

INCLUSIVE ECONOMIC DIVERSIFICATION FOR EMPOWERING OPPORTUNITIES FOR AFFECTED COMMUNITIES IN RAMGARH DISTRICT



Submitted to:



Submitted by:



CONTENTS

Executive Summary	1
Section I Just Transition for the coal belt of Ramgarh District	
1.1 What is Just Transition in the context of India's coal belt	5
1.2 Profile of the Study Area	8
Section II Approach & Methodology	
2.1 Rationale for the Study	12
2.2 Research Design	12
2.3 Recce Survey	14
2.4 Research Tools	14
2.5 Sampling	14
2.6 Primary and Secondary Data Collection	15
2.7 Coverage	17
Section III Community Perception About Possible Livelihood Options	
3.1 Possible Livelihood Options as Perceived by Farmers of Directly and Indirectly Affected Villages	18
3.2 Possible Livelihood Options as Perceived by Adults (Aged 30–45 Years) Engaged in Non-Farm Activities	18
3.3 Possible Livelihood Options as Perceived by Adult Women (Homemakers/SHG Members) from Directly Affected Villages	19
3.4 Possible Livelihood Options as Perceived by Adult Women (Homemakers/SHG Members) from Indirectly Affected Villages	19
3.5 Possible Livelihood Options as Perceived by Male Youth (Aged 15–25 Years) Who Are Gainfully Employed or Actively Seeking Work	19
3.6 Possible Livelihood Options as Perceived by Female Youth (Aged 15–25 Years) Who Are Gainfully Employed or Actively Seeking Work	19
3.7 Possible Livelihood Options as Perceived by Male and Female Students Going to Secondary/Higher Secondary/Degree College/Post-SSC Diploma Courses	20
3.8 Identified Potential Livelihood Options / Economic Activities	20
3.9 Interpretation of Community Willingness to take up Different Activities	21
3.10 Interpretation of Local Administration and Other Stakeholder Perspectives	23
3.11 Synthesis of Community and Institutional Perspectives	25
3.12 Conclusion: Toward a Logical Selection of Value Chains	26
Section IV Value Chain Analysis for Just Transition in Ramgarh	
4.1 Fisheries	27
4.2 Goatry	28
4.3 Tourism	29

4.4	Backyard Poultry	30
4.5	Agro-Processing	31
4.6	Skilling	32
Section V	Financing and Institutional Convergence for Just Transition in Ramgarh	
5.1	Government Schemes and Departments	34
5.2	District Mineral Foundation Trust (DMFT)	34
5.3	Corporate Social Responsibility (CSR)	35
5.4	Conclusion	35
Section VI	Role and Importance of the CBO–PRI–LA Compact in Executing Just Transition Value Chains in Ramgarh	
6.1	Introduction	37
6.2	Community-Based Organizations (CBOs) as the Grassroots Engine	37
6.3	Panchayati Raj Institutions (PRIs) as Anchors of Local Governance	37
6.4	Local Administration (LAs) as Providers of Technical and Financial Backbone	38
6.5	The Compact in Action: Why It Matters	38
Section VII	Making Just Transition Work in Ramgarh: Policy, Law & Roadblocks to Amend/Enact	
7.1	State-level legal & policy backbone (what to amend/enact)	40
7.2	District orders & operating system for Ramgarh (what to issue locally)	41
7.3	Sector-wise: what to fix, who does it, and the roadblocks it removes	42
7.4	Bottom line	44
Section VIII	State of Ecosystem is no Action is taken and Envisioned State after Implementation of Recommendations of this Report	
8.1	If No Action is Taken	45
8.2	If the Recommended Actions are Implemented	45
8.3	Why It Matters for the Larger Climate and Just Transition Narrative	46
8.4	Conclusion	47
References		48
Annexure-1	<i>Fisheries development in Ramgarh</i>	52
Annexure-2	<i>Goatry development in Ramgarh</i>	60
Annexure-3	<i>Skilling</i>	67
Annexure-4	<i>Tourism Development in Ramgarh</i>	73
Annexure-5	<i>Back Yard Poultry</i>	78
Annexure-6	<i>Agro-Processing</i>	84

List of Figures

Figure1: Process Flow for Identifying Alternative Livelihood Options in Mining-Affected Regions of Ramgarh

List of Tables

Table 1: Focus Group Discussions (FGDs) conducted across Directly and Indirectly Affected Villages by Respondent Type

Table 2: Institutional Stakeholders Engaged through In-Depth Interviews (IDIs) across Ramgarh

Table 3: Community Willingness to take up different activities

Table 4: Prospective Livelihood Options as Perceived by Government Local Administration and Stakeholders

Table 5: Comparative Summary of Proposed Value Chains

Table 6: Convergence Financing Framework for Just Transition in Ramgarh

Table 7: Scenario Comparison: Ramgarh's Just Transition Futures

List of Abbreviations

AHD	–	Animal Husbandry Department
ATMA	–	Agricultural Technology Management Agency
BSNL	–	Bharat Sanchar Nigam Limited
CAMPA	–	Compensatory Afforestation Fund Management and Planning Authority
CBO	–	Community-Based Organization
CCL	–	Central Coalfields Limited
CD	–	Census Division (context-specific)
CEEW	–	Council on Energy, Environment and Water
CFR	–	Community Forest Rights
CLF	–	Cluster Level Federation
CM	–	Chief Minister / CM School of Excellence (context-specific)
CPCB	–	Central Pollution Control Board
CPR	–	Common Property Resources
CSR	–	Corporate Social Responsibility
DAO	–	District Animal Husbandry Officer
DAY	–	Deendayal Antyodaya Yojana
DC	–	Deputy Commissioner
DDU	–	Deen Dayal Upadhyaya
DIC	–	District Industries Centre
DIU	–	Development Intelligence Unit
DMF	–	District Mineral Foundation
DMFT	–	District Mineral Foundation Trust
EPR	–	Extended Producer Responsibility
EPW	–	Economic and Political Weekly
FAO	–	Food and Agriculture Organization
FGD	–	Focus Group Discussion
FPO	–	Farmer Producer Organization
FY	–	Financial Year
GKY	–	Grameen Kaushalya Yojana (DDU-GKY)
GP	–	Gram Panchayat
HR	–	Human Resources
IDI	–	In-Depth Interview
IFC	–	International Finance Corporation
ILO	–	International Labour Organization
IT	–	Information Technology
JETP	–	Just Energy Transition Partnership
JIS	–	Jharkhand Industrial and Social (context-specific: JIS Foundation)
JSLPS	–	Jharkhand State Livelihood Promotion Society
JT	–	Just Transition
LA	–	Local Administration
MGNREGA	–	Mahatma Gandhi National Rural Employment Guarantee Act
MSME	–	Micro, Small & Medium Enterprises
MSP	–	Minimum Support Price
NABARD	–	National Bank for Agriculture and Rural Development
NH	–	National Highway
NITI	–	National Institution for Transforming India (NITI Aayog)
NLM	–	National Livestock Mission
NOC	–	No Objection Certificate
NRLM	–	National Rural Livelihoods Mission

NSDL	–	National Securities Depository Limited
NTFP	–	Non-Timber Forest Produce
NTPC	–	National Thermal Power Corporation
OBC	–	Other Backward Classes
PM	–	Prime Minister
PMAY	–	Pradhan Mantri Awas Yojana
PMFME	–	Pradhan Mantri Formalisation of Micro Food Processing Enterprises
PMKVY	–	Pradhan Mantri Kaushal Vikas Yojana
PMMSY	–	Pradhan Mantri Matsya Sampada Yojana
POWER	–	Partnerships for Opportunity and Workforce and Economic Revitalization (US context)
PPP	–	Public–Private Partnership
PRASHAD	–	Pilgrimage Rejuvenation and Spiritual Heritage Augmentation Drive
PRI	–	Panchayati Raj Institution
PTPS	–	Patratu Thermal Power Station
RKVY	–	Rashtriya Krishi Vikas Yojana
RPL	–	Recognition of Prior Learning
RSETI	–	Rural Self Employment Training Institute
SHG	–	Self-Help Group
SLRM	–	Solid and Liquid Resource Management
SOP	–	Standard Operating Procedure
SPCB	–	State Pollution Control Board
SSC	–	Secondary School Certificate
TERI	–	Tata Energy Research Institute
TRIF	–	Transform Rural India Foundation
ULB	–	Urban Local Body
UNFCCC	–	United Nations Framework Convention on Climate Change

Executive Summary

Introduction

The Ramgarh district of Jharkhand, long identified as a coal-dependent region, stands at a critical juncture. With coal losing its dominance due to climate imperatives, policy shifts, and the rise of renewables, the question of a *just transition* becomes both urgent and unavoidable. This report examines the socio-economic realities of Ramgarh's coal belt, the perceptions and aspirations of its communities, and the value chains most capable of driving inclusive livelihood diversification. It builds a comprehensive roadmap for reimagining Ramgarh's future, rooted in community voices, institutional capacities, and lessons from global experiences.

Context and Rationale

Coal has historically provided the backbone of Ramgarh's economy, employing thousands directly in mining and power plants, and indirectly in transport, trade, and informal networks. Yet, the structural decline of coal—driven by India's net-zero commitment for 2070, falling global finance for coal, and environmental degradation in the region—has intensified vulnerabilities.

Jharkhand, contributing nearly a quarter of India's coal output, exemplifies this dilemma. Ramgarh in particular demonstrates deep dependence, with one-third of households reliant on coal-based income. Parallel informal economies, such as coal scavenging and small-scale trading, sustain marginalized groups but trap them in illegality and insecurity. Without managed transition, these populations risk severe livelihood shocks.

A just transition here requires not only new economic opportunities but also recognition of equity, gender, and social justice dimensions. Communities that have long borne the costs of mining must become central beneficiaries of future investments.

Profile of the Study Area

Ramgarh lies in the Chotanagpur Plateau, rich in coal but equally endowed with forests, rivers, and agricultural potential. Its population of nearly 1.2 million (projected by 2031) includes large tribal and OBC communities. Agriculture remains primarily subsistence-oriented with limited irrigation (14.5% of net sown area), while industries are dominated by coal mining and thermal power. Emerging activities include fisheries in abandoned mine pits and small agro-processing units.

Infrastructure—roads, railways, and proximity to Ranchi—offers logistical advantages. However, deficits persist in health services, education, skilling facilities, and agro-logistics such as cold storage. These gaps restrict diversification, making planned interventions essential.

Approach and Methodology

The study employed a **qualitative research design**, prioritizing community voices and institutional perspectives.

- **Sampling:** 22 villages (16 directly affected by mining and 6 indirectly affected) across four blocks—Chitarpur, Gola, Mandu, and Patratu—were covered.
- **Tools:** 22 Focus Group Discussions (FGDs) and 27 In-Depth Interviews (IDIs) were conducted with farmers, SHGs, youth, students, sarpanches, line departments, CSR representatives, training providers, and market associations.
- **Coverage:** Over 350 community members and 30+ institutional actors engaged, supplemented with secondary data from economic surveys, departmental reports, and peer-reviewed literature.

This methodology enabled triangulation of community aspirations with institutional readiness, leading to a grounded and actionable set of value chain recommendations.

Community Perspectives on Livelihoods

Community perceptions highlight both aspirations and constraints, with differences across demographic groups:

- **Farmers:** Interested in fisheries (using mine pits), goat and pig rearing, and integrated organic farming.
- **Adults (30–45 years):** Favoured small-scale enterprises—mobile shops, tailoring, vehicle servicing, milk collection centres—but cited capital and training constraints.
- **Women (directly affected villages):** Preferred SHG-based activities such as tailoring, incense making, grocery stores, goat and poultry rearing, and snack preparation.
- **Women (indirectly affected villages):** Focused on agro-processing (spices, flour, pickles), collective marketing, and B2B linkages.
- **Male Youth:** Favoured semi-skilled trades—mobile/electrical repair, machine operation—seeking placement-linked training.
- **Female Youth:** Preferred home-based work (tailoring, beauty services, dona-pattal, spice packaging), with interest in short-term training.
- **Students:** Expressed interest in garment manufacturing, health care support roles, digital services, and technical trades, but lamented the absence of career counselling.

Implication: Livestock-based activities remain the most familiar and accessible; agro-processing and fisheries are attractive where infrastructure exists; tourism appeals to youth; and skilling is universally seen as a necessity.

Institutional Perspectives

Institutions broadly aligned with community preferences but added sector-specific priorities:

- **Livestock:** Animal Husbandry Dept., NRLM, and CSR units strongly support goatry, poultry, and dairy due to existing subsidies, fodder supply chains, and quick scalability.
- **Agro-processing:** DIC, ATMA, and DMFT highlighted its potential for rural industrialisation and FPO-led growth.
- **Fisheries:** Fishery Department and CCL's mine closure desk prioritised repurposing mine pits.
- **Tourism:** Tourism Department promoted homestays, eco-circuits, and PRASHAD financing.
- **Skilling:** Training institutions (RSETI, JIS Foundation, PanIIT Gurukul) foregrounded placement-linked training and youth entrepreneurship.

Implication: While households favour low-barrier livelihoods, institutions lean toward medium-term collective enterprises, requiring convergence of both approaches.

Value Chain Analysis

Six value chains were assessed in depth:

1. **Fisheries:**
 - Current annual deficit of 3,200 MT against demand of 13,000 MT.
 - Potential to expand cage culture to 50 mine pits by 2031, generating ₹300–350 crore revenue annually.

- Requires ₹48 crore investment and partnerships for hatcheries, feed plants, cold chains, and CSR-financed training.
- Direct beneficiaries: ~1,200 households; indirect: 9,600.
- 2. **Goatry:**
 - Current deficit of 87 MT goat meat, projected to 158 MT by 2031.
 - Requires expansion of 33,000 goats with investments of ₹12–15 crore.
 - Potential revenue: ₹60–70 crore annually; direct beneficiaries: ~3,000 households.
 - Inclusive, women-led, but constrained by fodder scarcity and veterinary access.
- 3. **Tourism:**
 - Anchored by Rajrappa Temple (27 lakh visitors) and Patratu Lake (12 lakh), with 40 lakh visitors in 2024.
 - By 2030, potential revenue: ₹746 crore annually.
 - Needs ₹100–120 crore investment in infrastructure, sanitation, eco-lodges, and digital marketing.
 - Direct jobs: ~2,800; indirect: ~12,000.
- 4. **Backyard Poultry:**
 - Current production 650 MT vs. demand 3,230 MT (deficit: 2,500 MT).
 - With ₹20 crore investment, can generate ₹60–70 crore annually and support ~8,000 women-led households.
 - Quick returns, nutrition benefits, but needs veterinary support and collective marketing.
- 5. **Agro-Processing:**
 - Post-harvest losses ~15–20%.
 - Requires ₹25–30 crore investment for cold chains, branding, and processing hubs.
 - Potential revenue: ₹150–200 crore annually; direct beneficiaries: ~6,000 households.
 - High SHG and FPO involvement, but dependent on infrastructure.
- 6. **Skilling:**
 - Over 4,500 youth trained in recent years; demand far exceeds capacity.
 - With ₹15–20 crore, can skill 30,000 youth over six years, yielding ₹500 crore wage income annually.
 - Cross-cutting enabler that feeds into all other value chains.

Overall Portfolio: Livestock (immediate), agro-processing (medium-term), fisheries/tourism (long-term), and skilling (cross-cutting) provide a balanced transition mix.

Financing and Convergence

- **Government Schemes:** NRLM, NLM, PMMSY, ATMA, RKVY, PMFME, PRASHAD, PMKVY provide subsidies, infrastructure, and training support.
- **DMFT:** With annual accruals of ₹70–100 crore, can earmark ₹20–30 crore for just transition activities, bridging scheme gaps.
- **CSR:** CCL and other corporates can pilot clusters, provide training, and fund market linkages.
- **Total Potential Mobilisation:** ₹150–200 crore over five years through convergence of schemes, DMFT, and CSR.

Role of Local Institutions

The **CBO–PRI–LA compact** is central:

- **CBOs/SHGs:** Grassroots engines for livestock, poultry, and agro-processing clusters.
- **PRIs:** Anchors for planning, resource pooling, and convergence.

- **Local Administration:** Technical and financial backbone, ensuring scheme integration and DMFT deployment.

This tripartite framework ensures community ownership, transparency, and scale.

Policy, Legal, and Governance Framework

- **State-level:** Amend policies for mine-pit leasing, CSR utilisation, and eco-tourism promotion.
- **District-level:** Issue SOPs for DMFT deployment, pit allocation, and cluster formation.
- **Sector-specific:**
 - Fisheries: fast-track mine-pit clearances.
 - Goatry/Poultry: strengthen veterinary extension.
 - Agro-processing: incentivise cold chain and branding.
 - Skilling: establish district skilling roadmap linked to value chains.

Scenario Analysis

- **If no action is taken:** Ramgarh risks rising unemployment, illegal coal dependency, outmigration, worsening poverty, and ecological degradation.
- **If recommendations are implemented:** By 2031, Ramgarh could:
 - Create 30,000 direct livelihood opportunities.
 - Generate annual revenues of ₹1,500–1,800 crore.
 - Restore degraded mine lands.
 - Build a diversified, inclusive, and resilient economy aligned with India's climate goals.

Conclusion and Way Forward

Ramgarh's coal belt encapsulates both the risks of unmanaged transition and the opportunities of planned diversification. This report demonstrates that through community participation, institutional convergence, and strategic investments, Ramgarh can transform from a coal-dependent district into a diversified economy anchored in fisheries, goatry, poultry, agro-processing, tourism, and skilling.

Way Forward:

1. Establish a district Just Transition Task Force.
2. Mobilise DMFT as a catalytic fund for pilots.
3. Launch SHG- and FPO-led clusters for goatry, poultry, and agro-processing.
4. Scale mine-pit fisheries through CCL–community partnerships.
5. Position Rajrappa–Patratu as a tourism hub with eco-tourism circuits.
6. Develop a skilling roadmap linked to all value chains.
7. Monitor transition outcomes through participatory mechanisms.

Ramgarh has the resources, community readiness, and institutional framework to pioneer India's just transition. With decisive action, it can become a national model of climate-aligned, socially inclusive development.

Section I: Just Transition for the coal belt of Ramgarh District

1.1 What is Just Transition in the context of India's coal belt

1.1.1 Introduction

Coal has historically been the backbone of industrial development and energy security. Globally, coal still supplies about 36% of electricity and supports millions of direct and indirect jobs¹. In India, coal accounts for nearly 70% of electricity generation and is deeply embedded in the economy through mining, power plants, transport, and associated industries². However, the climate imperative of reducing carbon emissions, along with the falling cost of renewables, has made coal's long-term future uncertain.

A just transition refers to managing the socio-economic, environmental, and political shifts away from coal in ways that protect workers, communities, and dependent regions. It is not merely about shutting mines or plants, but about ensuring alternative livelihoods, social security, and sustainable development pathways for coal-dependent populations.

1.1.2 Why is a Just Transition Necessary

The case for a just transition in India, and especially in coal-dependent states such as Jharkhand, rests on a combination of climate, economic, and social imperatives. On the climate front, India has pledged under the Paris Agreement to achieve net-zero emissions by 2070³. Meeting this goal requires peaking coal use by the 2030s and a significant phase-down thereafter, meaning that coal, which currently dominates India's power mix, cannot remain the backbone of energy supply indefinitely. Without managed transition pathways, this shift risks creating shocks in regions whose livelihoods and revenues are tightly bound to coal⁴.

Economically, the momentum is already moving away from coal. Renewable energy is becoming increasingly cost-competitive, while coal-based power faces rising costs of extraction, mounting regulatory burdens, and growing public opposition due to its health and environmental impacts. Studies project that coal demand in India is likely to plateau by the mid-2030s, especially as the power sector diversifies toward renewables and as expansion of new coal mines faces restrictions⁵. This structural change in the energy market makes coal a diminishing asset, requiring coal-dependent economies to diversify before they are left behind.

The social dimension of transition is equally critical. Approximately 3.6 million people across India are directly or indirectly dependent on coal mining and thermal power, spanning formal workers, contract labourers, transporters, and informal vendors⁶. Coal-rich states such as Jharkhand, Chhattisgarh, Odisha, and Madhya Pradesh face a dual challenge: they have among the highest poverty rates in the country and limited economic diversification⁷. For them, an abrupt coal phase-down risks exacerbating unemployment, inequality, and social distress. Communities in coal belts, including districts like Ramgarh, are particularly vulnerable because their local economies are deeply entwined with royalties, informal trading networks, and ancillary services linked to coal⁸.

1.1.3 Key Dimensions of a Just Transition

A just transition must first and foremost address the protection of workers and livelihoods. Workers employed in mining and thermal power should be supported through retraining, redeployment, pension schemes, and robust social security nets. Special attention must be paid to contract workers and informal workers who are often excluded from formal protections yet remain the most vulnerable. Parallel efforts should promote alternative livelihoods in mining districts by investing in agro-processing, goatry, backyard poultry, fishery, eco-tourism, and the service sector, thereby expanding the basket of opportunities available to displaced workers⁹.

At the community and local economy level, coal districts are heavily reliant on revenues in the form of royalties, cesses, and corporate social responsibility (CSR) spending from mining companies. A transition away from coal will erode these financial streams, so plans must provide for compensatory fiscal transfers and new sources of public revenue. Strengthening local economies will also require investments in small and medium enterprises (SMEs), support for self-help groups (SHGs), and enhanced rural infrastructure to foster resilience and self-sufficiency.

The environmental dimension is equally central. Mine closures should not be treated as an end point but rather as an opportunity for ecological restoration and the creation of new economic uses for land, such as solar parks, industrial clusters, or reclaimed agricultural fields¹⁰. Addressing legacy impacts like polluted water bodies, degraded forests, and persistent health hazards in coal belt regions must form part of this restoration¹¹.

Equity and inclusion are cross-cutting concerns in any just transition. Tribal communities in central India, women engaged in informal work, and migrant labourers are among the groups most at risk of being marginalized by transition processes. Ensuring their participation in decision-making is essential for both fairness and social legitimacy. Local ownership can be built only if communities see themselves as co-creators of transition plans rather than passive recipients.

Finally, policy and governance frameworks must be reoriented to support transition. This involves creating dedicated institutions and funds for just transition, drawing on international experiences such as the European Union's Just Transition Fund and South Africa's Just Energy Transition Partnership¹². District-level transition plans need to be integrated with national energy strategies to ensure coherence. Leveraging international climate finance will also be critical for mobilizing the scale of resources required to finance retraining, land reclamation, and economic diversification.

1.1.4 Global Experiences and Lessons

Global experiences offer important lessons for India's coal belt. The European Union has established a €17.5 billion Just Transition Fund to support regions most affected by coal phase-outs, with a focus on reskilling workers, diversifying local economies, and investing in clean energy¹³. South Africa, through its Just Energy Transition Partnership (JETP), has mobilized \$8.5 billion in concessional finance to reduce coal dependence while ensuring that benefits flow to local communities¹⁴. In the United States, federal initiatives such as the POWER program have sought to revitalize coal-dependent communities through investments in entrepreneurship, workforce development, and regional economic diversification¹⁵. For India, these cases highlight the importance of institutional frameworks, innovative

financing mechanisms, and participatory approaches. They show that successful transitions must simultaneously balance climate goals, economic restructuring, and social justice.

1.1.5 Context: Coal Dependency in Jharkhand

Jharkhand is one of India's most coal-dependent states, both in terms of energy production and local livelihoods. The state contributes nearly a quarter of the country's total coal output, with districts such as Ramgarh, Dhanbad, Bokaro, and Hazaribagh at its core. Within this belt, Ramgarh occupies a pivotal role as it houses numerous collieries under Central Coalfields Limited (CCL) and is host to ancillary industries that have grown around mining operations¹⁶. Thermal power projects, most notably at Patratu, further anchor the district's reliance on coal. Coal dependency in Ramgarh is not limited to formal employment in mines and power plants but extends to a wide network of contractual workers, small-scale vendors, transporters, and informal wage earners. These layers of dependency create an economic ecosystem where thousands of households rely directly or indirectly on coal-linked activity for sustenance.

1.1.6 Drivers of Transition

The push for a transition away from coal in Jharkhand is shaped by multiple drivers. At the national level, India's commitment to achieving net-zero emissions by 2070 requires a phased reduction in coal dependency, with energy diversification into renewables, biomass, and other low-carbon sources¹⁷. Globally, the falling appetite for financing coal projects and rising demand for climate-resilient investments have reduced the long-term prospects of coal-based economies. Locally, decades of coal mining have taken a toll on Jharkhand's land and people, open-cast mines in Ramgarh and surrounding areas have left behind degraded land, air pollution, and serious health risks for local communities. The workforce is also experiencing technological shifts, with mechanization gradually reducing the need for manual labour, even before mines begin to close. These combined pressures underscore the inevitability of a transition, whether planned or unmanaged¹⁸.

1.1.7 Just Transition: What It Means for Jharkhand

In this context, a "just transition" becomes more than an environmental imperative, it is a socio-economic necessity. For Jharkhand, just transition means protecting communities that have lived off coal for decades and ensuring that workers, both formal and informal, are not left behind as the coal economy shrinks. It involves creating credible alternatives that generate livelihoods, repurposing land scarred by mining into productive assets, and investing in human capital so that workers can adapt to new opportunities. It also means extending social protection, health cover, pensions, and retraining allowances, particularly for contractual and informal workers who are most vulnerable to job losses¹⁹.

An often-overlooked reality in Jharkhand's coal belt is the parallel economy of informal coal trading. In districts like Ramgarh, hundreds of thousands of people derive sustenance from selling stolen or scavenged coal, often moving door to door on bicycles with small sacks of coal. This practice, rooted in poverty and lack of alternative livelihoods, has sustained entire households but keeps them in illegality and precarity, without any social protections²⁰. Women and children are frequently engaged in this chain, either collecting small quantities from coal heaps or selling them locally²¹. A just transition must recognize this shadow economy and the sheer number of people it involves. Transition planning must explicitly integrate these households into legitimate livelihood pathways, whether through

cooperatives, renewable energy-based micro-enterprises, or rehabilitation of mining land for farming and fisheries, so that they do not remain invisible in policy frameworks.

In short, a just transition in Jharkhand must be community-centric, participatory, and anchored in local realities rather than top-down blueprints. This approach ensures that the benefits of cleaner growth are equitably shared and that coal communities, including those engaged in the informal coal economy, can reimagine their future with dignity.

1.2 Profile of the Study Area

1.2.1 History of Ramgarh

Ramgarh district, located in the eastern Indian state of Jharkhand, was carved out of the erstwhile Hazaribagh district and officially established as a separate district on 12 September 2007. Historically, Ramgarh is part of the greater Chotanagpur region and holds cultural and strategic significance.

During the British colonial period, it was part of the larger administrative unit of Hazaribagh and remained relatively underdeveloped. Post-independence, with the discovery and commercial exploitation of coal reserves, Ramgarh began to gain prominence as a coal-mining hub. The establishment of Central Coalfields Limited (CCL) significantly transformed the economic landscape of the region. The development of Patratu Thermal Power Station and other industrial ventures further reinforced Ramgarh's role in Jharkhand's industrial economy.

1.2.2 Topography Including Natural Resources

Ramgarh lies within the Chotanagpur Plateau, featuring a mix of undulating uplands, forested hills, and mineral-rich valleys. The district is traversed by the Damodar River, a major waterway supporting agriculture and industrial activity. The terrain is composed of lateritic and red soils with moderate fertility.

The district is richly endowed with natural resources, especially coal, which is the backbone of its industrial activity. Major coalfields such as Rajrappa, Kujju, Bhurkunda, and Patratu are located within its boundaries and operated under Central Coalfields Limited (CCL). Besides coal, deposits of fireclay, building stone, and sand are also found in the region.

Forests occupy a substantial portion of Ramgarh's geography, with both reserved and protected forest areas contributing to biodiversity and ecological balance. These forested areas are also culturally significant for local tribal communities and have potential for eco-tourism.

1.2.3 Demography

As per the 2011 Census, the population of Ramgarh district stood at 949,443, with a sex ratio of 921 females per 1,000 males and a literacy rate of 73.17%²². Projections estimate that the population would reach 11.64 lakh by 2025 and may surpass 12.43 lakh by 2031²³. The population is distributed nearly evenly between rural (55.9%) and urban (44.1%) areas²². The social composition includes Scheduled Tribes, mainly Oraon and Munda communities, along with Scheduled Castes, Other Backward Classes (OBCs), and General category households²⁴. Tribal communities maintain traditional livelihoods and cultural practices but are increasingly affected by displacement due to mining and industrial development.

The district has experienced significant displacement and resettlement in leasehold areas due to mining expansion, resulting in tenure insecurity and reduced access to welfare schemes like PMAY, PM-Kisan, and PDS²⁵. Despite infrastructural improvements, gaps persist in health, education, and skilling, particularly among youth and women in rural belts.

1.2.4 Agriculture

Agriculture in Ramgarh is primarily subsistence-based, constrained by limited irrigation, small landholdings, and water scarcity²³. According to the District Statistical Handbook, the net sown area accounts for only about 31.94% of the total geographical area, with around 14.5% (~3,000 ha) of the net sown area (20,667 ha) irrigated²³. As irrigated land is minimal, most farmers depend on monsoon rains for cultivation; hence, the cropping intensity of the district is 119%²⁶.

While exact percentages of agriculture's contribution in Ramgarh district are not directly reported, coal mining and coal-related industries account for around 40% of the district's GDP²⁷. Given agriculture's relatively smaller scale compared to the mining-driven economy, it is reasonable to infer that its contribution is significantly less than 40%, likely under 15%²⁷.

Main crops include paddy, pulses, maize, and vegetables, with paddy as the dominant kharif crop and gram, lentils, and mustard grown in the rabi season²⁶. Blocks like Gola, Chitarpur, and Dulmi have relatively better irrigation and higher cropping intensity (up to 260%), enabling multi-cropping systems²⁸.

Use of improved seeds, fertilizers, and mechanization remains limited. However, government schemes such as the Agricultural Technology Management Agency (ATMA) scheme and Rashtriya Krishi Vikas Yojana (RKVY) are active in promoting extension services and value addition. There is also emerging interest in collective farming by Self-Help Groups (SHGs) and small Farmer Producer Organizations (FPOs), especially for vegetable and millet cultivation²⁹.

1.2.5 Industries

Ramgarh's industrial economy is dominated by coal mining, which has been the foundation of its economic structure for decades. Major coalfields such as Rajrappa, Bhurkunda, Patratu, and Kujju are among the most active mining areas under Central Coalfields Limited (CCL)³⁰. These mines have historically provided employment to thousands, though largely in informal or contractual roles.

Another industrial pillar is the Patratu Thermal Power Station, once a critical power-generating unit for Bihar and Jharkhand³¹. Currently, this facility is being modernized into a Super Thermal Power Project under a joint venture between NTPC and the Government of Jharkhand, with a projected capacity of 4,000 MW³².

The district is now exploring post-mining economic diversification. Innovative use of abandoned coal pits for fisheries is gaining momentum, especially in Mandu and Patratu blocks³³. Supported by schemes such as the Pradhan Mantri Matsya Sampada Yojana (PMMSY) and the District Mineral Foundation Trust (DMFT), these fish farming ventures have created employment opportunities for local youth.

Agro-processing industries are also emerging, with small units for rice milling, ragi processing, mushroom drying, and snack manufacturing receiving support under schemes like the PM Micro Food

Processing Enterprise (PMFME) and the Jharkhand State Livelihood Promotion Society (JSLPS)³⁴. Despite their small scale, these units have the potential to generate rural employment and strengthen local value chains if supported with infrastructure and market linkages.

1.2.6 Economic Infrastructure

Ramgarh district is well-connected through road and rail networks, including National Highway 33 (NH-33) and major railway lines linking it to Ranchi, Hazaribagh, Dhanbad, and Bokaro. The district's proximity to Ranchi, Jharkhand's capital, enhances its logistic and commercial advantages.

Electricity access is relatively better in mining areas, but rural parts still face power cuts and low voltage issues. Drinking water supply is mixed, with some villages dependent on handpumps and mining company pipelines, while others have piped water schemes under Jal Jeevan Mission.

1.2.7 Education

Ramgarh district in Jharkhand has a tiered educational system ranging from primary to higher education. As of 2011, the district subdivision had 125 villages with pre-primary schools, 280 with primary schools, 154 with middle schools, 51 with secondary schools, and 31 with senior secondary schools, alongside four general degree colleges and one non-formal training centre³⁵. Notable institutions include Ramgarh College, Women's College, Ramgarh Engineering College (established 2013 under PPP), PTPS College in Patratu, Chotanagpur College in Marar, and several others³⁶. The district also hosts Kendriya Vidyalaya, Army Public School, D.A.V. Public Schools, CM School of Excellence (est. 1948), and Radha Govind Senior Secondary Public School (est. 2000)³.

In higher education, Radha Govind University, established in 2018 in Lalki Ghati, offers undergraduate and postgraduate programs across multiple disciplines on a 33-acre campus³⁸. Recent initiatives include the establishment of libraries in every panchayat to promote learning access³⁹.

1.2.8 Health

Ramgarh district in Jharkhand has a mixed network of government health facilities, anchored by the Ramgarh Sadar Hospital, which serves as the main district-level hospital but operates below the Indian Public Health Standards, with fewer beds than the ~300 expected. Primary healthcare is delivered through four health blocks—Ramgarh, Patratu, Gola, and Mandu—with several Primary Health Centres (PHCs) and Health Subcentres (HSCs), though some blocks like Chitarpur and Dulmi lack facilities entirely. The district subdivision includes nine PHCs, 81 HSCs, maternity and child welfare centres, dispensaries, family welfare centres, and a limited number of medicine shops. A key specialised facility is Central Coalfields Limited's Central Hospital at Naisarai, which has 150 beds and comprehensive diagnostic and treatment services. Persistent gaps include shortages of doctors, nurses, and technical staff, as well as inadequate infrastructure in some facilities.

Ramgarh district in Jharkhand has a mixed network of government health facilities, anchored by the Ramgarh Sadar Hospital, which serves as the main district-level hospital but operates below the Indian Public Health Standards, with fewer beds than the ~300 expected⁴⁰. Primary healthcare is delivered through four health blocks—Ramgarh, Patratu, Gola, and Mandu—with several Primary Health Centres (PHCs) and Health Subcentres (HSCs), though some blocks like Chitarpur and Dulmi lack facilities entirely⁴¹. The district subdivision includes nine PHCs, 81 HSCs, maternity and child welfare centres, dispensaries, family welfare centres, and a limited number of medicine shops⁴². A key specialised

facility is Central Coalfields Limited's Central Hospital at Naisarai, which has 150 beds and comprehensive diagnostic and treatment services⁴³. Persistent gaps include shortages of doctors, nurses, and technical staff, as well as inadequate infrastructure in some facilities.

1.2.9 Agri-Support Infrastructure & Connectivity in Ramgarh (Concise with Data)

Cold Storage & Agro-Logistics: Ramgarh lacks any operational cold storage facilities, contributing to an estimated 52% shortfall in storage capacity relative to horticultural output⁴⁴. The State Food Processing Plan proposes construction of cold storages and godowns in the district to reduce post-harvest losses.

Market Yards: Dedicated agricultural market yards are limited in Ramgarh; however, Jharkhand has piloted SHG-run 'godown-cum-cold-storage' units in rural mandis, offering a scalable model.

Digital Banking Reach: Jharkhand currently has 3,414 bank branches and 3,348 ATMs statewide, indicating growing rural financial infrastructure likely benefiting Ramgarh⁴⁵. NABARD's e-Shakti initiative has enabled 9% of SHGs in Ramgarh CD block to receive multiple digital loans, highlighting expanding access through SHG channels.

Mobile Connectivity: Mobile network coverage in Ramgarh is generally good, with availability of 4G and some 5G services across major providers—Jio, Airtel, Vi, and BSNL—facilitating digital reach⁴⁶.

Scheme Convergence: Government initiatives—such as Integrated Scheme for Agricultural Marketing, PM-Kisan, PMAY, Digital India, and e-Shakti—converge to support agri-logistics infrastructure, digital banking access, and farmer market integration.

1.2.10 Ramgarh Coal Belt: Specific Challenges

Ramgarh district highlights both the depth of coal dependency and the difficulty of transitioning fairly. Economically, coal accounts for a significant share of household income across blocks like Mandu, Gola, and Patratu, where estimates suggest that up to one-third of households rely on coal-based employment. Many of these livelihoods are informal, fragile, and unprotected, making them highly vulnerable to shocks from mine closures or mechanization. Skill levels in the workforce are narrowly tied to coal-related activities, with limited exposure to sectors like renewable energy, services, or agro-processing, creating a mismatch with emerging opportunities. Furthermore, years of mining-induced displacement have reduced traditional fallback options such as land-based agriculture, especially among tribal communities. In rural belts, coal dependency is compounded by weak infrastructure, inadequate access to social safety nets, and poor diversification of income sources. Added to this are the environmental and health costs of coal, respiratory illnesses, polluted water sources, and unsafe living conditions, that make the case for transition urgent but also raise the stakes for getting it right.

Section 2: Approach & Methodology

This chapter elaborates on the methodological framework adopted for the study that seeks to understand the socioeconomic dynamics and livelihood transitions in coal mining-affected areas of Ramgarh district, Jharkhand. The research aimed to assess the existing livelihood structures, explore alternative income opportunities, and gauge community perceptions and preparedness for a just transition. Given the complex socio-economic interplay in the region due to mining activities, qualitative research design was adopted to gather in-depth, community-driven insights.

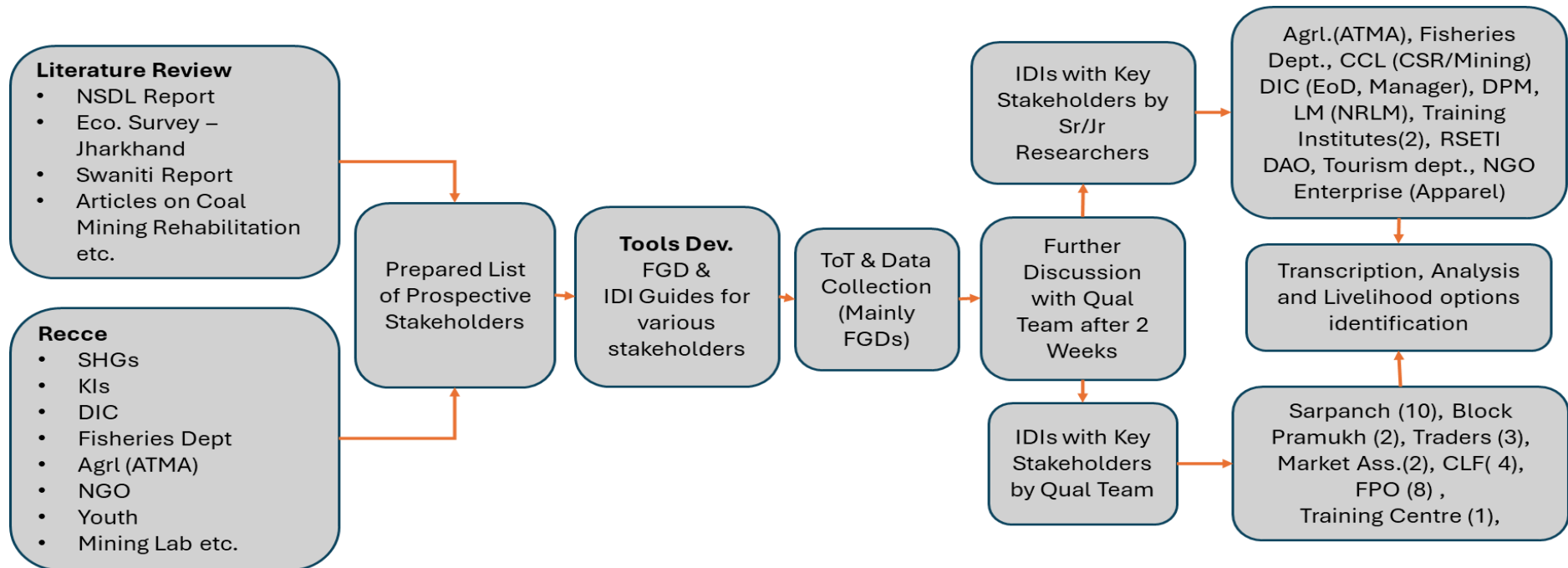
2.1 Rationale for the Study

The rationale behind the study lies in the emerging urgency of a just transition for communities dependent on coal mining in Ramgarh district. With policy momentum shifting toward sustainable energy and reduced dependence on fossil fuels, mining communities stand at a socio-economic crossroads. Livelihoods of a significant portion of the population—both directly and indirectly—are intertwined with the coal economy, making it imperative to identify viable and inclusive alternative livelihood options. The study was thus conceptualized to provide a grassroots-level perspective that can guide interventions aimed at supporting these communities through this transition.

2.2 Research Design

A qualitative research design was selected to ensure an in-depth understanding of the varied experiences and aspirations of affected populations. The study design centred around participatory tools such as Focus Group Discussions (FGDs) and In-depth Interviews (IDIs), targeting a wide range of stakeholders. These tools enabled the capture of diverse viewpoints of various stakeholders, particularly from marginalized groups such as women, youth, and informal workers, who often remain underrepresented in conventional development planning. The research design also included a reconnaissance (recce) survey and extensive literature review which helps to decide on the various key stakeholders to be covered.

Figure1: Process Flow for Identifying Alternative Livelihood Options in Mining-Affected Regions of Ramgarh



2.3 Recce Survey

Prior to the main fieldwork, a recce survey was conducted by senior and experienced researchers from DIU to gain an on-ground understanding of the study area. The reconnaissance involved exploratory visits to villages, interactions with local stakeholders such as Self-Help Groups (SHGs), youth groups, community leaders, and government officials. It also included consultations with institutional representatives from the Agriculture Technology Management Agency (ATMA), the District Industries Centre (DIC), the Fisheries Department, NGOs, and training institutions. This preliminary exercise was critical for identifying key livelihood themes, refining the research tools, and validating the list of target stakeholders for both FGDs and IDIs.

2.4 Research Tools

Based on insights gained through the recce survey and a review of relevant literature, documents, reports, and articles, specific areas of enquiry were identified for different stakeholder groups. These formed the basis for designing the study tools. Two primary qualitative tools were developed: semi-structured guides for Focus Group Discussions (FGDs) and In-depth Interviews (IDIs). The FGD guides were tailored to the specific socio-economic contexts of farmers, adult women, male and female youth, and students from both directly and indirectly affected villages. Separate IDI guides were created for interviews with elected local representatives, government officials, representatives of private enterprises, and other influential stakeholders such as market committee heads and civil society organizations. The tools were pilot-tested and refined during Training of Trainers (ToT) sessions to ensure clarity, relevance, and cultural appropriateness.

2.5 Sampling

A pro-rata sampling methodology was employed to ensure equitable representation across the selected blocks and affected village categories. The study covered four blocks—Chitarpur, Gola, Mandu, and Patrattu—selected for their varied levels of dependence on coal mining and socio-economic diversity. A total of 111 villages were identified as being directly or indirectly affected by coal mining activities, with 71 falling into the directly affected category and 40 being indirectly affected. To maintain proportionality, 20% of these villages (22 villages) were selected as the final sample: 16 from directly affected and 6 from indirectly affected areas.

The selection ensured representation across block-level variations: Chitarpur (3 villages), Gola (4 villages), Mandu (7 villages), and Patrattu (8 villages). Within each village, participants for FGDs and IDIs were chosen to reflect gender, age, and occupational diversity. This approach enabled the study to capture the heterogeneity of impacts and aspirations across different community segments.

Table 1: Focus Group Discussions (FGDs) conducted across Directly and Indirectly Affected Villages by Respondent Type

Category	Directly Affected Villages	Indirectly Affected Villages
In-Depth Interviews (IDIs)		
IDIs with Sarpanch / Deputy Sarpanch	5	5
Total IDIs	5	5
Focus Group Discussions (FGDs)		
Farmers	2	1
Adults (30–45 yrs) in non-farm activities directly linked to mining	2	–
Adults (30–45 yrs) in non-farm activities indirectly supporting mining-employed population	3	-
Adult women (homemakers / paid/unpaid work, SHG members)	5	3
Male youth (15–25 yrs, employed or seeking work)	1	1
Female youth (15–25 yrs, employed or seeking work)	1	1
Male and female students (secondary/higher secondary/college/diploma)	2	–
Total FGDs	16	6

2.6 Primary and Secondary Data Collection

2.6.1 Primary Data

The primary data collection involved a mix of FGDs and IDIs, conducted using pre-tested guides and facilitated by trained qualitative researchers. A total of 22 FGDs were conducted – 16 in directly affected villages and 6 in indirectly affected villages. The FGDs engaged specific demographic groups including farmers, adult women (especially SHG members), male and female youth (15–25 years), and school/college-going students. Some FGDs were focused on adults (aged 30–45) who are either directly employed in mining or are re-engaged in non-farm activities supporting mining communities. These interactions revealed key insights into livelihood dependencies, transitions already underway, and community readiness for change.

In addition to FGDs, 10 IDIs were conducted with local elected representatives such as Sarpanch or Deputy Sarpanch across both directly and indirectly affected villages. These interviews provided village-level perspectives on government support, community mobilization, and infrastructural needs.

A) In-Depth Interviews (IDIs) with Institutional and Key Stakeholders

A significant component of the research involved conducting IDIs with a wide array of stakeholders beyond community members. These included institutional actors, government officials, private enterprises, and local organizations who play a role in shaping livelihoods and local economies. Interviews were held with:

- Officials from government departments such as the District Industries Centre (DIC), District Mineral Foundation Trust (DMFT), Fisheries Department, Agriculture Department (ATMA), Jharkhand State Livelihood Promotion Society (JSLPS), and Animal Husbandry (DAO).

- Representatives from training and entrepreneurship promotion institutions including RSETI (Rural Self Employment Training Institute), polytechnic institutions, and skill development centres.
- Private sector stakeholders such as HR managers of industries operating in the region and plant managers of cattle feed units.
- Market-oriented institutions such as local market associations and cooperatives (FPOs - Farmer Producer Organizations).
- Members of Cluster Level Federations (CLFs), Block Pramukhs, and other panchayat-level leadership.

In total, 17 IDIs were conducted with such stakeholders. These interviews not only helped identify existing livelihood schemes and economic initiatives but also highlighted institutional constraints, infrastructure gaps, and potential avenues for sustainable livelihood diversification.

Table 2: Institutional Stakeholders Engaged through In-Depth Interviews (IDIs) across Ramgarh

S. No.	Place	Department	Designation
1	Ramgarh	RSETI	Director
2	Ramgarh (DC Office)	Tourism Department	District Tourism Specialist
3	Ramgarh	Fishery Department	District Fishery Officer
4	Gola	JIS Foundation (Kaushal Kendra, Polytechnic)	Dy. Manager
5	Ramgarh	The District Industries Centre (DIC)	EOD Manager
6	Patratu	Kalyan Gurukul (PANIIT Alumni)	Principal
7	Ramgarh	DMFT	Project Officer
8	Ramgarh	JSLPS	Livelihood Manager
9	Ramgarh	ATMA	Project Director
10	Ormanjhi	Private Industry (Kishore Import)	HR Manager
11	Ramgarh	JSLPS	District Program Manager (DPM)
12	Mandu	Support (NGO)	Project Manager
13	Kujju (Mandu)	CCL (CSR)	Project manager
14	Kujju (Mandu)	CCL (Mine closure)	Nodal Officer
15	Ranchi	Animal Husbandry	DAO
16	Patratu	Cattle feed plant	In-charge of plant
17	Ramgarh	Market association	Head of committee

Another 10 IDIs were held with members of other localized stakeholder groups, including:

- Cluster Level Federations (CLFs) in Chitarpur, Gola, and Patratu.
- Farmer Producer Organizations (FPOs) across Chitarpur, Gola, and Mandu.
- Block-level elected officials such as Block Pramukhs.
- Training centres facilitating vocational and technical education in the district.

Together, these 27 IDIs offered a comprehensive perspective on the institutional ecosystem of the district and its potential role in a just livelihood transition.

2.6.2 Secondary Data

To supplement the field findings and inform tool development, an extensive review of secondary data was undertaken. Key documents included the NSDL report, Jharkhand Economic Survey, Swaniti Foundation report, and peer-reviewed articles on coal mining transition and rural employment. This helped contextualize the research within broader development discourses and policy frameworks. The secondary data was also instrumental in validating field insights and enriching the analysis.

2.7 Coverage

The study achieved wide coverage across multiple geographies and stakeholder categories within Ramgarh district. It integrated perspectives from 22 sampled villages, ensured block-wise balance, and maintained gender and age diversity within FGD participants. Institutional interviews covered both government and non-government actors at district and block levels. This comprehensive coverage enhanced the robustness and relevance of the research outcomes, making them well-suited for policy recommendations and programmatic planning aimed at ensuring a just and inclusive transition for coal-dependent communities.

Section III: Community Perception About Possible Livelihood Options

This chapter presents community perceptions regarding alternative livelihood options in coal mining-affected and surrounding villages of Ramgarh district, Jharkhand. The analysis is based on **primary qualitative data** collected through 22 Focus Group Discussions (FGDs) and 10 In-Depth Interviews (IDIs). Of the FGDs, 16 were conducted in directly affected villages where coal mines were located within their revenue boundary or close to it, and six in indirectly affected villages, where there was some dependency on coal but mostly people carried out agriculture but were affected by coal dust. These engaged specific demographic groups, including farmers, adult women (particularly SHG members), male and female youth (15–25 years), school and college-going students, and adults aged 30–45 years involved in non-farm activities or mining-linked work. The IDIs were conducted with elected representatives such as Sarpanch and Deputy Sarpanch, capturing village-level perspectives on government support, community mobilisation, and infrastructure gaps.

The chapter is organised thematically to reflect these community voices. Sections 3.1 to 3.7 summarise perceptions of livelihood opportunities across different groups, while Section 3.8 consolidates these insights into a matrix of identified potential livelihood options and economic activities. Together, this provides a grounded understanding of the opportunities communities perceive as viable pathways in the context of a transitioning economy and serves as critical evidence for informing **Jharkhand's just transition planning and policy framework**.

3.1 Possible Livelihood Options as Perceived by Farmers of Directly and Indirectly Affected Villages

Farmers expressed strong interest in alternative livelihoods such as fish farming, goat and pig rearing, and integrated organic farming using drip irrigation. In directly affected areas, where agriculture is limited due to small landholdings and water scarcity, these allied activities are seen as viable. Animal rearing, especially goats, pigs, and poultry, already supplements household income and is largely managed by women or the elderly. In villages with access to water bodies or MGNREGA-constructed ponds, fish farming has significant potential, particularly using cage culture in abandoned coal mine pits.

3.2 Possible Livelihood Options as Perceived by Adults (Aged 30–45 Years) Engaged in Non-Farm Activities

Adults in this age group who are involved in non-farm work showed interest in operating small businesses such as mobile recharge points, tyre repair shops, vehicle servicing centres, tailoring units, and grocery shops. They also see potential in establishing milk collection centres and engaging in local retail or food-based enterprises. Many adults aspire to set up micro-enterprises but cited lack of start-up capital, formal training, and market linkages as key barriers.

3.3 Possible Livelihood Options as Perceived by Adult Women (Homemakers/SHG Members) from Directly Affected Villages

Women from directly affected villages expressed a clear preference for SHG-led businesses such as tailoring, incense stick making, preparation of local snacks, and running small grocery outlets. Many are involved in goat and poultry rearing as a regular practice at home, which they wish to scale further. The interest in collective economic activities is strong, particularly those that can be managed from home or within the village. However, women emphasized the need for regular training, market access, and exposure visits to other successful SHG models. Those already part of SHGs also showed readiness to expand into income-generating activities if adequate handholding and support were provided. Access to raw materials and support for bulk procurement are also seen as critical for expanding their operations.

3.4 Possible Livelihood Options as Perceived by Adult Women (Homemakers/SHG Members) from Indirectly Affected Villages

In indirectly affected areas, women expressed similar preferences but demonstrated slightly greater access to resources. In addition to tailoring and grocery businesses, there is interest in food processing such as packaging of grocery items, spice and flour processing, and pickles. These women are active in SHG networks and emphasized the need for marketing platforms, collective procurement, and access to B2B buyers. Despite having ideas and interest, the expansion of their enterprises remains constrained by limited formal support and weak value chain linkages.

3.5 Possible Livelihood Options as Perceived by Male Youth (Aged 15–25 Years) Who Are Gainfully Employed or Actively Seeking Work

Male youth showed preference for semi-skilled trades such as mobile repair, electrical work, transport services, vehicle servicing, and machine operation. Many of them favour structured skill training programs linked to job placements rather than independent business ventures. The current lack of skill mapping and misalignment between training institutes and actual aspirations was highlighted as a gap. Many male youth are seeking stable employment opportunities within the district and are particularly responsive to models that include short-term training followed by apprenticeships or assured job placements.

3.6 Possible Livelihood Options as Perceived by Female Youth (Aged 15–25 Years) Who Are Gainfully Employed or Actively Seeking Work

Female youth expressed clear preference for home-based economic activities. Many are interested in tailoring, beautician services, *dona-pattal* plate manufacturing, packaging of spices and groceries, and paper cup/plate production. Girls showed reluctance to migrate for work and instead prefer income-generating opportunities that can be managed from home or within the village. They indicated willingness to undergo short-duration, certifiable training if linked to local work or home-based enterprise. There is demand for exposure visits, business mentoring, and equipment/toolkit support.

3.7 Possible Livelihood Options as Perceived by Male and Female Students Going to Secondary/Higher Secondary/Degree College/Post-SSC Diploma Courses

Students at various education levels expressed interest in garment manufacturing, health-related roles like nursing assistants and EMTs, digital services (data entry, customer care), and technical trades such as electrical services and machine maintenance. Students from mining-affected areas preferred placement-linked training models and raised concerns about the absence of career counselling and aspiration-mapping mechanisms. Girls in particular preferred trades that support home-based work. PanIIT Gurukul, JIS Foundation, and Jan Jyoti Centre were noted as important institutions offering training with strong placement outcomes.

In addition to these discussions, the literature review highlighted tourism as a potential livelihood option, which was subsequently explored in greater depth during stakeholder interactions.

3.8 Identified Potential Livelihood Options / Economic Activities

Based on community insights and stakeholder discussions, all potential livelihood options were mapped against community willingness and stakeholder perceptions. These options are presented in the matrix below.

Table 3: Community Willingness to take up different activities

Community level stakeholders	Activities willing to consider taking up (shaded)								
	Fishery	Tourism	Agro-Processing	Skilling	Goatry	Backyard Poultry	Poultry	Piggery	Dairy
Adults (mixed occupations aged 30-45 years)									
Block pramukh									
President and coordinator of Cluster Level Federation									
Local farmers									
Female youth aged 15–25 years									
Male youth aged 15–25 years									
Youth currently going to secondary/ high school									
FPO president									
Village sarpanch									
SHG members									

3.9 Interpretation of Community Willingness to take up Different Activities

The table highlights that willingness to adopt new livelihood activities varies significantly across demographic groups and institutional actors, reflecting differences in age, gender, resource access, and existing livelihood strategies.

1. Livestock and Allied Activities as a Broad Base

Goatry, backyard poultry, and dairy are consistently viewed as low-barrier, familiar, and scalable activities across most community groups. SHG members, farmers, and women respondents in particular see these as natural extensions of existing household practices, with potential for quick income gains. Piggery finds interest among farmers and some adult men but is less preferred by youth and women, possibly due to cultural barriers and higher maintenance requirements.

2. Agro-Processing as an Emerging Collective Option

SHG members, FPO leaders, and CLF representatives show greater willingness for agro-processing, indicating that community-based platforms are seen as credible vehicles for moving up the value chain. Farmers also express interest, especially in areas with access to raw produce and storage facilities. However, individual youth are less oriented toward agro-processing, possibly due to the longer gestation and cooperative management required.

3. Fisheries and Mine-Pit Repurposing

Local farmers, FPO leaders, and some sarpanches show willingness to consider fisheries, especially where water bodies or abandoned mine pits exist. Willingness is less evident among youth and women, suggesting this activity is perceived as land- and infrastructure-intensive, requiring collective effort and institutional support.

4. Tourism and Skilling as Youth-Oriented Pathways

Tourism as a livelihood option finds most traction among youth groups (male and female, students), who associate it with services, exposure, and aspirational jobs. Adults and institutional actors appear more cautious, reflecting scepticism about tourism's viability without infrastructure and steady demand. Similarly, skilling is a strong area of interest among male and female youth, who see it as a gateway to formal jobs, while adults emphasise enterprise-based options.

5. Stakeholder Leaders vs. Community Members

Institutional leaders such as sarpanches, FPO presidents, and CLF leaders tend to prioritise agro-processing, fisheries, and goatry—activities that require collective organisation and resource mobilisation. By contrast, individual households (youth, women, farmers) lean toward low-entry, home-based, or skill-linked options that can generate direct income. This shows a divergence between leadership vision (scale and clusters) and household-level priorities (immediacy and feasibility).

Implications

- Livestock and small-scale allied activities remain the most widely acceptable entry point across groups.

- Agro-processing and fisheries require institutional anchoring (FPOs, SHGs, PRIs) to gain traction, as households are less inclined to adopt these independently.
- Tourism and skilling appeal strongly to youth, suggesting the need for placement-linked training and service-sector pathways.
- Divergence between leaders' priorities and household choices highlights the importance of multi-tiered planning, balancing quick-win livelihoods with longer-term collective enterprises.

Table 4: Prospective Livelihood Options as Perceived by Government Local Administration and Stakeholders

Senior officers/management from the following organisations	Activities willing to consider taking up (shaded)								
	Fishery	Tourism	Agro-Processing	Skilling	Goatry	Backyard Poultry	Poultry	Piggery	Dairy
Animal Husbandry Line Department									
Apparel industry									
ATMA									
Cattle feed plant									
CCL CSR									
CCL mine closure desk									
District Industries Centre (DIC)									
DMFT									
Fishery department									
JIS Foundation Kaushal Kendra									
Ramgarh Market Association									
NRLM – DPM									
NRLM – project manager (JSLPS)									
Paniit Gurukul									
RSETI									
Support NGO									
Tourism department									
Government accredited Training centre									

3.10 Interpretation of Local Administration and Other Stakeholder Perspectives

The table suggests that institutional stakeholders—ranging from government line departments to training centres, CSR units, and industry associations—bring sector-specific biases in how they perceive livelihood potential. Their views are shaped by their mandates, resource availability, and technical expertise, resulting in differentiated emphases across options.

1. Strong Institutional Backing for Livestock and Allied Activities

The Animal Husbandry Department, cattle feed plants, and NRLM/JSLPS see goatry, backyard poultry, poultry, and dairy as central to livelihood diversification. These are recognised as low-capital, high-uptake activities that can be rapidly scaled through SHGs and existing schemes. For these agencies, livestock-based enterprises are also administratively straightforward to support, since subsidy channels, veterinary networks, and fodder linkages are already in place.

2. Agro-Processing as a Medium-Term Priority

Agencies like the District Industries Centre (DIC), ATMA, NRLM, and DMFT highlight agro-processing as a promising area, linking it to value addition, FPOs, and cluster-based enterprise development. Their emphasis reflects the potential for employment creation and market linkage, but also recognises the need for capital investment, cold storage, and certification support. Unlike livestock, agro-processing is viewed as requiring coordinated planning and infrastructure rather than household-level adoption.

3. Fisheries and Mine-Pit Repurposing

The Fishery Department and CCL mine closure desk prioritise fisheries, particularly in abandoned mine pits and ponds. Their perspective combines technical feasibility with a strategic approach to mine-land repurposing, seeing fisheries as both an environmental and economic transition strategy. Other stakeholders show limited engagement, suggesting fisheries is perceived as a specialised, department-driven intervention rather than a broad community-led option.

4. Tourism as a Niche Sector

Only the Tourism Department consistently highlights tourism, with some alignment from local market associations. Tourism is seen as place-specific, dependent on infrastructure and eco-circuits, and less immediately scalable compared to livestock or processing. Other stakeholders appear sceptical, likely due to uncertainty around demand generation and the long gestation period for returns.

5. Skilling and Institutional Training

Training providers like Paniit Gurukul, JIS Foundation, RSETI, and accredited training centres naturally foreground skilling as their main contribution. They emphasise placement-linked training in semi-skilled and service trades (apparel, digital, repair services). This reflects both their institutional mandate and recognition of youth aspirations, though they rely heavily on convergence with industry for actual job creation.

6. CSR and Market Actors

CCL CSR, the Ramgarh Market Association, and Support NGO show interest in market-facing and demonstration models—CSR units for piloting livelihood clusters and market associations for retail, dairy, and agro-linked trades. Their role is less about designing livelihoods and more about enabling access to capital, buyers, and distribution platforms.

Implications

- There is a clear institutional consensus around livestock (goatry, poultry, dairy) as the most scalable, low-risk livelihood pathway.
- Agro-processing and fisheries are viewed as medium- to long-term opportunities requiring infrastructure, certification, and departmental leadership.
- Tourism is championed only by the Tourism Department, highlighting its dependence on dedicated policy and ecosystem support.
- Skilling is strongly backed by training providers, but its impact depends on convergence with industries and market actors.
- Overall, the table shows that institutional stakeholders are aligned on short-term “quick win” activities (livestock, skilling) while medium-term structural opportunities (agro-processing, mine-pit fisheries, tourism) require stronger coordination, pooled financing, and district-level planning.

3.11 Synthesis of Community and Institutional Perspectives

The perspectives of communities and institutions reveal both shared priorities and sector-specific differences, but together they point toward a coherent set of livelihood pathways for a just transition in Ramgarh.

At the community level, livestock-based activities, viz. **goatry, backyard poultry, and dairy**, stand out as the most immediate and feasible options. These are already embedded in household practices, particularly among women and SHGs, and are considered low-risk with quick returns. Institutional actors such as the Animal Husbandry Department, NRLM, and cattle-feed enterprises confirm this potential, noting that support structures like subsidies, fodder supply, and veterinary services are already in place. This alignment makes livestock a natural backbone for short-term diversification.

Agro-processing is another area of convergence. SHGs, FPO leaders, and community representatives recognise its potential for collective enterprises that add value to local crops, while institutions such as the District Industries Centre, ATMA, and DMFT highlight its role in rural industrialisation, job creation, and market linkages. This positions agro-processing as a medium-term growth sector, requiring investment in infrastructure, certification support, and organised supply chains.

Fisheries, especially in mine pits and ponds, attract moderate interest from farmers and village leaders where water resources are available, while institutions such as the Fishery Department and CCL’s mine closure desk view them as strategic for both mine-land repurposing and livelihood generation. Communities remain cautious given the technical and capital requirements, suggesting that fisheries need to be piloted with strong institutional backing before wider acceptance.

Tourism emerges mainly as an aspirational sector for youth and community leaders who see potential in homestays, eco-trails, and local heritage promotion. Institutional recognition is strongest from the Tourism Department, which has already notified the state’s homestay scheme. However, tourism is acknowledged

as a longer-gestation activity, heavily dependent on infrastructure, marketing, and visitor flows. Its adoption will therefore rely on sustained policy and investment support.

Skilling, by contrast, is viewed as an urgent and widespread demand. Young men and women, students, and SHG members all emphasise the need for short-term, certifiable training linked to assured employment or viable enterprise opportunities. Training providers such as PanIIT Gurukul, JIS Foundation, RSETI, and accredited government centres also prioritise skilling as their main contribution. Unlike tourism, skilling is seen not only as a cross-cutting enabler but as a core livelihood pathway, equipping individuals across demographic groups for both local and external employment.

3.12 Conclusion: Toward a Logical Selection of Value Chains

Taken together, these perspectives suggest a layered livelihood portfolio for Ramgarh's just transition:

- Immediate and widely endorsed options: Livestock activities (goatry, backyard poultry) provide accessible, low-capital entry points strongly supported by both communities and institutions.
- Medium-term collective enterprises: Agro-processing clusters, backed by SHGs, FPOs, and institutional support, can generate value addition and non-farm jobs.
- Strategic but slower-to-scale opportunities: Fisheries and tourism hold potential for mine-land reuse and service-sector diversification but require pilots, infrastructure, and marketing to mature.
- Core demand-driven pathway: Skilling stands apart as a livelihood in itself, reflecting urgent community demand and strong institutional capacity to deliver placement-linked training and enterprise incubation.

Thus, the just transition livelihood mix for Ramgarh should be anchored in livestock for short-term income security, agro-processing for medium-term value creation, fisheries and tourism for long-term diversification, and skilling as a continuous, demand-driven foundation across all stages.

Section IV: Value Chain Analysis for Just Transition in Ramgarh

This chapter consolidates six value chains—fisheries, goatry, tourism, backyard poultry, agro-processing, and skilling—into a unified framework for Ramgarh’s just transition. The analysis follows international best practices, drawing from FAO’s Sustainable Food Value Chain framework⁴⁷, World Bank/IFC methodologies⁴⁸, and ILO Just Transition guidelines⁴⁹. Each value chain is assessed under seven dimensions: sector overview and context; value chain structure and actors; market demand and supply dynamics; constraints and bottlenecks; opportunities and strategic interventions; business and economic case; and sustainability and just transition linkages. This standardised approach ensures comparability across sectors while recognising the unique features of each livelihood pathway.

4.1 Fisheries

4.1.1 Sector Overview and Context

Fisheries have emerged as a promising livelihood sector in Ramgarh, particularly through cage culture in abandoned coal mine pits. The district currently produces about 9,800 metric tonnes (MT) of fish annually against an estimated demand of 13,000 MT, leaving a deficit of 3,200 MT. Pilot efforts with three pits and 71 cages have shown viability, producing 350 MT annually. This positions fisheries as both a nutritional source and a pathway for ecological reclamation of mining voids⁵⁰.

4.1.2 Value Chain Structure and Actors

The value chain comprises hatcheries and feed suppliers, fisher households managing cages, SHGs and FPOs organising collective production, and traders supplying markets in Ranchi, Patna, and Gaya. Government schemes such as PMMSY and DMFT financing play a critical role, while CSR initiatives can support training, marketing, and cold chain infrastructure^{51,52}.

4.1.3 Market Demand and Supply Dynamics

With demand growing steadily, the current supply gap of 3,200 MT represents an annual market potential of over ₹640 crore. By 2031, demand could reach 21,000 MT, requiring significant expansion. Ramgarh has a locational advantage with access to urban markets and strong consumer preferences for fresh and high-value fish varieties.

4.1.4 Constraints and Bottlenecks

Key constraints include limited hatcheries, lack of local feed plants, inadequate cold chain logistics, and restricted access to mine pits for aquaculture. Disease management and technical knowledge gaps further constrain productivity. Policy bottlenecks include delays in mine closure approvals and limited institutional capacity for extension services.

4.1.5 Opportunities and Strategic Interventions

Strategic interventions include scaling cage culture to 50 pits by 2031, developing local feed plants, building mobile cold storage, and strengthening SHG/FPO-based cooperatives for marketing. Partnerships with CCL for pit access and DMFT/CSR for capital investment will be central. Training fisher households in cage maintenance and disease control will raise productivity.

4.1.6 Business and Economic Case

Closing the 3,200 MT supply gap requires investment of about ₹48 crore for 1,200 cage batteries. Each cage has a net annual profitability of ₹1.5 lakh, translating into revenues of ₹300–350 crore annually at full scale. Direct beneficiaries will be around 1,200 households, while 9,600 others will benefit indirectly through input supply, logistics, and retail. Employment will thus be both widespread and inclusive, with women and landless households able to participate.

4.1.7 Sustainability and Just Transition Linkages

Fisheries directly contribute to just transition by transforming abandoned coal pits into productive assets, enhancing local food security, and diversifying incomes. The environmental co-benefits include water reuse and reduced land degradation. Socially, the sector offers inclusive opportunities for women, SHGs, and informal workers, aligning with principles of equity and resilience.

4.2 Goatry

4.2.1 Sector Overview and Context

Goat rearing is a long-standing livelihood in Ramgarh, deeply embedded in the practices of tribal and OBC households. The district has about 2.5 lakh goats, but demand for goat meat outstrips supply. Current deficit is 87 MT, expected to rise to 158 MT by 2031. Women and marginal farmers dominate this activity, but mortality rates remain high due to poor veterinary access⁵³.

4.2.2 Value Chain Structure and Actors

The chain involves goat rearers (mainly women), Pashu Sakhis providing limited health services, local traders, and temple-based religious markets like Rajrappa⁵⁴. Inputs are supported by NRLM and Mukhyamantri Pashudhan Vikas Yojana, while DMFT provides capital subsidies. FPOs and SHGs are beginning to aggregate sales but remain weakly integrated into wider markets.

4.2.3 Market Demand and Supply Dynamics

Goat meat demand continues to rise in both local and urban markets. The supply gap of 87 MT today could almost double within a decade. Ramgarh's strategic location gives it access to high-value demand nodes in Ranchi and Bihar. Traditional preferences for goat meat over other meats ensures long-term stability of this market.

4.2.4 Constraints and Bottlenecks

Constraints include lack of organised breeding, high kid mortality, fodder scarcity, and weak veterinary coverage. Institutional constraints arise from inadequate insurance schemes and credit linkages. Limited collective marketing leads to dependence on middlemen.

4.2.5 Opportunities and Strategic Interventions

Scaling goat units through SHGs and FPOs, developing fodder banks, and training Pashu Sakhis for preventive healthcare are priorities. Linking goat markets to temple economies and urban nodes can improve prices. Insurance schemes backed by DMFT and CSR can reduce risks.

4.2.6 Business and Economic Case

Meeting the projected demand requires about 33,000 additional goats by 2031. Investment of ₹12–15 crore could stabilise supply, generating annual revenues of ₹60–70 crore. Around 2,700–3,000 households would benefit directly, while indirect beneficiaries—traders, para-vets, and SHG federations—would number about 5,000. Goatry remains one of the most inclusive and low-barrier activities for women and landless groups.

4.2.7 Sustainability and Just Transition Linkages

Goatry contributes to just transition by offering an accessible, low-capital livelihood for vulnerable groups. Environmentally, goats utilise marginal lands and crop residues, though sustainable fodder management is critical to prevent overgrazing. Socially, goatry enhances women’s economic role and resilience of poor households in the coal belt.

4.3 Tourism

4.3.1 Sector Overview and Context

Tourism is an underutilised but high-potential sector in Ramgarh. Anchored by Rajrappa Temple (27 lakh visitors annually) and Patratu Lake (12 lakh), the district received nearly 40 lakh visitors in 2024. Smaller sites such as waterfalls, hills, and reclaimed mine sites remain untapped. By 2030, visitor numbers are projected to exceed 50 lakh.

4.3.2 Value Chain Structure and Actors

The chain includes tourists, transport operators, local vendors, SHGs running stalls, and hospitality providers. State tourism department, DMFT, and CSR initiatives fund infrastructure upgrades. Homestay operators, guides, and eco-tourism cooperatives represent emerging actors.

4.3.4 Market Demand and Supply Dynamics

Visitor numbers are rising steadily, with religious tourism driving consistent demand and eco-tourism gaining traction. Current capacity in hospitality and services is insufficient, creating opportunities for SHGs and youth entrepreneurs. Projected revenue potential by 2030 is ₹746 crore annually.

4.3.5 Constraints and Bottlenecks

Weak infrastructure, inadequate sanitation, limited accommodation, and poor digital marketing hinder growth. Safety and regulation gaps remain, particularly at natural sites. Lack of trained guides and hospitality workers also constrains the sector.

4.3.6 Opportunities and Strategic Interventions

Investments in eco-lodges, homestays, boating services, and heritage circuits can diversify offerings. SHGs can manage food stalls, crafts, and eco-services. DMFT and PRASHAD can finance infrastructure⁵⁵, while CSR supports training. Linking mine closure lands to eco-tourism represents a unique innovation.

4.3.7 Business and Economic Case

With visitor numbers projected to reach 50 lakh, tourism could generate ₹746 crore annually. Investments of ₹100–120 crore are needed for infrastructure and capacity-building. Employment potential includes 2,800 direct jobs in hospitality and 12,000 indirect jobs in transport, retail, and services⁵⁶.

4.3.8 Sustainability and Just Transition Linkages

Tourism aligns with just transition by creating post-coal economic alternatives, valorising cultural assets, and generating service-sector employment. Environmental sustainability is ensured through eco-tourism practices, while SHG and youth engagement promote social inclusion.

4.4 Backyard Poultry

4.4.1 Sector Overview and Context

Backyard poultry is widely practiced across Ramgarh, especially by women, but at subsistence scale. About 10–15,000 households rear 5–10 birds each, producing about 650 MT annually against demand of 3,230 MT. The deficit of 2,500 MT highlights substantial scope for expansion⁵⁷.

4.4.2 Value Chain Structure and Actors

Actors include smallholder women poultry keepers, SHGs organising collective production, hatcheries supplying improved chicks, and traders linking to local and regional markets. DMFT and NRLM provide financial and technical support, while CSR helps with training and inputs⁵⁸.

4.4.3 Market Demand and Supply Dynamics

Demand for poultry meat is consistently high due to changing dietary patterns. With a 2,500 MT deficit, the market is far from saturated. Premium varieties like Kadaknath can capture niche urban demand, while Vanaraja and Kuroiler cater to mass markets.

4.4.4 Constraints and Bottlenecks

Constraints include high mortality due to disease, irregular vaccination, weak access to feed, and absence of collective marketing. Women often lack access to formal finance and training.

4.4.5 Opportunities and Strategic Interventions

Scaling up to 8,000 households with improved breeds, building SHG feed mills, and aggregation centres can bridge the supply gap. Training on disease management and value addition (egg sales, packaging) can enhance returns.

4.4.6 Business and Economic Case

Investments of ₹20 crore can expand production to close the 2,500 MT deficit. Annual revenues could reach ₹60–70 crore at scale. About 8,000 women-led households would benefit directly, with indirect employment in input supply and marketing for several thousand more.

4.4.7 Sustainability and Just Transition Linkages

Poultry strengthens nutrition and women's income security, making it vital in just transition. Environmentally, small-scale poultry has low ecological impact. Socially, it empowers SHGs and provides quick, low-capital income alternatives for coal-affected households.

4.5 Agro-Processing

4.5.1 Sector Overview and Context

Agro-processing leverages Ramgarh's agricultural base of paddy, pulses, and vegetables. Current enterprises include small rice mills and snack units, but lack branding, cold chains, and access to finance. SHGs are eager to expand into pickling, flour milling, and dehydration.

4.5.2 Value Chain Structure and Actors

The chain involves farmers producing raw materials, SHGs/FPOs managing small processing units, traders linking to local and regional markets, and government schemes such as RKVY and MSME support. DMFT and CSR play financing and incubation roles^{59,60}.

4.5.3 Market Demand and Supply Dynamics

Market demand is strong due to local consumption and regional demand from Bihar and Bengal. However, poor storage leads to post-harvest losses. Processed food markets are expanding, offering potential for SHG-branded products.

4.5.4 Constraints and Bottlenecks

Constraints include inadequate cold storage, weak branding and marketing, limited scale of SHG units, and lack of modern technology. Credit gaps persist, limiting investment in larger processing clusters.

4.5.5 Opportunities and Strategic Interventions

Investments in cold chains, processing hubs, branding, and packaging can create value. SHGs and FPOs can anchor enterprises with incubation support. Agro-processing clusters can stabilise farm incomes and reduce distress sales.

4.5.6 Business and Economic Case

Investments of ₹25–30 crore can create revenues of ₹150–200 crore annually. Employment potential is significant, with 5,000–6,000 households directly involved and many more farmers indirectly linked through raw material supply.

4.5.7 Sustainability and Just Transition Linkages

Agro-processing reduces waste, adds value locally, and strengthens rural non-farm employment. Socially, it scales SHG participation in enterprise, while environmentally it reduces food losses and promotes efficient use of resources.

4.6 Skilling

4.6.1 Sector Overview and Context

Skilling is both a livelihood enabler and an independent demand in Ramgarh. Over 4,500 youth have been trained in the past five years in trades like apparel, automotive, healthcare, and IT-enabled services. However, placements remain largely outside the district due to weak local absorption.

4.6.2 Value Chain Structure and Actors

Key actors include RSETI, JIS Foundation, PanIIT Gurukul, and government training centres. DMFT and CSR fund training programs, while industries absorb trained workers. SHGs and youth entrepreneurs are emerging as micro-enterprise leaders.

4.6.3 Market Demand and Supply Dynamics

With thousands of youth entering the labour market annually, demand for skilling far exceeds current capacity. Placement-linked training has high value, particularly in healthcare, apparel, and IT services. Demand for local enterprise incubation is also growing.

4.6.4 Constraints and Bottlenecks

Constraints include misalignment between training and market demand, inadequate local job creation, and limited entrepreneurial incubation. Infrastructure and hostel facilities for rural trainees are also weak.

4.6.5 Opportunities and Strategic Interventions

Developing a district skilling roadmap tied to just transition value chains, expanding placement-linked programs, and building incubation hubs for youth and SHG enterprises are critical. Partnerships with industry can ensure demand-driven training.

4.6.6 Business and Economic Case

Investments of ₹15–20 crore can skill 5,000 youth annually, creating a pool of 30,000 trained workers over six years. Wage revenues could reach ₹500 crore annually, boosting household incomes and resilience.

Skilling also enables participation in other value chains such as fisheries, goatry, poultry, and agro-processing.

4.6.7 Sustainability and Just Transition Linkages

Skilling ensures long-term adaptability of the workforce, reducing vulnerability from coal sector decline. Socially, it opens pathways for youth and women, while economically it aligns training with enterprise development. Skilling thus acts as both a cross-cutting enabler and a stand-alone livelihood strategy in just transition.

Table 5: Comparative Summary of Proposed Value Chains

Value Chain	Demand–Supply Gap	Investments Required	Gross Revenue Potential	Direct Beneficiaries	Indirect Beneficiaries
Fisheries	3,200 MT deficit; demand 21,000 MT by 2031	₹48 crore	₹300–350 crore annually	1,200 households	9,600 households
Goatry	87 MT deficit; 158 MT by 2031	₹12–15 crore	₹60–70 crore annually	2,700–3,000 households	5,000 households
Tourism	Hospitality/service gaps; 50 lakh visitors by 2030	₹100–120 crore	₹746 crore annually	2,800 jobs	12,000 jobs
Backyard Poultry	2,500 MT deficit	₹20 crore	₹60–70 crore annually	8,000 households	several thousand in inputs/marketing
Agro-Processing	Post-harvest loss ~15–20%	₹25–30 crore	₹150–200 crore annually	5,000–6,000 households	large farm networks
Skilling	Thousands of youth entering annually	₹15–20 crore	₹500 crore wage revenues annually	5,000/year (~30,000 in 6 yrs)	Indirect household income gains

Section V: Financing and Institutional Convergence for Just Transition in Ramgarh

5.1 Government Schemes and Departments

Government programs provide the backbone of the financing ecosystem, with sector-specific schemes covering livestock, fisheries, agro-processing, tourism, and skilling. In livestock, **DAY-NRLM** and **JSLPS** enable SHG credit and enterprise promotion, while the **National Livestock Mission (NLM)** provides 40–50% subsidies for goat and poultry units. **MGNREGA** supplements this by funding animal shelters, fodder banks, and community assets, creating durable infrastructure. For fisheries, **PMMSY** supports pit conversion, fish seed, and cold chain facilities, complemented by **MGNREGA's** role in pond preparation.

In agro-forestry and non-timber forest produce (NTFP), **RKVY** and **ATMA** offer extension and input support, while **MGNREGA** provides labour for plantations and soil works. Tourism development is backed by **Swadesh Darshan 2.0**, **PRASHAD**, and the state's Homestay Policy, which provide capital for circuits, homestays, and household-level subsidies. On the skilling front, **PMKVY**, **DDU-GKY**, and **RSETIs** retrain youth and coal workers in renewable energy, hospitality, livestock, and crafts. Finally, **CAMPA** and the **National Afforestation Programme** support ecological restoration of degraded mine lands, enabling new economic uses like solar or agro forestry. Together, these departmental programs can mobilise between **₹68–88 crore over five years** for Ramgarh's transition.

5.2 District Mineral Foundation Trust (DMFT)

DMFT represents the most flexible financing pool, with annual accruals of ₹70–100 crore from mining royalties. It can earmark ₹20–30 crore each year for transition activities across livelihoods, health, education, and reclamation. In livestock, DMFT can underwrite animal distribution, veterinary camps, and para-vet training, filling gaps not covered by NRLM or NLM. For fisheries, it can finance the conversion of mine pits into aquaculture ponds and add cold chain infrastructure. In agro-processing, DMFT can fund incubation centres, storage and processing hubs, and small-unit infrastructure such as mills or dehydration units, thereby enabling SHGs and FPOs to move up the value chain and reduce post-harvest losses.

For tourism, DMFT is critical to fill infrastructure gaps such as sanitation, signage, community museums, and visitor centres, which central schemes often do not fund. It also supports skill development and healthcare, offering social cushioning for workers displaced from coal. Over a five-year period, DMFT can commit ₹55–57 crore to the just transition package, making it the linchpin of flexible, locally directed financing.

5.3 Corporate Social Responsibility (CSR)

CSR investments from Central Coalfields Limited, NTPC Patratu, and allied industries, averaging ₹25–30 crore annually, play a catalytic role by piloting innovative, high-risk activities. In livestock, CSR can sponsor cluster-based goatry and poultry pilots, seeding around 200–300 goat households and 2,000 poultry units at an estimated cost of ₹7–8 crore. For fisheries, CSR can fund training for youth in aquaculture and support value-chain linkages.

CSR also adds value in eco-tourism by financing small eco-lodges (₹25–40 lakh each), kiosks, and guide training, building community confidence in tourism as a viable livelihood. In waste management and green energy, CSR can sponsor recycling enterprises or skill batches for solar O&M technicians. Additionally, it can support education and health infrastructure, complementing DMFT’s role. Over five years, CSR is expected to provide ₹22–23 crore, serving as the de-risking arm of the convergence architecture.

5.4 Conclusion

The convergence framework for Ramgarh’s just transition thus rests on three pillars: government schemes as the backbone, DMFT as the flexible funder, and CSR as the risk-taker and innovator. Together, they mobilise ₹150–175 crore over five years, distributed across livestock, fisheries, agro-forestry, tourism, skilling, and waste-to-green transitions. This balanced, multi-channel financing ensures that the district’s shift from coal dependence to diversified livelihoods is both inclusive and sustainable.

Table 6: Convergence Financing Framework for Just Transition in Ramgarh

Value Chain / Sector	Government Schemes & Departments	DMFT Role	CSR Role
Goatry	DAY-NRLM/JSPLS provides credit to SHGs; NLM offers 40–50% subsidy for goat units; MGNREGA supports goat sheds and fodder plots. Expected contribution: ₹15–20 cr (5 yrs).	Finances livestock distribution, goat sheds, para-vet training, vaccination drives. Contribution: ₹8–10 cr (5 yrs).	Pilots cluster-based goatry (200–300 HHs) with 1 buck + 4 does each. Contribution: ₹5–6 cr.
Backyard Poultry	NRLM SHG financing, NLM subsidy for small poultry units; MGNREGA for housing structures. Contribution: ₹10–12 cr (5 yrs).	Provides capital for poultry shed development, veterinary support. Contribution: ₹5 cr.	Seeds 2,000 units with 10–15 birds each; supports feed kits and vaccination. Contribution: ₹2 cr.
Fisheries (Mine Pits & Ponds)	PMMSY funds pond conversion, fish seed, cold chain; MGNREGA for pit desilting and pond excavation. Contribution: ₹10–12 cr.	Funds conversion of abandoned coal pits, safety infra, cold storage. Contribution: ₹10 cr.	Trains youth in aquaculture, provides market linkage pilots. Contribution: ₹3 cr.
Agro-Processing	RKVY and MSME schemes for extension, inputs, and processing subsidies. Contribution: ₹5–7 cr.	Funds incubation centres, common storage, and processing hubs on reclaimed land. Contribution: ₹10 cr.	Pilots small-scale processing units (flour mills, pickles, dehydration). Contribution: ₹2 cr.
Tourism & Homestays	Swadesh Darshan 2.0 & PRASHAD fund circuits, wayfinding; Homestay Policy provides ₹50,000–₹1 lakh subsidy/HH. Contribution: ₹20–25 cr.	Funds sanitation, signage, interpretation centres, eco-trails. Contribution: ₹7 cr.	Seeds eco-lodges (₹25–40 lakh each), crafts fairs, guide training. Contribution: ₹5 cr.
Skilling & MSMEs	PMKVY/DDU-GKY for retraining; RSETIs for micro-enterprise incubation. Contribution: ₹5–7 cr.	Provides stipends, retraining for displaced coal workers. Contribution: ₹5 cr.	Sponsors skill batches (₹5–10 lakh per batch), especially in renewables, waste, crafts. Contribution: ₹3 cr.

Summary

- Government schemes anchor the transition with ₹68–88 crore over 5 years, covering livestock, fisheries, agro-processing, tourism, skilling, and waste.
- DMFT contributes ₹55–57 crore, filling capital gaps, underwriting reclamation, and ensuring healthcare/education support.
- CSR provides ₹22–23 crore, piloting innovative models and building early confidence.

Together, the total pool of ₹150–175 crore will finance a diversified livelihood strategy, securing both short-term incomes (goatry, poultry, fisheries) and long-term sustainability (agro-processing, tourism, skilling, and waste-to-energy).

Section VI: Role and Importance of the CBO–PRI–LA Compact in Executing Just Transition Value Chains in Ramgarh

6.1 Introduction

The success of a just transition in Ramgarh hinges not only on financial flows and technical interventions, but also on the strength of institutional collaboration at the grassroots. The **CBO–PRI–LA Compact**, linking community-based organizations (CBOs), Panchayati Raj Institutions (PRIs), and local administration (LAs), provides the governance and execution framework that ensures activities across livestock, fisheries, agro-processing, eco-tourism, waste management, and skilling are locally owned, well-coordinated, and sustainable. This compact brings together three complementary forces: CBOs provide community mobilization and enterprise management; PRIs deliver democratic legitimacy and local planning authority; and local administration provide technical expertise, scheme financing, implementation, and regulatory oversight.

6.2 Community-Based Organizations (CBOs) as the Grassroots Engine

CBOs, including self-help groups (SHGs), producer groups (PGs), and cooperatives, are at the heart of household-level adoption and enterprise development. In goatry and backyard poultry, SHGs mobilize women members to form producer clusters, manage small livestock units, and ensure access to credit. For fisheries in abandoned mine pits, CBOs handle pond-level management, seed stocking, and collective marketing.

In eco-tourism and homestays, CBOs run guest services, kitchens, and craft markets, directly capturing value for communities. Their strength lies in peer-to-peer trust, transparency in group-level savings and credit, and their embeddedness in local social systems. By aligning with NRLM and other schemes, CBOs can channel resources to tens of thousands of rural households.

6.3 Panchayati Raj Institutions (PRIs) as Anchors of Local Governance

PRIs ensure democratic legitimacy and accountability in planning and resource allocation. They have a statutory role in implementing MGNREGA works, such as goat sheds, fodder banks, pond excavation, and plantation activities, which form the physical base for value chains. Village panchayats and block-level committees also validate and approve proposals for fisheries, goatry, poultry, agro-processing, and tourism clusters.

PRIs provide oversight in eco-tourism circuits, ensuring equitable access to resources, regulating visitor inflows, and maintaining community assets like sanitation and signage. They also play a crucial role in waste management, linking rural households and SLRM centres to larger district facilities. Importantly, by integrating just transition activities into Gram Panchayat Development Plans (GPDs), PRIs institutionalize these interventions into the core of local governance.

6.4 Local Administration (LAs) as Providers of Technical and Financial Backbone

Local administration, such as the Departments of Animal Husbandry, Fisheries, Agriculture and Horticulture, Tourism, and Rural Development, translate state and national policies into actionable programs. They provide subsidies (e.g., under NLM, PMMSY, RKVY, Swadesh Darshan), extension services, and technical training⁷⁶⁻⁷⁹. For goatry and poultry, veterinary officers deliver vaccination and breeding support; for fisheries, fisheries officers certify ponds and train farmers; for agro-processing, Departments of Industries, Agriculture, and Food Processing provide technical inputs, subsidies, and training, support SHGs/FPOs, and certify processing units; for tourism, the tourism department certifies homestays and links them to state-level marketing⁸⁰⁻⁸¹.

6.5 The Compact in Action: Why It Matters

The **CBO–PRI–LA Compact** ensures that no single institution is overburdened. CBOs bring household-level adoption and ownership, PRIs guarantee democratic oversight and convergence with local development planning, while LAs provide schemes, subsidies, and technical know-how. Together, they enable:

6.5.1 Livestock Value Chains (Goatry and Poultry)

Scaling goatry and poultry will require SHGs to mobilize members into producer groups, manage revolving funds, and provide day-to-day care for animals. PRIs will play a critical role in ensuring that MGNREGA funds are directed towards constructing goat sheds, poultry shelters, and community fodder banks⁸². They also provide oversight so that resources are distributed equitably. Line agencies such as the Department of Animal Husbandry will provide veterinary support, vaccinations, breed improvement, and technical training⁸³⁻⁸⁴. This three-way collaboration ensures that households not only access livestock but also receive continuous health support and market connections, making livestock value chains sustainable at scale.

6.5.2 Fisheries in Mine Pits

Fisheries in abandoned mine pits require significant upfront investment to make ponds safe and productive. Here, DMFT capital, routed through PRI-approved plans, becomes essential for infrastructure such as desilting, pit reinforcement, and cold storage. SHGs will take the lead in managing stocking, feeding, and collective marketing of fish, often in cluster models. The fisheries department certifies the pits, trains members in aquaculture techniques, and provides subsidized fish seed and feed under PMMSY. With this compact, mine-pit fisheries evolve from scattered pilots into organised enterprises that can employ youth and generate revenue for communities.

6.5.3 Agro-Processing Clusters

Agro-processing requires formal recognition of SHGs, producer groups, and FPO federations as eligible entities to set up and operate small-scale units. District-level processing parks can be established on reclaimed or underutilised land, with PRIs facilitating approvals and SHGs/FPOs managing operations. To ease entry, composite power and water connection norms should be tailored for small processors, and consent fees for micro-units waived or rationalised. Access to affordable credit remains a critical bottleneck; DMFT and CSR can support this through interest subvention and start-up capital facilitation⁸⁵⁻⁸⁶. These

measures collectively address the current roadblocks of inadequate infrastructure, high compliance costs, and weak market linkages, while enabling rural enterprises to compete more effectively in regional markets.

6.5.4 Tourism and Homestays

Tourism is highly dependent on community buy-in and coordinated management. SHGs manage homestays, eco-café, kitchens, and cultural performances, ensuring income reaches households directly. PRIs regulate visitor inflows, maintain basic infrastructure such as sanitation, roads, and signage, and ensure that local communities benefit from tourism revenues rather than external operators. Line agencies, such as the Department of Tourism, certify homestays, provide training in hospitality, and connect destinations to broader state and national tourism circuits. This compact ensures that eco-tourism and heritage trails remain low-impact, community-owned, and aligned with sustainability goals⁸⁷⁻⁸⁸.

6.5.5 Skilling and MSMEs

Skill development underpins all other value chains. SHGs and CBOs ensure that women and youth are mobilized for training opportunities, often pooling candidates into groups. PRIs endorse training plans, ensure inclusivity across caste and gender, and link graduates to enterprise opportunities identified in local development plans. Line agencies, through programs like PMKVY and DDU-GKY, certify training providers and issue recognized skill certificates. Together, this compact makes sure training is not supply-driven but tied directly to MSME incubation in poultry, goatry, fisheries, agro-processing, and tourism, preventing youth migration and enhancing local economic resilience⁸⁹⁻⁹⁰.

This tripartite compact not only secures **institutional convergence** but also builds **social legitimacy**, reducing risks of elite capture or exclusion.

6.5.6 Conclusion

For Ramgarh, where coal has long defined livelihoods and governance, the **CBO–PRI–LA Compact** provides the scaffolding to execute a just transition. Without this compact, interventions risk becoming fragmented pilot projects. With it, they become embedded in local governance, technically supported by line agencies, and owned by communities themselves. By weaving together people's institutions, democratic structures, and technical agencies, the compact transforms value chains from isolated activities into a holistic strategy for sustainable and inclusive development.

Chapter VII: Making Just Transition Work in Ramgarh: Policy, Law & Roadblocks to Amend/Enact

7.1 State-level legal & policy backbone (what to amend/enact)

1. Jharkhand Just Transition (JT) Policy and Cell.

Jharkhand has already established a **Task Force on Sustainable Just Transition**, with 18 departments and public bodies under its ambit. The Task Force serves as the state's nodal mechanism for preparing district-level transition plans, setting targets for mine-land repurposing, livelihood diversification, and emissions reduction. To improve efficiency and impact, the Task Force must move from coordination to time-bound action—issuing clear SOPs to districts, ensuring integration of just transition priorities into departmental budgets, creating a monitoring dashboard for public reporting, and formalising partnerships with PSUs (CCL, NTPC) and private investors. Strengthening its secretariat with dedicated technical staff and empowering it to approve programmatic funding can ensure faster convergence and measurable outcomes⁹³⁻⁹⁵.

2. Earmark DMFT for transition, by rule.

Amend Jharkhand DMF Trust Rules to earmark a floor (e.g., 30%)¹ of annual accruals in coal districts for: (i) mine-land reclamation & repurposing, (ii) livelihood diversification (SHG/FPO enterprises), (iii) skilling & health. Allow multi-year programmatic grants (not only scheme-year spends) with outcome-based tranches, and permit interest subvention/credit guarantees for SHG/MSME loans tied to JT sectors⁹⁶.

3. Mine Closure → Repurposing Code.

Add a state rule (under Mines/Environment) that mine closure plans must include a repurposing chapter (solar on spoils, fisheries in pit lakes, eco-parks/trails), with handover protocols to PRIs/SHG SPVs and an O&M fund seeded by DMF/CSR. Require independent certification of physical & water safety prior to handover⁹⁷⁻⁹⁸.

4. Land & water tenure for community enterprises.

Issue a Land-Pooling & Lease Policy for Reclaimed Mines: enable community SPVs (SHG/FPO/GP-level societies) to receive 7–15 year leases for fisheries, tourism, agro-forestry, or solar O&M yards, with concessional rents and renewal on performance. For pit-lakes, notify that they fall under Gram

¹ Nationally, most DMF funds earmarked for high-priority sectors (health, education, livelihood) are around **20–30% each**.

A **30% floor** for just transition is ambitious but not excessive in coal-heavy districts like Ramgarh, given the scale of mine closure, livelihood loss, and reclamation needs.

A **phased approach** could be adopted: starting with 20% in year one, scaling up to 30% within 3–5 years, to balance fiscal flexibility with urgency.

Panchayat control where applicable, with SHG/producer groups given first preference for fisheries leases.

5. Strengthen Implementation of Jharkhand Homestay & Eco-Tourism Scheme.

Jharkhand has already notified a Homestay Scheme under the 2021 Tourism Policy (Section 16), providing subsidies of ₹50,000–1,00,000 per host and enabling self-certification. To maximise impact, the focus now should be on fast-tracking implementation: simplifying approvals into a 30-day deemed clearance system, enforcing carrying-capacity rules, and ring-fencing eco-fee collections (2–5%) into Village Eco-Funds. Priority should be given to SHGs and local cooperatives for managing site amenities such as sanitation, parking, kiosks, and eco-services. Strengthening monitoring, digital promotion, and capacity-building will ensure that the scheme moves beyond paper into a driver of community-owned eco-tourism.

6. Waste & EPR enabling.

Adopt ULB & GP by-laws: compulsory source segregation, user charges, and authorisation of GP-level SLRM centres. Notify a state EPR aggregation protocol so PRIs/SHG federations can contract with PROs/brands; issue an inter-state waste movement SOP (SPCB–SPCB NOC) to send low-value plastics for cement co-processing (e.g., to neighbouring kilns).

7. Renewable energy siting on mining lands.

Notify a brownfield solar siting circular: single-window for grid connectivity, deemed forest & environmental clearances for already-disturbed mine spoils (subject to safeguards), standard land-lease to PRI/SHG SPVs, and a local hiring clause for O&M.

8. Procurement preference for community enterprises.

Amend state procurement to reserve at least 15–25% of applicable purchases/services for SHG/FPO/tribal enterprises (food services, uniforms, furniture, housekeeping, biomass briquettes, etc.), with simplified tender & payment cycles.

9. Labour & social protection measures.

Notify a Transition Bridge Allowance (12–24 months) for retrenched coal workers/eligible dependents, Recognition of Prior Learning (RPL) for mine skills, and health screening protocols (respiratory, musculoskeletal) funded by DMF.

7.2 District orders & operating system for Ramgarh (what to issue locally)

1. Constitute a CBO–PRI–LA Transition Taskforce (district order).

Chaired by the DC; members from Line Departments, CCL/NTPC CSR, DMFT, JSLPS, PRIs, and CSOs. It approves JT project pipelines, resolves inter-departmental bottlenecks, and publishes a quarterly dashboard.

2. Embed JT in GPDs and Block Plans.

Direct PRIs to include goat sheds, fodder banks, pond rehab, plantation blocks, homestay clusters, SLRM centres within GPDs with MGNREGA & scheme convergence lines. Approvals within 30 days via an e-file track.

3. Issue value-chain SOPs (district compendium).

Standard design + approvals flow for: (i) goatry/poultry clusters, (ii) pit-fisheries conversion & stocking, (iii) NTFP processing sheds, (iv) homestays & eco-trails, (v) SLRM + baling, (vi) solar yards. Each SOP specifies who approves what, in how many days, and which budget head pays.

4. DMF as programmatic, multi-year finance.

Adopt a district DMF resolution to fund 3–5-year program bundles (not one-off assets) with milestone-based releases to PRI/SHG SPVs, plus escrow accounts for revenue-earning assets (tourism, fisheries) to ensure O&M.

5. CSR alignment MoUs.

Sign MoUs with CCL/NTPC & industry CSR for: common training calendar, shared sites (mine-land pilots), and co-branded monitoring so CSR de-risks innovation that schemes/DMF later scale.

6. Payments discipline.

Issue an order enforcing ≤30-day payments to SHGs/vendors for approved JT works/services, with auto-escalation and interest penalty for delays.

7.3 Sector-wise: what to fix, who does it, and the roadblocks it removes

A. Goatry & Backyard Poultry

What to strengthen

- Approve para-veterinary accreditation for Pashu Sakhis; allow them to vaccinate/deworm and be paid from AHD block budgets/NRLM performance grants.
- Notify MGNREGA model estimates for goat/poultry sheds & community fodder banks; earmark materials and labour ratios.
- Create a Livestock Insurance Lite product (simple claim rules) with premium support via DMF/CSR for first two years.

Roadblocks removed: shortage of vets, capex for sheds/fodder, disease risk and credit hesitancy.

B. Fisheries in Mine Pits

What to strengthen:

- Classify safe pit-lakes as fishery waterbodies; first right of lease to SHG/producer groups; lease tenure 7–10 years for bankability.

- Mandate safety retrofits (benching, fencing, signage) in the repurposing certificate; DMF funds capex.
- Fast-track PMMSY + DMF co-financing for seed, feed, aerators, and a district cold-room; issue a model buyback/auction rule at landing points.

Roadblocks removed: tenure ambiguity, safety liability, missing cold chain and predictable markets.

C. Agro forestry & NTFP

What to strengthen:

- Recognise CFR areas; notify NTFP transit & MSP-like price guidance at the district.
- Approve 50–100 ha plantation blocks on spoils/degraded land with PRIs as custodians, Forest Dept for technicality, and SHG/FPOs as operators.
- Waive small-scale processing consent fees for community units; provide composite power connection norms.

Roadblocks removed: unclear forest/land rights, transit hurdles, unviable small processing.

D. Tourism & Homestays

What to strengthen:

- Notify Homestay registration – 30-day deemed approval, single-window online; cap inspections to post-facto audit.
- Adopt carrying-capacity bylaws (boats/day, tents/night) and a Village Eco-Fund via eco-fee.
- Reserve site O&M contracts (toilets, parking, waste, kiosks) for SHG federations; allow digital ticketing with auto-revenue share to PRIs/SHGs.

Roadblocks removed: slow licensing, over-commercialisation risks, leaky local value capture.

E. Skilling & MSMEs

What to strengthen:

- District skills inventory & RPL for coal workers; publish annual demand plan tied to JT projects.
- Tie DDU-GKY/PMKVY batches to assured placements in JT enterprises via output-linked grants.
- Set up a credit-guarantee window (DMF-backed) and interest subvention for SHG/MSME capex.

Roadblocks removed: training not linked to jobs, credit access barriers, weak MSME survival.

F. Finance architecture & flows

- *Pooled JT Fund (district):* DMF (programmatic) + scheme heads + CSR into project escrows for revenue assets (tourism, fisheries).

- *Outcome-based disbursement*: release tranches on verified milestones (e.g., sheds built & insured; pit-lake certified; homestays live & tax-registered).
- *Guarantees & subvention*: DMF provides guarantees to banks; NRLM/DMF bear 2–4% interest subvention for SHG/MSME loans.
- *Carbon & circular revenues*: ready the district to claim RECs/carbon credits for solar/afforestation and plastic credits via EPR, routed to PRI/SHG accounts.

7.4 Bottom line

Most of what stalls just transition in Ramgarh is not money but rules, tenure, approvals, and weak operating discipline. The package above puts those foundations in place: lawful tenure and first rights for communities; DMF made programmatic; quick permits and standard SOPs; procurement and payment systems that actually fit SHGs; and a monitoring spine that keeps everyone honest. Put together now, it turns pilots into a durable, district-wide transition, one that creates livelihoods, restores land and water, and keeps Ramgarh's economy resilient long after coal.

Section VIII: State of Ecosystem is no Action is taken and Envisioned State after Implementation of Recommendations of this Report

8.1 If No Action is Taken

If none of the suggested measures in the Ramgarh coal belt are implemented, the district will face a deepening ecological, social, and economic crisis. As India's national energy mix gradually shifts away from coal and mechanization continues to displace workers, Ramgarh will experience shrinking employment opportunities across both formal and informal chains. Thousands of contractual labourers, loaders, transporters, and informal coal vendors who currently depend on coal for survival will find themselves without work or income security. Entire communities that have lived around collieries, transport corridors, and coal trading hubs will be left vulnerable, with no structured pathway to alternative livelihoods.

Environmentally, abandoned and unrehabilitated mines will leave behind scarred landscapes, waterlogged pits, and streams choked with toxic runoff. The air, already polluted by particulate emissions from mining and coal transport, will deteriorate further as illegal burning of coal waste and plastics continues unchecked. This will aggravate already high levels of respiratory and waterborne diseases in the population. Socially, the loss of royalty revenues and shrinking CSR contributions will dry up funding for schools, health centres, and local infrastructure, pushing the district further into distress. Without alternative income streams, many households will be forced into distress migration to urban areas, deepening cycles of poverty and inequality. In essence, Ramgarh will be locked into a pattern of economic hollowing, social vulnerability, and environmental decline if the transition is unmanaged.

8.2 If the Recommended Actions are Implemented

By contrast, if the proposed strategies are implemented, Ramgarh can reposition itself from being a declining coal district to a showcase of just transition in practice. A planned approach to mine closure and land reclamation can transform degraded lands into productive assets, repurposed as solar energy parks, aquaculture ponds, or eco-tourism hubs. Instead of symbolizing decay, former coal pits could generate green jobs and local revenue. Diversification into agro-processing, livestock rearing, fisheries and poultry, horticulture, , and rural crafts could create sustainable income streams for thousands of households.

Social protection measures, including retraining programs, pension schemes, and insurance coverage, would provide a safety net for workers, especially the contractual and informal labourers who are typically excluded from formal protections. SHGs and local collectives could be mobilised to anchor new enterprises, ensuring that women and tribal households have a strong stake in the emerging economy. District Mineral Foundation (DMF) resources, when aligned with CSR investments and climate finance, could create a pool of funds to reinvest in healthcare, education, digital infrastructure, and rural industries, thereby strengthening resilience across the local economy. Over time, the coal belt of Ramgarh could evolve into a diversified economic region, balancing green industry, small-scale enterprises, and restored ecosystems, while continuing to contribute to India's energy security through renewables rather than fossil fuels.

8.3 Why It Matters for the Larger Climate and Just Transition Narrative

The case of Ramgarh embodies the broader national and global conversation about how to balance climate action with social justice. For India to meet its net-zero commitments by 2070, coal use must peak by the 2030s and then steadily decline. If this shift happens without preparation, coal-rich states like Jharkhand, Chhattisgarh, and Odisha will bear the brunt of social and economic disruption. A just transition ensures that the burden of climate action does not fall disproportionately on already vulnerable communities but instead creates opportunities for renewal.

Starting early is critical. Transitions are most successful when phased, deliberate, and participatory. The longer action is delayed, the steeper and more disruptive the eventual adjustment will be, both for workers and for local economies. By beginning now, Ramgarh can access global climate finance, leverage CSR and DMF resources, and design a model of community-led renewal that aligns with India's climate goals while safeguarding social stability. In doing so, it can demonstrate that climate responsibility and economic justice can go hand in hand, and that a coal district can reimagine its future with dignity and resilience.

Table 7: Scenario Comparison: Ramgarh's Just Transition Futures

Dimension	Status Quo (No Action)	Transition Implemented
Employment & Livelihoods	Rapid job losses due to mechanization and coal decline. Informal workers (transporters, loaders, coal vendors) left without income. Distress migration rises.	Phased reskilling programs enable redeployment into renewables, agro-processing, eco-tourism, and services. SHGs and FPOs anchor new enterprises. 15,000–20,000 green and diversified jobs by 2035.
Local Revenue & Economy	Shrinking royalty income, reduced CSR, collapse of local commerce around coal. Declining fiscal base undermines schools, health, and infrastructure.	DMF, CSR, and climate finance reinvested in social infrastructure. New SMEs, fisheries, and tourism enterprises diversify revenues. Local economy more resilient and self-sufficient.
Environment & Land Use	Abandoned mines remain as toxic pits; land degradation worsens. Air and water pollution continue unchecked. High respiratory disease burden.	Mines systematically reclaimed. Converted into solar parks, aquaculture ponds, and green zones. Improved air and water quality, restored ecological balance.
Social Protection	Workers, especially contract and informal, excluded from safety nets. Heightened poverty, inequality, and vulnerability.	Social security, pensions, and retraining allowances extended to all categories of workers. Reduced vulnerability, stronger household resilience.
Community Stability	Increased outmigration, loss of cultural continuity, and rising distress in tribal and rural households.	Communities engaged in planning and governance. Local participation ensures ownership, cultural continuity, and stability.
Governance & Policy Alignment	Fragmented institutional response. Coal decline treated as an economic shock rather than a managed transition.	More empowered Just Transition Task force at state level and cells in affected districts. Policies aligned with national net-zero and SDG commitments. Strong governance and accountability frameworks.

8.4 Conclusion

If Ramgarh does not take action, the region faces a future marked by abandoned mines, economic collapse, unemployment, and environmental decline. By contrast, a well-planned just transition creates the opportunity to transform coal's decline into ecological renewal and diversified livelihoods. The stakes are high: one pathway locks the district into long-term vulnerability, while the other allows Ramgarh to become a model of climate-aligned development.

This transition is not just a local imperative but part of India's larger **climate and just transition narrative**. Meeting net-zero commitments will require coal's phasedown, but how this is managed will determine whether communities are left behind or carried forward into a low-carbon future. Starting now ensures that the change is phased, participatory, and socially just, rather than abrupt and disruptive. For Ramgarh, early action means turning risk into resilience, ensuring that workers, communities, and ecosystems move together toward a sustainable future.

References

1. World Bank. (2020). *World Development Indicators: Energy use*.
2. Central Electricity Authority. (2022). *Report on Optimal Generation Mix 2029–30*. Government of India.
3. Government of India. (2021). *India's Long-Term Low Emission Development Strategy*. UNFCCC.
4. CEEW. (2022). *The Future of Coal in India*. Council on Energy, Environment and Water.
5. NITI Aayog. (2021). *India's Energy Transition Pathways*. Government of India.
6. Ministry of Coal. (2021). *Annual Report 2020–21*. Government of India.
7. World Bank. (2021). *State of Poverty in India*.
8. TRIF. (2022). *Coal Economy and Livelihoods in Jharkhand*. Transform Rural India Foundation.
9. TERI. (2021). *Diversification Opportunities in Coal Districts*.
10. CPCB. (2021). *Mine Closure and Environmental Restoration*. Central Pollution Control Board.
11. Singh, R., & Kumar, N. (2020). *Ecological Restoration in Mining Landscapes*. Springer.
12. European Commission. (2020). *The Just Transition Mechanism: Making Sure No One is Left Behind*.
13. European Commission. (2021). *Just Transition Fund Regulation*.
14. Government of South Africa. (2021). *Just Energy Transition Partnership Agreement*.
15. U.S. Department of Commerce. (2020). *POWER Initiative: Revitalizing Coal Communities*.
16. Central Coalfields Limited. (2021). *Annual Report 2020–21*. CCL.
17. Government of India. (2021). *India's Net Zero Strategy*.
18. Sethi, M. (2022). *The Inevitable Transition: Coal in India's Climate Pathway*. ORF.
19. Singh, P., & Rao, D. (2020). *Social Protection in the Context of Energy Transition*.
20. Oxfam India. (2020). *Energy Poverty and Informality*.
21. Chakraborty, S. (2021). *Women and Children in Informal Coal Work*. EPW.
22. Government of India. (2011). *Census of India 2011: District Census Handbook – Ramgarh*. Office of the Registrar General & Census Commissioner, India.
23. Government of Jharkhand. (2023). *Population projections for Jharkhand districts (2021–2031)*. Directorate of Economics and Statistics.
24. Ministry of Tribal Affairs. (2021). *Statistical profile of Scheduled Tribes in Jharkhand*. Government of India.
25. Centre for Science and Environment. (2018). *Indicative Plan for District Mineral Foundation – Ramgarh, Jharkhand*. Retrieved from <https://cdn.cseindia.org>
26. Government of Jharkhand. (2023). *District Statistical Handbook – Ramgarh*. Directorate of Economics and Statistics.
27. NITI Aayog. (2020). *District economic profile: Ramgarh*. Government of India.
28. Department of Agriculture, Animal Husbandry & Co-operative, Government of Jharkhand. (2022). *Block-level cropping pattern and irrigation coverage data*.
29. Jharkhand State Livelihood Promotion Society. (2023). *FPO and SHG-led agri-enterprise initiatives in Ramgarh*.
30. Central Coalfields Limited. (2024). *Annual Report 2023–24*. CCL Headquarters, Ranchi.
31. Jharkhand State Electricity Board. (2019). *Historical performance of Patratu Thermal Power Station*. Government of Jharkhand.

32. NTPC Limited. (2024). *Patratu Super Thermal Power Project progress report*. NTPC Corporate Communications.
33. Department of Fisheries, Government of Jharkhand. (2023). *Post-mining water body utilisation for inland fisheries – Ramgarh case studies*.
34. Ministry of Food Processing Industries. (2023). *PMFME scheme implementation status – Jharkhand*. Government of India.
35. Government of Jharkhand. (2011). *Census 2011: Educational facilities data for Ramgarh district*. Office of the Registrar General & Census Commissioner, India.
36. Ramgarh District Administration. (n.d.). *Higher education institutions in Ramgarh district*. Retrieved from <https://ramgarh.nic.in>
37. Kendriya Vidyalaya Sangathan. (n.d.). *Kendriya Vidyalaya Ramgarh Cantt profile*. Retrieved from <https://ramgarhcantt.kvs.ac.in>
38. Radha Govind University. (n.d.). *About the University*. Retrieved from <https://rguniversity.org>
39. Times of India. (2025, February 26). Over 2 lakh volunteers to be trained on first aid and CPR in Ramgarh. Retrieved from <https://timesofindia.indiatimes.com>
40. District Mineral Foundation Trust, Ramgarh. (2020). *Annual Report FY 2019-20*. Retrieved from <https://www.dmftramgarh.com>
41. Government of Jharkhand. (2011). *Census 2011: Health infrastructure data for Ramgarh district*. Office of the Registrar General & Census Commissioner, India.
42. Ramgarh District Administration. (n.d.). *Public health infrastructure overview*. Retrieved from <https://ramgarh.nic.in>
43. Central Coalfields Limited. (n.d.). *Central Hospital Naisarai profile*. Retrieved from <https://www.centralcoalfields.in>
44. Government of Jharkhand. (2020). *State Food Processing Plan – Ramgarh block cold storage/godown projects* (noting 52% cold storage gap).
45. Times of India. (2025, June 6). *Banks eyeing to expand its operations in Jharkhand* (noting 3,414 branches and 3,348 ATMs).
46. MobileCoverage.co.in. (n.d.). *Mobile network coverage in Ramgarh, Jharkhand—good 4G and some 5G availability*.
47. AO (2014). *Developing Sustainable Food Value Chains: Guiding Principles*. Rome: Food and Agriculture Organization of the United Nations.
48. World Bank & IFC (2017). *Food Value Chain Development Framework*. Washington, DC.
49. ILO (2015). *Guidelines for a Just Transition towards Environmentally Sustainable Economies and Societies for All*. International Labour Organization.
50. Government of India, Ministry of Fisheries, Animal Husbandry & Dairying (2023). *Pradhan Mantri Matsya Sampada Yojana (PMMSY)*.
51. District Mineral Foundation Trust (DMFT) – Ramgarh (2023). *Annual Report*.
52. Central Coalfields Limited (CCL) (2023). *CSR Report*.
53. Government of Jharkhand (2022). *Jharkhand Economic Survey*.
54. *Local Market Data – Rajrappa Temple Goat Market* (secondary sources, 2023).
55. Ministry of Tourism, Government of India (2023). *PRASHAD Scheme Guidelines*.
56. Government of Jharkhand Tourism Department (2023). *Jharkhand Homestay Policy*.
57. Ministry of Rural Development (2022). *DAY-NRLM Implementation Framework*.

58. Government of India (2023). National Livestock Mission (NLM) Guidelines.
59. Government of India (2022). Rashtriya Krishi Vikas Yojana (RKVY) Operational Manual.
60. Ministry of MSME (2022). MSME Policy and Cluster Development Reports
61. Ministry of Rural Development (2022). *DAY-NRLM Framework for Implementation*. Government of India.
62. Jharkhand State Livelihood Promotion Society (2022). *Annual Report*. Ranchi: JSLPS.
63. Government of India (2023). *National Livestock Mission (NLM) Guidelines*. Ministry of Fisheries, Animal Husbandry & Dairying.
64. Ministry of Rural Development (2022). *MGNREGA Annual Report*. Government of India.
65. Government of India (2023). *Pradhan Mantri Matsya Sampada Yojana (PMMSY)*.
66. Government of India (2022). *Rashtriya Krishi Vikas Yojana (RKVY) Operational Manual*.
67. Agricultural Technology Management Agency (2022). *Extension and Input Support Report*. Ranchi: ATMA.
68. Ministry of Tourism (2023). *Swadesh Darshan 2.0 Guidelines*. Government of India.
69. Ministry of Tourism (2023). *PRASHAD Scheme Guidelines*. Government of India.
70. Department of Tourism, Government of Jharkhand (2023). *Jharkhand Homestay Policy*.
71. Ministry of Skill Development & Entrepreneurship (2023). *Pradhan Mantri Kaushal Vikas Yojana (PMKVY) Guidelines*.
72. Ministry of Skill Development & Entrepreneurship (2023). *DDU-GKY Guidelines and RSETI Framework*.
73. District Mineral Foundation Trust – Ramgarh (2023). *Annual Statement of Accounts and Project Financing Reports*.
74. Central Coalfields Limited (2023). *CSR and Sustainability Report*. Ranchi: CCL.
75. NTPC Ltd. (2023). *CSR Annual Report and Sustainability Disclosure*.
76. Government of India (2023). National Livestock Mission Guidelines. Ministry of Fisheries, Animal Husbandry & Dairying.
77. Government of India (2023). Pradhan Mantri Matsya Sampada Yojana (PMMSY).
78. Government of India (2022). Rashtriya Krishi Vikas Yojana (RKVY) Operational Manual.
79. Ministry of Tourism (2023). Swadesh Darshan 2.0 Guidelines. Government of India.
80. Ministry of Tourism (2023). PRASHAD Scheme Guidelines. Government of India.
81. Department of Tourism, Government of Jharkhand (2023). Jharkhand Homestay Policy.
82. Ministry of Rural Development (2022). MGNREGA Annual Report. Government of India.
83. District Mineral Foundation Trust – Ramgarh (2023). Annual Statement of Accounts.
84. Department of Animal Husbandry & Fisheries, Government of Jharkhand (2022). Annual Progress Report.
85. Agricultural Technology Management Agency (ATMA) (2022). Extension and Input Support Report.
86. Central Coalfields Limited (2023). CSR and Sustainability Report. Ranchi: CCL.
87. Ministry of Tourism, Government of India (2022). Homestay Certification and Policy Guidelines.
88. Government of Jharkhand Tourism Dept. (2023). Community Tourism and Eco-Trails Report.
89. Ministry of Skill Development & Entrepreneurship (2023). PMKVY and DDU-GKY Guidelines.
90. Rural Self Employment Training Institutes (RSETI) (2022). Annual Training Outcomes Report.
91. Transform Rural India Foundation (TRIF) (2021). Strengthening Local Institutions for Just Transition.
92. UNDP India (2022). Community Institutions and Just Transition in Mining Regions.
93. Government of Jharkhand (2023). Jharkhand Just Transition Policy (Draft) and Task Force Notifications. Ranchi: Department of Energy.
94. Government of Jharkhand (2023). Proceedings of the Task Force on Sustainable Just Transition. Ranchi: Planning & Development Dept.
95. Central Coalfields Limited (2023). CSR and Just Transition Partnerships Report. Ranchi: CCL.
96. Government of Jharkhand (2022). Jharkhand District Mineral Foundation Trust Rules (Amended).

97. Ministry of Coal (2021). Mine Closure Guidelines for Coal and Lignite Blocks. Government of India.
98. TERI (2021). Mine Land Repurposing for Just Transition: Best Practices. New Delhi: The Energy and Resources Institute.

Background & Scope of Expansion

Fisheries have emerged as a significant alternative livelihood option in Ramgarh district, particularly for communities affected by mining activities. Historically, fisheries in Jharkhand were limited to small-scale operations serving local consumption needs. However, post the formation of Jharkhand in 2000, structured interventions, including the introduction of cage culture under national schemes like the National Mission for Protein Supplements (NMPS) and Rashtriya Krishi Vikas Yojana (RKVY), have transformed the fisheries sector.

In Ramgarh, the district administration and other stakeholders have recognized fisheries as a critical tool for economic diversification and livelihood restoration, especially in mining-affected areas. The abundant abandoned open-cast coal mines present a unique opportunity for repurposing these water-filled pits for fish farming, particularly through cage culture techniques. This initiative not only contributes to employment generation but also mitigates the risks of distress migration.

The success of the Kuju Fishery Cooperative Society, operating in Ara coal pit, has demonstrated the viability of this model. Building upon this, in August 2023, the district administration sanctioned ₹3.86 crore for initiating fish farming across four abandoned coal mines in Mandu and Patratu blocks, offering livelihood opportunities to approximately 250 youths. The convergence of government support, community participation, and favorable market linkages positions Ramgarh as an emerging fisheries hub with significant socio-economic potential.

Fish Production

Jharkhand's fish production experienced remarkable growth, doubling from 104,820 tonnes in 2013-14 to 208,450 tonnes in 2018-19, with cage culture playing a pivotal role. Ramgarh district, leveraging its mining voids, contributes to this growth by transforming abandoned coal pits into fish farming units.

Currently, fish farmers in Ramgarh cultivate fish in privately-owned ponds with year-round water availability. However, households in mining-affected villages often lack land and pond resources, leaving them dependent on mining-related activities. The ongoing expansion of cage culture and cooperative-led fish farming provides an inclusive opportunity for these communities to participate in fisheries-based livelihoods.

Knowledge about Different Types of Fisheries

The fisheries sector in Ramgarh is gradually evolving beyond traditional pond-based fish farming to incorporate advanced practices such as cage culture, particularly in mining-affected zones. Cage culture, introduced under National Mission for Protein Supplements (NMPS) and Rashtriya Krishi Vikas Yojana (RKVY), involves installing floating cages in water bodies, enabling high-density fish production. This method is highly suitable for abandoned coal pits and reservoirs with sufficient water retention.

Further, the Pradhan Mantri Matsya Sampada Yojana (PMMSY) is promoting fisheries development by encouraging the utilization of closed mines for aquaculture, fostering rural employment, women's empowerment, and nutritional security. However, knowledge dissemination about these modern fisheries practices remains limited at the community level, indicating a need for structured capacity-building initiatives.

Fish Feed and Other Services

Fish feed availability is critical for sustaining fish production. In Ramgarh, fish feed demand has increased alongside the expansion of cage culture and pond-based aquaculture. Currently, Ramgarh lacks dedicated fish feed production units, with feed sourced externally, increasing costs and supply-chain vulnerabilities.

The district's fisheries development plan emphasizes promoting local fish feed production to meet growing demand and enhance profitability for fish farmers. Additionally, other critical services such as access to quality fish seed, disease management, and technical advisory support through Matsya Mitras are being gradually institutionalized to ensure the success of fish farming ventures.

Available Support for Capacity Building & Marketing

To build community capacity in fisheries, the district fisheries department provides a structured five-day residential training program for new fish farmers under PMMSY. This training is conducted locally, equipping participants with technical know-how on cage culture, pond management, fish feeding practices, and disease control.

Post-training, continuous handholding support is provided by the Department of Fisheries, facilitated through Matsya Mitras, ensuring high success rates among first-time fish farmers. There is also emphasis on linking beneficiaries with reliable fish seed and feed suppliers and connecting them with potential markets. However, capacity-building initiatives need scaling, particularly targeting landless and mining-affected communities who lack traditional exposure to fisheries.

Available Finance under Government Schemes

The Pradhan Mantri Matsya Sampada Yojana (PMMSY) is a flagship scheme providing financial support for fisheries development in Ramgarh. Under PMMSY, funds are available for infrastructure development, fish seed procurement, cage installation, and capacity building.

CAGE CONSTRUCTION	
Cage Construction cost	3,60,000
State govt. scheme provide 90% subsidy	3,24,000
DMFT provide 100% Subsidy	3,60,000
RECURRING EXPENSES	
Fish Seed Cost	30,000
Fish Feed Cost	3,40,000
Other Misc Cost	30,000
Total Recurring Cost per Cycle	4,00,000

The cost structure for cage culture reflects strong government support, ensuring financial viability for new entrants. Cage construction costs ₹3.6 lakh per battery, with the State Government providing 90% subsidy and DMFT offering 100% subsidy for eligible beneficiaries. Additionally, recurring expenses, including fish seed, feed, and miscellaneous costs, amount to ₹4 lakh annually. These are often shared equally, with 50% covered by Fisheries Department subsidies and the remaining 50% by beneficiary contributions. This financial model results in a net profit of ₹3.5 lakh per family in the first year and ₹1.5 lakh annually from the second year onwards, making fisheries a lucrative livelihood option.

1.0	In put cost per Battery (INR)	4,00,000
1.1	Subsidy from Fisheries Department (50%) (INR)	2,00,000
1.2	1 st Year Beneficiary Contribution (50%) (INR)	2,00,000
2.0	Revenue Earned per Battery	
2.1	Average selling price per Kg of Fish (INR)	110
2.2	Annual sale of Fish per Battery (INR)	5,000
2.3	Revenue earned per battery after selling fish (INR)	5,50,000
3.0	Net Profit	
3.1	First year Net profit per Family per Year (INR) (2.3 – 1.2)	3,50,000
3.2	Net Profit per annum 2 nd year onwards (INR)(2.3 – 1.0)	1,50,000

Types of Fisheries to be Promoted

Given the district's geographical and socio-economic context, the following fisheries models are prioritized:

CAGE CULTURE: Ramgarh has 57 abandoned coal mines covering approximately 530 acres, presenting a significant opportunity to convert unproductive land into livelihood-generating assets through fish cage culture. Out of these 57 mines, 2 cannot be utilized for fish farming due to water contamination, rendering them unfit for fisheries. Currently, 3 mines have already been utilized for fish farming, while 52 remain available for cage culture activities, indicating a substantial scope for scaling up this model.

Since these mines belong to Central Coalfields Limited (CCL), obtaining a No Objection Certificate (NOC) from CCL is required on a case-to-case basis for their use. The Fisheries Department has already signed a Memorandum of Understanding (MoU) with CCL for the use of the 3 abandoned mines, with the condition that if CCL needs to reclaim or reuse the mining area/coal pit in the future, the Fisheries Department must shift the cages and discontinue fishery activities in those locations. The Fisheries Department has accepted this condition, as cage culture is a flexible activity that can be easily relocated from one water body to another.

It is assumed that 70% of the population in Ramgarh consumes fish produced within the district, while 5% of the population in each of the neighboring districts—Ranchi, Gaya, Patna, and Rohtas (Sasaram)—also consume fish from Ramgarh. Based on this assumption, the total fish-consuming population across these districts is expected to reach approximately 19,49,459 by the year 2031.

The projected demand for fish in 2031 is 21,444 MT, indicating a substantial opportunity and need for scaling up fish production in Ramgarh. Given Ramgarh's strategic location and existing fishery infrastructure, it could become a major supplier of fish not only for local consumption but also for neighbouring districts in Jharkhand and Bihar. This estimation further justifies the expansion of cage culture in abandoned coal mines, aligning well with livelihood generation and nutritional security goals.

Projected production of fish from 2025 to 2031

The Fisheries Department has estimated approximately 360 metric tons of fish production from cage culture practiced in 3 coal pits, and 9,450 metric tons from other sources such as ponds, reservoirs, etc., for the year 2025. Based on fish production trends over the past three years in Ramgarh, projections have been made up to the year 2031, as presented below.

Year	No. of Pits	Per Pit Production	Cage Culture	Other Sources	Total
2025	3	120	360	9450	9810*
2026	11	120	1320	10017	11337
2027	19	120	2280	10618	12898
2028	27	120	3240	11255	14495
2029	35	120	4200	11930	16130
2030	43	120	5160	12646	17806
2031	51	120	6120	13405	19525

* as per Fisheries department, Ramgarh

Expected employment generation from fisheries

It is estimated that the phased development of cage culture in the abandoned coal pits from 2025 to 2031 will directly provide employment to 1,200 families and generate approximately 9,600 indirect employment opportunities.

Description	Number	Explanation
Total Expected Fish Requirement in 2031 (in MT)	19525	This is the projected annual fish demand in Ramgarh by 2031, based on population and per capita fish consumption estimates.
Total Fish production in 2025 (in MT)	9810	Current fish production level from both cage culture (360 MT) and traditional sources (9,450 MT) in 2025.
Gap in Fish supply (in MT)	9725	The shortfall between projected 2031 demand and current 2025 production: 19,525 - 9,810 = 9,715 MT.

Description	Number	Explanation
Proposed number of pits to be utilized for fish production	48	To meet the supply gap, 48 abandoned coal mine pits are proposed to be repurposed for cage fish culture
Min. No. of batteries can be placed in one pit	25	A minimum of 25 cage batteries (units for rearing fish) can be installed in each pit.
No. of batteries required to meet fish demand	1200	To cover the 9,725 MT deficit, a total of 1,200 batteries are estimated to be needed across the proposed 48 pits.
Number of families will be benefitted directly @25 families per pit	1200	Assuming each pit supports 25 families, this initiative would directly benefit 1,200 families engaged in fish culture
Indirectly benefitted people from additional cages @ 8 HHs per battery	9600	Each battery benefits around 8 additional households indirectly (e.g., through input supply, logistics, marketing), resulting in indirect benefit to 9,600 households.

Fish Feed – Demand & Supply

There is currently a deficit in fish feed supply, and with the anticipated multifold growth in fish production, there will be a substantial increase in demand. To make Ramgarh self-sufficient in fish feed production, an additional 19 fish feed plants will be required.

DESCRIPTION	Number	
Fish feed required per battery (2 cages per battery) per annum (in Kg)	6600	Each battery, consisting of 2 fish cages, requires 6.6 metric tonnes of fish feed annually.
Total Batteries placed in 3 Coal Pits on date	71	Currently, 71 batteries have been installed in 3 coal pits for cage culture
Total Fish feed requirement (in Kg) (6600X71)	468600	The total current annual feed requirement for the existing 71 batteries.
Expected Batteries to be placed in abandoned 49 Coal Pits (49*40)	1960	Future plan to place 40 batteries per pit in 49 abandoned pits, totaling 1,960 batteries.
Expected requirement of fish feed @6600 per battery per annum (in Kg)	12936000	The total annual feed requirement for 1,960 batteries = 12,936 metric tonnes (MT).
Requirement in MT	12936	Same as above, expressed directly in metric tonnes.
Current Fish Feed Production considering 300 working days (300*6)	1800	Present feed production capacity is 1,800 MT per year, assuming 300 working days and 6 MT/day output
Gap (Current production - Projected production)	11136	The projected annual shortfall in fish feed is 11,136 MT, representing a

DESCRIPTION	Number	
		critical bottleneck for planned expansion.
Additional Fish feed plants requirement	19	To make Ramgarh self sufficient in fish feed production, 19 fish feed plants will be required by 2031.

Implementation Plan for Fisheries Development in Ramgarh District

To effectively harness the fisheries potential of Ramgarh district, particularly through cage culture in abandoned coal mines, a multi-pronged implementation strategy is proposed, covering beneficiary selection, cooperative formation, capacity building, input supply (fish seed and feed), and convergence with government schemes.

Beneficiary Selection

Beneficiaries will be identified primarily from mining-affected, landless, and economically vulnerable households. A transparent and inclusive selection process will be adopted, focusing on youth and women from Scheduled Tribes (ST), Scheduled Castes (SC), and Other Backward Classes (OBC). Preference will be given to families residing near the proposed cage culture sites who do not own land or water bodies, to ensure equitable livelihood distribution. A database of interested candidates will be created with the support of Gram Panchayats, Self-Help Groups (SHGs), and community-based organizations. Selected individuals must commit to participating in training programs and contribute to operational expenses as per the cost-sharing model.

Formation and Strengthening of Cooperative Groups

To ensure collective management, economies of scale, and sustainability, all selected beneficiaries will be encouraged to form fishery cooperatives or producer groups. These cooperatives will be registered under the relevant state act and will facilitate resource pooling, financial transactions, and input procurement. The Kuju Fishery Cooperative Society model will be replicated across other locations, leveraging its success in the Ara coal pit. The cooperatives will also manage the rotation of cages, maintenance of shared infrastructure, and conflict resolution among members. District officials will facilitate training in governance, bookkeeping, and cooperative principles to build local institutional capacities.

Capacity Building and Skill Development

Capacity building will be central to the success of the fisheries initiative. The Fisheries Department will conduct intensive five-day residential training programs under the Pradhan Mantri Matsya Sampada Yojana (PMMSY). Training will cover cage installation, feeding protocols, disease management, harvesting techniques, record-keeping, and marketing strategies. Local “Matsya Mitras” will be deployed for ongoing handholding support. Special training modules will be developed for women and first-time fish farmers. Exposure visits to successful cage culture sites and best practice dissemination will be integrated to build motivation and peer learning.

Fish Feed and Fish Seed Supply Chain

The success of cage culture hinges on uninterrupted supply of quality fish seed and feed. Currently, fish feed demand significantly outpaces local production capacity. Therefore, to meet the projected annual demand of 12,936 MT of feed by 2031, at least 19 new fish feed production units must be established within the district. These units will be promoted under entrepreneurship and MSME schemes, offering direct and indirect employment to around 200 individuals. Fish feed cooperatives or FPOs may be encouraged to manage procurement and distribution. For fish seed, hatcheries with disease-free, fast-growing varieties will be identified or established, and linkages with certified suppliers will be created. Cold chain and transport logistics support will be arranged to ensure timely delivery to remote pits. Funds from DMFT or Fisheries Department may be arranged for transport vehicles for transporting live fish to nearby markets.

Government Support and Financial Convergence

The implementation will draw from multiple government schemes to ensure financial viability and scale. Under PMMSY, subsidies of up to 90% (State Govt.) and 100% (District Mineral Foundation Trust - DMFT) for cage installation will be availed. Recurring costs such as fish seed, feed, and other inputs will be subsidized up to 50% by the Fisheries Department, with the remaining contribution from beneficiaries. The total cost per battery is ₹4 lakh, with annual revenue potential of ₹5.5 lakh per battery, ensuring net profits of ₹3.5 lakh in the first year and ₹1.5 lakh annually thereafter. The convergence will also include capacity building under Skill India Mission, cooperative strengthening under NABARD, and market linkage support through agriculture and rural development departments. The district administration will play a key coordinating role in converging funds from different schemes such as MGNREGA (for infrastructure), NRLM (for SHG mobilization), and Atma Nirbhar Bharat initiatives (for MSME development).

Market Linkage and Infrastructure Development

Marketing support will be facilitated by connecting fish cooperatives with local and regional markets in Jharkhand and Bihar (e.g., Ranchi, Gaya, Patna, Rohtas). Fish will be sold fresh or processed depending on buyer preferences, and transport logistics will be streamlined with support from cold chain infrastructure. District-level fish fairs, tie-ups with wholesale buyers, and digital platforms will be leveraged for market access. Common collection and grading centers, mini-processing units, and cold storage facilities will be developed as part of the fisheries infrastructure roadmap.

Monitoring, Evaluation and Scalability

A district-level monitoring committee comprising Fisheries Department officials, representatives from CCL (for mine use approvals), SHG federations, and local governance institutions will be constituted to oversee implementation. Regular review meetings, field visits, and impact assessments will be conducted to track progress. The project will cover pits in phases (@8 pits per year till 2031 and 25 batteries per pit), placing 200 cage batteries every year, directly benefiting 1,200 families and indirectly impacting another 9,600 households in 6 years. Based on performance, the program will be scaled to more pits/reservoirs, with adaptive strategies built into the implementation.

This structured plan provides a comprehensive roadmap for achieving sustainable, inclusive, and scalable fisheries development in Ramgarh district, transforming mining-affected landscapes into productive and resilient livelihood zones.

Background & Scope of Expansion

Goatry is one of the most prevalent and accessible livelihood activities for rural households in Ramgarh, particularly among OBC and tribal communities, as well as landless and marginal farmers. Rearing goats requires low investment, generates quick returns, and contributes significantly to household income and nutritional security. In mining-affected villages, goatry offers a practical means of livelihood diversification, especially for women-headed households and Self-Help Group (SHG) members. Despite being a traditional practice, goatry has received renewed institutional focus. The Corporate Social Responsibility (CSR) budget of Central Coalfields Limited (CCL) in the region has increased nearly 8 to 9 times, enabling large-scale livelihood interventions, including goatry promotion. With favorable conditions and rising demand for goat meat, goatry is considered a scalable, low-cost, and high-return livelihood alternative, especially suitable for Ramgarh's socio-economic landscape. Apart from the demand for goat meat, there is also significant demand for live goats, as they are sacrificed at the Rajarappa temple, which receives over one million visitors every year.

Goats Reproduction

Goats are known for their rapid reproductive cycle, making them ideal for livelihood promotion among resource-poor communities. In Ramgarh, the Barbari and Black Bengal breeds are commonly reared, both known for their high fecundity rates. Typically, a female goat produces 2 to 3 kids every 6 months under basic management conditions. This high reproduction rate allows households to expand their livestock base quickly, providing opportunities to increase income within a short period. Goatry, therefore, offers continuous income streams through both meat and live goat sales.

Knowledge about Rearing of Goats, Vaccination, Common Diseases and Treatment

Although goatry is widely practiced in Ramgarh, the knowledge among local households is largely based on traditional practices. Most families rear 2 to 3 goats, relying primarily on local grazing resources, with minimal access to veterinary services or scientific management. As a result, goats are highly vulnerable to diseases, which adversely affects productivity and herd growth. Common diseases prevalent in the area include Foot and Mouth Disease (FMD), Peste des Petits Ruminants (PPR), and parasitic infections, often leading to high mortality rates. The limited presence of veterinary services further exacerbates this challenge. To address these gaps, targeted interventions such as vaccination drives and improved health management practices are essential. In recent years, efforts have been made to train SHG members and local frontline workers, such as Pashu Sakhis mobilized under the National Rural Livelihood Mission (NRLM), to deliver basic animal healthcare services. However, the scale of these efforts remains insufficient relative to the growing demand for goatry support services.

Goats Feed Availability

Goats in Ramgarh predominantly depend on natural grazing resources, including common lands, forest edges, and agricultural by-products. Crop residues, such as paddy straw and pulse husks, supplement their

diet, particularly during the dry season. However, fodder scarcity remains a persistent issue, especially in lean months, which negatively impacts goat health and productivity. To overcome fodder shortages, there is a need to promote cultivation of suitable fodder crops like Napier grass and legumes among SHG households and small farmers. Additionally, the development of community-managed fodder banks and better utilization of agricultural by-products can play a crucial role in ensuring year-round feed availability for goats. Improved feeding practices, coupled with enhanced fodder resources, are critical for increasing livestock productivity.

In addition to challenges of fodder availability, Ramgarh faces a significant gap between goat meat production and market demand, particularly given the district's rising population and consumption trends. Current estimates and future projections indicate a substantial shortfall in meat availability, underscoring the need to scale up goatry-based interventions. The following table summarizes the current production status, projected demand, and estimated gaps for goat meat in the district.

Parameter	Value	Year	Remarks
Ramgarh Population (Projected)	11,64,427	2025	Census-based projection
Ramgarh Population (Projected)	12,43,489	2031	Census-based projection
Average Goat Meat Consumption per Capita	1.1 Kg	Annual	Applicable to tribal-dominated areas
Total Meat Requirement	12,96,629 Kg	2025	Based on population and consumption rate
Current Goat Population	2,52,000	2025	Estimated with 20% increase over 2019 Census
Goats Sold for Meat (60% of total population)	1,51,200	2025	Assumed 60% of goats sold for meat purpose
Total Meat Generated (@8 Kg per goat)	12,09,600 Kg	2025	Current production
Current Meat Deficit	87,029 Kg	2025	Gap between production and requirement
Projected Meat Requirement	13,67,838 Kg	2031	Based on 2031 population projections
Projected Meat Deficit	1,58,238 Kg	2031	Expected supply gap
Additional Goats Required (60% for meat)	19,780	2031	To meet meat demand considering 60% meat conversion
Total Goats Required	32,966 (approx. 33,000)	2031	Rounded for program planning
Households to be Supported	2,747	2031	Based on model of 1 buck and 4 goats per household

The table provides a goat meat demand-supply analysis for Ramgarh district, projecting the situation in 2025 and 2031 based on population growth, consumption patterns, and livestock statistics. Here's a detailed explanation of each section:

Population and Consumption Estimates

- Ramgarh Population (Projected): The district's population is projected to be 11.64 lakh in 2025 and 12.43 lakh in 2031, based on census growth trends.
- Average Goat Meat Consumption per Capita: An annual consumption of 1.1 kg per person, which is common in tribal-dominated regions.

Meat Requirement and Supply (2025)

- Total Meat Requirement (2025): With the projected 2025 population and the per capita consumption rate, the district would require 12,96,629 kg of goat meat.
- Current Goat Population (2025): Estimated at 2.52 lakh goats, reflecting a 20% increase over the 2019 census figures.
- Goats Sold for Meat: It is assumed that 60% of goats (1,51,200 goats) are sold for meat.
- Total Meat Generated: At an average yield of 8 kg per goat, total meat production from these goats is 12,09,600 kg.
- Current Meat Deficit: Despite existing production, there remains a shortfall of 87,029 kg of goat meat in 2025.

Meat Requirement and Supply (2031 Projection)

- Projected Meat Requirement (2031): With a larger population, meat requirement will increase to 13,67,838 kg.
- Projected Meat Deficit: If the current trend continues, a larger shortfall of 1,58,238 kg is expected by 2031.
- Programmatic Interventions Needed (2031)
- Additional Goats Required: To meet the projected deficit, an additional 19,780 goats need to be sold for meat.
- Total Goats Required: Considering the 60% meat conversion rate, a total of 32,966 goats (rounded to 33,000 goats) must be raised.

Households to be Supported: Based on a model where each household maintains 1 male (buck) and 4 female goats, a total of 2,747 households would need to be supported by goat-rearing programs.

Implication

The table clearly indicates a growing gap between goat meat demand and supply in Ramgarh. To address this, a targeted goat-rearing initiative involving around 2,747 households by 2031 could significantly contribute to meeting local consumption needs and generating sustainable livelihoods.

Available Support for Capacity Building for the Rearing of Goats to New Entrants

Several institutions are actively involved in building the capacity of new goat farmers in Ramgarh. The Animal Husbandry Department conducts residential training programs, equipping participants with knowledge of goat rearing, disease prevention, shed management, and market linkages. Jharkhand State Livelihood Promotion Society (JSLPS) also plays a pivotal role, delivering training through Rural Self Employment Training Institutes (RSETI), with 75 percent of the costs covered by the District Mineral Foundation Trust (DMFT).

Additionally, NRLM mobilizes SHGs and partners with non-governmental organizations to extend practical training, particularly targeting women and landless households. CCL's CSR initiatives complement these efforts by collaborating with NGOs to implement goatry programs based on community needs.

However, despite these multiple interventions, the outreach of these capacity-building initiatives remains limited due to a shortage of trained human resources. Therefore, convergence among government departments, NGOs, and CSR programs is essential to scale up goatry training efforts effectively.

Available Finance under Government Schemes

Goatry promotion in Ramgarh is supported by various government schemes and financial assistance mechanisms. The Mukhyamantri Pashudhan Vikas Yojana provides a 75 percent subsidy for goat purchase, enabling vulnerable households to start goat rearing with minimal financial burden.

SHGs are eligible to access loans ranging from ₹8 to ₹10 lakh under NRLM, which can be utilized for group-based goatry enterprises. Financial assistance is also available through DMFT funds, facilitated by JSLPS, to distribute goats among rural families. Innovations such as mobile apps for goat marketing are being explored to improve market access, streamline transactions, and ensure better price realization for goat farmers.

Types of Breed to be Promoted

The selection of suitable goat breeds is crucial for enhancing productivity and income in Ramgarh. The Barbari breed, known for its high milk yield and adaptability, is widely recommended for smallholder systems. Black Bengal goats are preferred for their excellent meat quality and prolific breeding performance, making them a popular choice among local communities. Crossbreeding initiatives, particularly using Beetal-Black Bengal crosses, have shown promise in combining meat and milk benefits while maintaining adaptability to local conditions. Promoting these breeds through selective breeding programs, quality buck distribution, and improved veterinary services will help increase goat productivity and household incomes.

Marketing Linkages

The demand for goat meat remains consistently high in Jharkhand and neighboring states, presenting substantial income opportunities for goat farmers in Ramgarh. However, the marketing of goats is currently fragmented and largely informal, with most sales occurring through middlemen or at weekly village haats. This system often results in limited bargaining power for producers and reduced-price realization. To strengthen market linkages, efforts are underway to promote collective marketing through SHGs and cooperatives, facilitating better aggregation and direct sales to traders or meat processors. The development of digital platforms, modeled after online classified sites like OLX, is being explored to connect goat farmers with buyers, reduce transaction costs, and improve price transparency. Strengthening these market linkages is essential to maximize the economic benefits of goatry for rural households.

Comprehensive Implementation Plan for Goatry Development in Ramgarh

1. Beneficiary Selection Strategy

- **Target Groups:** Focus on marginalized and vulnerable populations—OBC, tribal, SC/ST, landless, and women-headed households.
- **Cluster-based Selection:** Identify high-potential blocks (e.g., Patratu, Gola, Mandu, Chitarpur) for cluster-based goatry promotion, using criteria like existing goat population, SHG activity, market access, and availability of grazing/fodder resources.
- **Household Screening:**
 - Willingness to rear livestock and undergo training.
 - Access to basic shelter space for goat housing.
 - Existing affiliation with SHGs or willingness to join/form a group.

2. Women's Involvement & Institutional Anchoring

- **SHG-led Implementation:** Leverage the 8,000+ SHGs already active in the district. Assign at least 60% of goatry units to SHG women, prioritizing women-headed households.
- **Formation of Producer Groups (PGs):**
 - Constitute PGs within SHGs for collective input procurement, vaccination drives, and market negotiation.
 - Promote women-led PGs to enhance gender equity and decision-making power.
- **Deploy 'Pashu Sakhis':** Build a cadre of trained women para-vets from within SHGs to deliver doorstep animal healthcare, disease monitoring, and record-keeping.

3. Goat Breed Selection and Unit Planning

- **Recommended Breeds:**
 - **Barbari:** Fast multiplication, 1–2 liters milk/day, adaptable to semi-urban and rural environments.
 - **Black Bengal:** High meat quality, disease-resistant, culturally acceptable.
 - **Cross-breeding (Beetal x Black Bengal or Barbari):** For improved meat yield and adaptability.
- **Unit Structure:**
 - *Standard Unit:* 1 buck + 4 goats per household (aligning with 2031 projections of 2,747 households).
 - *Feed Support:* One-time provisioning of initial feed (dry fodder and concentrates) for 1–2 months.

4. Capacity Building & Technical Training

- **Modules to Cover:**
 - Goat shed management
 - Feeding and nutrition planning
 - Breeding and kid care
 - Disease identification and treatment
 - Vaccination protocols (FMD, PPR, parasites)
 - Business management and bookkeeping

- **Training Providers:**
 - **Animal Husbandry Dept.:** Residential and on-site training modules.
 - **JSLPS/RSETI/NRLM:** Conduct practical skill-building programs. Utilize DMFT funding to cover 75% of costs.
 - **NGOs:** Partner with experienced agencies for mobilization, IEC, and follow-up.
- **Mode of Delivery:**
 - In-village demo units.
 - Exposure visits to successful goat farms (e.g., Barbari cluster in Aligarh).
 - Mobile app-based learning and goat monitoring tools.

5. Feed and Fodder Management

- **Feed Resource Development:**
 - Promote cultivation of **Napier grass, leguminous fodder, and agro-byproducts** (paddy straw, pulse husk).
 - Establish **community fodder banks** managed by SHGs.
 - Utilize **MGNREGA** for creating silage pits and fodder sheds.
-
- **Lean Season Strategy:**
 - Provide fortified feed supplements during drought or dry months.
 - Facilitate fodder procurement through PGs to ensure price control.

6. Animal Health & Disease Management

- **Veterinary Services:**
 - Create convergence with the Animal Husbandry Dept. to conduct periodic vaccination and deworming drives.
 - Train Pashu Sakhis to administer first aid and report disease outbreaks.
- **Infrastructure Support:**
 - Establish 1 community-based **Goat Health & Breeding Centre** per cluster.
 - Develop a mobile veterinary van for outreach in remote mining-affected hamlets.

7. Financial Inclusion & Subsidy Mobilization

- **Scheme Convergence:**
 - Mukhyamantri Pashudhan Vikas Yojana (75% subsidy for goat units).
 - NRLM/SHG-linked bank credit (₹8–10 lakh per SHG).
 - DMFT funds for goat and shed distribution.
- **Credit Linkage:**
 - Facilitate loan applications via NRLM CRPs.
 - Negotiate interest subvention for SHGs from banks.
- **Livelihood Insurance:**
 - Provide livestock insurance for every unit.
 - Promote awareness about claim procedures.

8. Marketing Linkages and Enterprise Development

- **Market Infrastructure:**
 - Develop goat collection centers with weighing and grading facilities.
 - Promote mobile-based listing apps (modeled on OLX) for direct buyer access.
- **Marketing Channels:**
 - Local haats and meat vendors.
 - Temple-based seasonal goat sales (e.g., Rajarappa temple).
 - Linkages with traders from Bengal and neighboring states.
- **Collective Marketing through PGs:**
 - PGs aggregate goats and negotiate bulk sales.
 - Explore partnerships with meat processing companies for direct procurement.

9. Monitoring, MIS & Impact Tracking

- **Digital Monitoring Tools:**
 - Mobile app for goat inventory, disease tracking, and sales data.
 - Dashboards at block and district levels.
- **Indicators:**
 - Goat mortality rate
 - Income generated per unit
 - Vaccination coverage
 - Fodder availability per household
 - SHG loan repayment and enterprise growth

10. Exit & Sustainability Strategy

- Ensure each household reaches a self-sustaining flock size (minimum 10 goats) within 2–3 years.
- Gradual withdrawal of external support once PGs and SHGs develop their internal systems.
- Encourage local youth to be trained as livestock entrepreneurs and para-vets.

This model, rooted in field realities and stakeholder inputs, offers a phased, inclusive, and scalable pathway for goatry-led livelihood promotion in Ramgarh

ANNEXURE-3 Skilling Landscape in Ramgarh District

Background

Ramgarh district in Jharkhand has been historically dominated by coal mining and allied activities, with livelihoods of a significant population directly or indirectly tied to mining operations. However, with the onset of mine closures, changing energy policies, and growing environmental concerns, the district is undergoing a socioeconomic transition. Communities that once relied heavily on coal now face uncertainty and unemployment, especially as mining-related income starts dwindling. In this context, skilling has emerged as a strategic intervention to equip local youth and vulnerable populations with alternative livelihood opportunities. Skilling can play a critical role in mitigating the adverse effects of mine closures, especially by promoting economic diversification, encouraging entrepreneurship, and building human capital that can adapt to non-coal-based sectors.

Recognizing this, several government and private institutions have initiated skill development programs tailored to the local context. Departments like Animal Husbandry, Agriculture, and Fisheries have been organizing residential training programs aimed at promoting self-employment through modules in poultry, goat-rearing, piggyery, and fisheries. Additionally, the apparel sector in nearby Ormanjhi has emerged as a relatively developed cluster offering training and employment, supported by institutions like the Jan Jyoti Center. Central Coalfields Limited (CCL), under its CSR framework and mine closure funds, has also included skilling as a thrust area, though budget constraints have limited its outreach. These diverse yet fragmented efforts indicate a growing but uncoordinated skilling ecosystem in the district.

Skill Institutes (Government/Private) and Placement Scenario

The skilling infrastructure in Ramgarh comprises both government and private training providers. Government-run training is implemented under schemes like PMKVY (Pradhan Mantri Kaushal Vikas Yojana), Saksham Jharkhand Kaushal Vikas Yojana, and RSETI (Rural Self Employment Training Institute), offering short-term modules in tailoring, fast food, poultry, dairy, and fisheries. However, the reach of government institutes is limited, especially in remote and mining-affected villages and most of these programs typically lack structured post-training support or placement facilitation.

Private players like JIS Foundation in Gola block and PanIIT Gurukul have emerged as major training centers. JIS offers residential courses in automotive repair (two and four wheeler), sewing machine operation (SMO), GDA (General Duty Assistant), and food & beverage services, with a placement record of up to 70%.

Another major initiative is the PanIIT Gurukul, which operates in partnership with the Jharkhand government's welfare department. There are 27 Gurukuls across the state, each specializing in one trade. The Ramgarh Gurukul focuses on SMO training for girls and follows an innovative model of offering free residential training while recovering partial costs from employers (@2000 per month for initial 5 months) post-placement. They claim near 100% placement and have structured engagement with industries like Arvind Textiles.

The RSETI (Rural Self Employment Training Institute) in Ramgarh, jointly managed by the Ministry of Rural Development, Bank of India, and the Rural Livelihood Mission, offers training in 64 trades. While primarily focused on self-employment, RSETI supports candidates through credit facilitation, business planning, and limited post-training mentoring. Courses include tailoring, goatry, poultry, fast food, and beauty services, and have trained approximately 4,500 candidates over five years, with an annual target of 1,000 trainees.

Despite these efforts, most placement opportunities are outside the district, and migration remains the dominant outcome of skilling. While the apparel sector and JIS Foundation demonstrate structured linkages with employers, most government-run training programs lack robust placement systems and rely heavily on informal networks for job absorption. The absence of a coordinated district-level skilling roadmap and weak industry linkages continue to limit the employability potential of trained candidates.

Skilling Aspirations of Youths

A major gap in the current ecosystem is the absence of a formal, district-wide mapping of youth aspirations. Nevertheless, anecdotal and institutional feedback provides insight into emerging trends. Male youth show a strong preference for technical trades such as electrical work, mobile repair, automotive services, and logistics-related jobs. These align with local market demands and are seen as more stable alternatives to high-risk self-employment.

Female youth, particularly those associated with SHGs, often prefer training that enables them to work from home or within their communities. Trades like tailoring, beautician services, paper plate/cup manufacturing, grocery packaging, and food processing are popular. Many young women expressed reluctance to work outside the home due to familial constraints, but are eager to contribute economically through home-based enterprises.

Urban and peri-urban youth also aspire to roles in customer service, healthcare (e.g., nursing assistants, EMTs), and digital data entry. Dropouts from school and college are willing to undertake short-term certified courses, especially when linked with assured job placement or entrepreneurship support.

Skilling Demand and Supply

Demand for skilled labor is most visibly articulated in the apparel sector, which has immediate vacancies. For instance, an apparel unit in Ormanjhi reported a current shortfall of 60 sewing machine operators and projected growing needs as their operations expand. Besides SMOs, the industry also needs quality controllers, machine maintenance staff, computer operators, and workers for specialized operations like washing and dyeing.

The automotive and healthcare sectors also present employment opportunities. JIS Foundation has seen high demand for automotive mechanics, especially for placements outside Jharkhand in cities like Ahmedabad and Pune. The General Duty Assistant (GDA) trade is in demand due to tie-ups with healthcare facilities like Reliance Hospital. Organisation like JIS foundation have tie-up with the various companies where they are supplying trained resources as a result they have around 70% placed percentage.

Year wise Placement Percentage of JIS Foundation

Year	Enrolled Candidates	Placed Candidates	Placed %
2022	1080	780	72
2023	1258	881	70
2024	1064	795	75
2025	438	310	71
Total	3840	2766	72

Following is the list of companies having tie-ups with the JIS foundation.

Employers List (Source: JIS Foundation)

Employers List				
SL	Sector	Company Name	Location	Salary
1	Apparel	Arvind Smart Textile	Rampur, Ranchi	8000 - 12500
2		Orient Craft	Irba, Ranchi	8000 - 12500
3		Kishor Export	Irba, Ranchi	8000 - 12500
4		Uburn Design	Bundu Ranchi	9000 - 13500
5	Telecom	Ayuda Solutions	Namkum Ranchi	10500 - 15000
6		Intract.ai	Namkum Ranchi	10500 - 15000
7		Ison BPO	Kadru Ranchi	9500 - 13000
8		Tata Wistron	Bangalore	18000 - 20000
9		Tata electronics	Bangalore	18000 - 20000
10	Automotive	ZF (Webcco)	Jamshedpur	10000 - 14000
11		Tata Motors	Jamshedpur/Ahmedabad	13500 - 17500
12		INDO MIM	Bangalore	14100 - 15500
13		Mahindra & Mahindra	Pune	16500 - 19500
14		Mitsubishi Belting Pvt Ltd	Pune	16500 - 19500
15	Iron & Steel	Harsha Eng.	Gujarat	16500 - 23500
16		Suzuki Motors	Gujarat	14500 - 17500
17		Motherson Sumi Wire Sys.Ltd	Bangalore/Chennai	16500 - 21500
18		Maruti Suzuki	Gurugram	17500 - 20500
19		Schneider Electrical	Bangalore/Gujarat	14500 - 16500
20	Healthcare	2050 Healthcare	Ranchi/Bhubneshwar	9000 - 13000
21		Medicant Hospital	Bokaro	11000 - 14000
22		Samford Hospital	Kokar, Ranchi	11000 - 14000
23		HN Hospital	Mumbai, Maharastra	14500 - 20500
24		Zupiter Hospital	Mumbai, Maharastra	14500 - 20500
25	THSC	Lohana Stay	Goa, Maharastra	14500 - 19500

Despite this, demand-supply mismatches persist. Most training centers continue to function without direct inputs from industries, leading to skill supply that often does not meet employer expectations. The

disconnect is particularly evident in government training programs, where training content and trades are often selected based on historical trends rather than real-time market needs.

For example, Sayal South residents mentioned their readiness for fish farming, given the availability of water bodies and nearby markets, but the lack of training and capital prevents uptake because training for fish farming is mainly for cage culture. Similarly, youth desiring ITI certification cannot access courses due to distance and cost. The district lacks a real-time labor market information system and employer feedback loop, which limits the relevance and outcome of ongoing training programs. As a result, even when training is completed, either placements are outside the district or youths remain underemployed.

Available Finance Under Government Schemes

Several government schemes provide financial support for skill training and post-training enterprise. All major training institutes in the district offer free training under various schemes. For example, RSETI leverages funding from the Ministry of Rural Development and sponsoring banks to cover training, lodging, and materials.

Financing for enterprise is facilitated through:

Multiple government schemes provide financial assistance for skilling and entrepreneurship, but utilization remains low due to limited awareness and cumbersome processes. RSETI provides loan-linked training, while departments like Animal Husbandry and Fisheries offer support under Mukhyamantri Pashudhan Vikas Yojana and the Goat Bank scheme. These schemes cover 75–90% of capital costs for goatry, dairy, and poultry for SC/ST, BPL, and women beneficiaries. Prime Minister's Employment Generation Programme (PMEGP), offering margin money subsidies up to ₹25 lakh for manufacturing and ₹10 lakh for services and PMFME (PM Formalization of Micro Food Processing Enterprises), providing a 35% capital subsidy (up to ₹10 lakh), seed capital support to SHGs, and assistance in branding and marketing. The Birsa Green Village Scheme offers land and resources for afforestation-linked income. In the context of mine closures, the revised mine closure policy allows for 25% of land value to be allocated to community development, which can be leveraged for skill development and livelihood promotion. However, these schemes are underutilized due to the absence of village-level facilitation, financial literacy, and support systems for paperwork. Youths, especially women, are unaware of these programs or find them difficult to access without external assistance.

While formal bank credit is available, many beneficiaries prefer SHG loans due to simpler processes and lower interest rates. Loan uptake, however, depends heavily on creditworthiness, as reflected in CIBIL scores, which remains a barrier for many first-time entrepreneurs.

Types of Skills to be Promoted

Given the local economic context and youth preferences, several skills have emerged as high-potential areas for promotion in Ramgarh.

For women, skills such as tailoring, beautician work, papad-making, dona-pattal manufacturing, spice packaging, and incense stick production are suitable and culturally acceptable. These skills also align with

the preference for home-based work and small group enterprises, however, they need to be linked with the market.

Among male youth, electrician training, basic computer and IT skills, mobile repair, and paramedical training have strong market demand, especially with the presence of companies in and around the district.

Agro-based skills like goatry, poultry, fish farming, and mushroom cultivation offer viable income alternatives for both genders, provided technical training, input supply, and market linkage are ensured. These activities also require relatively low investment and are suitable for group-based implementation through SHGs or cooperatives.

There is also potential to introduce emerging skills in solar energy, basic IT, and digital literacy, but current programs have not yet institutionalized such offerings.

Placement Options

Placement outcomes vary across institutions. The apparel industry shows strong employer demand, hiring 400–500 individuals annually, with a structured system for onboarding and promotion. Some employees from Ramgarh who started at ₹5,600/month have grown to ₹25,000/month due to skill development and internal growth.

JIS Foundation and PanIIT Gurukul have built industry relationships that enable placement within and outside Jharkhand. However, placement is often affected by socio-cultural factors, particularly for women. Many girls drop out post-marriage or are unable to relocate due to familial restrictions.

RSETI focuses more on self-employment, offering financial and business planning support rather than direct placement. Nonetheless, there is a need to formalize alumni tracking, job fairs, and apprenticeship linkages to enhance placement outcomes across the ecosystem.

Implementation Model

An effective skilling implementation model for Ramgarh must be community-centric, decentralized, and responsive to local conditions. NGOs can play a pivotal role in driving this model by acting as facilitators, coordinators, and service providers.

The model should begin with participatory need assessments and youth aspiration mapping in each village. This should be followed by establishing localized training hubs or deploying mobile training units in collaboration with certified institutions such as JIS Foundation, PanIIT Gurukul, or government departments. Each training batch should be modular and aligned with NSQF (National Skill Qualification Framework) standards. Importantly, skilling must be bundled with access to financial support—whether through SHG loans, subsidies, or CSR grants.

NGOs should assist in post-training handholding through enterprise incubation, market linkage facilitation, and toolkit distribution. A monitoring and evaluation system using digital MIS should be set up to track outcomes like job placement, income enhancement, and enterprise viability.

Additionally, advocacy with district administration and CCL authorities should be pursued to utilize mine closure and CSR funds for sustainable skilling infrastructure and service delivery. By integrating training with finance, mentorship, and placement, the model can address the full cycle of skill-to-income transition and build long-term community resilience.

ANNEXURE-4 Tourism Development in Ramgarh, Jharkhand

Background and Scope of Expansion

Ramgarh district, situated in Jharkhand, offers an untapped mix of religious, ecological, recreational, and industrial heritage tourism. Presently, the tourism sector revolves around two major destinations—Rajrappa Mandir (Maa Chhinnamastika Temple) and Patratu Lake Resort—which have been classified as Category A tourist sites due to their consistently high annual footfalls (more 1 million per annum). Rajrappa Mandir, a prominent religious site, draws massive crowds during festivals, while Patratu Lake, with its boating and scenic surroundings, attracts both day tourists and overnight visitors. These two sites alone account for the majority of tourism-related activities in the district.

However, many smaller sites such as Mahamaya Temple, Tutti Jharna, Palani Waterfall, Panchvahini Temple, and Shiv Temple remain underdeveloped, despite having the potential to attract visitors. Moreover, the district has proposed new sites like Suranjiya Pahad (a natural scenic location) and Shree Chaitanya Mahaprabhu Temple to further diversify tourism offerings. An emerging opportunity also lies in developing mining sites into tourist destinations through adaptive reuse strategies, especially as some mines near closure.

Although the Department of Tourism and CCL have shown interest in tourism-led mine reclamation and ecological restoration, efforts remain fragmented due to the absence of interdepartmental coordination and long-term planning. Community awareness about tourism as a livelihood option is still low, and skill development courses offered by institutions like RSETI have not been operationalized due to limited demand. There is a pressing need to bridge this gap through local sensitization, capacity building, and investment in infrastructure.

Legal Formalities for the Expansion of Tourism

For any tourism development to proceed in Jharkhand, a formal process of site notification is mandatory. Only notified sites are eligible for budgeting, planning, and execution under the Tourism Department's jurisdiction. The sites are categorized (A to D) based on footfall and significance. Development activities—especially for Category A and B—are prioritized and executed using departmental funds and infrastructure planning.

However, for projects involving mining areas or forest land, additional legal clearances are required. Sites such as Karwa Mine, proposed for conversion into a mining heritage tourism site, fall under the jurisdiction of Central Coalfields Limited (CCL). For such areas, either a NOC needs to be obtained from CCL, or CCL itself must initiate the development in collaboration with the tourism department. At present, there is no formal legal mechanism in place to integrate tourism under Mine Closure Plans (MCPs), which has delayed or prevented the transformation of post-mining landscapes into eco-tourism assets. Establishing a state-level legal policy for mine-to-tourism conversion could unlock significant potential in Ramgarh.

Available Finance under Government Schemes and Departmental Funds

Currently, the tourism department receives annual funds from the state government, but these allocations vary year to year and are largely focused on maintaining and upgrading existing Category A and B sites. While the state budget forms the base of financial resources, larger central schemes such as PRASHAD (for religious tourism) and Swadesh Darshan (for integrated tourism circuits) remain underutilized in Ramgarh. For example, Rajrappa Temple qualifies under PRASHAD for spiritual tourism development, yet no formal linkage to the scheme exists as of now.

Another untapped funding source is the District Mineral Foundation Trust (DMFT), which can legally support environmental restoration and livelihood development—both of which align well with tourism. Despite this alignment, tourism projects have rarely been financed through DMFT in Ramgarh due to the lack of convergence between departments. Similarly, CSR funds from CCL and other industries could be mobilized, especially for mine-tourism, eco-park development, and skill training initiatives. The absence of a coordinated financial strategy that pools funds from multiple sources limits the potential scale of tourism transformation in the district.

Types of Tourist Spots to be Developed

Tourism diversification in Ramgarh can revolve around religious, eco-based, adventure, and heritage themes. Rajrappa Mandir, being one of the most visited religious shrines in the state, could be developed under the PRASHAD scheme, with improved infrastructure, sanitation, and accommodation facilities. Similarly, Mahamaya Temple and Shree Chaitanya Mahaprabhu Temple can be developed into nodes of a larger religious circuit.

Patratu Lake offers scope for eco-tourism and weekend retreats, with facilities like boating clubs, nature trails, and resorts. Suranjiya Pahad, with its scenic elevation, could become a hub for trekking and photography tourism. Man-made sites such as Palani Waterfall and Tutti Jharna can be beautified and made accessible through landscaping, signage, and local engagement.

A unique proposition lies in converting abandoned or declining mining sites—such as Karwa mine—into industrial tourism parks. These could include guided tours, mining museums, interactive exhibits, and ecological restoration zones, especially once mines reach the closure stage. Although such projects are in the ideation stage, they represent long-term prospects for tourism in a post-industrial Ramgarh economy.

Anticipated Tourism Growth in the next 5 years in Ramgarh

According to the current estimates, tourism footfall in Ramgarh stood at nearly 39.7 lakh in 2024. Rajrappa Temple accounted for approximately 27.4 lakh visitors annually, making it the most visited site, followed by Patratu Dam with 12.25 lakh visitors. Minor sites together attracted around 6,000 visitors.

Projections for 2030:

Assuming a 4% annual growth, place total tourist footfall at approximately 50.2 lakh visitors. These are further divided into daily visitors (70%) and overnight stay tourists (30%), translating to 35.17 lakh and 15.07 lakh respectively. Average per day expenditure estimates suggest that:

Daily visitors (spending ₹1157/day) would generate approximately ₹406.9 crore

Overnight visitors (spending ₹2252/day) would generate around ₹339.5 crore

The total projected tourism revenue for 2030 is ₹746.4 crore, making tourism a significant contributor to the local economy.

This economic activity is also expected to generate substantial employment. For every ₹1 lakh revenue, around 6–8 person-days of direct employment are generated. This amounts to approximately 5.2 lakh person-days of direct employment and up to 12 lakh person-days of indirect employment. Translating these figures into jobs, about 2800 persons would be employed annually by 2030 in tourism-related sectors.

A sector-wise employment breakdown is as follows:

- Hospitality & accommodation: 840 people
- Transport & logistics: 560 people
- Food & beverage services: 420 people
- Cultural and recreational services: 420 people
- Retail and handicrafts: 280 people
- Miscellaneous tourism services: 280 people

Additionally, infrastructure improvements and the development of new sites like Suranjiya Pahad, Shree Chaitanya Mahaprabhu Temple, and mine-to-tourism conversions are projected to contribute an additional 5.45 lakh footfalls, further boosting local employment and income.

Integrated Implementation Model for Tourism Development in Ramgarh

1. Strategic Vision and Guiding Principles

The tourism development strategy for Ramgarh envisions transforming the district into a vibrant and diversified destination by leveraging its religious significance, ecological beauty, and industrial heritage. The model aims to focus on redeveloping existing tourist sites, identifying and developing new ones—particularly those located in and around closed or declining mining areas—and repurposing reclaimed mining land for eco-tourism, artificial lakes, and recreational infrastructure. A core priority is to ensure convergence between various funding and implementing agencies such as CCL (Central Coalfields Limited), DMFT (District Mineral Foundation Trust), CSR divisions, and government tourism schemes like PRASHAD and Swadesh Darshan. The model emphasizes inclusive and sustainable development, with a strong focus on youth and SHG-led employment generation across sectors such as transport, food services, accommodation, and recreation.

2. Institutional Mechanism: Formation of a Convergence Task Force

The implementation will be anchored through a multi-stakeholder body titled the Tourism Development Convergence Task Force (TDCTF) at the district level. This task force will be chaired by the District Tourism Officer and include representatives from the CCL CSR division, the Mine Closure department, DMFT Cell, District Forest Officer, ATMA, SHG federations, youth representatives, and elected PRI members. The TDCTF will be responsible for planning, prioritization, and coordination of tourism projects. Its role will include preparing Detailed Project Reports (DPRs), facilitating approvals and permissions across departments,

aligning schemes and funds, and overseeing implementation and monitoring of tourism-linked livelihood initiatives. The task force will meet quarterly to review progress and approve new interventions based on feasibility and available funds.

3. Site Identification and Redevelopment Strategy

Tourism development in Ramgarh will follow a dual approach—upgrading existing popular tourist sites and developing new sites with potential, especially those linked to mining and eco-tourism. Among the existing sites, Rajrappa Mandir and Patratu Lake Resort will be taken up for comprehensive redevelopment. Rajrappa will be developed under the PRASHAD scheme, with enhancements including better sanitation, a visitor center, solar lighting, and a designated vending zone for local artisans and flower vendors. Patratu Lake will be upgraded with extended boating facilities, eco-cottages, and landscaped gardens for weekend visitors.

New sites such as Suranjiya Pahad and Shree Chaitanya Mahaprabhu Temple will be developed under state tourism and DMFT funding. Suranjiya Pahad will be promoted as a trekking and nature tourism destination, while the Chaitanya Temple site will be developed into a spiritual tourism hub with cultural exhibitions and SHG-run stalls. Smaller but significant sites like Palani Waterfall, Mahamaya Temple, Tutti Jharna, and Shiv Temple will be strengthened with basic infrastructure like pathways, lighting, safety railings, and signage. Crucially, abandoned or underutilized mine areas—such as Karwa mine—will be redeveloped into artificial lakes, boating zones, eco-recreational parks, and potentially a mining heritage museum under the CCL Mine Closure Plan and CSR fund.

4. Infrastructure and Service Development

To support growing tourism and improve visitor experience, extensive infrastructure and tourism-related services will be developed across all major and minor sites. In the hospitality and accommodation sector, registered homestays and eco-cottages will be encouraged through subsidies and training. Vacant or low-use government buildings can be repurposed into guest houses, while private players can be incentivized through land leasing under PPP mode to build small hotels or resorts near key tourist hubs such as Rajrappa and Patratu.

Food and beverage services will be strengthened by constructing standardized vendor stalls near all tourist sites. These will be allotted to local SHGs and youth groups, who will be trained in food safety and business operations. In the transport sector, trained youth will be provided opportunities to operate taxi services, e-rickshaws, and rental bikes to ferry tourists across circuits. For boating services, local youth and SHGs will be licensed to operate paddle boats and motorboats on Patratu Lake and newly created artificial lakes at mine sites. The boating services will include safety protocols, life jackets, and regular maintenance checks.

Recreational parks and open spaces will be developed especially around reclaimed OB dumps or shallow mining pits, which will be converted into green areas, walking tracks, cultural performance spaces, and lakeside seating zones. These eco-recreational hubs will also serve as informal marketplaces for local artisans and produce sellers. Kiosks and tourist information centers will be established at all Category A and B sites to guide visitors and provide brochures, maps, and multilingual support.

5. Financing and Fund Convergence Model

A robust financing model will be adopted by pooling resources from multiple sources. CCL's CSR division will fund infrastructure such as access roads, boating jetties, electricity transformers, and drinking water facilities. Additionally, CCL's Mine Closure funds—revised in 2025 to allocate 25% of ₹14 lakh per hectare for community development—will be leveraged for ecotourism projects, lake creation, and mining museums. DMFT funds will be crucial for building livelihood infrastructure in mining-affected areas, such as tourist stalls, sanitation units, and training centers. Schemes under the Ministry of Tourism, such as PRASHAD and Swadesh Darshan, will be used to fund integrated development at religious and eco-tourism circuits, respectively. The state tourism budget will cater to minor sites, route mapping, and safety infrastructure.

SL	Source	Scope of Funding
1	CCL CSR	Site development, skilling, infrastructure (roads, boating, water facilities), eco-park development
2	Mine Closure Fund (Post-2025)	25% allocation for community engagement—eco-tourism, site reclamation, recreational infrastructure
3	DMFT	Tourist infrastructure in mining-affected areas, SHG and youth livelihood promotion
4	PRASHAD Scheme (MoT)	Religious sites (Rajrappa, Chaitanya Temple) for integrated development
5	Swadesh Darshan Scheme	Circuit development (Rajrappa–Patrattu–Suranjiya Pahad)
6	State Tourism Budget	outline maintenance and Category C & D site upgrades
7	Private Sector	PPPs for hotels, recreational zones, eco-stay units, boat management

A pooled fund model will be implemented through TDCTF, with project-based budgeting and phase-wise allocations based on DPRs. Financial proposals will prioritize community ownership, sustainability, and employment generation.

6. Livelihood and Youth Skilling Components

Tourism development in Ramgarh presents a major opportunity for direct and indirect livelihood creation, especially for youth and women. Through convergence with ATMA, RSETI, and PMKVY, over 500 youth will be trained in hospitality, tour guiding, boat operation, eco-camp management, and food services. SHG members will be trained to manage flower shops, food stalls, and sanitation facilities at tourist sites.

Entrepreneurship will be promoted by enabling local microbusinesses to operate kiosks for souvenirs, handicrafts, photography, and traditional snacks. Youths will also be encouraged to run eco-rickshaws and taxi services. ATMA will support allied activities such as mushroom farming, nursery development, and flower cultivation, especially around temples like Rajrappa where demand is high. Cold chains and value-added services like mushroom powder, dried vegetables, or flower garlands will be introduced.

The approach ensures that not only are jobs created, but a local ecosystem of microenterprises thrives—anchored in tourism but connected to agriculture, culture, and service sectors.

7. Process for Permissions and Land Use

Tourist sites must first be formally notified by the state tourism department to be eligible for development funds. For mine-based or forest-adjacent tourism projects, MoUs must be signed between the Tourism Department and CCL, or CCL must develop the projects directly and hand over operations to community groups. NOCs from Gram Sabha, Forest Department (where applicable), and concerned departments will be obtained for constructing stalls, parks, and lakes. Land for hotels, restaurants, and recreation zones will be allocated based on usage classification and leasing rules, with a preference for SHGs and local entrepreneurs.

Mining lands earmarked for closure and reclamation will be evaluated for tourism feasibility. Upon approval, partial land will be converted into artificial lakes, adventure zones, and eco-campsites while following Mine Closure Plan guidelines. All vending zones near religious sites will be designed and allocated following uniform aesthetic and sanitation standards.

8. Phase-Wise Rollout Timeline

The implementation will be carried out in three major phases. In Phase 1 (Years 1–2), key sites like Rajrappa and Patrattu will be upgraded, the TDCTF will be formed, and capacity-building of SHGs and youth will commence. DPRs will be prepared for Suranjiya Pahad, Shree Chaitanya Temple, and Karwa mine. In Phase 2 (Years 3–4), new sites will be developed, and mushroom and nursery projects will be scaled. Tourist transport and boating services will be launched, and recreational infrastructure around artificial lakes will be completed. In Phase 3 (Year 5), private players will be invited under PPP to build hospitality assets, and full-fledged eco-tourism and cultural programming will be implemented. A final audit will be conducted to establish a long-term sustainability roadmap.

Conclusion

The proposed model presents a structured, multi-stakeholder approach to tourism development in Ramgarh. By combining legal processes, financial resources, and participatory governance, the district can transform its tourism landscape while generating sustainable livelihoods. The convergence between CCL, DMFT, Tourism Department, and local institutions will be key to unlocking the full potential of Ramgarh's natural and cultural assets. If implemented effectively, the model can serve as a replicable blueprint for other mining-affected regions in India.

ANNEXURE-5 Backyard Poultry Development in Ramgarh District

Overview & Relevance

Backyard poultry (BYP) serves as a critical livelihood and nutritional supplement for rural households in Ramgarh, Jharkhand, particularly among tribal and women-headed households. Its appeal lies in its low capital requirement, short rearing cycles, and swift returns. Women, often excluded from high-investment or land-dependent livelihoods, find backyard poultry a feasible and empowering option. With an extensive Self-Help Group (SHG) network of approximately 3,352 groups, Ramgarh offers a ready ecosystem for upscaling poultry-based livelihoods. Moreover, BYP contributes significantly to household nutrition and income diversification, especially in mining-affected areas where income insecurity is high.

Focus group discussions (FGDs) conducted across Ramgarh reveal that women across various villages—such as Borobing, Chorghra, Mandudih, and Badgaon—are keen to adopt poultry farming provided they receive adequate support in training and finance. In villages where coal mining jobs are declining or precarious, BYP stands out as a viable, home-based alternative that allows for flexibility, particularly for women who are already burdened with household and agricultural responsibilities.

Current Practices

In rural Ramgarh, backyard poultry continues as a customary practice. Households generally rear 5 to 10 native birds, including one cock, primarily through scavenging and kitchen waste, with occasional supplemental feed. These birds are used for both self-consumption (meat and eggs) and for small-scale sale in nearby markets. Over 50% of marginal and small farmers in Jharkhand are engaged in some form of poultry activity, and similar patterns are observed in Ramgarh.

More recently, improved bird breeds like Vanaraja, Gramapriya, Giriraja, Srinidhi, and Kuroiler are being adopted due to their higher productivity—laying 120–150 eggs annually, compared to 80–100 eggs from indigenous varieties. Despite this, most villages still rely on traditional breeds due to lack of awareness and limited access to improved chick supply chains. In Chorghra, SHG members shared that while some households maintain poultry, it is typically at a subsistence level, without scale-up due to lack of finance and technical guidance.

Engagement & Livelihood Scope

According to the 20th Livestock Census, Jharkhand houses around 18.81 million backyard poultry birds, of which Ramgarh—assuming proportional distribution—would have a significant share. A conservative estimate suggests that 10,000–15,000 households in Ramgarh currently engage in BYP. FGDs indicate that about 10–15% of SHG members in villages like Borobing, Chorghra, and Mandudih are already rearing poultry in some capacity.

In SHGs like “Damodar Mahila Samooh” of Borobing and “Paevari Swayam Sahayata Samuh” of Badgaon, members expressed their desire to expand poultry activities if support for input supply (chicks, feed, medicine), market linkage, and training is available. Their interest in BYP is grounded in its compatibility

with existing agricultural and domestic work, especially as women contribute 75% or more of farm labour in most villages

Gaps & Challenges

Despite its potential, several critical gaps hinder the expansion of BYP in Ramgarh:

Veterinary Services: FGDs consistently highlighted the lack of veterinary services. In Chorghra and Badgaon, women stated that veterinary care is either absent or only available privately at high costs

Quality Feed and Chick Supply: Inconsistent access to quality feed and improved chicks was identified as a major constraint across all focus villages. There are no formal hatcheries or feed outlets within easy reach of most villages.

Lack of Training: Most SHG members reported never having received training on poultry farming. In Mandudih, Chorghra, and Borobing, women indicated they were eager to adopt poultry farming but lacked even basic orientation on chick care, disease prevention, and shed construction

Poor Market Linkages: Households that rear poultry often struggle to find buyers beyond their immediate locality. While demand exists, as in Chitarpur market, lack of aggregation and negotiation power results in low sale prices.

Government Support & Enablers

There is a growing ecosystem of support for BYP in Ramgarh:

Schemes and Missions: The National Rural Livelihoods Mission (NRLM), Rurban Mission, and District Mineral Foundation Trust (DMFT) have initiated programs that support SHGs with chicks, vaccinations, and training. However, coverage remains patchy.

Convergence Platforms: Panchayati Raj Institutions (PRIs) and SHGs serve as ideal conduits for program implementation, yet require strengthening and clearer roles.

NGO and Private Support: Organizations like Aryabhatt Educational and Health Trust, Jan Jagran Kendra, and SELCO Foundation have initiated poultry-related programs in neighboring districts. Such models—offering bundled services including chicks, feed, technical support, and market linkage—can be replicated in Ramgarh.

Business Economics

With a population of around 1 million, Ramgarh has an annual poultry meat demand of approximately 3,230 tonnes (based on 3.23 kg per capita consumption). In contrast, the district's current estimated production stands at about 650 tonnes, indicating a significant demand-supply gap of 2,500–2,600 tonnes.

Capturing even 20% of this unmet demand—about 500 tonnes annually—would require around 8,000 households rearing 60 birds a year (20 birds in three cycles). This would necessitate a structured program involving ~1,000 SHGs (assuming 8 members per SHG are active). With farm gate prices at ₹130 per bird, each household could earn ₹2,600 per cycle, or ₹7,800 annually.

High-value breeds like Kadaknath (selling at ₹600 per bird) offer even greater returns, although require more intensive management and targeted markets. FGDs revealed interest in such models, especially if buyers could be connected directly to producers to avoid middlemen

Implementation Model for BYP development in Ramgarh

1. Beneficiary Selection Criteria and Process

In the initial phase of the BYP development program in Ramgarh, careful identification and selection of beneficiaries is critical to ensure sustainability and scalability. The focus will be on women-led households, especially those that are part of active Self-Help Groups (SHGs) under NRLM or DAY-NRLM frameworks. Priority will be given to families belonging to SC, ST, and OBC categories, marginal and small farmers, and households indirectly or directly affected by mining-related livelihoods. Given the socio-economic vulnerability and limited asset base of these groups, they are most likely to benefit from the low-cost, high-impact nature of backyard poultry. The selection process will include initial consultations with Panchayati Raj Institutions (PRIs) and JSLPS field staff to identify eligible SHGs. Household-level surveys will then be conducted to shortlist willing and capable women members. The final list of beneficiaries will be vetted and approved by the respective Village Organizations (VOs). In the first phase, the project aims to engage 200 SHGs across five blocks, targeting approximately 1,600 households (assuming 8 members per SHG).

2. Chicks Supply and Breed Selection

To ensure healthy poultry development and reduce early-stage mortality, the program will prioritize the distribution of 23-day-old chicks rather than day-old ones. These chicks will be fully vaccinated against common diseases such as Marek's and Ranikhet, thereby improving survival rates and reducing losses at the household level. Breed selection will include Vanaraja, Gramapriya, Kuroiler, and Kadaknath, depending on the demand patterns and suitability of local climatic conditions. Kadaknath, a high-value indigenous breed, will be promoted for niche markets. The supply chain will be developed through formal partnerships with certified hatcheries and State Poultry Farms under the Animal Husbandry department. Last-mile delivery will be facilitated through trained SHG members or Poultry Resource Persons (PRPs) who will ensure timely distribution. Each household will rear 20 to 30 chicks per batch, with two to three batches annually depending on household capacity and management practices.

3. Capacity Building and Training

Capacity building is a cornerstone of the BYP development strategy. Training programs will be designed to equip women with essential knowledge on poultry management, chick care, disease prevention, and feeding practices. In addition, sessions will cover aspects of cage construction, vaccination schedules, feed formulation using locally available ingredients, basic record keeping, and understanding market dynamics. Training will be delivered through a combination of classroom sessions and practical demonstrations using a hub-and-spoke model. Block-level training hubs will be established and facilitated by Krishi Mitras trained under the JOHAR project, livestock extension officers, and experienced PRPs. Digital aids such as mobile videos and printed IEC materials in local language will complement training delivery. Refresher trainings will be conducted every six months to reinforce learning and address emerging challenges.

4. Housing and Cage Management

Proper housing and cage management are critical for minimizing poultry mortality and improving productivity. The project will provide support for the construction of low-cost poultry sheds through convergence with DMFT or Rurban Mission. Each household will receive a 50% to 70% subsidy for constructing a 6x4 feet elevated cage made of locally available materials with provisions for ventilation, cleanliness, and safety from predators. In addition, community demonstration units will be constructed at the panchayat level to serve as learning models. Each panchayat will have at least one or two such demo

units maintained by SHGs or federations. Where appropriate, mobile poultry shelters using bamboo and netting will be promoted to ensure protection during night hours and to facilitate movement as needed.

5. Feed and Health Management

Feeding and health care are among the most cost-sensitive and technically demanding components of poultry rearing. To address this, the project will promote the use of locally sourced feed materials such as maize, rice husk, kitchen waste, and broken grains. In parallel, small feed mills will be established at the CLF level with technical assistance from JSLPS or local NGOs to ensure timely and affordable feed supply. For health management, a cadre of trained PRPs will be developed within the community. These women will be responsible for administering vaccines, monitoring poultry health, and offering basic veterinary care. They will be supported through regular coordination with the Animal Husbandry department for supply of vaccines, dewormers, and vitamin supplements. A mobile vet calendar will be introduced at the cluster level to plan health-related interventions systematically. Starter health kits will be provided to each household under the initial rollout.

6. Market Linkage and Enterprise Promotion

A robust market linkage strategy will be critical to the success of the BYP model in Ramgarh. At the grassroots, local aggregation points will be established at the SHG or VO level to collect and consolidate surplus birds. These points will be managed by SHG-appointed market facilitators trained in grading, pricing, and negotiation. At the district and block level, partnerships will be formed with bulk buyers such as local meat shops, hotel chains, and institutional kitchens. In the case of high-value breeds like Kadaknath, direct linkages will be explored with niche markets and e-commerce platforms. Further, convergence with government schemes like Mid-Day Meal (MDM) and Integrated Child Development Services (ICDS) can be leveraged to supply eggs and poultry meat. SHGs will be trained in basic enterprise skills including cost calculation, sales planning, and price setting to improve their bargaining power. Branding support will be facilitated through JSLPS and DRDA to promote collective identities such as “Ramgarh Desi Chicken”.

7. Financial Convergence and Support

To ensure smooth implementation and cost-effectiveness, the BYP program will adopt a convergence-based financing strategy. Capital expenditures such as chick procurement, shed construction, and initial feed will be covered through existing government schemes including DMFT, NRLM, and Rurban Mission. JSLPS will play a key role in mobilizing SHGs, providing handholding support, and coordinating with block-level officers. In addition, efforts will be made to establish credit linkages for SHGs and individual members through cooperative banks, commercial banks, and SHG Bank Linkage Program (BLP). Where required, working capital loans will be provided through SHG federations. The initial cost of chicks and feed for the first cycle will be offered as a subsidy to encourage adoption. Continued handholding will ensure that these families are able to reinvest their income and maintain the enterprise independently after the initial support is withdrawn.

8. Institutional Arrangements and Monitoring

The overall responsibility for program coordination will lie with the District Rural Development Agency (DRDA), supported technically by the Animal Husbandry Department and JSLPS. At the block level, dedicated Block-Level Implementation Units (BLIUs) will be formed, comprising a livestock officer, a poultry expert, and a JSLPS block coordinator. These units will ensure timely implementation of all components—training, chick supply, health interventions, and market linkage. A robust Monitoring and Evaluation (M&E)

framework will be deployed using mobile-based Management Information Systems (MIS) to track beneficiary data, chick distribution, mortality rates, earnings, and market sales. Monthly reports will be generated through SHG bookkeepers and PRPs. To ensure transparency and community accountability, social audits and VO-level review meetings will be held regularly. Feedback mechanisms will be built to incorporate learnings and make course corrections wherever required.

9. Phase-wise Rollout

The implementation of the BYP model in Ramgarh will follow a three-phase rollout strategy.

In Phase 1, pilot interventions will be conducted in five clusters—one in each selected block—to test the feasibility and effectiveness of the model over a six-month period.

Phase 2 will involve scaling up to 20 clusters across the district, incorporating lessons learned during the pilot. This phase will run over the next 12 months.

Finally, Phase 3 will expand the intervention to all blocks in the district, covering approximately 1,000 SHGs over a 36-month period. The rollout will be dynamic, allowing for mid-course corrections and targeted support based on ongoing monitoring data.

This integrated and inclusive model for backyard poultry development in Ramgarh builds upon the successful components of the JOHAR project while tailoring the approach to the socio-economic realities of mining-affected and agrarian communities in the district. With convergence-based support, institutional coordination, and strong SHG involvement, this model has the potential to improve rural livelihoods, empower women, and reduce the district's dependency on imported poultry meat.

Background & Scope of Expansion

Agro-processing in Ramgarh has emerged as a strategic intervention for diversifying livelihoods beyond mining, especially among SHGs, smallholder farmers, and youth collectives. The district's agricultural landscape—despite its mining dominance—is rich in paddy, vegetables, pulses, and minor millets, offering a strong foundation for value addition and micro-enterprise development. Departments like the District Industries Centre (DIC), JSLPS, and ATMA have identified agro-processing as a key sector for employment and self-reliance. DIC reports that Ramgarh already has several micro-units under PMEGP and PMFME, including bakeries, rice mills, and snack units in blocks like Gola and Chitarpur. Successful bakery and flour mill units have continued to operate over the years, reflecting sustainability even in low-resource environments.

Insights from the Ease of Doing Business (EoDB) Manager at DIC highlight increasing interest in food processing units—especially in Kurkure, chips, and snack items—with some local enterprises beginning to expand their product outreach to Bihar and West Bengal. While the units face packaging and branding challenges, the shift from micro to small-scale operations signals growth potential. FGDs conducted with SHGs and farmers reinforce this direction—women expressed interest in pickling, flour milling, vegetable drying, and puffed rice processing. However, across all discussions, a consistent theme emerged: despite the resource base and willingness, technical training, collective marketing, and reliable credit access remain major bottlenecks.

Labour Requirement

Agro-processing in Ramgarh generally operates on a micro to small-scale level, employing between 3 to 10 workers per unit depending on the nature and mechanization of the enterprise. For example, flour mills and bakeries require fewer staff, often run by 2–3 persons, while snack and packaged food units engage more labor for preparation, packaging, and distribution. IDIs with the DIC indicate that small snack units in Chitarpur and Gola are family-run with occasional hired support, while women SHG members across Borobing, Chorghra, and Mandu blocks have the capacity and interest to contribute to labor-intensive activities like vegetable processing and spice grinding. The potential to scale employment exists, particularly if production and aggregation are done collectively through SHGs or Farmer Producer Organizations (FPOs). Yet, there is no formal labour-market mapping for agro-processing enterprises in Ramgarh. This leads to mismatches between training supply and enterprise demand. The ATMA department suggests aligning modular training for food-based enterprises with local demand, particularly targeting women, youth, and the underemployed.

Support for Capacity Building

Capacity building in agro-processing remains limited to a few initiatives in Ramgarh. RSETI conducts short-term fast food courses and DIC occasionally organizes PMFME Melas. However, the scale and reach are inadequate to meet the aspirations of SHG members and small farmers. SHG women interviewed in villages like Chorghra and Badgaon expressed their willingness to participate in trainings on organic farming,

pickling, food preservation, and nutri-garden management, but noted that training sessions are rare and often held far from villages.

ATMA has taken encouraging steps by training over 30 families in mushroom cultivation, including supply of raw materials and demonstration sessions. This initiative, supported under CCL CSR, reflects the potential for low-input, high-output models that require minimal land. The SUPPORT NGO has launched skilling efforts in lac processing and polyhouse nursery operations, particularly targeting women and marginal households. These initiatives show that localized, practical, and handholding-based training models are more likely to succeed than classroom-oriented ones.

A joint capacity-building framework using mobile training vans, rural food labs, and incubation centres at the block level—supported by DMFT, Skill India, and PMFME—can address existing skill gaps. Such centres could offer modules on food hygiene, branding, FSSAI compliance, and machine handling.

Finance under Government Schemes

Multiple government schemes are operational in Ramgarh to support agro-processing—chiefly PMFME, PMEGP, and NRLM-linked credit. DIC confirms that under PMFME, up to ₹10 lakh in credit-linked subsidy can be availed for setting up processing units, with additional support under PMEGP for manufacturing and service-based sectors. However, SHG members and small entrepreneurs often lack awareness and documentation capacity to access these funds. Moreover, DIC officials highlighted that many ventures collapse due to weak marketing support, despite receiving subsidies and equipment.

DIC suggests the creation of a blended finance cell, pooling PMFME, DMFT, CSR, and SHG capital to create a more flexible financing architecture. This would be particularly useful for women-led collectives and SHGs interested in group-based units like pickling, flour packaging, vegetable drying, or puffed rice production. A dedicated credit facilitation and mentoring system—anchored within block-level convergence cells—can increase success rates.

Types of Units to be Promoted

Agro-processing units recommended for promotion in Ramgarh include bakeries, flour mills, snack-making units (Kurkure, chips), and puffed rice production—all of which are already functioning with varying degrees of success in Gola, Chitarpur, and Mandu blocks. These units cater to both local consumption and outside markets in states like Bihar and West Bengal. Coconut oil extraction and mushroom drying—backed by JSLPS and ATMA—offer niche opportunities for SHGs, especially those with limited space or capital.

Vegetable-based processing holds significant promise due to Ramgarh's strong production of tomato, cabbage, okra, spinach, and off-season gourds. Drying, pickling, chutney-making, and minimal processing (sauces, puree) can help address market glut and price crashes, which frequently impact smallholders. Similarly, pulses such as arhar, urad, and cowpea—cultivated in crop rotations—can be processed into flour, snacks, or packaged dal. These units can be home-based or cluster-operated, especially in Dulmi and Gola blocks.

Despite the milk demand, large-scale dairy processing remains unviable due to low cattle population and scattered milk collection. DIC officials suggest starting with decentralized milk packaging and collection centres using BMC units, if SHGs or dairy collectives can be formed.

Marketing Linkages

Marketing remains the weakest link in Ramgarh's agro-processing ecosystem. According to DIC, several micro-units have failed or stagnated despite good production capacity due to lack of branding, packaging, and buyer linkages. Many units still use transparent polybags without labels or nutritional details, reducing credibility in urban and retail markets. FGDs confirmed that products like pickles, masalas, and puffed rice are sold within village haats or through local shops at minimal margins.

To overcome this, district-level branding initiatives are needed, especially to promote SHG-based products under a common name with proper logos, FSSAI certification, and attractive packaging. Integration with e-commerce platforms like Flipkart, Samarth, Amazon and Karigar could enhance outreach. Cold chains for perishables and aggregation centres for non-perishables can further streamline bulk marketing. A marketing facilitation cell under DIC or JSLPS, offering access to designers, food technologists, and buyers, would ensure that agro-processing products meet competitive standards.

Rice-Based Agro-Processing Potential in Ramgarh District

Ramgarh district has extensive paddy cultivation, especially in high-intensity agricultural zones like Gola and Dulmi. Gola block, with a cropping intensity of 260%, paddy–pulse rotation, and good road connectivity, is ideal for establishing rice mills, husk-based energy units, and puffed rice enterprises. The block also has strong SHG and farmer presence to support aggregation and processing.

Dulmi block, with moderate cropping intensity (140%) and balanced rice-vegetable cultivation, offers opportunities for hulling, polishing, and packaging of rice. SHG-operated mini-units or community-level processing hubs can improve farm gate prices and reduce post-harvest losses.

By-products such as rice bran can be processed into cattle feed or rice bran oil, while husk can be converted into briquettes or used for energy generation. The establishment of rice-based agro-enterprises in these blocks would generate employment, reduce distress selling, and stabilize farmer incomes.

Vegetable-Based Agro-Processing Potential

Ramgarh district, particularly in blocks like Gola, Chitarpur, and Mandu, cultivates a range of vegetables—including cauliflower, cabbage, spinach, okra, and tomato—often in off-season cycles and under polyhouse or open farming conditions. The Krishi Vigyan Kendra (KVK) has supported on-farm demonstrations for off-season vegetables like sponge guard, bitter gourd, cucumber, bottle gourd, watermelon, and seasonal leafy greens in Gola block. Jharkhand is also the second-largest producer of horticultural crops in India, with round-the-year production of peas, lady's finger, and cauliflower—ideal raw materials for agro-processing units.

However, farmers in Ramgarh and nearby areas such as Gola and Chitarpur have faced distress during bumper harvests when market prices plummeted to as low as ₹2–5/kg, sometimes forcing producers to destroy their crops rather than incur losses in absence of markets or value addition options. This highlights the urgent need for processing options like dehydration, pickling, freezing, and minimal processing (juices, puree, sauces, jams) to stabilize markets and reduce distress.

Vegetable-based processing opportunities in Ramgarh could include:

Dehydrated vegetables (e.g. dried spinach, cabbage, carrot powder), pickles, chutneys and sauces, jams and marmalades, and pulp/puree products such as tomato puree or mixed vegetable puree

Frozen packaged vegetables or ready-to-cook packs, leveraging urban demand and the emerging frozen foods sector in India which is growing at ~17% annually

Cold chain aggregation hubs or collection points, especially in Gola and Chitarpur which have higher cropping intensity and connectivity, allowing aggregation and shared processing facilities.

Local SHG members, especially women, have expressed interest in pickling and spice-based processing, as well as simple cooking and selling of seasonal vegetables during festivals or local markets. Encouragingly, ATMA and KVK have demonstrated off-season vegetable models and beginner-level nurseries—spreading awareness of value-added horticulture

To realize this potential, agro-processing enterprises for vegetables should be supported with training (FSSAI, hygiene, dehydration drying methods, packaging), access to improved seed and nursery inputs, collective procurement, cold storage/solar drying units, and marketing linkages to nearby urban markets like Ranchi, Bokaro, and Dhanbad.

Pulse-Based Agro-Processing Potential

Jharkhand, including tribal and Naxal-affected areas, is now part of a government pilot initiative promoting cultivation of pulses—especially arhar (tur) and urad—through distribution of hybrid seeds and assured procurement via the National Co-operative Consumers' Federation of India (NCCF). This includes target districts such as Dumka and others; while Ramgarh is not specifically named, its demographic mix and agro-climatic profile align with the promotion zones. Ramgarh district grows pulses like cowpea, arhar, and legumes during the kharif and rabi seasons, facilitated by crop rotations common to blocks like Gola and Chitarpur. The Krishi Vigyan Kendra has promoted legume quality seed production and demonstrations on pulses, intercropping, and improved cultivation practices to raise productivity and supply for processing.

Opportunities for pulse-based agro-processing in Ramgarh include:

Pulse milling and packaging units for chickpeas, pigeon pea, urad, mung, cowpea—focusing on cleaned, graded, packaged pulses. Pulse-based snack and flour products, such as churma-based snacks, besan (gram flour), ready-to-cook mixes (dal paratha mix, dal soup mix, namkeen), and malt or nutrition mixes. Value addition into ready-to-eat pulses: packaged sprouted pulses, roasted dal, snack mixes, and dal laddoos targeting local health-conscious consumers and urban markets. Given the surge in pulse cultivation through government pilot schemes, local farmers could receive assured procurement and MSP support if included under NCCF's contract farming or cooperative channels

The major constraints remain access to reliable supply of pulses, consistent processing infrastructure, and marketing linkages. But the KVK's focus on seed production and pulses support implies that raw material flow can be ensured. With rising pulse demand nationally and Jharkhand's focus on increasing pulse acreage, Ramgarh has scope to host pulse value-addition hubs.

Agro-Processing Implementation Plan (NGO-Led) – Ramgarh District

Overview

The agro-climatic conditions and grassroots institutional base in Ramgarh offer strong potential for decentralized agro-processing, particularly among women-led Self-Help Groups (SHGs), Producer Groups (PGs), and small farmers. The five-year plan is designed to set up replicable, small-scale processing units that address local raw material surplus, enable value addition, and generate income and employment. Priority will be given to women, youth, and mining-affected communities.

Agro-Processing Units with High Replication Potential

Year-wise Implementation Strategy

Year 1: Groundwork & Mobilization

The first year of implementation will focus on preparatory groundwork, community mobilization, and establishing convergence with relevant stakeholders. The NGO will begin by conducting a comprehensive baseline assessment in selected blocks such as Gola, Chitarpur, Mandu, and Dulmi. This will include mapping agro-climatic conditions, major crop patterns, existing SHGs, land ownership status, irrigation facilities, and market linkages. A focused resource mapping exercise will identify villages where paddy, pulses, vegetables, mushrooms, and spices are cultivated in adequate quantities for processing.

Simultaneously, the NGO will mobilize around 200 existing SHGs, covering approximately 2,500 women members, through local Village Organizations. Orientation sessions will be held to raise awareness about agro-processing opportunities and collective enterprise models. A structured member profiling exercise will identify 10–15 motivated members per SHG with interest in taking up entrepreneurship, particularly those from vulnerable households. This will ensure a gender-inclusive and socio-economically responsive targeting strategy.

During this phase, the NGO will also build convergence with key institutions such as JSLPS, DIC, ATMA, KVK, and financial institutions. These partnerships will be crucial for accessing existing schemes like PMFME (for credit-linked capital subsidies), PMEGP (for manufacturing loans), DAY-NRLM (for CIF and SHG loans), and DMFT (for infrastructure and skilling support). The groundwork laid during Year 1 will establish the institutional and community base for the next phases.

Year 2: Group Formation, Skilling & DPR Preparation

In Year 2, the focus will shift to federating SHGs into commodity-based Producer Groups (PGs) and laying the groundwork for establishing Farmer Producer Organizations (FPOs). Around 10–12 SHGs per commodity cluster will be federated into a Producer Group, each focusing on a specific agro-product like rice, pulses, vegetables, or mushroom. Across the priority blocks, 3–4 PGs will be formed and supported in registering as Producer Companies or FPOs under SFAC or NABARD facilitation.

The year will also witness intensive capacity building efforts. The NGO will coordinate with ATMA, KVK, RSETI, and other training partners to deliver need-based modules on food safety, product-specific processing methods (e.g., rice milling, vegetable dehydration, pulse grinding), FSSAI compliance, packaging, and branding. Practical sessions will be held in demonstration plots or community kitchens. Exposure visits to successful models in other districts will build technical confidence.

Meanwhile, the NGO will assist each PG/FPO in preparing Detailed Project Reports (DPRs) outlining their production plans, financials, and infrastructural needs. These DPRs will form the basis for accessing funds under PMFME, PMEGP, or bank loans. Financial literacy sessions will also be conducted to ensure SHGs and PGs are equipped to handle bank linkages and credit operations. The objective is to make these institutions credit-ready and technically sound by the end of Year 2.

Year 3: Infrastructure & Unit Establishment

Year 3 will be focused on the physical establishment of agro-processing infrastructure. Based on the business plans and DPRs developed in the previous year, around 10–12 agro-processing units will be established across Gola, Chitarpur, Dulmi, and Mandu. These units may include rice mills, pulse milling units, vegetable dehydration or pickling units, and mushroom drying and packaging units. All processing units will be collectively owned and operated by SHGs and PGs, with clear roles and responsibilities assigned.

Infrastructural support will include installation of basic machinery—grinders, sealers, solar dryers, pulverizers—as well as construction of small sheds or production spaces. Wherever possible, shared-use community facilities will be promoted. For instance, mobile agro-processing vans or common facility centres (CFCs) may serve multiple PGs across nearby villages. The capital investment for infrastructure will be mobilized through convergence with DMFT, CSR funds from CCL, and term loans from banks.

By this stage, the NGO will facilitate legal compliance for each processing unit, including registration with FSSAI, Udyam, and GST. Technical partners will assist PGs in acquiring barcodes, food testing certifications, and quality packaging materials. Handholding will continue to ensure that each unit becomes operational with a sound financial and supply chain model.

Year 4: Branding, Market Linkages & Scaling

The fourth year will focus on market integration, brand development, and enterprise scaling. By now, the units would be producing consistent products that are fit for commercialization. The NGO, with design and marketing partners, will support the development of a district-level agro-processing brand, such as "Ramgarh Naturals" or "Uttam Gramin Products." Each SHG or FPO product—be it pickles, puffed rice, flour, pulses, or mushrooms—will be packaged and labeled under this umbrella brand.

At the same time, strategic market linkages will be built. Products will be introduced into local institutional markets (schools, hospitals, cooperatives), urban retailers in Ranchi, Bokaro, and Dhanbad, and through digital platforms such as Flipkart Samarth, Amazon Karigar, and the Government e-Marketplace (GeM). The NGO will also facilitate participation in trade fairs, exhibitions, and haats.

To address logistics and perishability challenges, the plan includes setting up two small cold storage units (solar-powered) in Gola and Chitarpur. Transport tie-ups with local logistics providers will be negotiated for

collective delivery. The aim is to ensure end-to-end linkage—from raw material procurement to final consumer delivery—making agro-processing a financially viable and scalable model.

Year 5: Consolidation, Scale-up & Replication

In the final year, the focus will be on consolidation of successful models, scaling high-performing enterprises, and initiating replication in additional blocks like Patratu and Ramgarh Sadar. The best-performing SHG-run units will receive support for scaling through additional machinery, expansion of product lines, and working capital infusion. New PGs may also be formed based on emerging commodities or untapped clusters.

Institutional sustainability will be ensured by transitioning operational control to the FPOs and federated structures. A district-level Agro-Processing Federation may be established to provide bulk procurement, centralized branding, collective marketing, and business development services to smaller units and FPOs.

Monitoring and evaluation systems will be institutionalized using a digital dashboard tracking production, sales, income generation, loan repayments, and employment. Annual impact assessments will be conducted to document outcomes related to women's empowerment, income enhancement, enterprise sustainability, and youth engagement. The NGO's role will gradually shift from direct implementation to facilitation, mentoring, and policy advocacy.

Conclusion

This five-year implementation plan presents a structured, inclusive, and financially viable model for developing agro-processing as a major livelihood avenue in Ramgarh district. By strategically leveraging existing SHG and FPO platforms, converging government schemes, and building local capacities in processing, branding, and marketing, the plan aims to create a decentralized rural enterprise ecosystem that is sustainable, scalable, and equitable.