Annexes

Annex Table 3.1: Determinants of Rural Consumption: Results for the 55th Round of NSS						
Variables	**Base Model**		**Extended Model-1**		**Extended Model-2**	
	Coefficient	**T- Ratio**	**Coefficient**	**T- Ratio**	**Coefficient**	**T- Ratio**
(Constant)	651.7	29.6	654.4	24.5	644.6	22.6
Household Size	-75.2	-16.8	-77.7	-17.4	-79.9	-18.0
Proportion of Land Irrigated	34.1	2.7	65.2	4.9	65.8	5.1
Religion (Hindu as reference category):						
Muslim (dummy)	-35.3	-2.3	-29.9	-1.9	-25.7	-1.6
Christian (dummy)	-6.3	-0.3	14.8	0.7	10.3	0.5
Tribal Status (Caste Hindu as reference category):						
Scheduled Tribe (dummy)	-112.1	-8.2	-130.3	-9.2	-131.9	-9.4
Scheduled Caste (dummy)	-120.0	-7.8	-123.1	-8.0	-122.4	-8.2
Other Backward Caste (dummy)	-89.3	-7.3	-78.6	-6.3	-79.0	-6.4
Education status ("No formal education" as reference category):						
Below Primary (dummy)	-14.5	-1.0	-5.3	-0.3	-2.7	-0.2
Primary Completed (dummy)	6.8	0.4	12.0	0.7	13.1	0.8
Secondary Completed (dummy)	39.3	2.4	39.3	2.5	39.4	2.5
Higher Secondary completed (dummy)	266.0	8.5	269.4	8.7	263.5	8.6
Graduation and Above (dummy)	247.4	7.1	255.3	7.3	237.5	6.8
Max. Level of Education by any HH Worker	4.5	2.1	3.5	1.6	2.8	1.3
Whether Household has Access to Electricity	188.3	13.7	181.5	12.1	164.3	10.9
Self-Employed in Non-Agricultural Activities (dummy)	10.9	0.8	8.1	0.6	—	—
Non-Agricultural Labor (dummy)	-69.2	-4.8	-66.2	-4.4	—	—
Self-Employed in Agricultural Activities (dummy)	-22.3	-2.3	-21.9	-2.2	—	—
Whether Household Head is Female	-20.9	-1.1	-12.7	-0.7	-20.4	-1.2
Land Owned (ha.)	12.2	5.2	11.6	5.0	12.6	5.5
No of Male Workers	15.7	2.4	15.5	2.4	16.6	2.6
No of Female Workers	-25.6	-4.6	-25.6	-4.4	-22.4	-3.9

Annex Table 3.1 (Contd): Determinants of Rural Consumption: Results for the 55th Round of NSS						
Variables	Base Model		Extended Model-1		Extended Model-2	
	Coefficient	T- Ratio	Coefficient	T- Ratio	Coefficient	T- Ratio
District ("Pakur" as reference category):						
Godda			-41.3	-1.7	-31.3	-1.3
Sahib			-60.0	-2.6	-61.6	-2.7
Dumka			-68.6	-2.8	-66.4	-2.8
Deoghar			-114.7	-4.7	-114.1	-4.7
Dhanbad			-18.9	-0.7	-27.3	-1.1
Giridih			-21.5	-0.8	-27.1	-1.1
Hazari			-22.5	-0.9	-31.9	-1.3
Palamu			0.7	0.03	8.7	0.4
Lohar			-0.4	-.01	0.6	.03
Gumla			-29.0	-1.2	-30.9	-1.3
Ranchi			38.5	1.9	42.4	2.1
Esingh			28.8	1.3	30.9	1.3
Wsingh			63.8	3.2	64.0	3.2
Bokaro			3.9	0.2	-6.1	-0.3
Kodarma			8.7	0.4	0.7	0.03
Chatra			9.3	0.4	3.7	0.1
Garwhwa			26.4	0.9	28.8	1.1
Main Source of Income (construction as reference category):						
Agriculture					-1.2	-0.1
Mining					57.5	1.7
Manufacturing					62.3	3.1
Trade					58.4	2.6
Transport Business					121.5	4.4
Formal Service					99.7	3.5
Informal Service					-47.4	-2.2
Adjusted R square	-	0.401	-	0.428	-	0.439

Note: The dependent variable is "per capita consumption expenditure" for rural areas. The results represent OLS estimates.

Annex Table 3. 2: Determinants of Livelihood Outcome: Results of Multivariate Regression Analysis						
	Household Level		Household and Community Level		Household, Community and Region Level	
	Coefficient	T Ratio	Coefficient	T Ratio	Coefficient	T Ratio
(Constant)	311.8	8.3	264.8	6.9	199.3	4.9
Household Size	-26.3	-16.7	-26.1	-16.7	-27.4	-17.6
Age of Household Head	1.6	1.0	1.9	1.2	1.8	1.2
Square of Age	0.0	-0.7	0.0	-0.9	0.0	-0.8
Land Owned, Acres	3.7	3.5	3.6	3.4	3.8	3.7
Non-and Assets* 1000	0.3	5.0	0.3	5.1	0.3	5.1
HH Head Female	8.0	0.5	5.1	0.3	2.2	0.1
No of Male Workers	20.9	4.1	21.9	4.3	23.7	4.7
No of Female Workers	9.8	1.9	10.7	2.1	10.3	2.0
HH Member away for Work-now or 10 years ago dummy	51.2	3.3	50.2	3.3	45.1	2.9
Max Level of Education by any HH Member	6.2	1.8	6.3	1.9	5.8	1.7
Education of Household Head: below primary	13.7	1.2	14.9	1.3	16.2	1.4
Education of Household Head: primary	-5.5	-0.4	-2.9	-0.2	-3.9	-0.3
Education of Household Head: secondary	-9.4	-0.9	-10.3	-1.0	-6.3	-0.6
Education of Household Head: Post-secondary	32.2	2.4	29.7	2.2	30.4	2.3
Education of Household Head: higher	41.7	2.0	32.9	1.6	36.9	1.8
Muslim	14.3	1.4	19.1	1.9	23.2	2.3
Christianity	4.7	0.2	9.8	0.5	16.9	0.9
Tribal Religion	-40.5	-3.0	-41.4	-3.0	-20.1	-1.4
SC	-29.0	-2.2	-28.8	-2.1	-29.1	-2.2
ST	-61.7	-4.5	-54.9	-4.0	-39.3	-2.9
OBC	-41.3	-4.1	-41.4	-4.1	-40.4	-4.1
Electricity Access	45.3	6.1	37.4	5.0	39.4	5.2
Employment Type: farm	-22.3	-1.8	-21.8	-1.8	-23.3	-1.9
Employment Type: ag_wage	-14.6	-0.3	-7.7	-0.2	13.6	0.3
Employment Type: non- ag. wage	3.0	0.3	3.7	0.4	-3.3	-0.4
Employment Type: salaried worker	114.2	2.1	109.9	2.0	121.6	2.7
Employment Type: trader	54.4	0.6	36.8	0.4	27.0	0.3
Employment Type: informal service	62.8	4.6	59.3	4.4	73.7	5.4
Employment Type: non-farm self-employment	82.4	3.2	81.4	3.2	83.1	3.3
Community Level Factors:						
Quality of Approach Road: stone/ brick	-	-	6.2	0.7	4.4	0.5
Quality of Approach Road: metalled	--	-	8.6	.9	-5.0	-0.5
Type of Market Connectivity: approach road-market	-	-	22.3	1.6	14.6	1.1

Annex Table 3.2 (Contd): Determinants of Livelihood Outcome: Results of Multivariate Regression Analysis						
	Household Level		Household and Community Level		Household, Community and Region Level	
	Coefficient	T Ratio	Coefficient	T Ratio	Coefficient	T Ratio
Type of Market Connectivity: main road-market	-	-	50.9	3.9	50.6	3.9
Presence of SHG Group	-	-	.4	.04	6.2	0.7
Presence of NGO Program	-	-	39.6	2.0	29.4	1.5
Presence of Community Shops	-	-	33.1	3.2	44.8	4.3
Geographic Regions:						
North Chottanagpur					87.2	6.2
Palamu					81.4	5.6
Santhal Pargana					40.7	2.9
South Chottanagpur					50.7	3.6
Adjusted R square	-	0.26	-	0.28	-	0.30

Source: Estimated from Rural Jharkhand Baseline Survey Data.

Note: The dependent variable is "per capita consumption expenditure" for rural areas. The results represent OLS estimates.

Annex Table 4. 1: District-wise / Agro-climatic Region-wise Land Utilization in Jharkhand (1999/2000)											
District	Geographical Area ('000 ha)	Forest Areas (%)	Land put to non Agr Use (%)	Barren and Unutilized Land	Cultivable Waste Land (%)	Permanent Pasture and Other Grazing (%)	Land under Misc. Trees (%)	Other than Current Fallows (%)	Current Fallows (%)	Net Area Sown (%)	Cropping intensity (%)
I. Central and North Eastern Plateau Zone											
Dumka	379.03	11.3	11.3	6.1	6.0	4.9	1.6	11.2	15.6	31.4	105
Deoghar	248.13	14.0	8.6	5.0	5.6	4.0	1.1	13.6	20.8	25.3	103
Godda	231.84	13.5	7.4	4.2	2.3	2.7	1.1	14.7	19.2	33.7	108
Pukar	181.7	11.4	8.6	6.3	4.1	3.1	2.4	10.7	19.1	32.4	107
Sahebganj	201.75	21.2	6.7	7.8	3.3	1.4	1.5	14.7	22.5	20.1	117
Jamatra	179.17	16.9	11.3	6.1	6.0	4.9	1.6	11.2	15.1	31.4	105
Hazaribagh	604.63	43.1	6.1	9.1	1.3	0.6	1.1	9.3	9.8	17.4	113
Koderma	130.2	42.4	6.3	11.3	1.5	1.1	1.4	6.9	14.1	13.9	121
Chatra	157.52	14.4	6.6	12.6	2.2	1.0	3.0	18.0	20.9	28.8	113
Giridih	493.22	32.1	6.8	6.2	3.6	2.0	2.6	11.2	17.0	15.7	121
Bokarao	288.97	25.0	15.9	8.7	3.6	0.8	1.0	12.0	25.6	5.5	163
Dhanbad	204.16	9.3	21.0	16.0	5.6	0.3	1.6	9.9	16.2	17.1	116
Sub total	3518.3	28.1	8.8	7.4	3.4	2.0	1.5	10.9	16.0	20.2	112
II Western Plateau Zone											
Ranchi	758.25	21.0	9.7	5.2	3.5	0.3	1.4	8.7	16.2	33.7	107
Lohardaga	153.62	28.9	6.1	6.1	6.5	0.0	0.8	10.9	11.2	32.1	112
Gumla	538.92	15.1	5.5	8.3	5.0	0.1	1.7	11.7	31.3	30.0	105
Palamu	524.69	43.2	3.7	6.0	1.9	0.4	1.4	9.2	14.9	18.7	121
Garhwa	428.82	44.6	3.5	5.8	1.5	0.7	0.5	9.1	18.6	15.1	138
Simdega	371.63	15.1	5.5	8.3	5.0	0.0	1.7	11.6	30.9	30.0	105
Latehar	319.19	43.2	3.7	6.0	1.9	0.4	1.4	9.1	14.9	18.7	121
Sub total	3095.1	29.0	5.8	6.5	3.2	0.3	1.3	9.9	20.3	25.9	112

Annex Table 4. 1: District-wise / Agro-climatic Region-wise Land Utilization in Jharkhand (1999/2000)											
District	Geographical Area ('000 ha)	Forest Areas (%)	Land put to non Agr Use (%)	Barren and Unutilized Land	Cultivable Waste Land (%)	Permanent Pasture and Other Grazing (%)	Land under Misc. Trees (%)	Other than Current Fallows (%)	Current Fallows (%)	Net Area Sown (%)	Cropping intensity (%)
III South Eastern Plateau Zone											
East Singhbhum	556.69	22.1	27.7	7.6	3.9	0.5	1.6	7.9	12.8	15.1	176
West Singhbhum	562.7	40.4	5.1	8.9	4.2	0.6	1.2	5.8	6.8	26.3	110
Saraikela	237.23	40.0	5.1	8.9	4.2	0.6	1.2	5.8	6.8	26.3	109
Sub total	1356.6	32.9	14.4	8.3	4.0	0.5	1.3	6.7	9.3	21.7	129
Jharkhand	7970.1	29.3	8.6	7.2	3.4	1.1	1.4	9.8	16.5	22.7	114

Source: Directorate of Statistics and Evaluation, Development Department, .GoB, Patna.

Annex Table 4. 2: Share of Different Crops in Total Cropped Area, 1999/2000			
S.No	**Crops**	**Jharkhand**	**India**
1	Rice	68.65	23.93
2	Wheat	2.77	14.62
3	Maize	5.71	3.43
4	Ragi		0.92
5	Barley	0.59	0.42
6	Jowar	0.18	5.41
7	Bajra	0.2	4.69
8	Course and Other Millets	-	1.16
Total Cereals		**80.1**	**54.16**
9	Gram	0.92	3.34
10	Arhar	1.13	1.81
11	Kulthi	1.4	
12	Urad	1.92	
13	Pea	0.15	
14	Kesari	0.41	
15	Masoor	0.23	
16	Moong	0.13	
17	Other Pulses	0.7	6.46
Total Pulses		**6.99**	**11.61**
Total Foodgrains		**87.09**	**65.77**
18	Rape-Mustard	0.4	3.2
19	Linseed	0.35	0.37
20	Groundnut	0.28	3.67
21	Surguja	1.11	NA
22	Sunflower & Til and Other Oil Seeds	0.71	5.94
Total Oilseeds		**2.85**	**14.13**
23	Total Cash Crops	2.96	15.77
24	Fruits	1.56	1.77
25	Vegetables	6.99	2.56
Total Horticulture Crops		**8.55**	**4.33**
Total Cropped Area		**100**	**100**

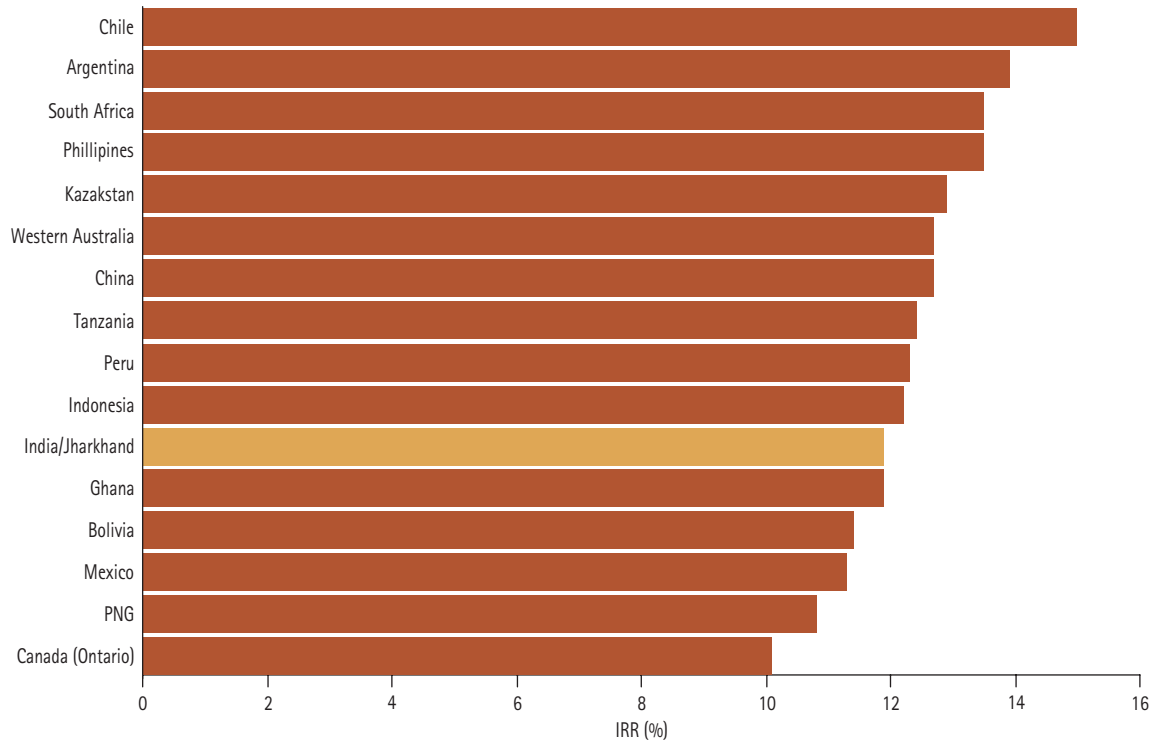
Annex 4. 1: Reforms in the Mineral Sector

- **Easy and transparent access to minerals under standard conditions applicable to all investors.** Introduction of a modern, computerized, on-line, rules-based mining rights **cadastre** as against the manual one operating out of 22 districts in Jharkhand will enable quicker and transparent access to minerals and securing appropriate mining titles.

- **Security of Mining Title.** Jharkhand's legal and regulatory framework, which is largely defined by the central government, has provisions that are inconsistent with the financial and technological requirements of the modern capital-intensive global mining industry. The new draft mining policy of the state needs to review some of those that are within the ambit of the state government.

- **Competitive Fiscal Provisions.** The level and stability of taxes does affect the decisions of private and international mining companies in their exploration efforts. In India, the tax regime is defined and administered by the central government. While income taxes are collected by the center and distributed through the central budget, royalties and sales taxes are retained by the states. To assess the current tax regime and quantify its potential impact on mining investment in Jharkhand, the total tax package was analyzed, regardless of how it is collected, and its impact assessed in a number of competing countries on a hypothetical but representative development of a large-scale base metal mine. The results of this simulation are summarized in Figures 4.1 and 4.2. While Jharkhand's tax regime appears to be generally competitive, its components are delicately balanced. For example, the five-year exemption

Figure 4. 1: Rate of Return Comparison



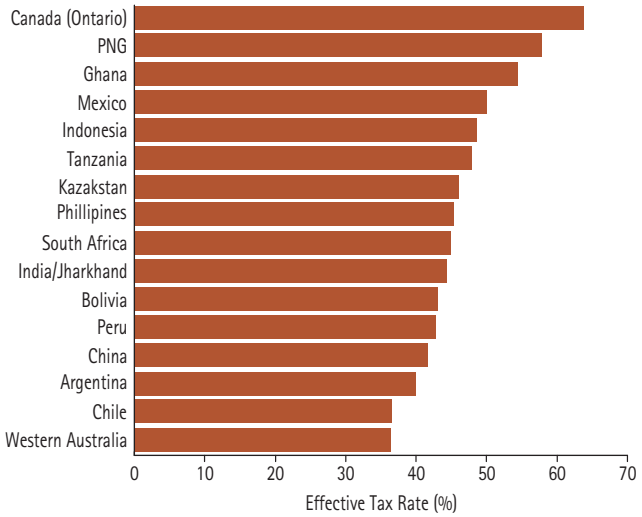
Source: Colorado School of Mines and Staff estimates.

period that applies to the mining sector should be balanced against the relatively higher income tax and import duty prevailing in the state.

The net investment return or internal rate of return (IRR) that could be realized by a hypothetical, large-scale base metal mine[142] developed in each of these countries is set out in Figure 4.2. The model holds revenues and costs constant for each country, so that the only variable is the country's tax regime. Accordingly, the IRR is a good indicator of the relative impact of each country's tax regime on a project's expected IRR. The IRR in Chile is among the highest because it does not impose a mineral royalty. In addition, with a corporate tax rate of only 15 percent, in such an analysis, Chile is consistently among the most attractive countries from a tax perspective, and consequently has been particularly successful in attracting investment, developing its mineral resources, and achieving above average growth. Indonesia's IRR on the other hand is among the lowest, mainly because its royalty is based on the volume of production, as is the case with some minerals and coal in India, and therefore is not sensitive to metal prices or operating costs and expenses.

- Based on these results, Jharkhand's tax regime is reasonably competitive when compared with other geologically prospective and mineral dependent regimes. Its tax regime is, however, delicately balanced and a change cannot be made to one component of the regime without modifying another component or other components, if international competitiveness is to be maintained. The government's share of net value added in Figure 4.9 shows the amount of taxes collected by the government as a percentage of pre-tax cash flow generated by the project over the expected life of the project, that is, the effective tax rate. When formulating tax policy, the government must be careful not to stray too far from international norms with respect to government share. While Canada's government share is relatively high, a substantial portion of Canadian taxes are collected in the latter part of mine life, due to 100 percent tax depreciation allowances and royalty exemptions during the first three years of production. Thus, the IRR of a mine in Canada is not as heavily impacted by the higher tax rates in that country as one might expect.

Figure 4. 2: Effective Tax Rate



Source: Staff estimates.

- **Comprehensive Social and Environmental Protection and Benefit Sharing.** Sustainable development in mining can be defined as transformation of mineral wealth into human capital that is, better health, education and vocational training, as also infrastructure and increased community capacity to sustain growth well beyond mine closure. Jharkhand's geography, specific demographics and lack of infrastructure pose additional challenges for sustainable mineral development, especially for tribal communities and environmental preservation.

142 These include Chile which is generally cited as the best model for the modern development of a successful mining sector; Canada which has a mature and successful mining sector that is based on laws that reflect many decades of experience; and Indonesia and PNG, two Asian countries with excellent geology that compete with India to attract risk capital and foreign direct investment.

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