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KORBA

PLANNING A JUST TRANSITION FOR INDIA'S BIGGEST COAL AND POWER DISTRICT

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Summary for Stakeholders

The study of the Korba district of Chhattisgarh was undertaken to understand what a just transition will mean and entail for India's top coal mining and coal-based power districts, and how a just transition planning can be approached.

The study relies on an extensive primary survey involving 600 households, 21 focus group discussions (FGDs), and formal interviews with key functionaries and industry representatives at the district and state levels.

The household survey was undertaken to ascertain the income and livelihood dependence of the local community on coal, the district's worker profile, and the district's overall dependence on the coal economy for revenue, public amenities, and welfare. In addition, the FGDs and interviews were conducted to capture the opinion of various stakeholders about the closure of coal mines and coal-based power plants, the potential impact on jobs and the local economy, and the investments and support that the local community will need for a just transition.

The study also analysed a vast amount of data collected from coal and power companies, government departments, and academic institutions to complement observations of the primary survey and develop a framework for the just transition planning in Korba.

A. Key Findings

1. Korba will face just transition challenges much earlier than anticipated

Korba, India's biggest coal-producing district and one of the top coal-power producers, will start facing the implications of energy transition well before 2030. The district produces about 16% of India's coal and has 6,428 MW coal-based thermal power plants (TPPs) capacity. Overall, coal mining, thermal power, and coal-dependent industries account for over 60% of Korba's GDP.

Nearly 95% of Korba's coal comes from just three large open cast mines - Gevra, Kusmunda, and Dipka. Gevra and Kusmunda have a mine life of less than 20 years, and can be closed before 2040; Dipka will exhaust its resources by 2045.

The rest of the mines — two open cast and eight underground mines — account for the remaining 5% of production and are unprofitable and on the verge of closure.

The coal-based power production in Korba will soon face a decline. Nearly half of the thermal power units are over 30 years old and are slated to retire by 2027. Further, if we consider the life of power plants as 25 years, the remaining units can also be retired by 2040. Besides, the state government has also taken a decision not to install any new coal-based power plants.

Therefore, the next few years will be crucial for planning and implementing just transition measures in Korba.

2. One in five workers is directly dependent on the coal industry and coal-based power plants

The total number of people directly employed by the coal industry (including coal mines, coal washeries, fly ash brick units, and coal transport) and TPPs are at least 87,558. Half of them are formal employees of the companies and their contractors, and half are informal workers. Overall, one in every five workers in Korba depends on coal and power plants.

Korba also exemplifies the future of employment in the coal industry. The top three mines of Korba, which produces one-sixth of India's coal, formally employ just 12,317 people. An additional 15,700 people can be estimated to be engaged informally, making the total workforce about 28,000. If all mines in the country achieve the same workforce productivity level, then the total employment in coal mines to produce 1 billion tonnes of coal (target set by the government for 2024) will be just 230,000. In comparison, the public sector coal companies presently employ 350,000 people formally, and total employment in coal mining is estimated to be 2.6 million.

3. The coal-centric economy has hindered the growth and employment in other sectors

A coal-centric focus in Korba's economy has stymied the growth of other economic sectors, including agriculture, forestry, other industries, and the service sector.

For example, agriculture constitutes the primary source of income for a majority of households (nearly 36%) in the district, but the household income for most is less than ₹10,000 per month (US$ 132). A significant reason for this is the poor development of irrigation in the district (88% of agriculture is rain-fed) and the limited development of agro-based industries.

Similarly, while Korba has more than 60% of the land area under forests and has several high-value non-timber forest products (NTFPs), the sector does not contribute to decent income opportunities for the tribal community. Likewise, the service sector is also poorly developed.

This has led to a limited opportunity of decent waged income and consequently a high proportion of non-workers within the working age group. The primary survey indicates that 54% of the people in the working age group are non-workers. The situation is far worse for women, as about 73% of the non-workers are women.

4. Korba is highly vulnerable to any unplanned closure of mines and industries due to poverty and poor development indicators

About two-thirds of the households in Korba have a monthly income of less than ₹10,000 (US$ 132). Also, over 32% of the district's population are 'multidimensionally poor' with limited access to healthcare, education, and basic amenities, such as clean drinking water and clean energy for cooking. Due to poor development indicators, Korba has been prioritised for targeted development intervention under the aspirational districts programme of the Government of India (GOI).

Korba's economy, therefore, is highly vulnerable to sudden disruptions in the coal economy as the district has low coping capacity due to the absence of opportunities in other sectors.

B. Planning just transition for Korba

Eight factors will be essential for planning a just transition in Korba.

1. An inclusive mechanism for just transition planning

Just transition plan for the district must be developed by assessing the people's needs, adaptive capacity, mobility, and aspirations. Besides, an inclusive approach is also necessary to reconcile the needs of those benefitting from the coal economy with those who have a minimal stake in the present coal economy (such as the forest-dwelling tribal communities).

Considering the resources and capacity that will be necessary in the coming years to coordinate, plan and implement a just transition, the current district administration will not be able to facilitate it. Therefore, the government will need to consider an appropriate authority/ body for coordinating planning and executing the process and develop a local support system to engage the community in planning and implementation.

2. The just transition timeframe should be aligned with net-zero pathway

The timeframe of closure of coal mines and coal-based power plants in Korba over the next decades, and a simultaneous transition plan for the district, have been explored under two scenarios, viz., the Current Policy Scenario (CPS) and the Net-Zero 2050 (NZ-2050) Scenario.

Current Policy Scenario

In CPS, which aligns with India's net-zero target of 2070, all the coal mines in Korba can be closed by 2050 and power plants by 2040 with least disruption.

In Phase I (2020-2030), a planned closure should be considered for the eight low-producing and unprofitable underground mines. Similarly, as per the Central Electricity Authority (CEA) recommendation, 10 units (2,940 MW capacity) operated by the National Thermal Power Corporation (NTPC), and the Chhattisgarh State Power Generation Company Limited (CSPGCL) should close down by 2027.

In Phase II (2030-2040), four mines with 126 MMT cumulative production capacity will exhaust their resources and can be closed. This will include two of the largest mines, Gevra and Kusmunda. All the remaining coal power plants of Korba will be more than 25 years old by 2040 and can be phased out.

In Phase III (2040-2050), the remaining five mines, including Dipka, with about 55 MMT annual production capacity, can be closed as they would also exhaust most of their reserves. The amount of coal production that will be foregone by closing all mines by 2050 would be 46 MMT or less than 1.5% of total coal production from now till 2050.

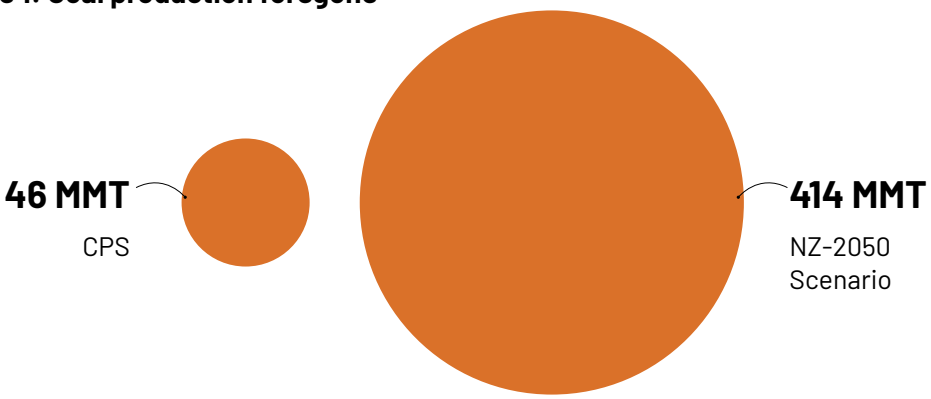
Net-Zero 2050 Scenario

In NZ-2050, which aligns with India reaching net-zero emissions by 2050, all the power plants in Korba can be closed by 2040 (similar to CPS), but many coal mines will have to be prematurely closed by 2040, foregoing more than 400 MMT of coal production.

In Phase I (2020-2030), similar to CPS, all the eight low-producing and unprofitable underground mines can be closed. Similarly, 10 TPP units (2,940 MW capacity) can be closed down by 2027.

In Phase II (2030-2040), all the remaining coal power plants of Korba will be more than 25 years old by 2040 and can be phased out. But many of the coal mines will have to be prematurely closed. While Gevra and Kusmunda will not get affected, Dipka and the upcoming mines will have to be closed before exhausting their resources. The coal production foregone under this scenario will be 414 MMT.

Figure 1: Coal production foregone



3. Securing retirement benefits and skilling of the workforce for new industries will be crucial for formal workers; for informal workers, government support and infrastructure investment will be essential

The age profile of the departmental employees of SECL, NTPC, and CSPGCL shows a high proportion of people above 40 years of age. While for SECL and NTPC about 70% of the departmental employees are above 40 years of age, for CSPGCL it is about 50%. For most of the employees of SECL, their retirement can be synchronised with the closure of mines. For NTPC and CSPGCL it will be challenging as half of their capacity is planned to be closed in the next five years.

Overall, a key issue for the formal employees in coal mining and thermal power operations will be securing pension funds (for current retirees and those in the future) and skilling the new workforce. To build a green economy, companies will have to start developing employee portfolios considering the skills they will need for the future.

For the informal workers, government livelihood generation schemes and generating employment through infrastructure investment will be crucial, as most are semi-skilled and unskilled. These workers will need to be supported through income generation schemes of the Centre and the state and will need to be re-employed through proper skill training. In addition, investments in building the new infrastructure and industries will also be vital for creating jobs.

The workers engaged in coal transportation will need particular attention in transition planning. The coal transportation sector employs at least 15,300 people in the district, which is only 15% less than the formal employment in coal mines. Moreover, the transportation sector itself will undergo a transition in the coming years, considering the increasing trend towards electrification of the fleet. Therefore, a transition plan will be required for the road transport sector, including the skilling of the service sector for electric and hydrogen vehicles.

4. Economic diversification should be planned to create a balanced contribution of the primary, secondary and tertiary sectors to the district GDP

A significant factor in just transition planning for Korba will be diversifying the district's economy and industrial activities. Overall, while the primary sector has a share of about 56.3% in the district's GDP, 50% is related to coal mining. The secondary sector has a share of 31%, and the tertiary sector has about 12.7%.

Therefore, Korba's economic diversification plan should aim to move away from the coal-centric economy progressively. The critical aspects of economic diversification in the district will be to boost the production and economic output of agriculture, forestry, and fishery sectors; support the development of low-carbon industries, including agro and food processing, NTFP processing, and renewable energy-based industries (such as solar); and improve income opportunities in the service sector through investments in education and skill development, strengthening the healthcare sector and developing the tourism industry.

The potential for all of these sectors remains high considering the district's existing resources. There are also policies and schemes of the Centre and the State Government (such as the state Industrial Policy, the Solar Energy Policy, the Agro and Food Processing Industries Policy, the *Narwa, Garuwa, Ghurwa and Badi scheme*, etc.) that can provide the necessary fiscal and non-fiscal incentives for their development, and also enhance the potential to deliver co-benefits of income generation and developmental outcomes.

5. Repurposing of land and infrastructure will be important for developing green industries, including renewable energy

A key requirement for industrial development will be the availability of land. As Korba is a Fifth Schedule (Schedule V) district, there are various restrictions on land transfer and land alienation under the Constitution of India, as well as state-specific land laws and revenue codes.

Therefore, reclaiming and repurposing the mining and industrial lands for productive economic use will be necessary. Currently, over 24,364 hectares (ha) of land is under coal mining (including closed mines) and coal-based TPPs. This will become over 27,600 ha within the next three years with the four upcoming mines.

Scientific closure and repurposing of the mining land, particularly of the opencast mines, hold significant potential for various economic activities. The post-closure plan for four opencast mines - Gevra, Dipka, Kusmunda, and Manikpur, shows that nearly 8,859 ha of land will be available for various investments and development of industries, including solar parks. The Industrial Policy of the State Government, along with the Special Economic Zone Policy and the Solar Energy Policy can provide the necessary impetus.

6. Responsible social and environmental investments will be necessary to reverse resource curse

Just transition is an opportunity to reverse the resource curse in Korba, like many other coal districts of India. The planning and investments should focus on augmenting social and physical infrastructure to achieve development goals and improve the district's environmental conditions.

Social infrastructure investments will be particularly needed for improving education access and outcomes, with a specific focus on women, improving the healthcare infrastructure and access, and improving access to basic amenities, such as clean water supply, cooking fuel, and energy. The target outcomes for each can be aligned to the respective sustainable development goals (SDGs) and considering national and international benchmarks.

Equally important will be measures for land remediation and pollution mitigation. This will involve scientific closure of coal mines through proper planning and oversight, including ecological restoration of mining areas and development of land for productive economic use; reclamation and redevelopment of industrial lands; and disposal of industrial structures and assets during the decommissioning of TPPs through appropriate practices of waste management, material recycling, ash management, among others.

7. Progressive planning will be required for revenue substitution

A critical issue for just transition will be the substitution of public revenue. For coal mining, the primary source of revenue for the states includes royalty and District Mineral Foundation (DMF). Additionally, the Central Government receives revenue from the coal cess (the GST Compensation Cess). At the peak coal production of 180 MMT, which will happen during 2025-2030, coal mines will contribute about ₹107 billion per year (US$ 1.5 billion) as coal cess, royalty and DMF.

As coal mining activities will phase-down in the district over the next three decades, it will have implications for public revenue. Under CPS, the district will lose about ₹27.5 billion (nearly US$ 0.4 billion) from coal phase-down in the next three decades. In NZ-2050 Scenario, the district will lose about ₹246 billion (nearly US$ 3.4 billion) from coal phase-down in the next three decades.

However, the loss can be substituted through carefully planned economic diversification and industrial restructuring measures. Overall, revenue substitution must be planned early on, and a progressive plan needs to be developed considering the just transition timeframe.

Table 1: Coal revenue foregone

Components	CPS	NZ-2050
Royalty foregone (₹ billion)	6.8	60.7
DMF foregone (₹ billion)	2.2	19.6
Coal cess foregone (₹ billion)	18.5	165.6
Total revenue foregone (₹ billion)	**27.5**	**246.2**

8. Just Transition financing will not be a challenge for major coal districts if coal cess is used for transition financing

There are five types of resources that can be considered a significant source of investments in just transition. These include the DMF funds, the Corporate Social Responsibility (CSR) funds, the coal cess (currently the GST compensation cess), pooling of resources through the convergence of government schemes, and leveraging private sector investments.

The most immediate opportunity is with the DMF funds, and going ahead the coal cess can be the most critical green fund for a just transition, with a corpus of about ₹1.35 trillion (US$18 billion). Overall, ₹1.5 trillion (US$ 20.2 billion) can be available as direct finance for just transition over the next three decades in Korba by just pooling DMF, coal cess, and CSR funds.

Table 2: Finances available for just transition until 2050

Sources of financing	CPS	NZ-2050
DMF (₹ billion)	160.4	143
Coal cess (₹ billion)	1,354.9	1,207.6
CSR (₹ billion)	6	6
Total direct finance for just transition (₹ billion)	**1,521.3**	**1,356.6**

C. Key policy and planning considerations

As India's energy transition progresses, just transition will assume a central position in climate change and development policy discourse in the coming years. Considering global experiences of just transition, the reality of coal districts of India, and the present study of Korba, there are three key considerations for just transition for coal-dominant districts of India.

1. Just transition will require district-specific, as well as regional planning

The coal districts in India vary widely in terms of the scale of mining operations, the presence of coal-based power plants, and other coal-dependent industries. The extent and nature of coal dependence also differ with respect to the workers (formal and informal), income opportunities, and other indirect dependence. Therefore, a district-specific assessment will be necessary while developing just transition plans. The regional implications of the energy transition should also be considered, as many of India's top coal districts are the epicentres for fuel supply to adjoining regions and support their industrial activities.

2. The transition should be designed and planned as a development intervention

Just transition in India, should be considered as a development intervention, taking into account five key components:

i. Inputs, which will include aspects of governance, development of policies, plans and instituting regulatory reforms to support a just transition, and financing.

ii. Processes, which will include development of diverse coalition of various actors and stakeholders, development of effective and transparent implementation and communication strategy, and establishment of local support system.

iii. Outputs, will include a restructured economy and industries, repurposed land and infrastructure for low-carbon industries, reskilled and newly skilled workers for the green economy, substitution of public revenue, and responsible social and environmental investments for a better quality of life.

iv. Outcomes, which in essence will include net-positive environmental, social and economic outcomes.

v. Impacts, for development intervention that are long-term and sustainable.

3. Planning must start early to provide sufficient time for the transition

Just transition planning must start early to build stakeholder consensus and minimise the scope of economic and social disruption. Given the diversity and expanse of the coal districts, India needs to start the just transition planning process at the earliest. In fact, a just transition plan must be in place for the districts much before the coal mines and power plants start closing down.

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