Just Transition Financing Framework

December 2025

CLIMATE POLICY INITIATIVE

ACKNOWLEDGMENTS

This report is part of ongoing work by Climate Policy Initiative (CPI) on the just transition, aimed at developing knowledge and understanding in the public domain to support effective decision-making.

The authors would like to acknowledge and thank CPI India colleagues Vivek Sen, Neha Khanna, Debal Mitra, Amandeep Singh and Sagar Joshi for their valuable inputs; Kirsty Taylor and Saumya Tiwari for their editing and internal review; and Elana Fortin and Denny Kosasih for their layout and design work.

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ABOUT CLIMATE POLICY INITIATIVE

CPI is an analysis and advisory organization with deep expertise in finance and policy. Our mission is to help governments, businesses, and financial institutions drive economic growth while addressing climate change. CPI has seven offices around the world in Brazil, India, Indonesia, South Africa, the United Kingdom, and the United States.

LIST OF ABBREVIATIONS

CPI	Climate Policy Initiative
CSOs	Civil society organizations
CSR	Corporate social responsibility
DFIs	Development finance institutions
EMDEs	Emerging and developing economies
FIs	Financial institutions
HNIs	High-net-worth individuals
ITIs	Industrial training institutes
JT	Just transition
JTF	Just transition finance
JTFF	Just transition financing framework
MDBs	Multi-developmental banks
NBFCs	Non-banking financing companies
NZE	Net-zero economy
PE	Private equity
PMU	Project management unit
RE	Renewable energy
SoEs	State-owned enterprise
VC	Venture capitalists

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EXECUTIVE SUMMARY

Spurred by the commitments laid out in its nationally determined contributions and target to reach net zero by 2070, India has made commendable progress in transitioning its power sector by incorporating renewable sources into its energy mix. The ongoing energy transition to clean energy is expected to yield long-term benefits, including green growth, job opportunities, and benefits derived from reduced greenhouse gas emissions. However, without the requisite methodical and timely planning, this transition could be disruptive to individuals, businesses, and communities, especially in states that have traditionally relied on solid fossil fuel mining and downstream industries for revenue. There is growing recognition that these impacts must be addressed to ensure that a low-carbon world is also just and equitable, while also bringing environmental and economic benefits. The success of the transition will depend on ensuring that all share its benefits for broader participation and sustained progress.

Current discourse on just transition (JT) highlights its complexity and the need for greater awareness and participation. Just transitions pose different challenges across countries, states, sectors, and investor groups. In India, states heavily dependent on solid fossil fuel mining, such as Jharkhand, Chhattisgarh, and Odisha, may face critical challenges during the clean energy transition if they fail to plan for the needs of all impacted stakeholders.

Achieving just and inclusive economic diversification across states will require policies, institutional mechanisms, and financial flows tailored to specific regional and sectoral needs. A uniform approach cannot effectively address the diverse challenges associated with policy and regulatory gaps, skilling, technological advancement, and financing. Advancing a JT demands a holistic, collaborative effort across policy, industry, finance, technology, and skilling ecosystems. Careful planning, supported by adequate capital and a strong framework for directing financial flows to priority areas, will be essential to ensure a sustainable transition.

The Just Transition Financing Framework (JTFF) proposed in this brief aims to facilitate a multistakeholder effort to enable targeted interventions, systematically support fund mobilization, and manage the state's transition. This framework has been designed to enable JT at the sectoral and state levels, supporting the mobilization of domestic and international finance for the delivery of transition assistance to impacted stakeholders. Its building blocks include:

1) Enabling informed and evidence-based decision-making through targeted support for policy formulation and regulatory amendments.
2) Supporting capacity development by strengthening institutional and workforce capabilities.
3) Facilitating project-preparatory support and technical assistance to translate ideas into viable and bankable projects.
4) Mobilizing private capital and utilize public funds to support JT-related activities efficiently.

Each building block aims to address a specific gap, collectively enabling the process of ensuring financial flows and inclusive decision-making by mapping appropriate types and sources of

finance. By doing so, the JTFF can close knowledge and financing gaps, ensure livelihood security and inclusive governance, and enable multistakeholder partnerships for effective response.

A national-level strategy alone may not be able to address the complexities of the JT adequately; therefore, a nuanced state-level framework is required to ensure that the last-mile delivery of transition assistance reaches the stakeholders. Though initially intended to focus on solid fossil fuel-reliant regions, especially in the thermal power and mining sectors, the JTFF could be tailored across diverse sectoral landscapes to increase its utility and impacts. For the purpose of our analysis, Jharkhand has been evaluated as a case study, building on CPI's previous publications, which highlighted the complexities of JT in the state.

1. INTRODUCTION & CONTEXT

As countries navigate the shift towards a net-zero economy, prioritizing a just transition (JT) has garnered attention. The concept has echoed within the Paris Agreement and the International Labour Organization's guidelines—expanding the focus of nations to integrate principles of equity and justice into their climate actions.

The global shift to a net-zero economy (NZE) demands systemic changes in the energy sector, characterized by a gradual move towards clean energy sources. This yields a wide range of environmental and social benefits while driving innovation and long-term economic growth. However, it is essential to address the unintended consequences of this transition, particularly in communities and regions economically reliant on fossil fuels and the technologies they power. In this context, the principle of JT emerges as a concept that bridges energy transition with social imperatives as economies pivot to low-carbon pathways while also ensuring that no community is left behind.

Currently, India's clean energy transition is marked by its milestone achievement of 50% of the total installed power capacity of 500 GW through non-fossil-fuel sources, five years ahead of the 2030 target in its nationally determined contribution. The current energy mix is 50% (243 GW) of non-fossil fuels, including 48% (234 GW) of RE and 2% (9 GW) of nuclear, followed by 50% (242 GW) of thermal.[1] This underscores India's unwavering commitment to build a self-reliant, sustainable, and energy-secure pathway.

The transition to renewable energy (RE) sources, such as solar, wind, and biomass, along with enabling technologies like electric vehicles, energy storage, and green hydrogen, is becoming increasingly commercially appealing and prevalent. RE integration into the energy mix could steer investments towards greener alternatives, collectively fostering economic diversification and opportunities for sustainable growth. Policymakers must approach this transition away from solid fossil fuels in an inclusive and just manner to mitigate its adverse effects on vulnerable communities and the broader ecosystem, including state-owned enterprises (SoEs) involved in the business of solid fossil fuels.

Currently, India's extraction of solid fossil fuels is concentrated in a few states. Jharkhand, Odisha, and Chhattisgarh account for around 70% of the national reserves,[2] out of which Jharkhand is home to around 24%, as of FY 2024.[3] CPI's Vulnerability Assessment of Mineral-Rich States to Energy Transition (2023) explored state-level vulnerabilities and identified Jharkhand as the Indian state requiring prompt and maximum support in planning its energy transition.

Navigating this transition puts a strain on the fiscal health of a state such as Jharkhand, which is heavily dependent on solid fossil fuels. CPI's subsequent study, Just Energy Transition: Economic Implications for Jharkhand, provided a first assessment of the potential economic implications of the state's energy transition. Although the state has the potential to diversify its existing

1 [MNRE] Ministry of New and Renewable Energy. 2025 Jul 14. India's Renewable Rise: Non-Fossil Sources Now Power Half the Nation's Grid. [Press release]. [accessed Aug 2025]. Press Release:Press Information Bureau

2 [MoSPI] Ministry of Statistics and Program Implementation. 2024. Reserves and potential for generation. [accessed May 2025] Chapter1-Reserves_and_Potential_for_Generation.pdf

3 NITI Aayog. 2025. Coal Reserved in India. [accessed Jun 2025]. Coal Reserves in India

economy, competing developmental demands constrain the limited pool of public funds available for such endeavors. In the case of a decline in tax revenues derived from fossil fuel industries and rising demands on public spending, this may create fiscal pressure on the state amidst the transition.

To overcome challenges and capitalize on the opportunities of the JT, there is a need for strategic economic diversification into green technologies. CPI's report Energy Transition Opportunity: Emerging Green Jobs in Jharkhand (2024) identified key sectors with reasonable job creation potential in the state's changing energy landscape and provided policy recommendations to maximize socioeconomic benefits.

These reports collectively underline the need for proactive planning and capital mobilization. The most recent report, Roadmap for an Equitable and Green Transition (2025), estimates the long-term economic impact of transitioning away from solid fossil fuels and proposes an economic diversification plan and roadmap for the state.

The findings point to the significant economic complexities associated with facilitating energy transition in the state, requiring the development of a state-level financing framework to ensure a JT. Therefore, this technical brief outlines a Just Transition Financing Framework (JTFF) to facilitate the mobilization of domestic and international finance for delivering targeted assistance to impacted stakeholders. This financing framework, although currently designed for a specific state (Jharkhand), could be replicated in other states with minimal modifications, thereby enabling JT across wider geographies.

1.1 JUST TRANSITION FINANCE: A GLOBAL AND LOCAL NEED

Bridging the development-climate divide between developed economies and emerging and developing markets will take inclusive, equitable, and future-ready financing mechanisms. This requires coordinated planning, supported by a pool of enabling finance to facilitate a just and equitable transition in emerging economies.

Globally, the implications of the ongoing clean energy transition are being felt in emerging and developing economies (EMDEs), which are facing high capital costs associated with emerging green technologies, such as electric vehicle manufacturing and building climate-resilient infrastructure. While developed economies benefit from robust and well-established institutional, financial, and technological capacity, many EMDEs lack adequate technical expertise and sufficient financial resources to support their transition needs. The reliance of many EMDEs on fossil fuel-based technologies complicates the transition process, as shifting carbon-intensive sectors to cleaner alternatives risks destabilizing investments and employment. This ripple effect calls for coordinated planning, policy support, and enabling capital to bridge the divide across global, national, and sub-national levels.

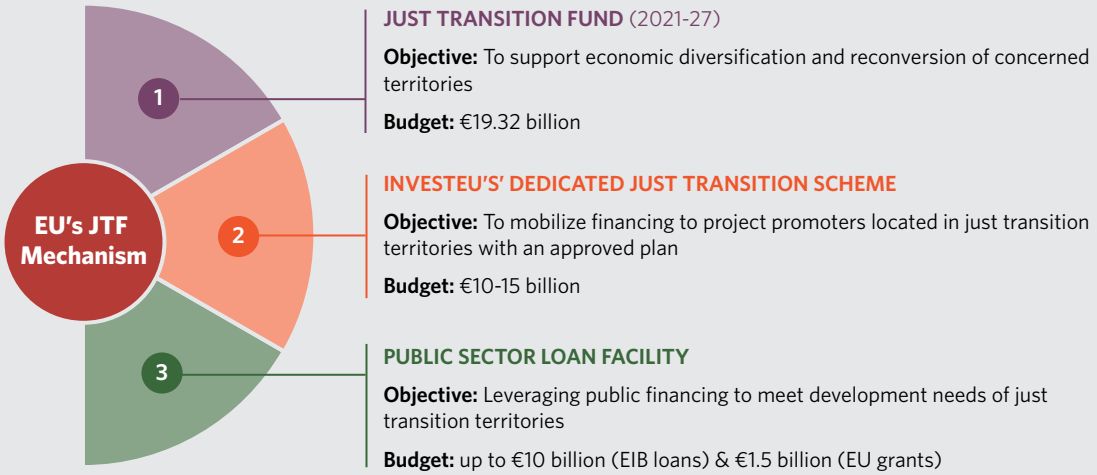
The global case study on the EU's Just Transition Fund is shown in Box 1 offers practical insights for India to design a framework that could facilitate a JT in regions heavily reliant on solid fossil fuels, requiring targeted policy interventions and financial support.

Box 1: Case Study on EU's Just Transition Fund

The EU's JTF mechanism has three key pillars. First, it provides grants via a Just Transition Fund to support economic diversification, workforce training programs, and capital allocation for clean energy initiatives, among others, thereby reducing the socioeconomic impacts of the transition.

Second, the European Commission, under the InvestEU Just Transition scheme, provides budgetary guarantees to implementing partners, warranting the mobilization of funds for project promoters with approved Territorial Just Transition Plans.

Third, the public sector loan facility—blending EUR 10 billion (through loans from European Investment Bank) with EU grants up to EUR 1.5 billion, leverages public investment in the regions most exposed to transition risks. Within this mechanism, the InvestEU Advisory hub serves as a critical enabler of activities supported under Pillars 2 and 3. It serves as a single-entry point for entities seeking advisory support, offering customized technical assistance and capacity-building services. It strengthens the ability of project promoters to design, prepare, structure, and execute projects, thereby facilitating the development of a strong pipeline of bankable projects.



Source: *(European Commission, n.d.)*

While the quantum of investment may differ across geographies, the above global example underlines key priority areas and forms the basis of support that could be broadly similar for India's solid fossil fuel-reliant states. Regions and communities require enabling capital to avoid being left behind by the transition.

Growing attention to the relatively new subject matter of Just Transition Finance (JTF) has led public and private financial institutions (PFIs) to integrate principles of JT into their investment strategies, stakeholder engagement, and capital allocation plans. Several leading FIs, including multilateral development banks (MDBs), development FIs (DFIs), and institutional

investors, are seeking to align sustainable finance with environmental, social, and economic goals. This approach links climate action with labor and human rights, addressing livelihood concerns, building public trust, and strengthening human and social capital for a just net-zero emission future.

In many countries with fossil-fuel-dependent energy systems, including India, states are navigating the transition to cleaner energy sources while maintaining economic stability and social well-being. Against this backdrop, JTF has emerged as both a global and national priority, underscoring the need for an enabling ecosystem that mobilises domestic and international capital to support JT objectives and ensure that the shift to low-carbon pathways remains socially and economically balanced.

NEED FOR JT FINANCING IN JHARKHAND

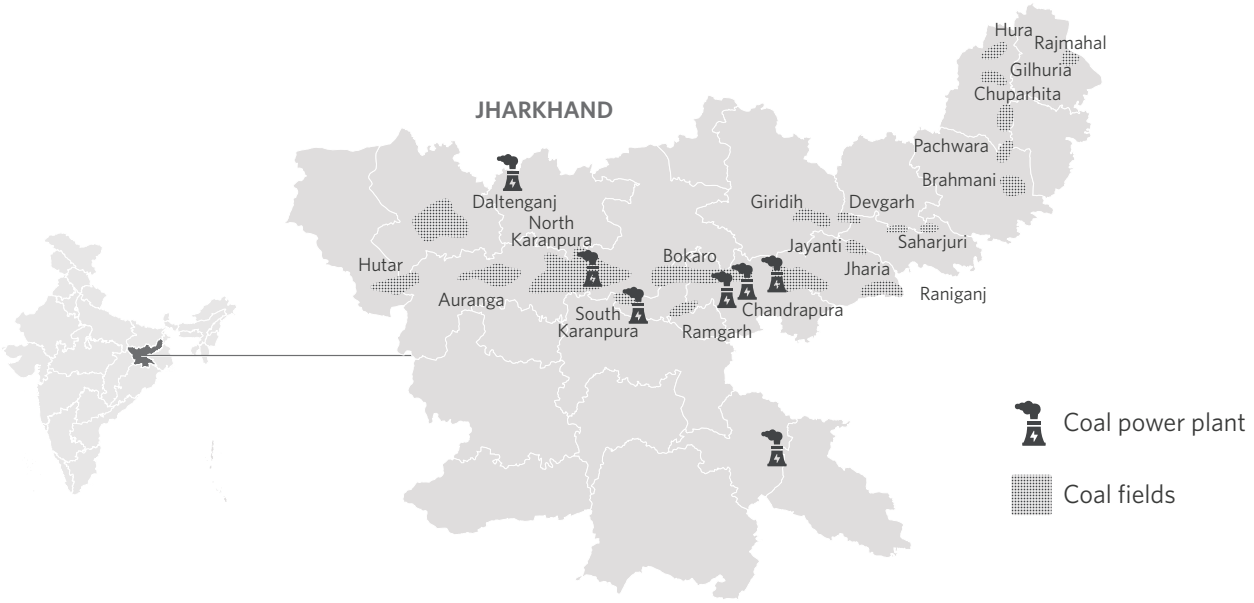
Given India's vast geographic and demographic base, each state is at a different stage of the energy transition curve owing to differing economic, social, and financial dynamics. Implementing a blanket transition plan could risk overstretching government resources. This calls for a more nuanced approach to enable a JT at the state level, prioritizing solid fossil fuel-dependent states.

States generate revenue primarily from three sources: share from central taxes, grants for centrally sponsored schemes, and their own tax income.[4] Jharkhand's economy illustrates the features common to India's mineral-rich regions, where a significant portion of the state's revenue (i.e., 16% of its own revenue in FY21-22[5]) is derived from solid fossil fuels.

Chhattisgarh, though slightly less dependent (8%) with comparatively fewer reserves, reflects a similar pattern. At the same time, Odisha has a relatively more diversified economy with far less reliance (3%) on solid fossil fuels for revenue despite their high production in the state (see Figure 1). However, Jharkhand's current economic profile highlights the major role of solid fossil fuels as key sources of the state's income and employment. Therefore, economic diversification should be on priority for the state to ensure resilient economic growth .

4 PRS Legislative Research. 2025. Jharkhand Budget Analysis 2025-26. [accessed Aug 2025]. Jharkhand Budget Analysis 2025-26
5 [IEEFA] Institute for Energy Economics and Financial Analysis. 2024. [accessed Aug 2025]. https://ieefa.org/sites/default/files/2024-03/Briefing%20note_Navigating%20the%20fiscal%20implications%20of%20a%20just%20transition_Mar2024.pdf

Figure 1: Overview of Jharkhand's reliance on solid fossil fuels



States	Coal reserves (BT)	Coal production (MT)	Coal fields	Coal mines (% of total)	Coal revenue % of state's own revenue
Jharkhand	**91.81**	**191.16**	**14**	**117 (28.6%)**	**16%**
Odisha	99.20	239.4	2	24 (5.8%)	3%
Chhattisgarh	82.66	207.26	15	46 (11.27%)	8%

Source: *(MoC, 2024); (MoC, 2025); (IEEFA, 2024); (CPI, 2023); (CEED, 2025) & (MoSPI, 2025)*

Box 2: Why must Jharkhand plan to finance its transition now?

Jharkhand has over 28% of the solid fossil fuel reserves and constitutes around 20% (206MT) of the nation's production. As one of India's largest producers of solid fossil fuel, the state could face a myriad of challenges during the clean energy transition. Subsequently, revenue from non-coking solid fossil fuels forms a critical component of the state's fiscal health, contributing over a quarter of its revenue. A transition away from solid fossil fuels would put immense pressure on the state's finances, as 17% of its revenue derived from solid fossil fuels (FY22-23) would be at risk.

As India works to achieve its long-term net-zero target by 2070, the addition of RE will result in shrinking fossil fuel revenues. This calls for JT financing to preempt and prepare for a well-planned transition that avoids socioeconomic disruptions to individuals, businesses and the state. This disruption can be avoided by leveraging opportunities aligned with India's net-zero goals. Presently, Jharkhand has limited RE installations and associated industries. Utilizing the state's RE and associated green technology potential will require adequate financial resources, robust institutional frameworks, skilled human capital, and active community engagement.

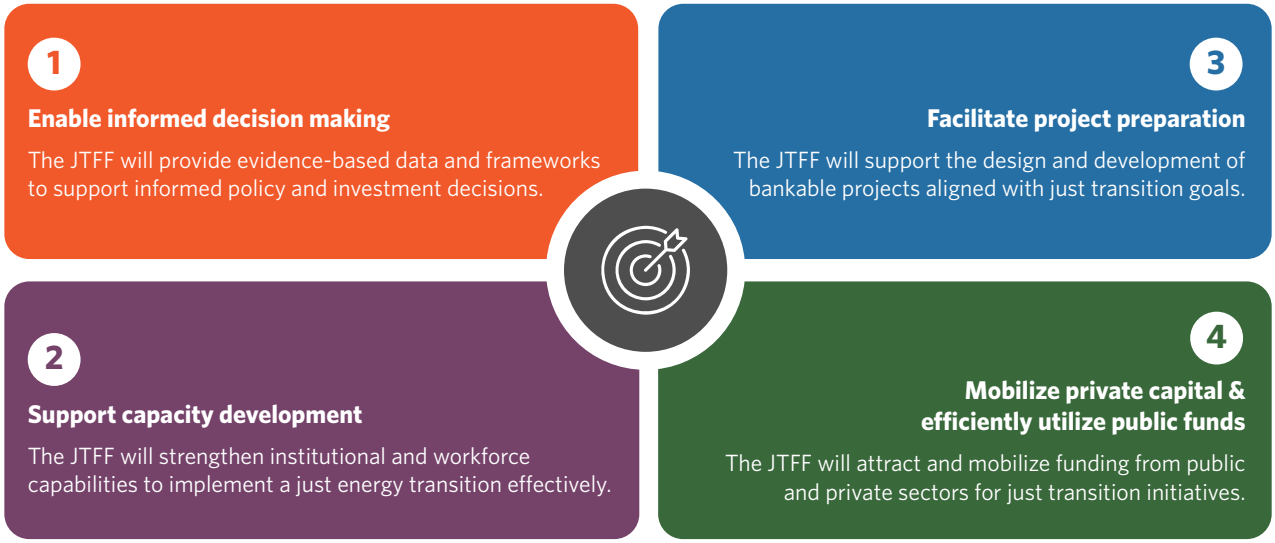
Jharkhand's JT journey will require a careful evaluation of its socioeconomic and environmental impacts, especially on vulnerable communities who are often most dependent on solid fossil fuel-based livelihoods and least equipped to adapt. The scale of investment required for economic diversification into green technologies presents an opportunity for expanding the state's fiscal capacity and development potential. Given the economic dependence of several states on longstanding solid fossil fuel revenue streams, there is a critical need to align investment needs with available financial resources while drawing on key learnings from global precedents such as the EU's Just Transition Fund (See Box 1).

The proposed state-level financing framework could act as a strategic lever that helps to unlock potential for mobilizing capital to enable a JT in Jharkhand.

1.2 OBJECTIVES OF LAYING OUT THE JTFF

The JTFF has been designed to support the state government (in this case, Jharkhand) in planning its interventions so that the state and its people benefit from the clean energy transition. A holistic approach coupled with targeted actions across four key working areas could help the state unlock investments to diversify its economy and support workers and communities during the JT. Figure 2 illustrates the core objectives and purpose of the JTFF.

Figure 2: Key objectives of JTFF



The framework aims to enable a JT at the sectoral and state levels through the mobilization of domestic and international finance for the delivery of transition assistance to impacted stakeholders.

A nuanced framework, such as the JTFF, could coordinate, allocate, and monitor funding to enable a JT in the state. The proposed JTFF provides actionable guidelines, frameworks, and mechanisms to effectively channel financial resources to support communities, industries, and workers adversely impacted by the low-carbon transition. The framework would not only support immediate transition needs but also contribute to long-term resilience and economic diversification in the state.

1.3 SCOPE & METHODOLOGY OF THE JTFF- TARGETING NEEDS, AVOIDING MISSTEPS

Scope: With clear boundaries and priorities, the JTFF aims to ensure targeted investments. Thus, the JTFF requires a clearly defined scope of actions to be financed. Figure 3 provides a snapshot of the framework's scope by identifying its key inclusions and exclusions.

Figure 3: Scope of JTFF

Facility Inclusions

- ✓ Transition planning to minimize socio-economic impact
- ✓ Facilitate growth (reduce losses) of public finances at state level
- ✓ Support growth of direct/indirect employment beyond mining & thermal power generation
- ✓ Support growth of induced employment in locality of coal mines & thermal power plants
- ✓ Investments in green jobs, renewable energy, and clean industries
- ✓ Funding for reskilling and skill development programs of workers
- ✓ Support for community-based, inclusive projects

Facility Exclusions

- ✗ Impact on public finances at central level
- ✗ Projects misaligned with low-carbon and sustainable goals
- ✗ Transition of private power generation and captive generation
- ✗ Investments perpetuating fossil fuel dependency

Guiding principle of design: To translate JT principles into financial practices, the JTFF is structured around three workstreams that could collectively aim to achieve the set objectives and facilitate a JT in the state (see Figure 4).

Figure 4: Guiding principle for devising the JTFF

Transition Impacts and Financing Needs

Assess transition risks and impacts on various actors and evaluate the need for transition assistance finance to address these impacts.

Transition Assistance Finance Mechanisms

Identify suitable sources of finance and assessment of existing/design of new financial instruments and mechanisms for delivery of transition assistance.

Transition Assistance Delivery

Translate theoretical assessment to structured delivery of providing transition assistance to impacted actors.

In alignment with the objectives and identified workstreams, the following would be undertaken under JTFF:

- Conducting studies on the transition impacts and estimating the consequent financing requirements.
- Designing financial mechanisms to channel finance to address the impacts.
- Delivering financial and transition assistance on the ground to impacted stakeholders through extensive partnerships with implementing agencies.

The following section examines the JTFF structure, highlighting how its design could address context-specific challenges through targeted support mechanisms.

2. DESIGN AND DEVELOPMENT OF JTFF

A well-designed JTFF could foster a conducive environment to facilitate the mobilization of the required investment to enable a JT in any state.

The JTFF has been conceptualized as a strategic, multi-stakeholder initiative designed to facilitate equitable and inclusive transitions in regions most significantly impacted by the low-carbon transition. CPI proposes the design of JTFF, financed by diverse funding sources. Building on this foundation, the subsequent section will conceptualize the design and development of JTFF to ensure alignment with its stated objectives.

2.1 TARGETED ASSISTANCE AND FINANCIAL SUPPORT TO FACILITATE A JT

States facing fiscal pressures require targeted support, which can be delivered through a mix of interventions and de-risking mechanisms designed to mobilize adequate capital.

2.1.1 NEED FOR TARGETED ASSISTANCE AND ITS DELIVERY AMIDST TRANSITION

Prior to mapping the key enablers for delivery of transition assistance measures, it is pertinent to understand and identify the distinct needs of each of the impacted stakeholders, including workers and trade unions, suppliers, communities, consumers, FIs, and national, state, and local government authorities. Table 1 highlights the diverse needs of stakeholders impacted by the low-carbon transition.

Table 1: Transition needs of impacted stakeholders

Impacted stakeholders	Needs
Workers & Trade Unions	✓ Anticipate workforce transitions ✓ Respect for and adherence to labor rights in the workplace ✓ Foster dialogue ✓ Invest in skill development and reskilling ✓ Protect health and safety ✓ Provide social protection (pensions and benefits)
Suppliers (Public & Private Corporations)	✓ Transition plan ✓ Plan for business diversification ✓ Apply due diligence across the supply chain, ensuring adherence to labor rights, human rights, and environmental standards
Communities	✓ Understand spill-over effects on communities ✓ Respect rights by mitigating adverse impacts in a fair and inclusive manner ✓ Prioritize support for vulnerable communities to reduce transition risks ✓ Foster innovations, including community-led clean energy projects

Impacted stakeholders	Needs
Consumers	✓ Prioritize addressing implications of limited access to sustainable alternatives, including energy ✓ Removal of barriers that prevent consumers from supporting transition through affordable and accessible financial services and incentives
National, state & local governments	✓ Loss of revenue stream due to reduced dependency on the solid fossil fuel industry
Financial Institutions	✓ Increased financial value at risk (e.g., stranded assets)

Aligning resources and technical expertise with the evolving needs of stakeholders would help address the above-stated transition needs. Such support can be facilitated through dedicated transition assistance measures, while its delivery would rely on proactive engagement among key facilitators to provide timely and strategic assistance.

2.1.2 KEY FACILITATORS FOR DELIVERY OF TARGETED ASSISTANCE

Developing a conducive environment requires enablers that can deliver transition assistance and guide the process from initial interventions to successful outcomes. Bridging existing gaps in policy, regulations, and finance demands an ecosystem of such enablers to strengthen the abilities of impacted stakeholders and enable a JT in the state.

Figure 5: List of enablers for delivery of transition assistance

Technical experts, think tanks, and research institutions can provide the analytical depth required for evidence-based decision-making. Building on this, skill development councils will be critical in aligning the workforce with evolving economic demands.

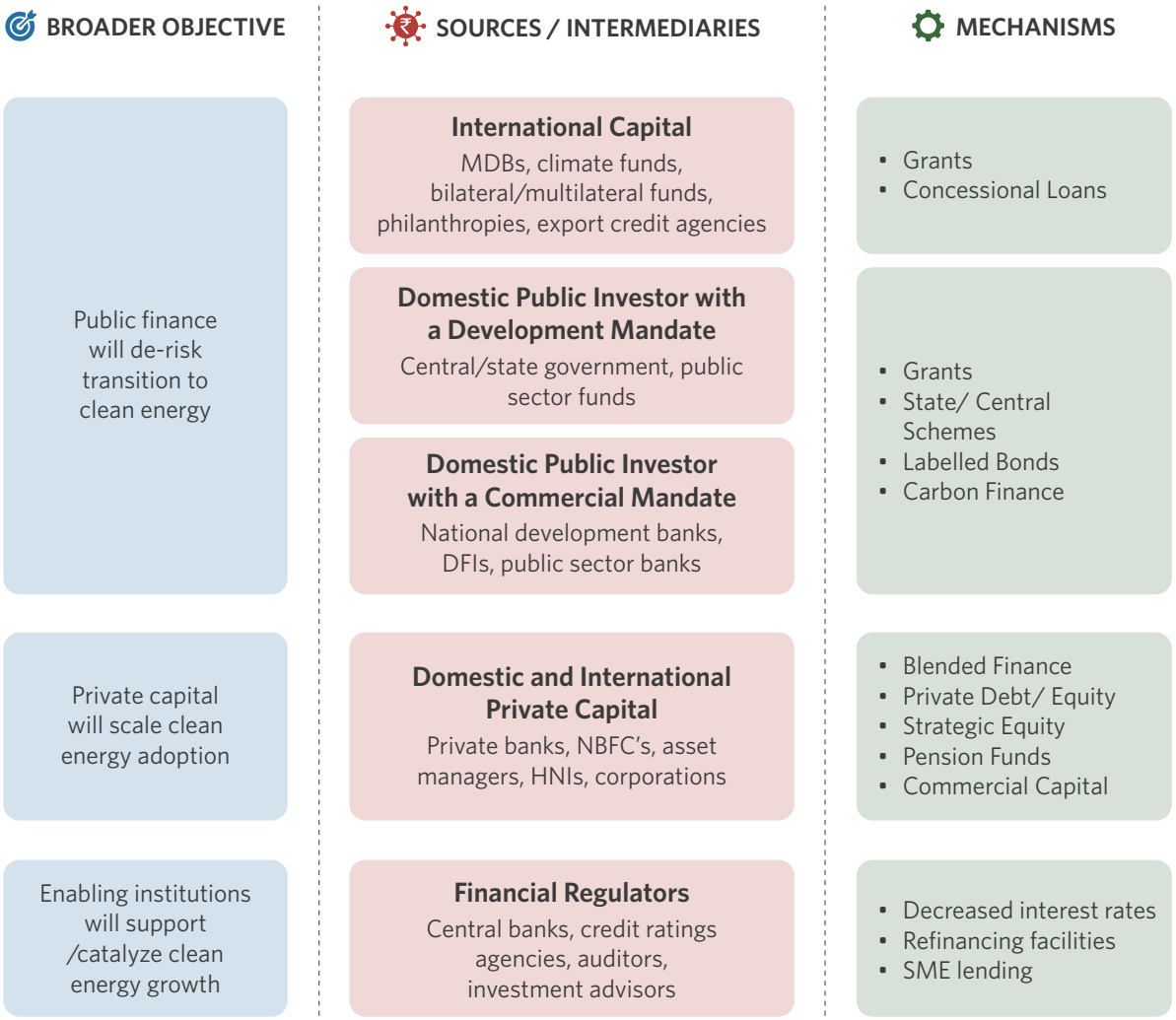
To translate these efforts into actions, government and regulatory bodies are required to shape coherent policy frameworks and standards that mitigate operational uncertainties and guide action plans. Concurrently, civil society organizations (CSOs) serve as an important link between communities and the government by providing evidence-based research for policy reforms, capacity building, stakeholder buy-in for social impact, and fostering collective action. Lastly, financiers also play a vital role in the ecosystem by structuring innovative financing mechanisms that de-risk investments and close funding gaps. Together, these facilitators enable the delivery of required transition assistance.

2.1.3 MAPPING SOURCES OF FINANCE FOR TRANSITION ASSISTANCE

Delivering targeted transition assistance and support activities under each pillar of JTFF requires identifying suitable financing mechanisms that can be leveraged by capital providers. The JTFF would link different sources of finance (international and domestic) with the stated objectives of JTFF to mobilize public and private capital, operationalizing identified activities via appropriate financial instruments and mechanisms.

The following figure provides a list of identified financing sources that would be integrated into the framework through a set of enabling mechanisms based on their specific characteristics.

Figure 6: Forms and sources of financial support



The source (FIs) and type (mechanism) of financial support leveraged differ depending on risk tolerance level and expected returns. Some examples include:

- **International capital offered by philanthropies, MDBs and DFIs** in the form of grants or concessional loans for developmental projects focusing on environmental sustainability and social impact. Grants are concessional in nature, provided primarily by government and philanthropies to support developmental projects.

- **Domestic public investors with development mandates,** such as government agencies, invest in projects through central or state-level schemes to achieve development goals rather than financial returns. **Domestic public investors with a commercial mandate**, such as DFIs, public sector banks and state-level agencies, invest in commercially viable projects that offer financial returns.
- **Domestic and International private capital** can be leveraged through a blended finance model, private equity (PE), and commercial capital from private banks, non-banking financing companies (NBFCs), asset managers, high-net-worth individuals (HNIs), and corporations looking for profitable investment opportunities in emerging sectors.
- **Financial regulators,** including central banks, credit rating agencies, auditors, and investment advisors, can catalyze clean energy growth through refinancing facilities, SME lending, and reduced interest rates.

The framework aims to leverage the most suitable blend of financial support from various capital providers by attracting and mobilizing domestic and international capital to achieve its stated objectives. The structured approach can facilitate financial flows from government, FIs, banks, corporations and PE or VC firms channeled via a combination of innovative financing instruments and mechanisms.

Financing for development relies on a spectrum of instruments, each calibrated to strike a balance between risk, return, and impact. These instruments and mechanisms, broadly comprising debt, equity, credit enhancement, and risk sharing, can all be strategically leveraged within the ambit of JTFF.

- **Debt** is borrowed capital that must be repaid, while equity represents ownership in a company. Debt creates a liability with fixed payments, while **equity** does not require repayment and represents ownership, though it dilutes control. There are various debt instruments (e.g., loans and bonds) and equity instruments (e.g., junior equity) available, the choice between these instruments depends on their distinct risk-return profiles and associated return expectations.
- **Credit enhancement** (e.g., partial credit guarantees) and **risk-transfer mechanisms** (e.g., first loss guarantees) mitigate investor hesitancy by redistributing risk and improving creditworthiness.
- **Grants** play a catalytic role by supporting the utilization of certain financing instruments. For example, they are offered in the form of R&D funds to support in building technological readiness of products.

These instruments are operationalized through various financing vehicles, such as funds, facilities, or outcome-based projects, such as development impact bonds and social impact bonds, which provide supporting frameworks for channeling and structuring capital. Notably, **blended finance** is not an instrument but a mechanism of strategically layering different sources of capital, such as public, private, and philanthropic, and types (e.g., concessional with non-concessional) for various purposes, including aligning with different risk-return profiles, mobilizing private investment, and maximizing developmental impact. In essence, the interplay of these financing instruments and mechanisms creates a diversified pool of finance that JTFF can tap into to ensure long-term financial sustainability and social outcomes.

2.2 OBJECTIVE-WISE FRAMEWORK: BUILDING BLOCKS OF JTFF

Achieving a JT in Jharkhand requires a holistic, objective-oriented framework that encompasses various aspects of governance, capacity development, project development, and capital mobilization. To attract the required investment, the state would need to:

1) **Enable informed decision-making** by stepping up efforts to support policy and regulatory framework development, closing knowledge gaps by developing knowledge products and mobilizing additional public funds.

2) **Support capacity development** by reskilling the workforce and conducting training workshops for policymakers and financiers to equip impacted stakeholders with the requisite skills.

3) **Facilitate project preparation support** and targeted technical assistance to entrepreneurs, thereby empowering them to develop a financially viable and bankable pipeline of projects resulting in diversified economic output and green job opportunities.

4) **Mobilize private capital and efficiently utilize public funds,** duly supported by innovative financial mechanisms and instruments to attract investments.

The proposed JTFF is structured around four primary objectives, with the realization of each to be supported by transition assistance outputs facilitated by key facilitators. The direct correlations of the objectives with the outputs of JTFF form the main framework.

Figure 7 showcases the structural framework of translating the JTFF's objectives to actionable outcomes, enabled through transition assistance provided by key facilitators.

Figure 7: Mapping of JTFF objectives with identified transition assistance outputs and facilitators

	1 Enable informed decision making	2 Support capacity development		3 Facilitate project preparation	4 Mobilize capital
Key transition assistance outputs	Enable support for policy & regulatory framework development	Build research/ knowledge products/close information gaps	Support capacity development - reskilling workers, trainings/workshops for policymakers and financiers	Facilitate project preparation support and technical assistance	Facilitate private capital mobilization and efficiently utilize public funds
Facilitators	Policymakers, compliance & regulatory bodies	Skill development councils, NGOs, CSOs, academic/ research institutions, think tanks		Project developers, subject matter-experts, business owners	Banks, NBFCs, public, private and institutional investors

The following subsections delve into the key challenges faced by different stakeholders impacted by the energy transition (in Jharkhand), correlating these with transition assistance outputs, key enablers, and context-specific financing mechanisms that underpin each objective.

2.2.1 ENABLING INFORMED DECISION-MAKING FOR POLICYMAKERS & REGULATORY AUTHORITIES

Jharkhand needs to plan its transition well in advance to stay ahead of its growth and account for the possibility of declining revenue from solid fossil fuels. A robust and coherent policy and regulatory framework should be the first step in supporting the state's JT. Clear and well-aligned state policies and regulatory frameworks would provide investors and impacted stakeholders with clear guidance and strategic direction, helping to channel capital to priority areas.

In this context, the JTFF could help the state provide an enabling environment to make Jharkhand's transition resilient and just. Within the JTFF, technical experts, research institutions, and think tanks could function as facilitators by:

- Developing knowledge products for policymakers to bridge information gaps.
- Producing insightful research outputs on financing avenues and offering thought leadership on financial frameworks for vulnerable sectors, supporting policymakers and financiers in making informed decisions.
- Supporting regulators by developing targeted advice on systematic monitoring, robust reporting standards, and research on regulatory frameworks for state policies.

Collectively, these transition assistance measures could ensure evidence-based decision-making by policymakers, regulatory bodies, and financial institutions. To support activities under this objective, **grants provided by philanthropies and DFIs and budgetary allocations by state/central government** can be leveraged to provide financial support for developing robust frameworks and research products.

Relevant example: Global Energy Alliance for People and Planet *(GEAPP)* signed a Multi-Donor Trust Fund in 2025 with International Solar Alliance, focused on accelerating global energy transitions. The ongoing initiative aims to mobilize USD 100 million for solar projects. GEAPP will support the International Solar Alliance by providing governance oversight, facilitating fundraising efforts, and leveraging technical expertise in transition planning, financing and project implementation.

Source: *GEAPP, 2025*

Figure 8 highlights the multifaceted challenges faced by policymakers, regulators, and financiers. It also identifies and maps proposed targeted interventions, facilitated by key enablers and appropriate financing avenues, to effectively support the development of the policy and regulatory framework.

Figure 8: Interplay among factors facilitating the development of policies and regulatory frameworks

Enable support for developing coherent policies and regulatory frameworks

	Challenges	Transition assistance*	Enablers
Policymakers	• Availability and accessibility of data to assess impact • Comprehensive state-level sectoral policies • Targeted policies to direct capital to critical areas	• Create knowledge products to bridge information gaps in the ecosystem • Create PMUs for knowledge building within the transition ecosystem	**Facilitators** 1. Technical experts/ academia 2. Think tanks/ research institutions
Financiers	• Inadequate financial structures	• Produce research outputs on financial options/ instruments • Develop thought leadership on financial frameworks prioritizing vulnerable sectors	**Financial support** 1. Philanthropies 2. Government 3. Development FIs
Regulators	• Forward-looking policies • Translation of commitments to action	• Support research on regulatory structures for state-level clean energy policies • Develop advisory for robust monitoring and reporting standards	

*The above outputs are examples and are not exhaustive of possible interventions

To build a coherent policy and regulatory framework, government and regulatory bodies, FIs, SoEs, and CSOs require focused training and strengthened institutional capacity. Supporting capacity development would be a critical function to fully realize the state's potential while aligning the activities of JTFF with JT principles and incorporating them into policy, regulatory, and financial frameworks. These targeted efforts would further contribute to enabling better understanding, informed decision-making, and on-the-ground application to minimize transition risks for impacted stakeholders.

2.2.2 BUILDING INSTITUTIONAL AND TECHNICAL CAPACITY AMIDST A JT

To complement progressive policy and regulatory frameworks that enable a JT in Jharkhand, it is equally important to invest in capacity building, reskilling initiatives for the workforce, and training workshops for policymakers and financiers. Jharkhand's socioeconomic landscape is shaped by its over-reliance on a fossil fuel-based economy. The state has the potential to strengthen its workforce and technical capacity through targeted training initiatives, particularly for those transitioning away from solid fossil fuel industries. Limited access to resources, lack of market acumen, and ambiguity in investment prospects inhibit business scalability for entrepreneurs and increase perceived risks for investors and financiers. These issues, compounded by the absence of flexible, forward-looking, and community-engagement policies, further restrict the state's ability to adapt to transition risks.

These interconnected challenges demand a coordinated response, underscoring the need to strengthen the state's capacity across all affected stakeholders, including workers and regulators. In response, the JTFF could undertake a systemic approach where skill development councils, academia, and research institutions can come together to:

- Develop credible knowledge products and design targeted curricula for workforce development.
- Provide dedicated business development support and investment readiness programs to business owners and entrepreneurs.
- Facilitate knowledge exchange and risk assessment training to build the technical competencies of financiers and investors.
- Foster inclusive policy and regulatory development through workshops on community engagement strategies, seminars on impact assessment, and specialized training on emerging technology for policymakers and regulatory bodies.

Altogether, offering such technical assistance while engaging with impacted stakeholders can help decision-makers evaluate risks, mobilize resources, and design inclusive strategies to mitigate risks associated with transition planning, thereby fostering inclusive decision-making. Unpacking the co-benefits of a JT, such as supporting local communities and upskilling the workforce, requires mobilizing non-commercial capital. This can be sourced through **grants raised from philanthropies or DFIs and CSR mandated funds from corporations**.

Relevant example: The Tamil Nadu government launched the **Green Climate Fund of INR 1,000 Cr. in 2023.** This fund actively supports sector-specific skilling, employment generation, and capacity building for green jobs.

Source: *(Deccan Herald, 2023) & (LSE, 2024)*

Figure 9 provides a snapshot of the interplay between challenges faced by impacted stakeholders, requiring transition assistance from key facilitators and financing avenues to support capacity development in the state.

Figure 9: Interplay among factors that collectively facilitate capacity building

Support capacity development to reskill workers, train & inform for policymakers & financiers

	Challenges	Transition assistance*	Enablers
Workers	• Redefined jobs – need to refit • Skill gaps	• Trainings/ reskilling programs • Certification courses based on job needs • Dedicated job placement services	**Facilitators** 1. Technical experts/ academia 2. Skill development councils 3. Think tanks/ research institutions
Entrepreneurs	• Lack of business development skills and limited access to resources • Lack of market knowledge to scale up	• Dedicated business development support • Provision of investment readiness programs	
Financiers	• Lack of clarity on business investment opportunities • Need for clean energy sector experience • High risk perceptions	• Risk assessment trainings • Investor education programs • Trainings for banks/financial institutions	
Policymakers	• Proper assessment of system needs • Policies promoting community participation • Forward-looking insights	• Workshops/ trainings on policy development • Trainings on community engagement strategies • Trainings/Seminars on data analysis/ impact assessment	**Financial support** 1. Philanthropies 2. Development FIs 3. Corporations
Regulators	• Policy adaptability • Limited experience in incorporating capacity building exercise for JT	• Workshops on regulatory framework development • Specialized trainings on emerging technologies • Building collaborative learning platforms	

*The above outputs are examples and are not exhaustive of possible interventions

Investments in capacity building should not be isolated; instead, they must be planned in conjunction with policymakers and financiers. The risk management measures outlined above would strengthen the state's institutional capacity and guide stakeholders to invest in bankable projects. To translate workforce capabilities into bankable, investable, and well-structured transition projects, it is of utmost importance to facilitate project preparatory services to enhance commercial feasibility and build confidence among investors.

2.2.3 FACILITATING PROJECT PREPARATION AND TECHNICAL ASSISTANCE

Strengthening technical capacity is fundamentally linked to the need for robust project preparatory support. Project developers and financiers often lack awareness and understanding of available financing avenues, the technical skills for project preparation, and the operational capacity to navigate complex processes. These challenges are compounded when project

developers struggle due to insufficient stakeholder engagement, regulatory delays, and scarcity of investable projects. Such factors constrict the pipeline of commercially viable early-stage projects. This further undermines the availability of information required for debt appraisal and restricts the channeling of financial resources to preparatory activities, collectively lowering confidence among financiers and investors and hindering the mobilization of capital. Thus, it is crucial to curate interventions for project preparation and build project preparatory capacity to capitalize on emerging opportunities and create a pool of bankable projects.

To support this, JTFF could facilitate the development of a robust pipeline of viable and bankable projects through a project preparatory facility (PPF) supported by key enablers, including technical experts, academic institutions, research think tanks, compliance bodies, NGOs, and CSOs, by:

- Providing dedicated support to project developers for project design, planning, detailed feasibility assessments, stakeholder engagement, and timely regulatory approvals.
- Improving the quality of information available for financiers, conducting project risk assessments, creating incubators to help de-risk projects, suggesting mitigation measures, and attracting capital.

This underlines the need for dedicated PPFs to support early-stage project development and technical assistance to reduce perceived risk by building a robust pipeline of investment-ready projects. To offer the required transition assistance and translate challenges into opportunities, **grants can be leveraged from philanthropies and government, guarantees can be secured from DFIs and government, and concessional debt or equity can be raised from philanthropies, DFIs and banks**.

Relevant example: From 2016-2023, several early-stage RE projects in India have received project preparatory funding support to improve project bankability and attract more capital under the **US-India Strategic Clean Energy Finance (USICEF) Facility.**

Source: *CPI, n.d.*

Figure 10 illustrates the correlation between challenges faced by project developers and financiers and the required support from key facilitators and funding instruments.

Figure 10: Interplay among factors relating to technical assistance

Facilitate technical assistance to develop a viable pipeline of projects

	Challenges	Transition assistance*	Enablers
Project developers	• Regulatory delays in attaining approvals/ clearances • Technological innovation • Stakeholder engagements	Technical Assistance for project preparation • Project design and planning • Technical feasibility studies and policy alignment with national development plans • Timely compliance and regulatory approvals to accelerate project timelines • Engage relevant stakeholders	**Facilitators** 1. Technical experts/ academia 2. Think tanks/ research institutions 3. Legal and compliance bodies 4. CSOs & NGOs
Financiers	• Pipeline of bankable & investible projects • Commercial feasibility and investability of early-stage projects • Insufficient data for debt appraisal • Low investor/ lender confidence • Limited financial resources for preparatory activities	• Improve quality of information available for financiers • Project risk assessment and suggest mitigation strategies • Facilitate the creation of incubators	**Financial support** 1. Philanthropies 2. Development FIs 3. Government 4. Banks

*The above outputs are examples and are not exhaustive of possible interventions

Altogether, these interventions underscore the importance of integrating all interconnected objectives, including supporting policy framework development, strengthening capacity, and facilitating project preparatory services. However, without active participation from different stakeholders, achieving the set objectives and unlocking their full potential would require support in directing investment flows and the scaling up of funds.

2.2.4 MOBILIZING PRIVATE CAPITAL AND EFFICIENT UTILIZATION OF PUBLIC FUNDS

Jharkhand's investment trajectory reflects growing investor interest and a gradual diversification of capital inflows as the pattern of investor participation evolves. While public funding alone may not be sufficient to cater to the state's transition needs, this presents an opportunity for private investors to align their capital flows with the state's development priorities. In the contemporary world, private investors typically remain cautious due to perceived high credit risk, a lack of clarity on suitable financing mechanisms, and limited access to information on the latest technologies. Addressing these constraints underlines the need to unlock and mobilize private capital and efficient utilization of public funds, with active support from banks, corporations, government, FIs, PE/VC firms, philanthropies and regulators at all levels to enable a JT in Jharkhand.

Within the JTFF, these facilitators could play a critical role in offering and supporting the following transition assistance activities by:

- Facilitating the development of investment frameworks, offering an innovative suite of financial instruments to lower risk and cost of capital, promotion of developmental equity models, and bridging information gaps for targeted and long-term investment flows to support public investors in scaling funds.
- Introducing risk mitigation strategies, creating pooled investment vehicles, leveraging blended capital structures, developing viable proposals to raise commercial capital, and creating an Infrastructure Investment Trust for risk mitigation to create an enabling environment for private investors.

Substantial financial support would be required to fully implement these transition assistance measures. This could be leveraged through either a **blended finance mechanism or by tapping into a pool of capital raised through equity, commercial debt and concessional debt or equity from corporations, banks, FIs and PE/venture capital (VC) firms**.

Relevant example: Foreign Commonwealth and Development Office-backed blended finance schemes have catalyzed private sector investments in India's energy transition sectors by reducing perceived risks and leveraging commercial capital.

Figure 11 maps out the correlation between challenges faced by public and private investors, the support required from key enablers, and appropriate channels to mobilize capital.

Figure 11: Interplay among factors relating to capital mobilization

Facilitate private capital mobilization and efficient utilization of public funds

	Challenges	Transition assistance*	Enablers
Public investors	• Limited public finances • Capital flow may be misaligned with transition needs • Incentives like subsidies to help reduce costs	• Develop investment frameworks & innovative financial instruments (to lower risk and cost of capital) • Promote developmental equity models • Close information gaps for targeted and long-term investments	**Facilitators** 1. Public and private investors/ FIs 2. MDBs/ global climate funds 3. Government bodies 4. Regulators
Private investors	• Investors perceive high credit risk • Lack of clarity on financing mechanisms • Targeted large-scale investments • Limited availability/ understanding of new technologies	• Introduce risk mitigation strategies • Develop InvITs for risk-mitigation • Create pooled investment vehicles • Leverage blended capital structures • Viable proposal development to raise commercial capital (to absorb risks) • Bridge CapEx/OpEx funding gaps	**Financial support** 1. Financial Institutions 2. Corporations 3. Banks 4. Venture capital/ Private equity firms

*The above outputs are examples and are not exhaustive of possible interventions

Effective planning for JT requires the strategic mobilization of funds to direct efforts toward strengthening policy frameworks, building institutional and local capacities, and supporting project preparation to develop financially viable projects. Therefore, channeling adequate and targeted financial resources becomes a critical link uniting these three elements, supported by sound evidence, inclusive stakeholder participation, and on-ground implementation.

However, a national-level financing strategy may not be sufficient, as financing needs vary across different states and contexts. This necessitates the development of an actionable framework that maps different types and sources of capital with the required transition assistance measures at the sub-national level to facilitate a JT in a state. This can also serve as an adaptable and scalable blueprint for other states to drive a JT nationwide.

2.3 MECHANISM AND STRUCTURE FOR JUST ENERGY TRANSITION ASSISTANCE UNDER THE JTFF

The proposed JTFF would be aligned with the soon-to-be-announced 'Framework of India's Climate Finance Taxonomy' and 'National Adaptation Plan' and may leverage the fiscal initiatives announced in the Union Budget 2025-26 to operationalize the climate objectives.[6] The taxonomy

6 [MoF] Ministry of Finance. 2025. Draft: Framework of India's Climate Finance Taxonomy. [accessed Sep 2025]. doc202557551101.pdf

provides a classification of activities under "climate supportive" and "transition supportive" categories. The taxonomy aims to direct investments towards transitional activities, fostering the development of indigenous low-emission production technologies and enabling large-scale deployment of mature climate technologies. Drawing on the principles of the taxonomy, the framework's design would ensure that capital flows into sustainable activities.

To effectively tap investable opportunities, it is crucial to have a clear understanding of the types of capital required, as well as the sources and stakeholders capable of mobilizing these resources. This would form the foundation for targeted capital deployment that can drive impactful JT outcomes. The following subsection outlines the modalities of mobilizing domestic and international capital, specifically answering the "why" (caters to which objective), the "who" (financing stakeholders), and the "how" (instruments and mechanisms) of the JTFF.

2.3.1 ARCHITECTURE AND FUNCTIONING OF JTFF

With rising fiscal pressures and declining solid fossil fuel revenue, Jharkhand and local economies facing similar contextual challenges can adopt a framework to mobilize sufficient capital to support their JT activities. The proposed JTFF extends beyond grants and budgetary allocation from the state government. It aims to leverage the potential of other capital providers, including banks, DFIs, corporations, private investors, and philanthropies. The challenges extend beyond scaling funds, requiring pre-emptive mapping of specific forms and sources of capital, along with targeted transition assistance that enables informed decision-making, supports capacity development, facilitates project preparation, and mobilizes finance, while considering risk, potential return, and developmental impact.

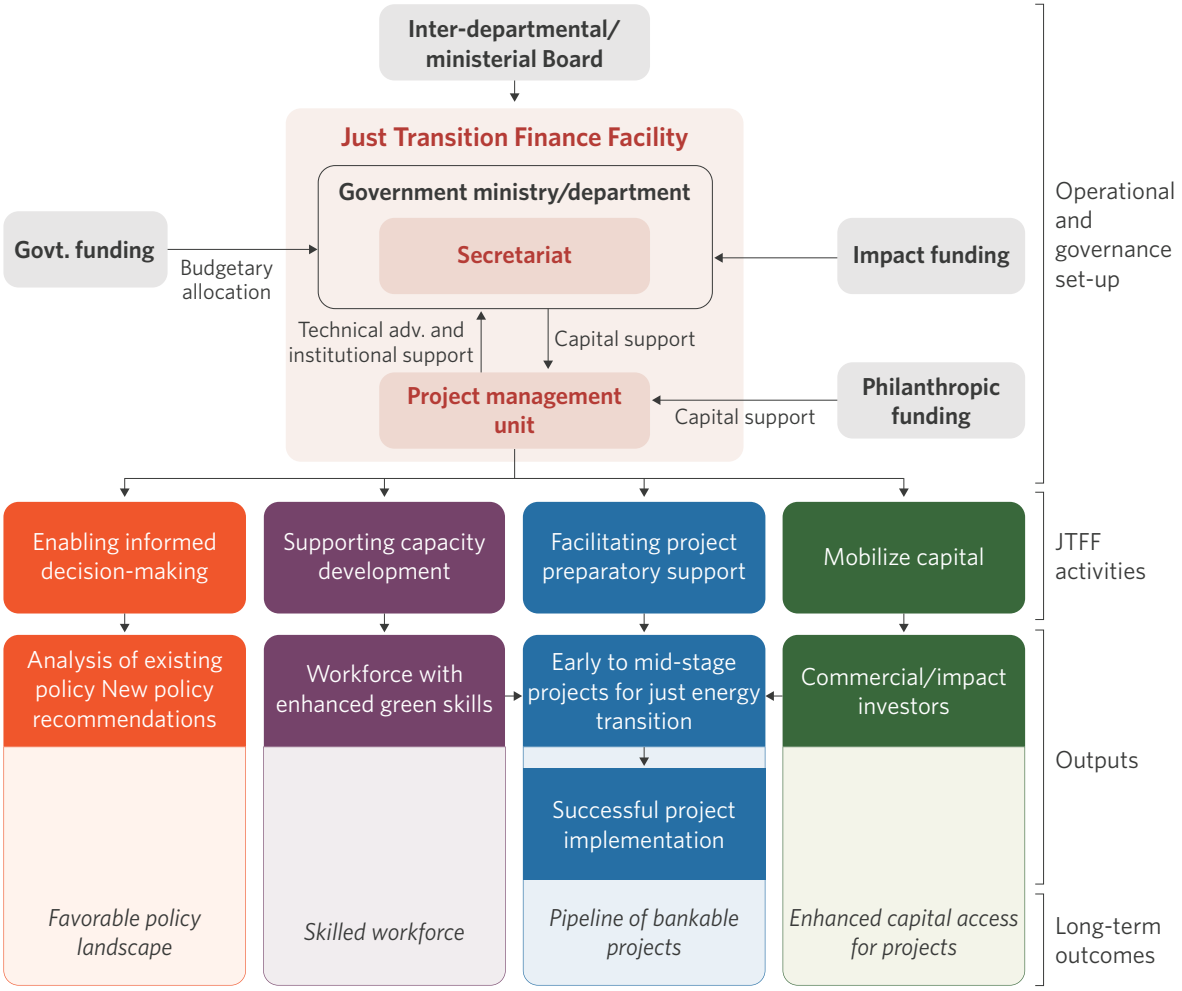
HOW WOULD THE JTFF FUNCTION?

The JTFF for Jharkhand could be housed under a state government department, which would oversee its operations and budgetary allocations. Funds appropriated by the government would flow through the ministry to a dedicated Secretariat (see Figure 12) staffed by experienced ministry personnel possessing the necessary technical knowledge and skills, potentially including retired officers with domain knowledge. This Secretariat would be responsible for issuing requests for proposals to onboard a project management unit (PMU), who would be tasked with managing and ensuring the execution of all JTFF-related activities.

The PMU could serve as the technical and institutional backbone, channeling inputs, concerns, and strategic recommendations from enablers to the Secretariat and coordinating with a network of technical partners to deliver targeted technical assistance aligned with each objective. A portion of the allocated budget could support the PMU's operational costs, supplemented by additional financing from impact investors and philanthropies to enhance the reach of technical transition assistance. Through this pool of capital, the PMU could engage a diverse range of enablers, such as technical experts, industrial training institutes (ITIs), sector skill councils, financiers, the government, and regulatory bodies, to implement JT-related interventions. The detailed roles and responsibilities of all entities and stakeholders involved in the JTFF structure are outlined in Section 2.3.2.

Figure 12 maps out the relationship between governance, operations, and finance, highlighting how governance and financial oversight, policy development, and project implementation converge to support activities under the JTFF.

Figure 12: Overall structure of the JTFF



ENABLING CAPITAL MOBILIZATION THROUGH THE JTFF

Mobilizing the right mix of public and private capital through international and domestic sources will be central to the JTFF's ability to unlock investable opportunities, such as low-carbon technologies, and address various costs associated with the transition. By mapping optimal sources and types of finance, the JTFF could raise tranches of domestic public finance from central and state governments, DFIs, public sector banks and SoEs for infrastructure development, and private finance from corporations, PE/VC firms and private sector banks towards 'transition activities'. Public capital serves multiple roles, including filling funding gaps, encouraging private investment from banks, NBFCs, asset managers, HNIs, and corporations to fund technologies during their initial stages, and providing initial momentum to emerging sectors by offering incentives such as subsidies.

Mapping appropriate capital sources with the framework's objectives is critical to aligning financial flows with transition priorities. For instance, governments and DFIs can extend concessional loans sourced from public funds, while banks and PE/VC firms can leverage private capital to finance the development of infrastructure and clean industry clusters. This strategic collaboration catalyzes private sector investments and scales up public funds, enabling a scalable approach to JT financing. Government and corporate CSR spending can be directed towards

supporting capacity development initiatives and community support programs. At the same time, private sector banks and private investors can provide growth capital for project developers and entrepreneurs. Private investments could be further mobilized through incentives such as grants, de-risking mechanisms like co-financing, loan guarantees, and first-loss capital, as well as leveraging blended finance funds in the form of concessional debt and equity. This would facilitate channeling diverse financial flows into Jharkhand's transitioning economy.

The PMU would act as a key enabler, guiding the delivery of transition assistance to the JTFF's activities through public and private capital toward activities that align with the JTFF's objectives. By bridging the interests and capacities of different capital sources, the PMU would ensure that available financial resources are allocated by leveraging the right mix of capital to deliver transition assistance outputs.

RISK-RETURN PROFILE OF DIFFERENT TYPES AND SOURCES OF FINANCIAL SUPPORT

To design a JTFF, it is important to recognize that financing sources come with varying return expectations, shaped by the priorities of different investors. The mapping of financing sources for the JTFF is further categorized based on the type and nature of return expectations (see Figure 13). These range from investors seeking social and environmental returns to those who expect less than market returns or risk commensurate financial returns with social or environmental impact linked to them. At the other end of the spectrum, some investors expect returns at or above the market financial return. Therefore, matching the right form of capital with the right interventions would ensure that sufficient capital is directed to priority areas, in turn, helping defray the costs of transition.

Figure 13: Mapping JTFF's objectives with different types and sources of capital & their return expectations

Source (Where to raise capital from)	Type (How to raise capital)	Return (Type/nature of expectation)
Informed decision-making		
Philanthropies/ Government/ DFIs	Grants/ govt. budget allocation	Social and environmental returns
Support capacity development		
Corporations/ Philanthropies/DFIs	Grants	Less than market return or risk-commensurate return + social/ environment/ impact return
Facilitate project preparation		
Philanthropies/ DFIs/ Banks/Government	Grants/ Guarantee/ Concessional Debt, Equity	Less than market return or risk-commensurate return + social/ environment/ impact return
Mobilize private capital & efficiently utilize public funds		
DFIs/ FIs/ VC/PE firms. Corporations	Equity/ Commercial Debt/ Concessional Debt, Equity	>/= market financial return

**This is not an exhaustive list of capital providers and financing/risk-sharing mechanisms*

Figure 14[7] & 15 illustrates the mapping of stated objectives of JTFF with the corresponding financing sources mobilized through different financing instruments and mechanisms. Alongside, several key enablers have also been mapped out who could facilitate operationalization of JTFF objectives.

7 This figure provides a qualitative depiction of the mapping and does not represent the quantum of financial flows from sources through different instrument types.

Figure 14: Capital flows mapped with objectives of JTFF

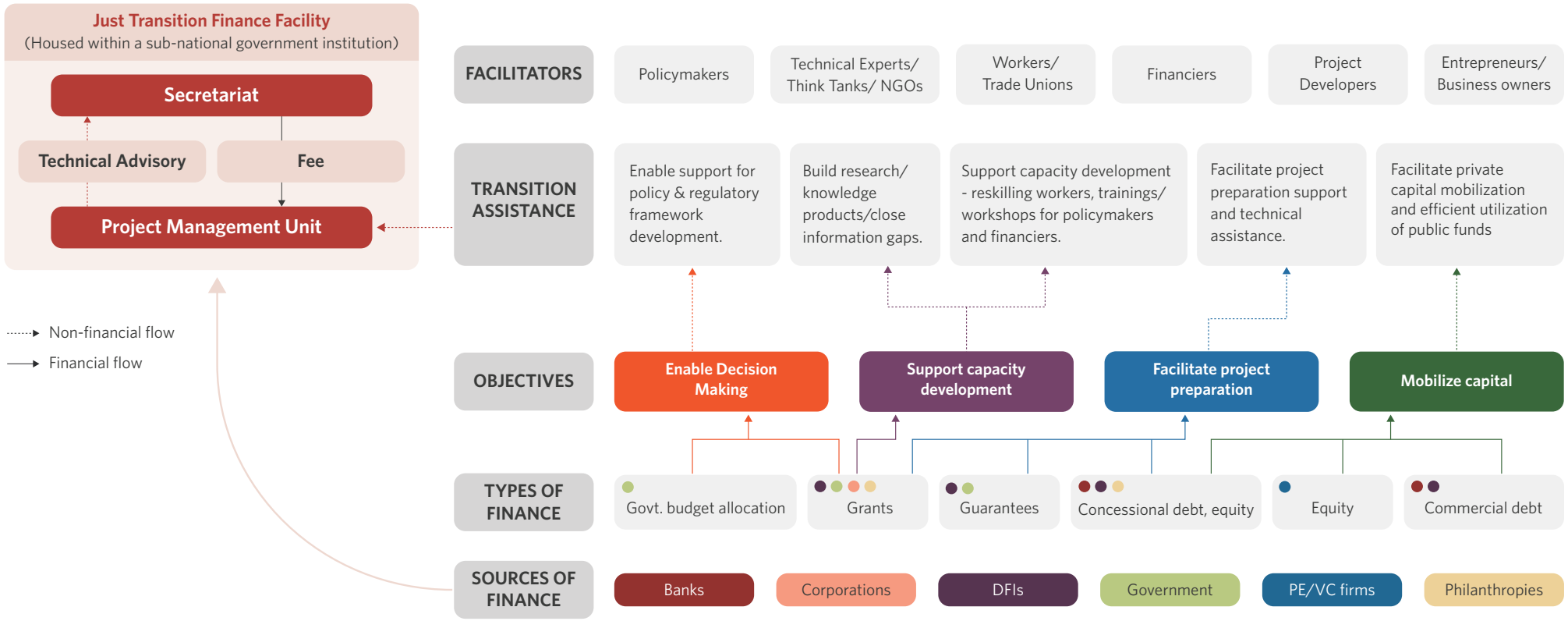
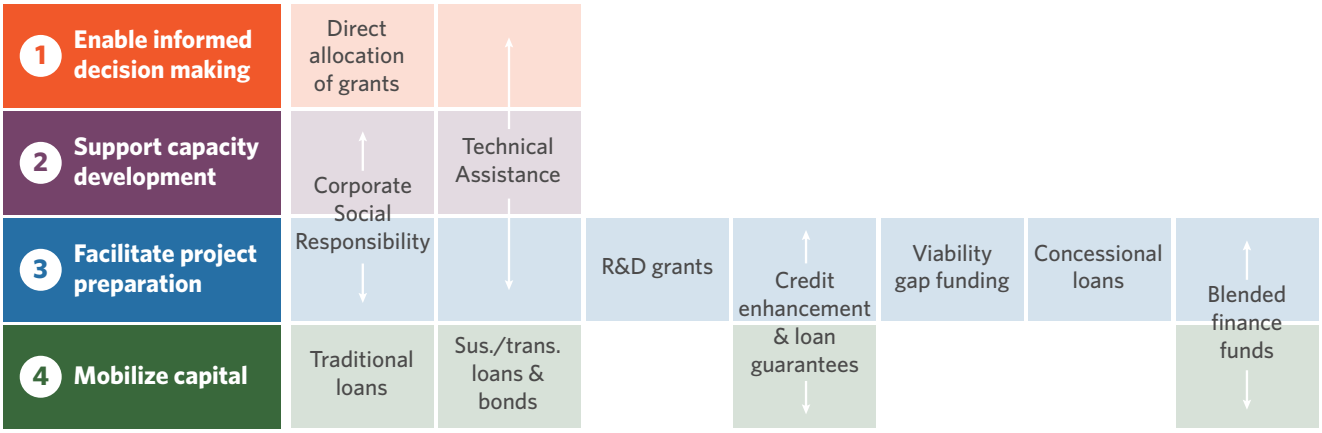


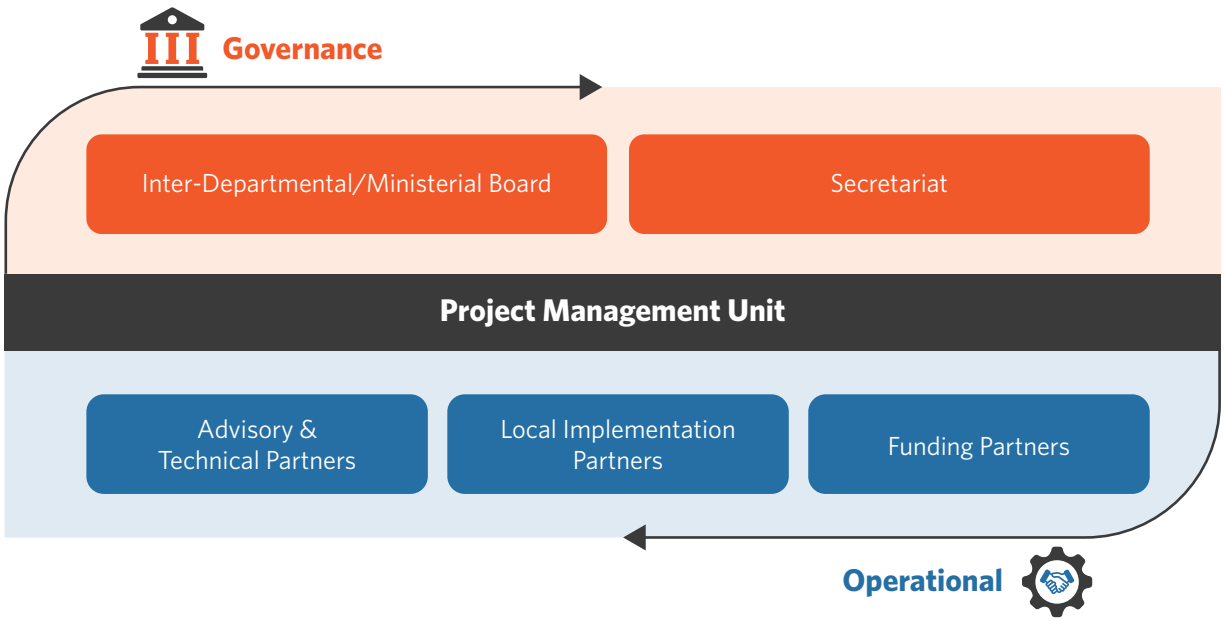
Figure 15: Aligning JTFF's objectives with appropriate financing mechanisms



2.3.2 INSTITUTIONAL AND OPERATIONAL GUIDANCE FOR THE JTFF

The operational structure of the JTFF is designed to strike a balance between independence, credibility, and responsiveness while being grounded in a robust policy framework. As an umbrella mechanism, the JTFF would bring together the roles of ministries, supervisory bodies, and multi-stakeholder technical partners, establishing a coordinated structure where responsibilities are clearly defined and accountability is institutionalized. Figure 16 illustrates the interaction between the governing and operational bodies.

Figure 16: Synergy between governance, PMU, and operations



2.3.2.1 GOVERNANCE SETUP

The governance structure of the proposed JTFF will incorporate checks and balances into its functioning. The framework could be housed under a nodal agency (government ministry/ institution) and managed by a PMU under the guidance of a Secretariat and supervision of an Inter-Departmental/Ministerial Board.

Inter-Departmental/Ministerial Board

At its apex, an Inter-Departmental/Ministerial Board would be constituted to provide strategic oversight and direction, approve action plans, and ensure alignment with transition-related sub-national priorities. The composition of this board can be designed to include voices that bring regulatory viewpoints and expertise in climate change policies, regulatory frameworks, and green/climate finance. Some key responsibilities of the board can include, but are not limited to:

- Overseeing the overall functioning of the JTFF, in line with national and sub-national priorities.
- Reviewing and approval of operational guidelines and periodic assessments to ensure compliance and relevance.
- Reviewing and approving the framework for monitoring and evaluation for assessment of the framework's performance and supported activities.
- Reviewing and approving funding for projects aligned with the framework's strategy.
- Setting up of the JTFF secretariat.
- Facilitating all necessary actions required to fulfill the mandate of the framework.

The board would benefit from the technical inputs routed through the secretariat, which engages with the PMU before bringing structural proposals for approval.

Secretariat

The Secretariat, comprising ministry-level staff, would be responsible for organizing and logistics of conducting the board meetings. It would serve as the primary node for decision-making, coordination, and preparing documentation, such as strategic action plans, to be presented to the board and inform their decision-making. This body would be a crucial link between the board and the PMU, ensuring alignment between operational execution and strategic oversight.

Project management unit

At the core of the operational setup lies the PMU, constituted to deliver on the four set objectives of the JTFF. The PMU would act as the coordinating body between the governing body and technical, implementation, and funding partners to ensure execution of JT assistance activities. The main role of the PMU would be to raise public and private capital and manage the overall operations of the JTFF.

As the ecosystem matures, the role of the governing bodies becomes less transactional and more systemic, focused on harmonizing ministries, public institutions, and other stakeholders involved. This would help establish a strong institutional foundation for the JTFF, enabling it to operate as a platform where governance-related responsibilities adapt and evolve seamlessly across varying contexts.

2.3.2.2 OPERATIONAL SETUP

The operational framework relies on technical, implementation, and funding partners who enhance the capacity of the PMU. The PMU would play a critical role in coordinating activities across all four building blocks of JTFF. A dedicated technical advisory committee would also be formed under the PMU to provide strategic guidance and foster partnerships, enabling support for policy development, strengthening capacity development, supporting project preparation, and mobilizing capital. As the central operational authority, the PMU would lead by:

- Fostering technical partnerships with academic institutions, think tanks, ITIs, and sectoral experts,
- Coordinating the activities of CSOs and research institutions, and
- Formalizing MoUs with knowledge partners to strengthen human capital, institutional preparedness, and build long-term capacity.

Complementing these efforts, Jharkhand's Just Transition Taskforce (JJTT) can support in bringing together government departments and agencies with leading corporations, SoEs, environment and energy think-tanks, academia, and CSOs to make a collaborative effort in developing visionary roadmaps and sub-national transition action plans. Altogether, this nuanced multi-stakeholder approach, along with clearly defined roles and responsibilities of the PMU and technical partners working under its purview, would enable an integrated and inclusive approach to facilitate Jharkhand's plan for a JT.

Key functions of the PMU, facilitated by collaboration with technical experts, include driving efforts to deliver transition assistance outputs and achieve the four key objectives of JTFF by:

- Synthesizing diverse sectoral inputs from technical partners and research outputs from think tanks, CSOs, and research institutions to influence policy decisions.
- Fostering partnerships with academia, CSOs, and technical experts to strengthen workforce capacity, while also tapping into networks like Sustainable and Resilient Transition for Holistic Inclusion (SAARTHI) and other self-help groups for community-level implementation.
- Developing a PPF and issuing a request for proposals for PPF services to accelerate project development.
- Engaging with public and private investors to leverage capital and scale investable opportunities.

Through this operational setup, technical expertise and local knowledge converge to create a well-coordinated, inclusive, and resource-efficient mechanism. Collectively, the PMU and its technical partners act as the link to translating strategy into impactful outcomes, while ensuring that stakeholders at all levels are aligned with the broader national agenda of low-carbon transition.

2.3.2.3 MONITORING, REPORTING, AND EVALUATION FOR JTFF

A monitoring, reporting, and evaluation framework is required to build investor confidence, safeguard social equity, and validate the measurable impacts of transition finance on workers and communities. Establishing robust governance systems with independent oversight, transparent fund flow mechanisms to prevent leakages and misallocations, and regular third-

party audits to maintain compliance becomes central to ensuring stakeholder accountability and credibility. This should be complemented with strong monitoring, reporting, and verification (MRV) systems to track environmental indicators like emission reduction, social metrics including livelihood security, and economic parameters like job diversification.

Some key elements of the MRV framework would include baseline assessments to identify priority needs, clearly defined KPIs, tracking capital mobilization, establishing a feedback loop mechanism, and conducting periodic progress reporting among PMU, Secretariat, and the Inter-Departmental/Ministerial Board. Together, these measures would help create a transparent, accountable, and outcome-oriented environment that enhances investor confidence and fosters stakeholder involvement.

3. CONCLUSION AND WAY FORWARD

The JTFF is designed to address socioeconomic challenges while capitalizing on opportunities for the state's just energy transition. This framework can serve as a foundational step for developing an implementation roadmap for both the short-term and long-term applications.

India is a continent-sized nation, with each of its states at a different juncture in the clean energy transition journey. A country-wide strategy risks overextending the central government's available resources, with a more nuanced and holistic approach required at the state level to mitigate short-term and long-term socioeconomic implications of the transition. Global precedents, such as the EU Just Transition Fund, have mobilized both public and private capital at subnational levels to address the multifaceted challenges posed by the transition away from fossil fuels.

The economies of Jharkhand, Chhattisgarh, and Odisha are heavily reliant on solid fossil fuel mining and its downstream industries. While these industries are capital-intensive in nature, adopting low-emission technologies will demand more capital in the short term. This adds complexity as states plan their transition away from solid fossil fuels in line with the national net-zero target.

A decline in fossil fuel revenues and an increase in investment needs for green sectors would require increased capital flows to support economic diversification and green growth in these industries. States need to navigate this dual challenge while also supporting a JT for workers, communities, and industries that have previously relied heavily on stable fossil fuel revenues. In this context, a well-structured state-level financing framework is required to facilitate phased and well-coordinated actions across a wide range of stakeholder groups, including workers, project developers, policymakers, regulatory bodies, financiers, and investors.

This study presents the architectural design for a JTFF tailored to Jharkhand's socioeconomic context, one that facilitates the delivery of required transition assistance by mobilizing sufficient capital to enable evidence-based policy decisions, build institutional capacity, facilitate project preparation, and mobilize private investments alongside efficiently utilizing public funds. Looking ahead, the following steps would be to undertake a two-pronged strategy by:

- Operationalizing the JTFF framework in Jharkhand through pilot testing, capacity building, and stakeholder engagement to demonstrate its viability and scalability.
- Adapting and replicating this structured approach across other vulnerable solid fossil fuel-dependent states in India. This adaptable model would be designed to de-risk investments, incentivize innovation, and ensure inclusiveness.

Vulnerable stakeholder groups can be supported in avoiding the risk of being left behind during India's low-carbon transition by leveraging suitable impact-linked financial mechanisms and localized strategies. These mechanisms can help tap into diverse green opportunities, address transition-related socioeconomic challenges, and translate the vision of a JT into reality for Jharkhand. By aligning finance with social equity, Jharkhand can unlock innovation, create new livelihoods, and foster a green economy that leaves no one behind.

The proposed framework could become a high-impact vehicle to enable a JT in solid fossil fuel-dependent states.

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