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Coexistence of Formal and Informal Coal Mining in West Bengal: A Socio-Economic and Microeconomic Perspective of the Salanpur Coalbelt

Manoranjan Maji
Assistant Professor, Department of Economics, J.K. College, Purulia, West Bengal

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ABSTRACT

This paper explores the complex dynamics between legal and illegal coal mining sectors and their resulting impacts on the socio-economic conditions of local residents in the Salanpur Coalbelt Area of West Bengal. Specifically, it investigates how the presence of a formal coal mining sector inadvertently stimulates demand for informal, illicit mining operations. While illegal mining provides short-term livelihood opportunities for marginalized communities, it fundamentally drives severe social welfare losses. These losses manifest through profound environmental degradation, adverse public health outcomes, and diminished agricultural productivity. Furthermore, the study presents an analytical framework utilizing microeconomic theory to explain the market coexistence, pricing mechanisms, and equilibrium dynamics of both legal and illegal coal mining activities within a domestic context.

Keywords: *Illegal Coal Mining, Socio-economic Conditions, Salanpur Coalbelt, Social Welfare Loss, Market Equilibrium.*

1.Introduction

In today's world, coal is regarded as a vital source of energy in almost all countries. In India, coal meets about 65% of the total energy requirement. It is a primary input for all core sector industries like iron and steel, railways, fertilizers, cement, chemicals, and textiles. Indian coal mining has a long history. It is documented that mining of coal in India started way back in the year 1774 when the permission to work coal mines in the then Bengal was granted to John Summner, S.G. Heatly, and Redferne. Coal as a fuel and energy source in the power sector came to the limelight in India after independence, and later under the five-year plans to boost the industrial and agricultural base for self-sufficiency.

The necessity of well-organized and efficient coal production was realized by the newly independent Indian government in its **First Five-Year Plan (1951–1956)**. The policymakers of the time felt the necessity for the development and modernization of the coal industry because the most essential energy resource in India was coal. In order to fulfil the growing demand for coal in industries and to make the best utilization of available coal resources through the rational and synchronized development of coal production, the Government of India nationalized all coking coal mines on 1st May 1972. In the second phase, in 1973, more than 700 non-coking coal mines were also nationalized.

Legal mining operates under strict regulatory frameworks, ensuring environmental compliance, scientific extraction, and royalty contributions to the state. Conversely, illegal mining consists of unregulated, hazardous extraction—often from abandoned mines or private lands—bypassing all statutory obligations, safety norms, and economic contributions to the formal economy.

Coal Reserve in India

As per the recent estimation (1st April, 2016) of Geological Resources of Coal in India it was found that about 308.8 billion tonnes of coal resources are still available in the Gondowana coal (formed about 250-180 million years ago) and Tertiary coal (formed about 66-2.6 million years ago) regions. The current coal resources reserved of India are shown in table 1 from the stand point of its formation and category. We have presented the distribution of coal in respect of their type of use in Table 1, Table 2 and Table 3 which shows the distribution of Gondwana coal and the Tertiary formations of coal across the states in India.

Table 1 Categorization of Coal Resources in India (MT) as on 1.04.2016

Formation	Proved	Indicated	Inferred	Total
Gondowana Coals	137493	139052	30764	307309
Tertiary Coals	000594	000099	00799	001493
Grand Total	**138087**	**139151**	**31563**	**308802**

Source: Annual Report, Ministry of Coal, 2016-17

Table 2 Category-wise Coal Resources of India as on 1.4.2016 (Million Tonnes)

Types of Coal	Proved	Indicated	Inferred	Total
(A)Coking:				
Prime coking	004614	000699	00000	005313
Medium coking	013389	012114	01879	027382
Semi coking	000482	001004	00222	001708
Sub-Total Coking	**018485**	**013817**	**02101**	**034403**
(B) Non-coking	119008	125236	28663	272907
(C) Tertiary Coal	000594	000099	00799	001492
Grand Total	**138087**	**139152**	**31563**	**308802**

Source: Annual Report, Ministry of Coal, 2016-17

Table 3 Coal in Gondwana Coal and TertiaryFormation of Coal across the States in India

State	Category-wise coal resources (In Million Tonnes)					
	Measured (Proved)	Indicated	Inferred (Exploration)	Inferred (Mapping)	Total	Share in Total (%)
WEST BENGAL	13602.04	13020.51	4906.79		31529.34	10.21
BIHAR	0.00	0.00	160.00		160.00	0.05
JHARKHAND	42322.68	32300.96	6548.38		81172.02	26.29
MADHYA PRADESH	10917.99	12695.98	3293.09		26907.06	8.71
CHHATTISGARH	19135.75	34613.7	2286.93		56036.38	18.15
UTTAR PRADESH	884.04	177.76	0.00		1061.8	0.34
MAHARASHTRA	6207.93	3151.1	2076.67		11435.7	3.70
ODISHA	34294.51	33283.57	8317.59		75895.67	24.58
ANDHRA PRADESH	0.00	1149.05	431.65		1580.7	0.51
TELANGANA	10128.45	8586.16	2700.2		21414.81	6.93
SIKKIM	0.00	58.25	42.98		101.23	0.03
ASSAM	464.78	57.21	0.50	2.52	525.01	0.17
ARUNACHAL PRADESH	31.23	40.11	12.89	6.00	90.23	0.03
MEGHALAYA	89.04	16.51	27.58	443.35	576.48	0.19
NAGALAND	8.76	0.00	8.60	298.05	315.41	0.10
GRAND TOTAL	**138087.2**	**139150.9**	**30813.85**	**749.92**	**308801.8**	100.00

Source: Annual Report, Ministry of Coal, 2016-17

From the above table we found that mainly four states which are situated in the eastern parts of India i.e., Jharkhand, Odisha, Chhattishgarh and West Bengal are endowed with highest

percent (79.45%) of coal reserves. Among these states Jharkhand has 26.29 percent of share in the total coal reserve and also earned the first position with total reserve of 81.17 billion tonnes of coal, Odisha occupied the second position with the reserve of 75.07 billion tonnes followed by Chhattishgarh with the reserve of 52.53 billion tonnes and West Bengal holds the last position among these states with 10.21 percent share in the total reserve of coal and also having reserve of 31.52 billion tonnes of coal in the state.

Coal Industry in West Bengal

Geographically, the coal industry in West Bengal is structurally mapped along the western border of the state, primarily extending across the Damodar River valley. The coal industry in West Bengal is mainly confined only to four districts i.e. Paschim Bardhaman, Bankura, Birbhum and Purulia and out of these four districts Burdwan district has the largest amount of coal deposits because the number of coal mines in Burdwan district is much higher compared to other three districts. In Bankura, there were only four collieries in the pre-independence period. The opening of Kalikapur and Bakulia coal mines located at Mejia police station date back to 1876 and 1897 respectively. While in Purulia district coal mining activities are concentrated in one area. The famous Raniganj Coalfields in West Bengal belongs to the Eastern Coalfields Limited, the biggest subsidiary of Coal India Limited and the largest corporate with its headquarters at Sanctoria in present Paschim Bardhaman district, West Bengal, which is about 16 km. from Asansol city. According to the annual report of ECL, 2017-18 we came to know that there are 84 working mines in total under ECL. Among them 55 are of underground (UG) mines, 19 are opencast (OC) mines and 10 mixed mines. The activities of Eastern Coalfields Limited (ECL) extend mainly over Raniganj Coalfields in West Bengal and partly in Mugma coalfields situated in Jharkhand. There are 14 areas in total under ECL among them 12 are situated in West Bengal namely (1) Raniganj Area, (2) Pandaveswar Area, (3) Kajora Area, (4) Jhanjra Area, (5) Bakola Area, (6) Kenda Area, (7) Sonepur Area, (8) Kunustoria Area, (9) Satgram Area, (10) Sripur Area, (11) Sodepur Area, and (12) **Salanpur Area**. Among them we have planned to study the illegal coal mining in the area of Salanpur coal belt.

Salanpur Coalbelt Area

Salanpur Area lies on the north-western part of Raniganj Coalfields. The Area office is about 10 Km from Asansol city. The Ajoy River flows along the northern boundary of this area. The area has two geological formations namely, Barakar and Raniganj Measures. The northern portion consists of Barakar Measures formations hence, have seams regionally named as B-I, B-II, B-III, B-IV, B-V, B-VI, B-VII and B-VIII. The southern part lies in Raniganj Measures formations and hence the seams are regionally named as R-I, R-II, R-III, R-IV, R-V, R-VI, R-VII, R-VIII and R-IX. All these seams are present in the Lease-hold area of ECL. The NH-2 (bye-pass GT Road) is passing through the southern part of this area. Important Railway lines like Asansol to Jamtara and Jasidih to Patna route, Eastern Railway main lines passes through both northern and southern part of the lease. The Indian Oil Corporation (IOC) pipe line is also

passing through the lease area and almost parallel to the Eastern Railway main line. The Area is populated near the important roads, railway stations lying over the surface. The Chittaranjan Locomotive Works- both Colony and Factory, Hindustan Cable Township at Rupnarayanpur lies on the north-west side of the Area. The total area of mining plan of this Area is 107.81 Square Km. This area has eight regrouped mines which includes 48 units of nationalized list. They are documented in table 4.

Table 4 Nationalized Coal Mines in Salanpur Coalbelt Area

Sl. No	Name of existing regrouped mines	Name of the nationalized units under regrouped mines with their area within bracket in Hectare	Police Station
1.	Dalmiya	1. Dalmiya [46], 2. New Bamna [20], 3. Sabanpur [56], 4. Real Salanpur[238], 5. Khudika[101] 6. Shibdaspur [15], 7. Salanpur A Seam [47], 8. Bonbiddi [40], 9. East Bonbiddi[6]	Salanpur
2.	Dabor	10. Dabor[27], 11. Rangakanali[7], 12. Radha Ballabpur[60], 13. Alkusa Gopalpur[38], 14. Alkusa J.P.Mondal [46], 15. North East Salanpur[47], 16. North West Salanpur[47], 17. Dhundabad[6], 18. East Dhundabad[13], 19. Khas Dhundabad[25], 20. Selected Dhundabad [37], 21. Hindustan Alkusa[18].	Salanpur
3.	Sangramgarh	22. Lohat[47], 23. Samdihi and Sangramgarh[163], 24. Binodikatta[51]	Salanpur
4.	Mohonpur	25. Mohonpur[66], 26. Khas Mohonpur[38]	Salanpur
		27. Damagoria Amdiha [143], 28. West Barabani[95], 29. Khas Barabani[74], 30. Itapara[46]	Barabani
5.	Gourangdih	31. Gourangdih[375], 32. Khoirabad[3720],33. Gourangdi-Begunia[2857]	Barabani
6.	Tara	34. Tara [15], 35. Churulia[301], 36. Churulia East[29]	Jamuria
7.	Bonjhemari	37. Bonjhemari[147], 38. Bhagran[6], 39. New Bhagran[10]	Salanpur
8.	Barmondia	40. Barmondia [294], 41. Kanyapur[198], 42. Nuni[160], 43. Monoharbahal[233], 44. Chinchuria Khas[338], 45. Chinchuria [34]	Barabani
		46. West Palasdiha[83], 47. South [228], 48. Uttar Dhadka [93]	Asansol

Source: Office of the Eastern Coalfields Limited, Sanctoria, Dishergarh, Paschim Bardhaman, West Bengal

The total reserves of coal under ECL are about 49.17 billion tonnes as on 01-04-2012 (Wikipedia, ECL). As per the 2017-18 Report of CMPDI, Salanpur Area has a reserve of 690 million tonnes.

Illegal Coal Mining Scenario in India

Illegal mining refers to the mining which are going on in violating of any of the provisions of the applicable Acts, Government rules and Orders. The main source of illegal mining of coal in India is the abandoned mines. After extracting coal economically, when the legal mining authority feels that it is very much difficult for them to continue production in any particular mines the authority stopped production in that mines or close that mine and shift its entire labour force to other economical mines. The left-over coal in an abandoned coal mine is pilfered by coal mafias, local poor villagers in an unplanned and unscientific way. In this way major incidence like roof falling, water flooding, poisonous gas leaking etc. occurred in illegal mining pit which is the significant cause of death of many labourers.

According to report of the Ministry of Coal (2016), among the other regions of our country, eastern region holds a foremost position in illegal coal mining as well as in theft and pilferage of coal also. Illegal coal mining cases have been discovered largely in the eastern region, mainly in the Jharkhand state, pits are found under the leasehold area of Bharat Coking Coal Limited (BCCL), Central Coalfield Limited (CCL) and Eastern Coalfield Limited (ECL) and also in West Bengal covering ECL and BCCL. Lists of such illegal mining sites of ECL, BCCL and CCL have been shown in table 5, table 6 and table 7 respectively. (**As per ISM Report**)

Table-5 Illegal Mining Sites under Eastern Coalfields Limited (ECL)

State	Illegal Mining Sites (Within leasehold Area)
West Bengal	**Sodepur Area** –Aldih, Chainakuri near Main Magazine Chhai Dhowrah, Sodepur 11 No. Old Incline, Patkojona Village & Dhawtah, Binodbandh, Bharaychak, Aluthia village, Saloni village, Tulsihir, Chhotdhemo, Rakta village, Perbelia village, Amdanga, Kuthibari, Ranibari, Pathardiha, Kulbona, Dubeswari village, Dangajore, Hirakund, Asanbani, Nawdiha, Ranipur 2B 2C, Narayanpur, Moutha, Santhal Moutha
	Sripur Area – Muslia Collliery, Kalipahari Colliery, Sripur Seam Incline Colliery, Kushadanga/Girmint Colliery
	Salanpur Area – Bonjemehari Colliery, Dabor Colliery, Sangramgarh Colliery, Mohanpur Colliery, Gorangdih (A) Colliery, Gourangdih-Begunia Colliery**,**Barmondia (A) Colliery
Jharkhand	**Mugma Area**- Hariajam, Chapapur, Mandmand, Rajpura, Kapasara, Khudia, Gopinathpur, Lakhimata, Shampur, A, Shampur B
	Pandaveswar Area- (Portion of Jharkhand) Kasta, Palasthali, Sultanpur.

Source: Draft report of Illegal coal mining submitted by ISM, Dhanbad, 2013

Table-6 Illegal Mining Sites under Bharat Coking Coal Limited (BCCL)

State	Illegal Mining Sites and Estimated Extent
Jharkhand	**Barora Area- a)** Phularitand: Mandra section and Benidih section (V/VI/VII) along SE Rly line (about 15-20m from surface), b) Damoda: East bank of Jamunia river near DB road bridge (25m)
	Govindpur Area- a)Govindpur: 5,6,7 seam abandoned OCP (superficial coal benches) and X seam quarry filling near Bagdigijore (remnant benches), b)Jogidih: 5,6,7 seam exposed Bench Filling (remnant benches) c) N/Akashkinari: i) XIV seam OCP East Katras Section (remnant benches), ii) XV seam OCP East Katras Section (remnant Baters), iii) XIII seam OCP East Katras Section (remnant benches), d) Maheshpur: X seam Mahespur section (remnant exposed pillars), e) Kharkhare: 15 Nos Incline mouth. (80m along the incline)
	Kusunda Area- a)Bassuriya: (i) 6 No. Quarry X seam (remnant benches), (ii) Ganga patch , X seam North side of KT link line, (iii) 44 no. OCP, X seam near Pathak Basti, b) E/Bassuriya: (i) VIII seam Quarry in Gareria Section, (ii) V/VI seam Quarry near EkraJore (remnant pillars 30-40m), **c)** K. Kusunda: (i) II seam old Quarry Selected Godhur (20-30m), (ii) V/VI seam old Quarry North of Gondudih Basti, (iii) VIII seam old Quarry North of Gondudih Basti, (iv) X seam old Quarry near Dhario Jaba Basti, (v) IV top seam old Quarry Chota Boua section, d) Dhansar: i) Near New Delhi (Bright Kusunda Pahari), (ii) Near Jha colony (incroping seams)
	Bastacolla Area- E/Bhagatdih: (i) XI/XII seam Quarry Near 6 pits, ROCP: (i) X seam Quarry, (ii) South of old comb. Seam Quarry, (iii) Pandebera/Phularibad
	Lodna Area: a) Lodna: (i) XIII/XIIIA seam at ChalchaliaDhowra, (ii) Behind Lodna old Magazine b) Bagidigi: (i) West side of patch 'D' c) N.Tisra: (i) IX/X seam near LUJ pit, (ii) XI/XII seam near Lodna Shiv mandir, (iii) Dippo dhowra IX/X seam d) NT/ST (OCP): i) III seam old working near N.T.C., (ii) Old Dragline face
	EJ Area: a) Bhowra(S): (i) V & VI seam of 28 Incline Quarry, (ii) IV B Quarry b) Sudamdih (I): (i) XVII seam Quarry Gouri Gram c) Amlabad P: i) Amlabad project (Dhobi Ghat), (ii) Amlabad near Chat Ghat d) Bhowra(N): (i) X seam old Quarry near taxi stand (now filled by flyash)
	W.J.Area: Bhatdee Colliery: Along Bank of Damodar River
	C.V.Area: a) Basantimata: (i) 3/4 G.P. Bottom & Kalimati Seam, (ii) 3 no. Quarry (GP Bottom &Kalimati seam), (iii) 2A no. Quarry (GP Bottom &Kalimati seam), (iv) 3 no. Quarry (Palasia seam), (v) Quarry Palasia Local Seam
West Bengal	**Katras Area:** a)Salanpur: IV/V/VII Seam Quarry (remnant benches), b) Ramkanali: IV/V/VII Seam Quarry (remnant benches)

Source: Draft report of Illegal coal mining submitted by ISM, Dhanbad, 2013

Table-7 Illegal Mining Sites under Central Coalfields Limited (CCL)

State	Illegal Mining Sites and Estimated Extent
Jharkhand	**A) East Bokaro Coalfields**: (a) The Dhori Area- (i) Angowali Colliery: The 17.5m thick seam quarry abandoned by CCL; Several pits and inclines found. Each opening was 30 to 40m from the surface and widened unscientifically, (b) B & K Area: Most of the previous illegal mine sites were filled up by coal ash. Konar River Beds near Karo Special Projects Phase – II. The River beds are not within the CCL Lease. The openings were about 5 to 10m deep, (c) Kathara Area- (i) Kathara Opencast Mines : Kargali Top and Bottom, Uchitdih Seam by widening the old Pillars 100m X 250m area,(ii) Swang Colliery: VI, VII, VIII Seam old quarry, Bermo Seam, Kargali Top and Bottom Seams in Mining Baters superficial excavations.
	B) Giridih Coalfields- Nil in CCL lease hold area.
	C) West Bokaro Coalfields: (a) Kuju Area (i)Kuju – Morpa, Banwar, Pundi non-working quarry. (ii) South-west Part near outcrops; 25 to 30m perpendicular to the inclines. (iii) Karma OC: outcrops near Damodar Beds.
	D) Hazaribagh Area: (a)Tapin South 44 & 45 Quarry,(b) Tapin North 42 & 40 Quarry, (c)Jharkhand non-working Quarry, (d)Ara, Sarubera non-working mines area of the OC
	E) South Karanpura Coalfields: (a) BarkaSayal Area- Chordhara and Lapanga Colliery: Sangram OCP old mining baters. Bhurkunda Colliery: Argada Seam old workings; (b) Argada Area: (i) Gidi A OC: Quarry 4 where production was ceased: superficial mining baters, (ii)Gidi C OC: Quarry -7: discontinued patch; superficial excavations, (iii) Religara OC/UG: eastern side near Quarry 7 of Gidi-C OC, (iv)Sirka OC: Northern section near CHP, near Damodar river in the superficial mining baters,(v)Sirka UG project: Old inclines 1, 2 and 3 in Bansgarha Seam (50 to 60m from the incline mouth), (vi)Argada UG Colliery : Incline No 8 near PararuNala (50 to 60m from the incline mouth).
	F) North Karanpura Coalfields: Nil
	G) Daltonganj Coalfields: Nil
	H) Ramgarh Coalfields: (a) Rajarappa Area- Block- III; Block – IIE and Block IIW Extension areas, near the outcropping seams. 30 to 40m from the surface.

Source: Draft report of Illegal coal mining submitted by ISM, Dhanbad, 2013

Illegal Coal Mining Scenario in West Bengal

Closed or abandoned mines are the most suitable place to run illegal coal mining operation. Such illegal operation is also done in some running collieries of ECL as well as on some private land. In the process of illegal mining on private land workers involved in this activity are given monetary incentives for digging unless and until coal layer is reached.

We all know that most of the illegal coal mining operations carried out in underground abandoned coal mines. However, in open cast legal coal mines, the miners stick to rat hole mining method in which they make holes on the sides of the mines and create a tunnel to move inside the hole. Another type of illegal coal mining method is locally called kuon or well mining

in which the workers excavate somewhat similar to a well and then cut away the sides of the well after a particular depth to make their way inside. The illegal miners for their illegal operation often hire santhal workers for mining. The coal mafia hired Santhal workers for digging purpose because they are very strongly built and they are not conscious about the ruling wage rate. Most of the workers are illiterate and mafia can employ them in relatively lesser wage rate than the ruling wage rate in the market. That means these santhal labourers are so poor that they are fully exploited by the coal mafia.

Illegal mining in West Bengal is still going on in Pandaveswar Area, Bankola Area, Jhanjra Area, Kajora Area, Satgram Area, Kenda Area, Kunustoria Area, Sonepur Bazari Area, Sripur Area, Sodepur Area, Salanpur Area, Mugma Area, Rajmahal and S.P.Mines Area of ECL. The illegal mining scenario in West Bengal has been presented in the following table 8.

Table 8 Illegal Mining Scenario in West Bengal

Name of the Area	Illegal mining sites
Pandaveswar Area	Kasta Colliery, Pariharpur colliery, Palasthali colliery, Sultanpur Colliery, Tewari Beldanga Colliery, Jorekuri Colliery, Madhaipur Colliery, Nutandanga Colliery, Mandarboni Colliery, South Samla Colliery, Dalurbandh Colliery, Pandaveswar Colliery, Kendra Colliery, Khottadih Colliery, Shamla Colliery,
Bankola Area	Moira Colliery, Khandra Colliery, Bankola Colliery, Kumardih-A Colliery, Kumardih-B Colliery, Nakrakonda Colliery, Tilaboni Colliery, Shyamsundarpur Colliery.
Jhanjra Area	The Incrop of R-VII Seam, R-VIIA Seam, R-VI Seam.
Kajora Area	Jambad Colliery, Nabakajora Colliery, Madhabpur Colliery, Lachipur Colliery, Central Kajora Colliery, Khas Kajora Colliery, Parascole(East) Colliery, Parascole(West) Colliery, Madhusundarpur 7 Pit Colliery, Madhusudanpur 3&4 Pit Colliery, Madhujore Colliery, Ghanashyam Colliery.
Satgram Area	Kalidaspur Project Colliery, Nimcha(R) Colliery, J.K.Nagar Colliery, Pure Searsole Colliery, Jemehari Colliery, Mithapur Colliery, Satgram Project, Satgram Incline, Ratibati Colliery, Chupi Khas Colliery, Kuardih Colliery.
Kenda Area	New Kenda Colliery, Lower Kenda Colliery, Bahula Colliery, Haripur Colliery, Chora 10 Pit Colliery, Chora 7&9 Pit Colliery, Chora Block Incline Colliery, Sidhuli Colliery, C.L Jambad Colliery, Krishnagar Colliery.
Kunustoria Area	Toposi Colliery, North Searsole Colliery, Kunustoria Colliery, Bansra Colliery, Parasea Colliery, Belbaid Colliery, Mahavir Colliery, Amritnagar Colliery and Damoda Colliery.
Sonepur Bazaari Area	Incrop of R-VIII seam lying beyond the southern boundary of the mine is prone to this menace.
Sripur Area	Bhanora Group of Collieries, Ningha Group of Collieries, Ghusick (R) Group of Collieries, Bhanora West Block Incline, Kushadanga/Girmint Colliery, Sripur Seam Incline, Ningha Colliery, Muslia Colliery, Kalipahari Colliery.
Sodepur Area	Ramjivanpur Colliery, Aldih Colliery, Mithani Colliery, Dhemomain Colliery, Narsamuda Colliery, Patmohana Colliery, Bejdih Colliery, Sodepur (R) Colliery, Chinakuri Mine-I, Chinakuri III Mine, Parbelia Colliery.
Salanpur Area	Bonjemehari Colliery, Dabor Colliery, Dalmiya Colliery, Sangramgarh Colliery, Mohanpur Colliery, Gourangdih (A) Colliery, Gourangdih-Begunia Colliery, Tara Colliery, Barmondia (A) Colliery.

Source: "Report of the standing committee on Coal and Steel" held on 29.10.2010, New Delhi.

Illegal Coal Mining in Salanpur Coalbelt Area

The Salanpur Area had collieries namely, Bonjemehari Colliery, Dabor Colliery,Sangramgarh Colliery, Mohonpur Colliery, Gourangdih (A) Colliery, Gourangdih-Begunia Colliery, Barmondia (A) Colliery, Dalmiya Colliery (non-operative) and Tara Colliery (non-operative). Due to presence of many villages large opencast mining is problematic and ECL is facing socio-political crisis in land acquisition.

A number of abandoned quarries and several old inclines are present and left open since nationalization of coal mines (1971-73), in the hope of future land acquisition for continuing mining in the area. Illegal mining and coal theft is an open business of the villagers in the area. However ECL regularly uses overburden material from the new opencast patches to fill up the abandoned mines and the illegal pits.

Picture 1.3.1 Newspaper Cutting Proof of the Presence of Illegal Coal Mining in Salanpur Area of ECL


খোঁজখবর

R.N.I. Regn. No:- WBBEN/2002/18730 Postal Regn. No:- WB/ASL/27/07 বর্ষ- ১৫ সংখ্যা-৩০ ১৯ অগ্রহায়ণ ১৪২৪ ৪ ডিসেম্বর, ২০১৭ মূল্য- ১টাকা

কয়লা চোর কারা? চুরি রুখতে কোনও দায়িত্ব নেই ই সি এল-এর?

খোঁজখবরের প্রতিবেদন: আর দু'তিন মাস। তারপরেই রাজ্যে পঞ্চায়েত

রাজ্যের শাসন ক্ষমতায় ডান-বাম যে সরকারই থাকুক না কেন। তবে, বর্তমান

প্রমাণিত। তাহলে বিকল্প ব্যবস্থা নেওয়ার কথা এতদিনেও কেন ভাবা

শেষ পর্যন্ত কী দাঁড়ায়, আর কয়েক সপ্তাহ পর তা বোঝা যাবে। এরই মধ্যে রাজ্যের বেশ কয়েকটি জেলার পরিস্থিতি

কেন্দ্রীয় মন্ত্রী বাবুল সুপ্রিয়? কেন্দ্রের কোনও দায় নেই? দায় নেই 'ই সি এলের'?

পুরোপুরি যান্ত্রিক পদ্ধতিতে কয়লা উৎপাদন করতে গিয়ে সরকারি এ সংস্থা কর্মিয়ে ফেলছে কর্মীর সংখ্যা

Regional Weekly Newspaper, Published from Rupnarayanpur, Paschim Bardhaman, Dated 6th December, 2017

Coal theft is very much found in the loading sites, railway sidings, coal handling plant, stockyard, trucks and railway wagons. Villagers are seen picking coal from the stockyards, OB dumps, railway wagons and trucks. The main reasons are that the big lump sizes are easy to steal. A few lumps can easily fill a sack which can be carried and sold elsewhere. These coals were found to be supplied in the nearby brick kilns, hard coke plants along the NH-2 highway which use the coal [illegible]. The road side hotels are also found to buy these coals. The local people purchase the coals as a cheap cooking fuel.

Picture 2 Newspaper Cutting Proof of Illegal Coal Mining in Salanpur Area


(3.5.2016)

বর্ধমান জেলার খবর

বারাবনিতে ধসে চাপা পড়ে যুবকের মৃত্যু, আরও প্রাণহানির আশঙ্কা

Report of Daily Newspaper 'Bartaman', Dated 3rd May 2016

Sometimes these collected coals were loaded in trucks and sent at pre-determined factories which run with illegally obtained coal. One can easily sense, if he travels along the road from Salanpur Area Office to Lalganj More, Gourangdih Village, Sangramgarh Village, Dendua Village, Rupnarayanpur, etc, the intensity of illegal mining in the area may be more.

Illegally Mined/Theft out Coal from Salanpur Area by Cycle Walah

As per the report published by ISM Dhanbad, 2013, presented in table 9 shows that per day about 270 tonnes of coal is theft out from the Salanpur Area by cyclewalah. About 675 persons were counted carrying coal from different directions at the sites near the study area. The calculation of loss to the national economy and also royalty loss of the West Bengal Government is about 7.56 crore and 2.97 lakh respectively per year as shown in the following table.

Table 9 Illegally Mined/Theft out Coal from Salanpur Area

Sl. No.	Consideration	Units
1.	No. of person carrying coal by cycles (only) per day	675
2.	Weight carried in each cycle	Avg 400 Kg- 0.4 T
3.	Total Tonnage Loss per day	270 T
4.	Tonnage loss per year (approximately 200 days considered, as other days are monsoon, rest period, etc.)	200 days
5.	Tonnage lost per year	54000 T
6.	Average Quality of Coal	G-VII
7.	Rate (Rs per tonne)	1400
8.	Total cost of stolen coal (In Rs)	75600000
9.	Loss of Royalty to the State (In Rs)	297000

Source: Draft Report on illegal mining, ISM, Dhanbad, 2013.

Analysis Behind the Coexistence of Legal and Illegal Coal Mining Activities

In this section, the coexistence of legal and illegal coal mining activities in our study area is explained through the lens of microeconomic theory, specifically analysing the supply and demand mechanisms. Unregulated coal beneath the earth acts as a common property resource. The economic theory of the "tragedy of the commons" dictates that resources in a given site will be over-utilized. In a society where unemployment is a crucial social problem, vast unemployed sections naturally resort to extracting local resources to maintain a livelihood, regardless of legality. In a purely isolated context, illegal mining appears to improve social welfare by extending job opportunities to the local unemployed; however, it remains illicit within the formal economy.

While legal coal extraction supplies the broader global and national markets, illegal coal mining operates entirely within a localized, domestic framework due to its illicit nature. The global supply curve for legal coal is influenced by macro-factors like international trade, whereas the domestic supply curve for illegal coal is highly elastic, driven by cheap, unregulated local labour and the exploitation of abandoned infrastructure.

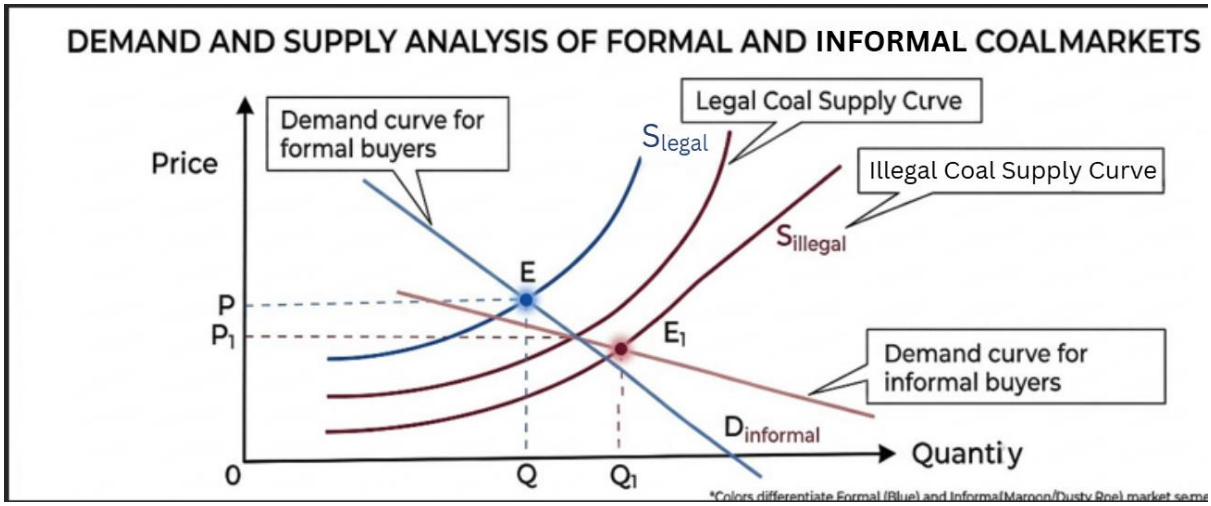


Figure 1 Supply and Demand mechanism of illegal coal mining

Initially, due to huge sunk costs and infrastructure development requirements, informal miners are absent. Formal miners supply coal and internalize the social costs of mining. Conversely, informal miners ignore both economic welfare and environmental values, continuing extraction until exhaustion. Because informal miners use abandoned formal infrastructure and employ cheap, often exploited labour, their cost of extraction is significantly lower.

The equilibrium price for illegal coal is thus formed strictly within the local informal market, undercutting the legal price. Because the marginal cost (MC) of illegal mining is lower, illegal miners supply their product at a much lower price. This reduced price attracts new small factories (like brick kilns or fuel coke factories), creating a relatively elastic demand for illegal coal. The scope of illegal mining expands the transaction volume in the regional market. The volume of illegal mining relies heavily on local supply conditions. If cheap labor and infrastructure are unavailable, the MC of illegal mining merges with formal mining, eradicating the illegal sector. Therefore, the market for illegal coal mining is heavily supply-determined; abolishing illegal mining in Salanpur requires regulating the supply conditions so that illegal miners can no longer extract coal at an artificially lowered cost.

In our diagram the supply curve of informal mining sector is given as an upward rising straight line. This is because of the fact that informal miners do not care neither about the economic welfare of the society nor about the environmental values of the mining belt. They will continue the extraction process until coal become fully exhausted in that area. The informal mining sector often uses the infrastructure of formal mining. Even administrative cost of illegal miners is lower than that of legal miners. Moreover, informal miners employ cheap labour, generally from the illiterate santhal group. Thus, the cost of extraction for illegal miners is much lesser compared to the cost of extraction for formal mining sector. That is why; the MC curve the informal mining sector is depicted below the MC curve of the formal mining sector. On the other hand, the demand curve of the informal mining sector is depicted as slightly flatter than the demand curve of the legal mining sector. As the marginal cost of illegal mining is lower than the marginal cost of legal mining, the illegal miners can supply their product at a lower price. It is shown in figure 1 that the price of illegal coal is much lower than the price of coal

of the formal mining sector. It is to be noted that as the price of coal is lower in the informal sector, some new small factory like brick factories, or fuel coke factories may be attracted to build up new business using the advantage of the low price of the coal. It is reflected in the relatively elastic demand for illegal coal. Therefore, the scope of illegal mining just expands the volume of transaction of coal in the regional market. In our figure, QQ_l stands for the volume of illegal coal supply. The volume of illegal mining depends on demand conditions and supply conditions of coal in local market. If supply curve is more elastic due to availability of very cheap labour and cheap scope of using abandoned infrastructure, the volume of illegal mining will increase. However, if there is no scope of getting cheap labour and cheap infrastructure, MC of producing illegal coal will be equivalent to the MC of formal mining. So supply curve of illegal miner will merge with that of the formal mining. In that case, illegal mining will not occur at all. On the other hand, demand for illegal mining will not occur at all if the potential consumers of illegal coal get it at a lower price compared to the price of formal mining. That is, the presence of supply of illegal coal mining is the main stimulating factor of rising demand for illegal coal. This fact establishes that market for illegal coal mining is supply determinant. Therefore, to abolish the illegal part of coal market in an area like Salanpur we have to check the supply conditions of illegal coal, in such a way that the illegal miner could not be able to extract coal at a lower cost.

In this section we have shown that how illegal coal miners in Salanpur Coalbelt area provides illegal coal to the local coal related small scale factories at a cheaper rate compared to the price of legal coal in this area. Keeping this point in mind we have calculated the total loss of our economy in a year due to the continuation of illegal coal mining in our study area by considering the market price of legal and illegal coal in the year 2018.
We have presented the total loss of our economy due to illegal coal mining activities throughout India as reflected on the report of ISM, Dhanbad, 2013.

Loss to National Economy (According to Report of ISM Dhanbad, 2013)

Indian School of Mines (ISM), Dhanbad had carried out a survey on the extent of illegal coal mining all over India and they submitted a report to CIL in 2013. For our study purpose we consider only financial loss to our economy due to illegal coal mining in ECL. Calculation of total loss of our economy as per that report has been presented in the following table 10.

Table 10 Financial Loss due to Illegal Mining and Coal Theft in ECL

Sl. No.	Area	Theft Tonne Per day	Tonne per year with 200 working days	Grade	Rate Per Tonne (P)	Royalty	ECL Loss (Rs)	State Loss (Rs)
1.	Pandaveswar	172	34400	G-IV	3490	6.50	120056000	223600
2.	Bankola	92	18480	G-IV	3490	6.50	64495200	120120
3.	Jhanjra	30	6000	G-IV	3490	6.50	20940000	39000
4.	Kajora	115	23000	G-III	3890	6.50	89470000	149500
5.	Satgram	370	74000	G-IV	3490	6.50	258260000	481000
6.	Kenda	45	9000	G-IV	3490	6.50	31410000	58500
7.	Kunustoria	150	30000	G-V	2800	5.50	84000000	165000
8.	SonepurBazzari	20	4000	G-IV	3490	6.50	13960000	26000
9.	Sripur	170	34000	G-IV	3490	6.50	118660000	221000
10.	Sodepur	400	80000	G-IV	3490	6.50	279200000	520000
11.	Salanpur	270	54000	G-VII	1400	5.50	75600000	297000
12.	Mugma	345	69000	G-V	2800	5.50	193200000	379500
13.	Rajmahal	Nil						
	Sub-Total ECL						**134,92,51,200**	**26,80,220**

Source: Draft Report on illegal mining, ISM, Dhanbad, 2013

The Indian School of Mines (ISM), Dhanbad, carried out a survey in 2013 on the extent of illegal coal mining across India. For our study, we consider the financial loss to the economy due to illegal coal mining within ECL, as presented in Table 10. The 2013 data shows that due to lower royalty charges in West Bengal compared to Jharkhand, the total royalty loss for the state of West Bengal is about ₹23 lakh per year, with Salanpur Area accounting for a ₹7.56 crore loss to ECL and ₹2.97 lakh state royalty loss per year. However, in previous independent estimations published in the Economy, Polity and Environment (EPE) journal, it was calculated that more than 1.5 lakh tonnes of coal are illegally mined or stolen from the study area annually. This figure is almost three times larger than the loss shown by the 2013 ISM Dhanbad report, indicating the report significantly underestimates the tonnage loss. Calculating the monetary value of this coal during March 2018 suggests an annual loss of about ₹29.10 crore. Since pit owners pay no taxes, this entirely generates unaccounted "black money". Furthermore, the West Bengal government loses royalty amounts exceeding ₹8 lakh per year from the Salanpur Coalbelt alone. This illegally mined coal experiences huge local demand because it is cheaper

than official ECL coal. Customers include local coal briquette factories, brick kilns, fire brick factories, unauthorized coke factories, roadside hotels, and nearby households. Roadside hotels and household members of nearby villages purchase illegally mined out coal from coal cyclewalah. The study illustrates that total demand of illegally mined out coal in our study area is more than 1.5 lakh tonnes and the entire demand of coal is met by the corresponding supply of coal from illegal pits, rat hole mining in abandoned mines and theft coal in our study area and the process continues year after year.

In addition, the continued illegal coal mining activities in this region, the smoke emitted by coal briquette factories, and the open-air combustion of raw coal in unauthorized coke (fuel) factories have had a severe impact on the health of the people residing in this area. If we are able to calculate the cost of diseases which are prevalent due to the presence of those factories, the total loss of the economy would be much higher than our estimation.

Conclusion

While mining activities—especially illegal coal mining—have provided some short-term livelihood opportunities to local residents (as evidenced by the reliance of marginalized Santhal groups on daily wages from rat-hole mining), this comes at an immense cost to government revenue, the local environment, and public health. Furthermore, it has deteriorated local agricultural activities, reducing productivity due to topsoil degradation, pit hole formations, and subsequent land subsidence frequently documented in the area. These illegal mining activities offer short-term benefits but guarantee long-term pain. The local atmosphere has severely degraded due to emissions from unauthorized coal processing factories. Additionally, the influx of illegal operations has led to a significant rise in anti-social activities, deteriorating the social environment. Therefore, for the sake of the local society, environment, agricultural sustainability, and the broader national economy, such illegal coal mining activities must be dismantled. Local residents, the formal coal mining authority, and local administration must join hands to curtail these illicit activities across all affected areas in India.

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