coal.¹³

1.4 Maoist violence

Chhattisgarh is considered the epicentre of, one of the most important internal security challenges in India. There are a total of 90 districts which are considered affected by. Of these, as many as 10 are in Chhattisgarh.¹⁴

The CPI (Maoist), the main outfit in India, aims to overthrow the existing democratic state structure violently. They claim to be fighting against issues like displacement of tribals, corporate exploitation, human rights violations by security forces etc. The lack of development and jobs in these areas has helped them grow.¹⁵

Over the past several years, the area under the effective influence of Naxals (the so-called Red Corridor) has been declining, and their capacity has diminished.¹⁶ However, the possibility of violence continues to cast of shadow over Chhattisgarh, affecting growth and the creation of jobs.

9 Labour Bureau 2016, Table 22.

10 DES 2018, Table 3.13.

11 CMIE 2019.

12 FSI 2017, p. 28.

13 MSMEDI 2018.

14 MHA 2019b.

15 MHA 2019a.

16 Banerjee 2017.

1.5 Demographic dividend

According to United Nations Population Fund, the demographic dividend is the economic growth potential that can result from shifts in a population's age structure, mainly when the share of the working-age population (15 to 64) is larger than the non-working-age share of the population (14 and younger, and 65 and older).¹⁷ With fewer dependents, and the largest section of the population in the working age, it is possible to generate more incomes, more savings, more capital per worker, and more growth.

The demographic dividend will manifest in different states at different times, depending on their population trends. In Chhattisgarh, the window of demographic dividend opportunity is yet to open. It will be fully available even in the 2050s and 2060s.¹⁸ The state needs to act now to be able to utilise this window fully.

1.6 Policy challenge

If we are aiming at full employment, *the policy challenge is to create a total of 15 lakh jobs over the next 5 years.*

This employment situation is unsustainable and dangerous. Any policy attempts to improve this situation can succeed only if it pays attention to the unique characteristics of Chhattisgarh—its advantages and its limitations.

This document is an effort to think how these jobs might be created, in what sectors of the economy can these jobs be created. We try to answer questions like: What policies can encourage employment? What investments will be required? How can the resources be found?

Many well-known suggestions have been made to improve the employment situation in India and in Chhattisgarh. They include investments in skilling, infrastructure, urbanisation, labour reforms, etc. They continue to be valid and important suggestions, and various policy initiatives have already been launched along these lines. In this document, we make a preliminary effort to identify policy directions which can deliver large increases in employment while creating significant public value as well.

In the remainder of this paper, we first examine the conventional three sectors in more detail—agriculture, industry, and services. We also devote especial attention to forest products as well as mining. We then present proposals for increasing large-scale employment, and examine its fiscal implications.

2. Natural resource degeneration

While Chhattisgarh is blessed with thick forests on almost half its area, over the past many years, there has been significant degeneration of soil, land, and water.

In Chhattisgarh, around 4,784 thousand ha are affected by different kinds of degradations. This is 35% of the. Major area is affected by water erosion, totalling to 2,422 thousand ha (18% of). Soil acidity second major factor of land degradation is in 2,342 thousand ha(17% of). About 7 thousand ha has been degraded to wastelands due to mining.¹⁹ Given that about 74% of the workforce are engaged in agriculture, the

17 UNFPA 2018.

18 Singh 2019.

19 Maji, Reddy, and Sarkar 2010.

degradation of land will have very harmful effects on their livelihoods.

The mining activities in Chhattisgarh can also lead to degradation. Mineral production can lead to water scarcity, soil contamination, loss of flora and fauna, and air and water pollution. Opencast mining is of particular focus because it disturbs the physical, chemical, and biological features of the soil and alters the socioeconomic features of a region. Overburden removal from mine area results in significant loss of vegetation and rich topsoil, and the generation of large volume of waste.²⁰

The problem of natural resource degradation is posing a serious threat to sustained agricultural production. Degradation of the ecosystem the consequential loss of productivity would severely affect the livelihood of the majority of Chhattisgarh who rely on crop cultivation and livestock rearing for their livelihoods. This can result in massive unemployment, migration of labour, regional and intergenerational disparities, and ecological imbalance.

3. Agriculture

Agriculture in Chhattisgarh has been growing at a rate of 5.0%, slower than the overall growth rate of 6.5%. Agriculture employs 74.5% of Chhattisgarh's labour force,²¹ which is far higher than for any other state. Its share of GSDP has come down from 18.3% in 2012–13 to 17.1% in 2017–18.²²

During this time, Indian agriculture grew at a rate of only 3.1%.²³ Thus agricultural growth

in Chhattisgarh has been faster than in the rest of the country.

3.1 Irrigation

As per an Asian Development Bank (ADB) document,²⁴ “Agriculture was dominated by rice production, which accounted for around three-quarters of the total cultivated area of 4.8 million ha. Only about a third of rice is grown under irrigation...Irrigation efficiency was low and utilization well below potential. The areas actually irrigated ranged from below 50% on minor schemes to 75% for major schemes and a third of minor schemes had less than 30% utilization. Average cropping intensity including both irrigated and rainfed areas was 120% and average yield of irrigated paddy was 2.5 tons per ha. This compares unfavorably with, for instance, Punjab, where cropping intensity was 180% and paddy yield 4.0 tons per ha.”

In the years since the document was written, while some improvements have happened, partially as a result of the supported Chhattisgarh Irrigation Development Project, a lot of the work, whether physical, technical as well as institutional, needs to be taken to the logical conclusion. For example, while was introduced and over 1300 were constituted, they are still to acquire adequate capacity to manage the responsibility of efficient and equitable distribution of irrigation water.

3.2 Crops

Paddy is the principal crop and the central plains of Chhattisgarh are known as rice bowl of central India. Rice is grown on about 69% of the cropped area.²⁵

20 Bhattacharyya et al. 2015.

21 Labour Bureau 2016, Table 22.

22 See table 3.3 DES 2018.

23 WB 2018a.

24 ADB 2015.

25 Sharma et al. 2014, Figure 10.

Chhattisgarh is rich in genetic diversity. It has as many as 22,972 different varieties of paddy seeds alone, evolved by local farmers over generations. These varieties are suitable to local soil and climatic conditions.²⁶

The other major crops are coarse grains, wheat, maize, groundnut, pulses and oilseeds. The region is also suitable for growing mango, banana, guava and other fruits and a variety of vegetables.

3.3 Strategy for Agricultural jobs

Irrigation

There is significant potential to increase gross cropped area as well as the net sown area by improving irrigation facilities. The extent of irrigation is only about 30% and this can be increased by a quarter to cover 40% of the cultivated area. With good rainfall (in the range of 1300 mm pa on an average), the irrigation will mainly help protect the Kharif crops against long dry spells, as well as increase the Rabi sowing. Area under Rabi crops should be aimed to be increased from the current less than one-third to over 40%. This increase of about 5 lakh ha will generate 5 lakh steady agricultural jobs on a long-term basis for cultivators as well agricultural workers.

Larger dam based canal irrigation projects need to be held accountable for implementing policies such as. Groundwater use should be controlled by ensuring agricultural connections are metered. Conjunctive use of groundwater and canal water should be promoted in the command areas. This will stabilise incomes in agriculture and generate more person-days employment in cultivation related operations for agricultural workers.

The extent of area irrigated by tanks, wells and other minor sources is less than one-sixth. With average rainfall of nearly 1300 mm, concentrated in four months, and an undulating terrain, Chhattisgarh needs to invest in these minor, local sources of water harvesting and irrigation. This will also generate a large number of jobs for low-skilled manual labour and can be financed under. This is also in line with the Manifesto promise, of doubling the area under irrigation by concentrating on minor and medium irrigation projects.²⁷ Once the additional irrigation capacity gets built, the longer-term employment in agriculture will go up due increased Rabi cultivation, such as wheat and also winter paddy.

Value Addition

Government policy should encourage shifting to crops that lend themselves to value addition. This includes oilseeds like soybean, groundnut, til (sesame) and ramtil (niger), all of which need to be crushed for oil, using either *kohlus* at the cottage scale, expellers at the small scale or solvent extraction plants at the medium to large scale. The investment in an expeller unit of 300 MT pa capacity is Rs 3 million in fixed assets and about Rs 1 million in working capital. This will also lead to employment of about 6 persons in the agro-processing industry and about 10–12 in related and supporting industries such as procurement of raw seed, packaging, and transport. Additional processing capacity of 150,000 MT will generate 3000 direct jobs and 5-6000 indirect jobs. This will also benefit the country by reducing the dependence on imported edible oil, mainly palm from Malaysia and sunflower from Latin America. Large local production and

²⁶ Krishnakumar 2003.

²⁷ INC 2018



consumption ensures less dependence on distant markets.

Another set of crops which lend themselves to value addition are pulses like arhar (pigeon pea), moong (green gram), urad (black gram), chana (chick pea) and kulthi (horsegram). All these require procurement, washing, cleaning, sorting, grading, processing and packaging, which can be done by local level small agro-processing units efficiently. As in the case of oilseeds, the local demand is significant and so dependence on distant markets is limited. The investment in establishing a pulse mill of 10,000 MT pa capacity is about Rs 20 million in plant and machinery, about the same in land and building (if rented sheds are not available) and another Rs 10 million in working capital. This can generate steady employment for 40 workers directly and another 40-60 in related and supporting industries such as procurement of raw seed, packaging, transport. Additional processing capacity of 200,000 MT will generate 800 direct jobs and 800-1200 indirect jobs.

Policy should also encourage investment in complementary industries such as food-

processing and agri-warehousing. The existing policies, such as the Agro and Food Processing Industries Policy, 2012,²⁸ should be implemented vigorously, with modifications as needed in light of the current situation.

All these steps can help increase output and employment in agriculture. However, long-term development of Chhattisgarh is likely to require higher growth of employment in the non-farm sector in the state.

4. Industries

Industries, consisting of mining and quarrying, manufacturing, utility services, and construction, has been a major growth driver in Chhattisgarh. Over the period 2012–13 to 2017–18, it has grown at a rate of 6.7%. This growth rate is about the same as the national industrial sector growth rate of 6.6%.²⁹ It is also in line with the aggregate Chhattisgarh growth of 6.5%.³⁰

28 DoCI 2012.

29 WB 2018b.

30 DES 2018, Table 3.1.

At the same time, the share of industries in Chhattisgarh's overall economy has slightly increased from 47.1% to 47.6%.³¹

The employment generated by all industries in Chhattisgarh is very low: only 9.3% of workers are employed across all categories of industrial employment, including mining and quarrying, manufacturing, utilities and construction.³²

4.1 Forest Produce

With 41% of its area under forests it has one of the richest bio-diversity areas in the country. The forests of Chhattisgarh are a source of timber as well as minor forest produce. Hardwood such as teak and sal occur in large quantities, along with bamboo. Scope for bamboo based industry is enormous, which would be vertically integrated: from growing bamboo on bunds of private lands, to local primary processing, to secondary processing for making items like bamboo board, veneer, parquet tiles, structurals and also handicraft items. Other produce includes Mahua, Tendu leaves, Sal seeds, Neem seeds, Chironji, Shikakai, Imli, Behera and Bel.³³

4.2 Mining and quarrying

Chhattisgarh is pre-eminent in quarrying and mining in India. The state produces as many as 28 major minerals including coal, iron ore, limestone, and bauxite. It accounts for 21% of India's coal production, 16% of iron ore production, 15% of tin production, and 10% of limestone production.³⁴

Mining and quarrying, are, however, insignificant from the point of view of

employment: this sector employs only 0.1% of the workforce.³⁵ This sector gains its importance from its contribution to the economy of the state and to the revenue of the government. In 2016-17, the state earned Rs 4,100 crore from minerals, of which 30 percent is earmarked for developmental projects in the mining areas including through the District Mineral Foundations (DMFs).³⁶ The INC Manifesto for the state in 2018 had promised to raise this to 50 percent.

The presence of these raw materials can also enable the growth of other job-creating industries in the state. Most of the employment opportunities are in minor minerals such as granite quarrying and processing rather than in bulk minerals, such as iron ore and coal, since large volumes require mechanization. The state has a widely dispersed availability of granite of different shades and also dolerite, spread over most districts. This can feed into the local construction activity. Interestingly, a large number of jobs can be generated in repairing the environmental damage that has been done by mining, using funds.

4.3 Manufacturing

Chhattisgarh is home to large manufacturing industries focused on metals and minerals. Of the national production, 18% of sponge iron, 15% of aluminium, 8% crude steel, and 5% of the cement is manufactured in Chhattisgarh.³⁷ It has consistently ranked high in Ease of Doing Business evaluations. In the latest assessment, among 36 states and union territories, Chhattisgarh was ranked sixth.³⁸

31 DES 2018, Table 3.3.

32 Labour Bureau 2016, Table 23.

33 Banajata 2010.

34 MRD 2018.

35 Labour Bureau 2016, Table 23.

36 MRD 2017.

37 MRD 2018.

38 MCI 2018.

This sector is also quite a small employer, accounting for only 3.8% of the workforce.³⁹

4.4 Strategy for industry employment

Though Chhattisgarh has rich stores of many minerals, and has industries dedicated to their extraction, these sectors do not generate much employment. Mining employs only 0.1% and manufacturing only 3.8% of the workforce.⁴⁰ This is because these sectors are highly capital-intensive. These natural resources should be used in consonance with the forest laws and with due attention to the environment. Such use can help make the state prosperous. However, while further development of these sectors may lead to greater growth, it is unlikely that mining and the manufacture of metallic and other mineral products will lead to the creation of many new jobs.

Today, Chhattisgarh has an opportunity to increase its exports by adapting to the changing global scenario. Under the ‘Made in China 2025’ policy, China is aiming to move out of low-cost manufacturing into high value-added technology and innovation.⁴¹ Its rising wages potentially reduce its competitiveness. Meanwhile, the US is threatening to impose tariffs on China.⁴²

This confluence of developments presents opportunities for Chhattisgarh. Higher exports will both increase average wages, and promote formalisation.⁴³ Chhattisgarh could aim to attract Chinese know-how and capital. This can enable the creation of large-scale industrial units targeting both the domestic and foreign markets.

³⁹ Labour Bureau 2016, Table 23.

⁴⁰ Labour Bureau 2016, Table 23.

⁴¹ ISDP 2018.

⁴² Bloomberg News 2018.

⁴³ Artuc et al. 2019.

One area of mutual China-India interest can be the cultivation and processing of medicinal plants. As per a research paper, “A review of Ayurveda and traditional Chinese medicine indicates that both these systems have many medicinal materials in common. The studies carried out by the authors ... bring focus to the utilization of ‘qualitatively’ similar species which can be utilized and substituted for endangered or economically valued species.”⁴⁴ Other manufacturing could be “light” items such as electronic goods, as demand centres are quite far from the state and heavier items like automobiles may not be economically viable due to costs of trucking in the raw materials.

The availability of skilled labour is a key constraint in the growth of industry. While Chhattisgarh has made skill development a right, the unemployment rate is still extremely high. Considering the very low participation of women in manufacturing, providing safe transportation as well as safe housing for women workers in and around industrial zones will promote the availability of skilled and unskilled labour.

“Plug-and-Play” manufacturing facilities can help to create growth and generate employment. This involves the provision of industrial facilities with all required basic facilities such as electricity, water, and effluent treatment. There may also be space for accommodation for the workers. This eliminates the need for complicated and time-consuming process of land acquisition, or for entrepreneurs to spend their efforts and resources on setting up their own water supply, power backup, and effluent treatment facilities. Thus they can be especially useful for small and medium enterprises.

⁴⁴ Jaiswal, Liang, and Zhao 2016.

The construction sector employs as many as 5.1% of the workforce. By encouraging this sector, in particular by promoting the development of towns and cities, many more people across all skill levels can gain employment, both in the short term and in the long term.

5. Services

The services sector accounts for 35.2% of Chhattisgarh's economy as of 2017–18.⁴⁵ Over the period 2012–13 to 2017–18, it has grown at a rate of 6.8%. This is slightly faster than the aggregate Chhattisgarh growth of 6.5%.⁴⁶ However, it is far slower than the national services sector growth rate of 8.5%.⁴⁷ During the same period, the share of services in Chhattisgarh's economy has slightly increased from 34.6% to 35.2%.⁴⁸

The employment generated by all services in Chhattisgarh is quite low: only 16.6% of workers are employed across all categories of services.⁴⁹ The major employers in this sector are trade and education.

5.1 Logistics

Chhattisgarh is centrally located. It is well connected by rail to the east-west and north-south trunk rail routes. National Highway 6, connecting Mumbai to Kolkata, passes through the state.

The new GST taxation regime eliminates the need for checkpoints at state borders and facilitates the establishment of logistics industries. Two inland container depots have

⁴⁵ DES 2018, Table 3.3.

⁴⁶ DES 2018, Table 3.1.

⁴⁷ WB 2018c.

⁴⁸ DES 2018, Table 3.3.

⁴⁹ Labour Bureau 2016, Table 23.

been developed, one in Kapa, Raipur, and the other in Naya Raipur.⁵⁰ These advantages can be leveraged to create a strong logistics industry in the state, including support for land, rail, and air transport, warehousing and storage, courier activities, etc. This can lead to the creation of a large number of jobs.

5.2 Tourism

Chhattisgarh is not currently a major tourist destination, but it has very high potential to become one. It has a number of attractive destinations, ranging from wildlife sanctuaries to religious places to forts. The Dandakaranya forests, where Lord Rama is believed to have spent a large part of his exile, are in Chhattisgarh. There is already considerable domestic pilgrim traffic and this can be up-sold to higher spending groups as domestic tourists look for newer destinations.

5.3 Government sector

The currently existing vacancies across the state government, including police, teachers, health workers, etc, are about 80,000, as seen in Table 1.

Table 1: Government Vacancies

Jobs	Number
Teachers	56,784
ASHA, Anganwadi, etc.	11,946
Police	5,345
Rural Health manpower	3,925
Others	1,835
Total	79,835

These posts provide services to the public and can improve the quality of governance. The government should initiate the process of filling these posts immediately and aim to fill them up within six months.

⁵⁰ Kaur 2016.

5.4 Strategy for service jobs

In order to create more jobs in the service sector, the state should leverage its favourable geographical location, its good business environment, and positive perceptions among potential investors.

Tourism presents many untapped opportunities.

Given the central location of the state, logistics can also drive growth and create employment. The North-South commercial traffic bypasses Chhattisgarh because of the well-established Delhi-Agra-Bhopal-Nagpur-Vijaywada-Chennai corridor. This is overloaded. This traffic from centre-North places like Kanpur, Lucknow and Patna can easily go south via Jabalpur, Raipur, Vishakhapatnam-Chennai. Chhattisgarh can pitch itself as part of the new North-South logistics corridor for the eastern half of the nation.

In this connection, the Raipur airport is a big asset and two airstrips at Jagdalpur, for Bastar, and at Ambikapur for Sarguja, need to be connected with regular smaller aircraft services.

Chhattisgarh is uniquely placed to offer experience-based tourism, such as forest/village stays, to high-spending tourists, Indian or foreign. There are some excellent wildlife sanctuaries in Chhattisgarh, such as Boramdeo and Achanakmar, which can be pitched as alternatives to the overcrowded Kanha Tiger Reserve. In fact, the Raipur airport offers a better access to Kanha via Boramdeo, as compared to Jabalpur or Nagpur, which are the two traditional gateways to Kanha.

The Manifesto for the state mentioned setting up Elephant corridors in Lemru and Korba and also increasing the tiger population four fold, so these can generate wildlife based jobs, for wildlife protection, tourist guides, hotel and restaurant staff, transport and related services. Earlier, the frequent and ongoing law and order problems in the state deterred tourists. To fully leverage the tourism opportunity, the law and order has to be strengthened and the hospitality infrastructure needs to be better developed.

6. Proposals

In this section, we discuss proposals that can generate 15 lakh jobs over the next five years. We are focusing on those ideas that create not just significant employment (both short-term and long-term), but also public value. We also consider options for the Chhattisgarh government to finance them.

6.1 Natural resource regeneration

As mentioned above, almost 5 million hectares of Chhattisgarh suffers from land degradation or desertification. In addition, water sources and forests are also increasingly stressed.

The degradation of natural resources of Chhattisgarh can be countered by a large-scale public program to restore those natural resources. For instance, wind erosion can be controlled by sand dune stabilization and shelter belt plantation. In the hilly areas of Chhattisgarh, mechanical soil and water conservation measures are required for controlling soil erosion, retaining maximum rainfall within the slope and safe disposal of excess runoff from the top to the foot hills. These structures include bunding, contour bunds, water harvesting ponds, etc.

Integrated watershed management involves soil and water conservation coupled with suitable crop management. It involves construction of check dams along gullies, bench terracing, contour bunding, land leveling and planting of grasses. These strategies can increase percolation of water, decrease runoff and improve water availability.⁵¹

In minespoil affected areas, high soil erosion rates can be controlled by using bioengineering treatments. Low infiltration rate is one of the major problems in central India. Deep tillage can improve soil water storage by greater infiltration and minimizing water stress. Revegetation of the mine spoils is very challenging but necessary in India. Plants such as acacia and *vilayati kikar* can help the rehabilitation of mine areas.⁵²

All this will require a large amount of labour. Thus, this would not just create large-scale low-skilled employment in the short-term, but also preserve and increase the productivity of land, thereby protecting the livelihoods of millions of people. Once the land is regenerated, the increase in the fertility of the land, in water availability, and in cropped area, can create many more long-term jobs.

We estimate that this project can provide employment to about 7 lakh people over a period of 5 years at an expenditure of Rs 26250 crore. The details are presented in Appendix [appndx:regen].

6.2 Samarth Zilla

Over the past few years, there has been a policy push to promote a few large cities,

without sufficient attention to the hinterland of those cities. This approach is showing its flaws. A more holistic regional development approach is required, which promotes the development of the rural and peri-urban areas of a district along with the urban areas.⁵³

Chhattisgarh is a largely rural state and it requires many more small towns, along with dynamic rural areas. The creation of roads, bridges, buildings, and houses in these towns and villages can generate a large number of jobs for unskilled, semi-skilled, and skilled labourers.

About 3 lakh people can be employed in this area over a period of 5 years. By our calculations, this will require an expenditure of Rs 15000 crore. The details are provided in Appendix A. 2.

6.3 Tourism and Logistics

It is estimated that tourism contributed to the generation of 2.6 crore jobs in India.⁵⁴ If Chhattisgarh can capture a larger share of the domestic and foreign tourism in India, it can lead to job creation with little public investment required.

Similarly, the logistics sector in India employs 2.2 crore people and is likely to grow fast in the coming years.⁵⁵ If Chhattisgarh can take advantage of the opportunities in this sector, it can again create jobs at little cost to the exchequer.

Both these sectors will be primarily driven by private investment. Together, we estimate that these two sectors will be able

51 Bhattacharyya et al. 2015.

52 LCLUC 2018.

53 Ahluwalia 2015; Mahajan and Kalia 2019.

54 KPMG 2018.

55 MoF 2018.

to generate 4 lakh jobs in Chhattisgarh. A supportive policy environment, and safety and security of the tourists and workforce is a precondition for this.

6.4 Filling vacancies

As mentioned in section 5.3 above, vacancies for almost 80,000 government jobs exist in Chhattisgarh, most of which are in the state government. These jobs range from Anganwadi workers, to ASHA workers, to paramedics, to teachers and policemen.

Calculations indicate that filling these can cost about Rs 8,000 crore. The details are provided in Appendix A. 3.

6.5 Fiscal impact

Projecting the current state government expenditure over the next five years, and assuming reasonable rates of growth, the total expenditure will come to about Rs 5.3 lakh crore.⁵⁶ The additional expenditure for creating jobs proposed so far will come to 49,250 crore spread over that period. This implies an increase in spending by 9.3%.

The fiscal impact can be cushioned by spreading the schemes over a longer period, or reducing the intensity of the implementation (which will also reduce the employment creation).

Financing this will require a number of sources, apart from the government's own revenues:

- The government can seek assistance from the centre, including by fitting these schemes into Centrally Sponsored Schemes to the extent possible.

- The government can borrow from the markets.
- Where excludable private gains are created by these schemes, for instance as in the case of some land regeneration, the government can recover some of the expense from the private parties whose land is improved.

7. Conclusion

Chhattisgarh has great potential for economic growth, but the employment situation in the state is dire. However, there are opportunities for policy changes which can help create much more employment. The greatest of these opportunities is in regeneration of degraded natural resources, construction of infrastructure for a large number of new towns, filling the many vacant government positions, and promoting sectors such as logistics and tourism.

The proposed projects can lead to the elimination of unemployment through the creation of 15 lakh jobs in the next five years. These projects are likely to cost about Rs 9850 crore per year. While this is a significant burden on the exchequer, it should also be remembered that this amount is being invested in the creation of public infrastructure, positive externalities, and for preserving natural resources. It will not just produce employment for the unemployed, it will also create more long-term permanent employment through the regeneration of barren land, greater urbanisation, higher growth, and better public service delivery.

⁵⁶ Author's calculations, based on data from Kanadje 2019.

A. Estimating employment potential

A.1 Natural Resource Regeneration

The objective is to create employment for 7 lakh workers. This may not be done at once, but gradually over a period of 5 years. This would come to a requirement of 17.5 lakh person-years of work.

We target that each worker should receive a wage of Rs 1 lakh per year. Using as a benchmark, that would imply a total cost per worker of Rs 1.5 lakh.⁵⁷ This would include the administration cost as well as the cost of material and skilled wages.

The total cost of natural resource regeneration, for 17.5 lakh person-years of work at a cost of Rs 1.5 lakh per person-year, comes to Rs 26250 crore.

A.2 Samarth Zilla

The objective is to create employment for 3 lakh workers. Again, this will be gradually scaled up over a period of 5 years. This would come to a requirement of 7.5 lakh person-years of work.

We use as a benchmark for this project. In, 78 crore person-days of work were generated in 2014–15 to 2016–17,⁵⁸ for an expenditure of 59,750 crore.⁵⁹ Assuming 260 working days per year, this comes to Rs 2.0 lakh per year per worker.

The total cost of this project, for 7.5 lakh person-years of work at a cost of Rs 2.0 lakh per person-year, comes to Rs 15000 crore.

A.3 Vacancies

As mentioned in section [ss:vacancies] above, vacancies for almost 80,000 government jobs exist in Chhattisgarh. These jobs range from Anganwadi workers, to ASHA workers, to paramedics, to teachers and policemen.

Assuming that on an average, these jobs cost the state government Rs 2 lakhs per year, the total cost of filling these jobs will be Rs 8000 crore over the 5-year period.

⁵⁷ See MoRD (2019) figures for 2018–19. The total expenditure is 1.5 times the wage expenditure.

⁵⁸ MoRD 2017.

⁵⁹ MoRD 2018, p. 2.



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