



JUST TRANSITION IN INDIA

An inquiry into
the challenges and
opportunities for
a post-coal future

Chandra Bhushan
Srestha Banerjee
Shruti Agarwal

IFOREST

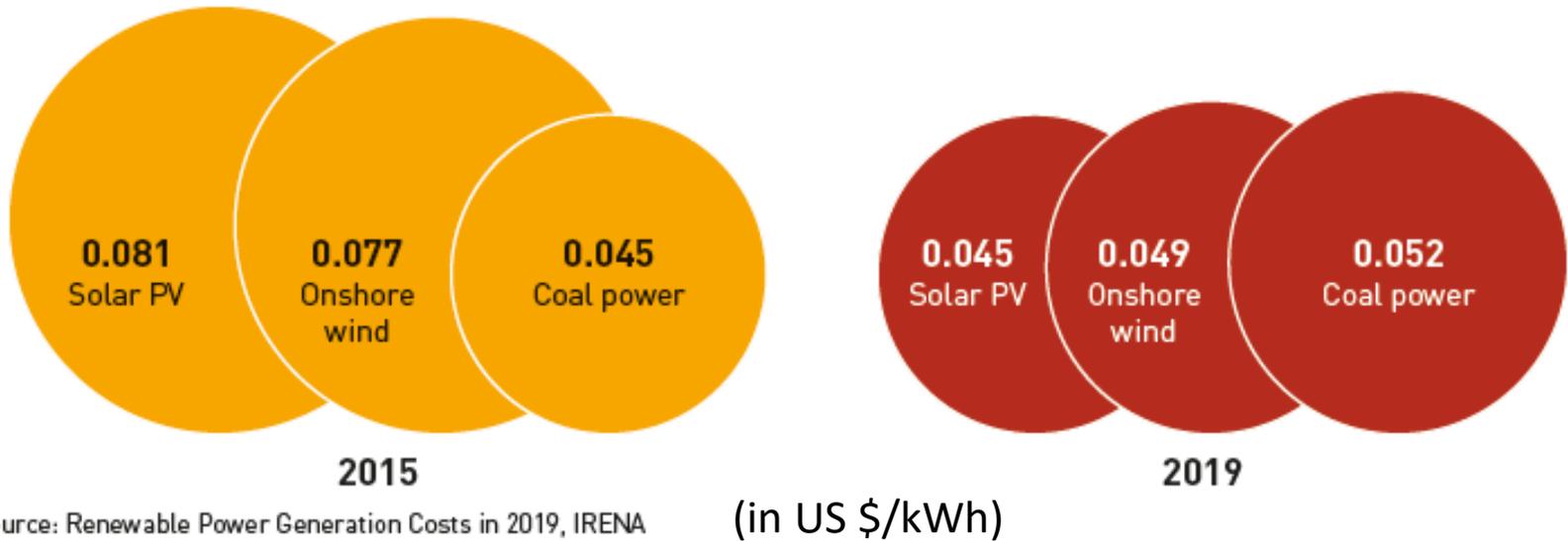
INTERNATIONAL
FORUM
FOR ENVIRONMENT,
SUSTAINABILITY
& TECHNOLOGY

Centrality of Coal

- **Backbone of the energy sector:** Accounts for 47% primary energy supply, 71% of electricity generation.
- **Heavy interdependence between railways and coal:** 44% of railways' revenue comes from coal; profit share even higher.
- **Jobs and livelihood:** An estimated **0.35 million** people formally employed. Overall, about **15 million** are dependent on the coal industry directly or indirectly.
- **Revenues for coal-rich states:** Coal revenue constitutes 5%-6% of Jharkhand's state budget.
- **Fulcrum of economic life in coal districts:** About 25 districts reliant largely on coal for jobs and growth.

Why must India discuss Just Transition?

Cost-competitiveness of renewables

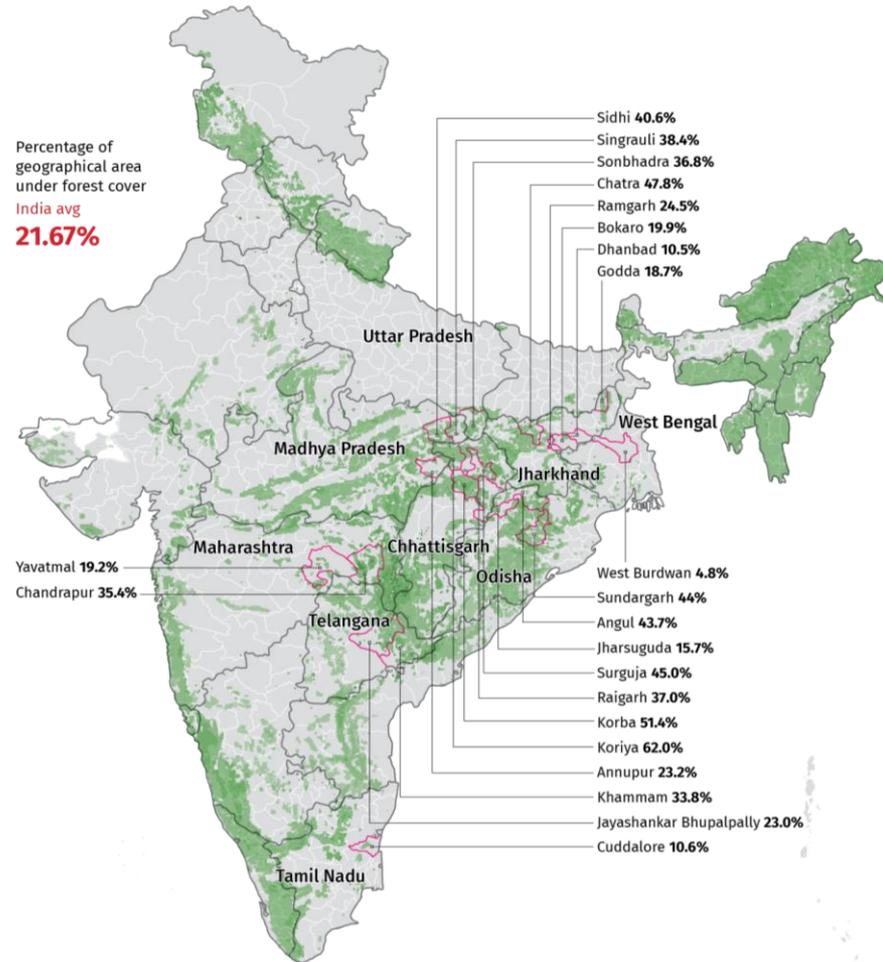


India's New Record for Lowest Solar Tariff is ₹2/kWh

This tariff is around 15.3% lower than the country's previous record-low solar tariff of ₹2.36/kWh

Environmental costs of Coal Mining Thermal Power Plants

- Coal power plants single largest source of industrial pollution - 60% of SPM, 50% of SO₂, 30% of NO_x, and 80% of Hg emissions.
- TPPs single-largest source of solid waste - approx. 1 billion tonnes of ash dumped in ponds, polluting air & water.
- Coal mining areas 'critically polluted'.
- Large-scale diversion of forests: Avg. 5,000 ha/ year



31% average forest cover in top coal districts

Rising pollution control costs

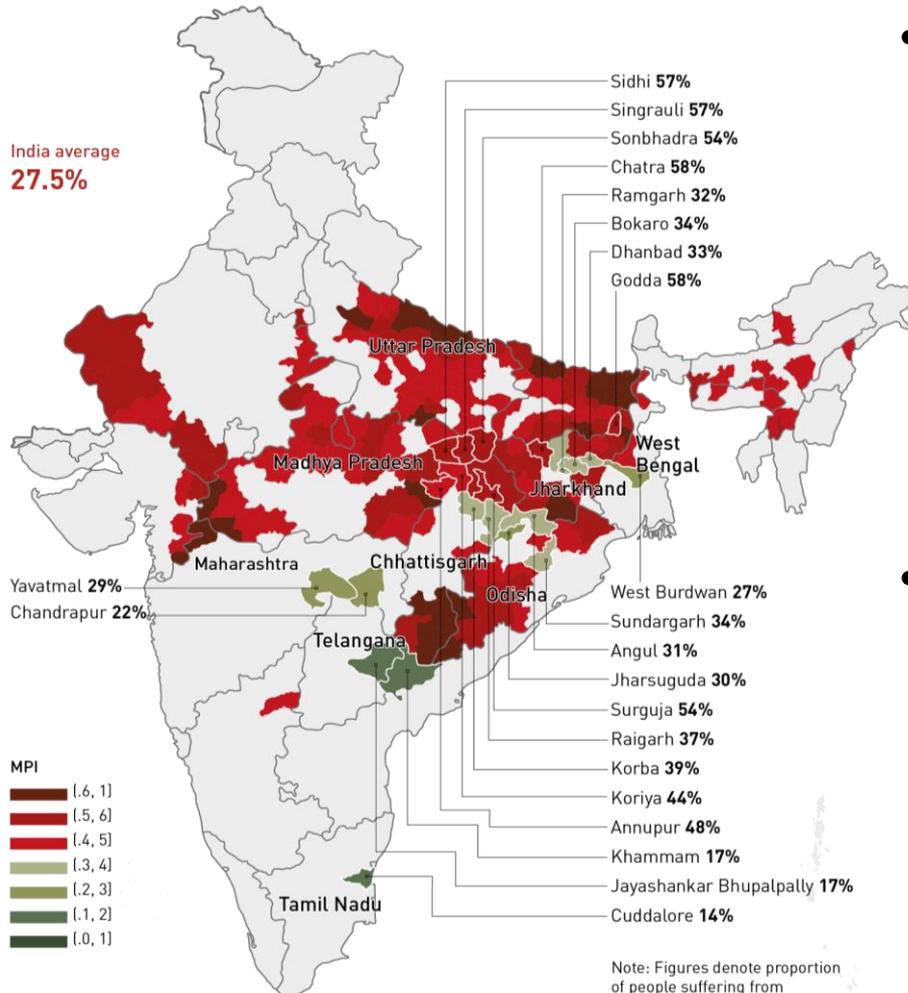
TPPs single
largest source
of air pollution
- PM, NO_x, SO₂
& Hg

Capital cost to
meet pollution
norms
Rs. 86,135 cr.
(\$12 billion)

Will add
Rs 0.3 - 0.7 per
kWh to existing
tariffs

Resource Curse

High poverty and deprivation



- 50% population are multidimensionally poor in many coal districts (twice India's average of 27.5%). They suffer from poor health, education and living standards.
- On average, **80%** people rely on government food subsidies (identified under *Antyodaya* or as *Priority Households* under targeted PDS)

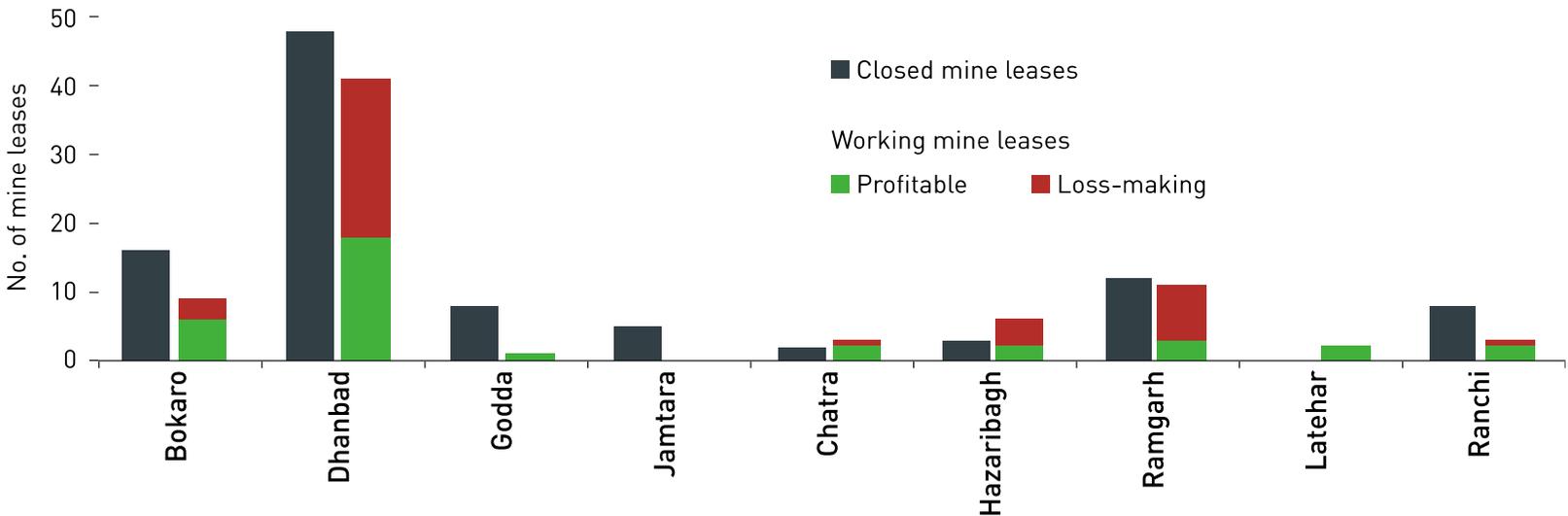
Note: Figures denote proportion of people suffering from multidimensional poverty

Climate Change

- Single largest source of GHG emissions.
- Fifth most vulnerable country from climate change impacts.
- In the last 20 years, suffered a loss of US\$14 billion annually due to extreme weather events, the second highest among G20 countries.
- Risks losing 2.5% - 4.5% of GDP by 2030 due to heat waves alone.
- Cumulative costs for India to adapt to climate change by 2030, estimated to be US\$ 1.2 trillion (Rs 85.6 lakh crores) (*MoF, 2020*).
- To meet the 1.5°C goal, IPCC recommended phasing out coal-based power plants by 2050.

Profitability of coal mines & unplanned mine closure

- While coal industry is overall profitable, **70%** of CIL mines are running into losses – both opencast and underground mines. In Jharkhand **half** of the operational mines are unprofitable.
- Coal mines are being closed (temporarily or permanently) in an unplanned manner; in Jharkhand **over 50%** mines are closed.



The Study

- Review the **political-economy of coal at the sub-national level** - Jharkhand, one of India's top coal mining states.
- **In-depth case study of Ramgarh**, one of Jharkhand's top coal districts to:
 - Assess nature and extent of coal dependency;
 - Capture stakeholder perception on coal mine closure and climate change;
 - Assess the district's risks and resilience; and,
 - Develop a matrix for just transition planning at the district-level.
- Develop an **indicative just transition framework for India** based on global best practices and the Jharkhand/Ramgarh study.

Key Takeaways

- **An informal dependence:** High proportion of informal workers, nearly 3 times the formal workforce.
- **Low income dependence:** Two-thirds of households deriving an income directly from coal in Ramgarh have a monthly income of Rs.6,000-10,000.
- **Spatially concentrated dependence:** In Ramgarh, dependence of households living just 10 km away from the mines was low.
- **Constructed dependence:** Coal-centric development have stymied growth of other sectors in coal districts.

Key Takeaways

- Just transition is not in future, it is **here and now** in many coal mining districts.
- Unlike the developed countries, where just transition is about creating alternatives to formal mine workers and formal coal economy, in India, just transition is about **‘structural changes’** and a broad-based **socio-economic transition** involving:
 - Economic diversification & industrial restructuring;
 - Social infrastructure investments;
 - Mine reclamation and coal-mine area re-development;
and,
 - Restructuring of coal PSUs.

Key Takeaways

- Energy transition must go hand-in-hand with Just Transition
- A well-planned and well-managed just transition will enable India to:
 - show strong mitigation commitments for climate action;
 - and,
 - reverse the resource-curse in the coal mining areas.
- India should take a leadership role in framing the global debate on just transition, and develop a global coalition to support it.
- **This book is a prelude to the next course of research and engagement on Just Transition.**