

Year	Lignite	Hard Coal	Total Coal
Gross production	Gross production	Gross production	Gross production
Million tons/yr	Million tonnes/yr	Million tons/yr	Million tonnes/yr
1946			33.1
1947			32.9
1948			34.7
1949			35.6
1950			38.0
1951			39.9
1952			39.5
1953			40.5
1954			42.3
1955			45.1
1956			49.4
1957			51.5
1958			53.6
1959			58.0
1960	0.1	0.0	61.9
1961	0.1	0.1	67.9
1962	0.2	0.2	73.8
1963	1.1	0.9	70.6
1964	1.7	1.4	76.6
1965	2.5	2.0	77.8
1966	2.8	2.3	78.4
1967	3.2	2.6	80.9
1968	4.5	3.6	87.7
1969	4.6	3.7	85
1970	3.9	3.1	83
1971	4.1	3.3	87
1972	4.2	3.4	89
1973	4.4	3.5	96
1974	4.6	3.6	109
1975	4.7	3.8	116
1976	4.9	3.9	115
1977	5.0	4.0	116
1978	5.2	4.2	118
1979	5.4	4.3	126
1980	5.5	4.1	143
1981	7.2	5.3	149
1982	7.7	5.7	156
1983	7.3	5.4	184
1984	7.8	5.8	190
1985	8.6	6.3	208
1986	10.6	7.8	211
1987	12.4	9.1	226
1988	13.9	10.2	234
1989	13.9	10.3	248
1990	15.6	11.4	270
1991	17.6	13.0	279
1992	17.4	12.8	288
1993	18.3	13.5	301
1994	21.3	15.7	321
1995	24.4	18.0	315
1996	24.8	18.3	338
1997	25.4	18.7	343
1998	25.5	18.8	356
1999	24.8	18.2	370
2000	26.7	19.7	389
2001	27.4	20.1	396
2002	28.7	21.1	421
2003	30.8	22.7	447
2004	33.5	24.7	473
2005	33.3	24.5	500
2006	34.5	25.4	532
2007	37.5	27.6	568
2008	35.7	26.3	611
2009	38.2	28.1	627
2010	39.2	28.8	431
Total	743	551	11,199
			8,343
			12,469
			8,052
			1973-2010
			7,518
			71.2%
			100.00%

Coal extraction data

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 Last modified: November 2011



Coal India Ltd.

www.coalindia.in Kolkata, West Bengal

90 percent state-owned (Ministry of Coal) yellow column indicates original reported units
 IPO in 2011

Production / Extraction data

Year	Lignite	Hard Coal	Total Coal
Gross production	Gross production	Gross production	Gross production
Million tons/yr	Million tonnes/yr	Million tons/yr	Million tonnes/yr

The EIA data in columns D to J are shown for total coal production by rank in India, and is used to calculate a default value for Coal India's production by rank. Coal India's total coal production is shown in column K, based on data in page 2.

Coal India/Ministry of Coal is assumed to produce 88 percent of total Indian coal. (Also see Singherani Collieries, equal to 7 percent of Indian production)



Total Lignite Production (EIA & BuMines)	Estim Coal India product'n (88% & 80.9%)	Total Bituminous Production (EIA, Sh tons)	Estim Coal India product'n (88%)
million tonnes	million tonnes	million tonnes	million tonnes
0.1	0.0	58	46
0.1	0.1	62	49
0.2	0.2	68	54
1.1	0.9	73	58
1.7	1.4	69	55
2.5	2.0	74	59
2.8	2.3	75	60
3.2	2.6	75	60
4.5	3.6	76	61
4.6	3.7	83	66
3.9	3.1	81	65
4.1	3.3	76	61
4.2	3.4	81	65
4.4	3.5	86	69
4.6	3.6	91	73
4.7	3.8	96	76
4.9	3.9	101	80
5.0	4.0	106	84
5.2	4.2	111	88
5.4	4.3	115	92
5.5	4.1	120	89
7.2	5.3	136	100
7.7	5.7	142	104
7.3	5.4	149	109
7.8	5.8	176	130
8.6	6.3	181	133
10.6	7.8	198	146
12.4	9.1	198	146
13.9	10.2	213	156
13.9	10.3	220	162
15.6	11.4	232	171
17.6	13.0	252	186
17.4	12.8	262	193
18.3	13.5	270	198
21.3	15.7	279	206
24.4	18.0	296	218
24.8	18.3	290	213
25.4	18.7	313	230
25.5	18.8	318	234
24.8	18.2	331	244
26.7	19.7	343	253
27.4	20.1	361	266
28.7	21.1	367	270
30.8	22.7	390	287
33.5	24.7	413	304
33.3	24.5	440	324
34.5	25.4	466	343
37.5	27.6	494	364
35.7	26.3	533	392
38.2	28.1	573	422
39.2	28.8	588	432

Zimmermann's: 71 million tonnes

Total est. & actual Coal India prodn 1970-2004 EIA data for India

Coal India established 1973

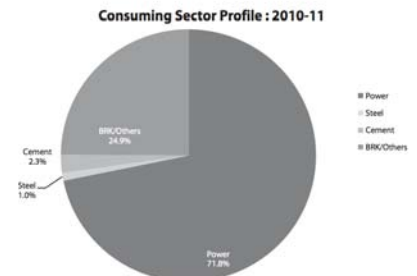
Year	Total India Coal	Coal India % of India
1973	87	71.2%
1974	89	71.2%
1975	96	71.2%
1976	109	71.2%
1977	116	71.2%
1978	115	71.2%
1979	116	71.2%
1980	118	71.2%
1981	126	71.2%
1982	143	71.2%
1983	149	71.2%
1984	156	71.2%
1985	184	71.2%
1986	190	71.2%
1987	208	71.2%
1988	211	71.2%
1989	226	71.2%
1990	234	71.2%
1991	248	71.2%
1992	270	71.2%
1993	279	71.2%
1994	288	71.2%
1995	301	71.2%
1996	321	71.2%
1997	315	71.2%
1998	338	71.2%
1999	343	71.2%
2000	356	71.2%
2001	370	71.2%
2002	389	71.2%
2003	396	71.2%
2004	421	71.2%
2005	447	71.2%
2006	473	71.2%
2007	500	71.2%
2008	532	71.2%
2009	568	71.2%
2010	611	71.2%
Total	627	71.2%

	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG
1	OPERATIONAL STATISTICS																		
2	Year Ending 31st March																		
3	1. (a) Production of Raw Coal (MillionTonnes)																		
4	Underground																		
5	Opencast																		
6	Total	431.32	431.26	403.73	379.46	360.91	343.39	323.58	306.36	290.69	279.65								
7	b) Overburden Removal (million Cum)																		
8	Total	732.13	682.03	645.13	607.56	537.65	533.94	516.11	497.00	501.20	490.13								
9	2. Off take (Raw Coal) (MillionTonnes)																		
10	Power																		
11	Steel/Hard Coke																		
12	Railway																		
13	Others																		
14	Total	424.50	415.88	401.46	375.33	351.14	333.66	321.55	304.44	289.22	282.43								
15	3. Average Manpower																		
16	4. Year-end Manpower																		
17	5. Productivity																		
18	A) Average per Man per Year (tonnes)																		
19	B) Output per manshift (OMS)																		
20	i) Under Ground (Tonnes)																		
21	ii) Open Cast (Tonnes)																		
22	iii) Overall (Tonnes)																		

(b) Sectorwise dispatch of coal & coal products

Sector-wise break-up of dispatch of coal & coal products for 2010-11 against target and last year's actual is given below:

Year	2010-11			2009-10		Growth over Last Year	
	Target	Dispatch	% Seln.	Actual	Abs.	%	
Power (JIT)	332.78	304.15	91.4	298.03	6.12	2.1	
Steel	4.37	4.21	96.4	3.78	0.43	11.5	
Cement	7.51	9.69	129.0	9.25	0.44	4.7	
Fertilizer	3.01	2.78	92.4	2.81	0.17	6.5	
Export	0.02	0.00	0.01	0.01	-0.01		
Others	109.82	102.61	93.4	101.46	1.15	1.1	
Dispatch	457.51	423.44	92.6	415.14	8.30	2.0	

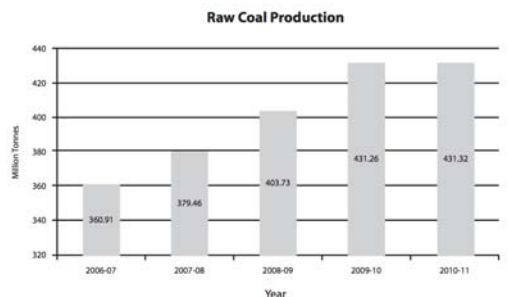


Coal India AnnRpt for 2010-2011, page 19.

Coal India AnnRpt for 2010-2011.

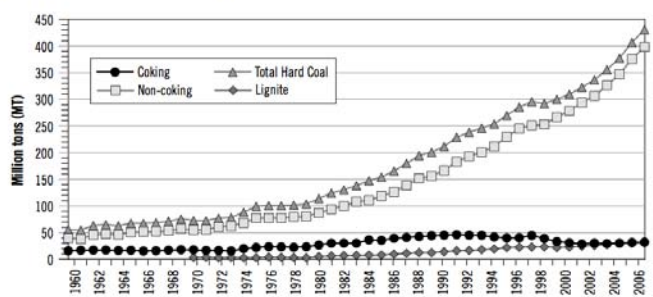
Grades	Fiscal									
	2008		2009		2010		2011		2012 (1st QTR)	
	Raw coal production Mill Te	% of Raw coal production	Raw coal production Mill Te	% of Raw coal production	Raw coal production Mill Te	% of Raw coal production	Raw coal production Mill Te	% of Raw coal production	Raw coal production Mill Te	% of Raw coal production
Non Coking Coal 1	353.30	93.1	377.19	93.4	395.13	91.6	389.97	90.4	87.192	90.5
Coking Coal 2	26.16	6.9	26.54	6.6	36.13	8.4	41.35	9.6	9.117	9.5
Total	379.46	100.0	403.73	100.0	431.26	100.0	431.32	100.0	96.309	100.0

coalindia.in/performance.aspx



Coal India AnnRpt for 2010-2011.

Figure 2: Coal production in India (1960-2006)



Chikkatur, Ananth P. (2008) A Resource and Technology Assessment of Coal Utilization in India,

Operational Statistics, Coal India AnnRpt 2010-2011, page 33.

"Off take (Raw Coal)", in million tonnes					
Power	Steel /Coke	Railway	Others	Total	Raw coal prodn
million tonnes	million tonnes	million tonnes	million tonnes	million tonnes	million tonnes

1999	195.08	15.45	-	53.11	263.64	260.58
2000	207.43	13.87	-	52.51	273.81	268.14
2001	217.18	12.37	-	52.88	282.43	279.65
2002	219.93	12.28	-	57.01	289.22	290.69
2003	234.23	12.18	-	58.03	304.44	306.36
2004	248.86	11.70	-	60.99	321.55	323.58
2005	256.65	10.02	-	66.99	333.66	343.39
2006	262.14	9.85	-	79.15	351.14	360.91
2007	280.15	10.01	-	85.17	375.33	379.46
2008	296.74	9.00	-	95.72	401.46	403.73
2009	298.87	8.92	-	108.09	415.88	431.26
2010	304.30	9.50	-	110.70	424.50	431.32

	2,826.48	119.70	-	827.24	3,773.42	3,818.49
Percent	74.9%	3.2%	0.0%	21.9%	100%	
	Thermal coal total 2000-2010				96.8%	
	Coking coal total 2000-2010				3.2%	

CIL data on accident statistics: website data on HSE & accident rates

Year	Fatal Acc.		Serious Acc.		Fatality rate & injury rate		production: "Fatalities" / "Fatal A"	
	Accident	Fatalities	Accident	Injuries	Per MT	Per MT	Per MT	MT (fatalities)
1975	177	233	1,456	1,515	2.62	17.03	88.9	
1976	177	249	1,194	1,248	2.72	13.63	91.5	
1977	177	197	1,198	1,255	2.23	14.19	88.3	
1978	139	154	1,180	1,227	1.73	13.78	89.0	
1979	114	147	1,090	1,143	1.61	12.55	91.3	
1980	112	129	1,132	1,202	1.35	12.54	95.6	
1981	127	145	1,214	1,276	1.35	11.90	107.4	
1982	123	148	1,161	1,218	1.32	10.86	112.1	
1983	127	160	980	1,026	1.36	8.70	117.6	
1984	123	134	603	605	1.05	4.73	127.6	
1985	136	152	507	524	1.15	3.97	132.2	
1986	133	154	508	525	1.08	3.68	142.6	
1987	130	141	558	577	0.90	3.69	156.7	
1988	137	151	552	576	0.91	3.44	165.9	
1989	131	150	626	654	0.85	3.72	176.5	
1990	121	135	590	633	0.75	3.53	180.0	
1991	115	120	476	508	0.58	2.51	206.9	
1992	131	150	443	492	0.69	2.20	217.4	
1993	118	132	441	461	0.61	2.14	216.4	
1994	113	186	673	697	0.84	3.14	221.4	
1995	113	192	575	612	0.83	2.65	231.3	
1996	96	110	484	505	0.44	2.02	250.0	
1997	99	111	486	519	0.43	1.99	258.1	
1998	91	104	395	427	0.40	1.64	260.0	
1999	93	102	467	502	0.40	1.98	255.0	
2000	80	100	547	583	0.37	2.16	270.3	
2001	70	105	529	564	0.38	2.06	276.3	
2002	62	69	482	509	0.24	1.74	287.5	
2003	60	64	447	467	0.21	1.48	304.8	
2004	66	70	491	508	0.21	1.55	333.3	
2005	76	97	391	405	0.29	1.20	334.5	
2006	51	106	317	336	0.30	0.96	353.3	
2007	55	57	326	340	0.15	0.92	380.0	
2008	52	64	337	342	0.16	0.86	400.0	
2009	25	29	117	119	0.13	0.53	223.1	

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
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91		EIA "International Energy Statistics" 1980 - 2010 for India												
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	D	E	F	H	J
subt. 1980-2010	675,759	9,543,227	-	387,025	10,218,986
percent of 2009	6.25%	93.75%		100.00%	
% 1980-2010:	6.61%	93.39%	0%		

Note: Coal India does not specify the carbon content or calorific value of its coals (other than "thermal coal," "coke," and "other." CMS would normally apply average U.S. thermal coal emission factor (2.266 tCO₂/tonne). However, given the low very low calorific values of Indian powerplant coals compared to US plants (see below), CMS assigns the EF of sub-bituminous to Coal India's thermal coal production (1.864 tCO₂/tonne).

Details, %	Kahalgaon	Simhadri	Sipat	US (Ohio)	China (Long Kou)
Carbon	25.07	29.00	30.72	64.2	62.8
Hydrogen	2.95	1.88	2.30	5.0	5.6
Nitrogen	0.50	0.52	0.60	1.3	1.4
Oxygen	6.71	6.96	5.35	11.8	21.7
Moisture	18.5	15.0	15.0	2.8	11.0
Sulphur	0.17	0.25	0.40	1.8	0.9
Ash	46.0	46.0	45.0	16.0	7.7
Calorific Value, kcal/kg	2450	2800	3000	6378	6087

Ultimate analysis of non-coking (thermal) coal from three power stations (Kahalgaon, Simhadri, and Sipat) is shown along with analysis of Ohio coal of the United States and Long Kou coal from China.

Source: Visuvasam *et al.*, 2005.

Chikkatur, Ananth P. (2008) A Resource and Technology Assessment of Coal Utilization in India, Pew Center on Global Climate Change, October 2008, 48 pp.
See pages 7-9 (Resources) and pp 15-15 (Quality).

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Table III.5(a) : Production of Coal in India Since Independence

Year	Total production of coal (million tonnes)	Percentage increase (+) or decrease (-) over the previous year	Production of coking coal (million tonnes)	Percentage increase (+) or decrease (-) over the previous year	Ratio of coking coal to total production of coal
1	2	3	4	5	6
1947*	30.07	(+) 0.99	—	—	—
1948	29.82	(-) 0.83	—	—	—
1949	31.45	(+) 5.18	—	—	—
1950	32.31	(+) 2.66	—	—	—
1951	34.43	(+) 6.16	—	—	—
1952	36.22	(+) 4.94	—	—	—
1953	35.85	(-) 1.03	—	—	—
1954	36.77	(+) 2.50	13.8	—	—
1955-56	38.40	(+) 4.24	—	—	—
1956-57	40.94	(+) 6.20	—	—	—
1957-58	44.81	(+) 8.64	—	—	—
1958-59	46.68	(+) 4.01	—	—	—
1959-60	48.59	(+) 3.93	—	—	—
1960-61	55.67	(+) 12.72	16.1	—	—
1961-62	55.18	(-) 0.89	—	—	—
1962-63	63.45	(+) 13.03	—	—	—
1963-64	65.13	(+) 2.58	—	—	—
1964-65	62.78	(-) 3.74	—	—	—
1965-66	67.73	(+) 7.31	17.0	—	25.10
1966-67	68.56	(+) 1.21	16.6	(-) 2.41	24.21
1967-68	68.52	(-) 0.06	15.9	(-) 4.40	23.20
1968-69	71.41	(+) 4.05	17.2	(+) 7.56	24.09
1969-70	75.71	(+) 5.68	18.1	(+) 4.97	23.90
1970-71	72.95	(-) 3.78	17.8	(-) 1.69	24.40
1971-72	72.06**	(-) 1.24	16.7	(-) 6.59	23.17
1972-73	76.87***	(+) 6.26	16.3	(-) 2.45	21.20
1973-74	83.10	(+) 7.50	15.8	(-) 3.16	19.01
1974-75	87.00	(+) 4.48	17.7	(+) 10.73	20.34
1975-76	99.68	(+) 12.72	25.1	(+) 29.48	25.18
1976-77	101.04	(+) 1.35	29.6	(+) 15.20	29.29
1977-78	101.00	(-) 0.04	29.9	(+) 1.00	29.60
1978-79	102.20	(+) 1.19	29.5	(-) 1.34	28.86
1979-80	103.98	(+) 1.74	29.9	(+) 1.36	28.76
1980-81	114.00	(+) 9.84	31.7	(+) 6.02	27.80
1981-82	124.90	(+) 9.56	35.5	(+) 11.99	28.42
1982-83	130.40	(+) 4.40	37.8	(+) 6.48	28.99
1983-84	137.57	(+) 5.50	—	—	—
1984-85	147.45	(+) 7.18	—	—	—

* Production statistics were earlier maintained by calendar years.

** This figure includes production of taken over coking coal mines from October, 1971.

*** This figure includes production of taken over non-coking coal mines from February, 1973 and production of BCCL (Bharat Coking Coal Limited - a subsidiary company of Coal India Limited).

Source : (1) *Businessman*, 12 Years Commemoration Souvenir Number on N.C.D.C Ltd. Statistical Trend, p. 15.(2) *Coal Statistics*, Annual, Government of India, Department of Coal, Vol. A-1/80-81, p. 54.Prasad, Anubhuti Ranjan (1986) *Coal industry of India*, S.B. Nangia, New Delhi, 256 pp.

COAL PRODUCTION IN INDIA, 1940-1959

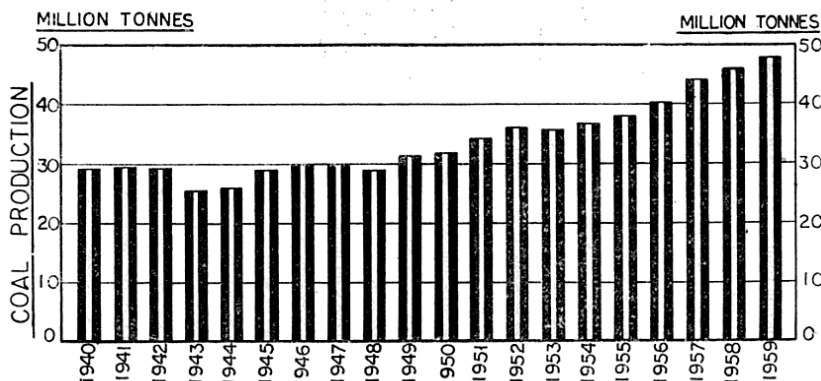


Fig. III.3

Prasad, Anubhuti Ranjan (1986) *Coal industry of India*, S.B. Nangia, New Delhi, 256 pp.

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Comment: Rick Heede:

The Ministry of Coal has under its administrative control the Coal India Limited, a Public Sector Undertaking, with its 8 subsidiary companies. The Coal India Limited with its headquarters at Calcutta is the Holding company in respect of its subsidiaries. It is also the apex body in coal industry and is responsible for laying down the policy guidelines and coordination work of subsidiaries. It also does the investment, planning, manpower, management, purchase of heavy machineries, financial budgeting etc on behalf of all its subsidiaries. The Ministry of Coal has also under its administrative control the Neyveli Lignite Corporation(NLC) with Registered Office at Chennai and Corporate Office at Neyveli in Tamil Nadu. The company is engaged in the exploitation of lignite deposits.

MBendi.co.za quote: "About 88% of the total coal production in India is produced by various subsidiaries (a total of 390 mines) of Coal India Ltd. which is the largest supplier of coal (and one of the largest taxpayers) in the country. Although Coal India is currently State controlled, although efforts are being made to open the industry to Indian private investors. At present all private mines are allowed to operate only if they are producing coal to supply a specific industry (e.g. power station, industry). Coal India has seven coal producing subsidiary companies; viz. Central Coalfields, Eastern Coalfields (Sanctoria), Bharat Coking Coal (Dhanbad), Northern Coalfields (Nagpur), Western Coalfields, Southern Eastern Coalfields (Bilaspur), Mahanandi Coalfields (Sambalpur) and the Central Mine Planning & Design Institute (CMPDI) at Ranchi Bihar, which is entrusted with the job of providing total research and consultancy support to the industry. South Eastern Coalfields are planning to increase production from two of its operations, the Gevra and Dipka mines that supply coal to power stations. The only other major producer outside of CIL, is the Singareni Collieries Company that is located in Andhra Pradesh. Singareni contributes about 7-8 % of India's overall coal production, amounting to approximately 20 Mt each year."

Through its six coal producing subsidiary companies, CIL is the country's largest coal producer. CIL has a share in: Bharat Coking Coal Ltd - Dhanbad, India has a share in: Central Coalfields Ltd - Bihar, India has a share in: Eastern Coalfields Ltd - West Bengal, India has a share in: Mahanadi Coalfields Ltd - Orissa, India has a share in: Northern Coalfields Ltd, India has a share in: South Eastern Coalfields Ltd - Bilaspur, India has a share in: Western Coalfields Ltd - Maharashtra, India has shareholder: Government of India, India.

CMS attributes 88 percent of total Indian coal production to Coal India Ltd.

See also: Prasad, Anubhuti Ranjan (1986) Coal Industry of India, S.B. Nangia, New Delhi, 256 pp.

Cell: J9

Comment: Rick Heede:

90% owned by Govt of India, 10% public. Coal India IPO for \$3.5 billion 20 Oct 2010. Reuters story. Coal demand to grow 11 percent/yr. Still listed as a "Govt of India Undertaking." Wiki: "In 2010, CIL's initial public offering (IPO) got subscribed 15.28 times, collecting a record over 2.4 trillion—the highest IPO subscription so far.[5] On the first day of its listing on the Sensex, its stock closed 40% higher than IPO price.[6] It is India's largest ever public offer from Coal India Ltd. to raise up to 15,000 crore (US\$2.73 billion).[7] It is currently 90% owned by the Government of India with the remaining 10% owned by the public."

Cell: J10

Comment: Rick Heede:

Times of India (2010) Coal India IPO fetches mind-boggling Rs 2.36L crore, 22Oct10. "MUMBAI: The Indian capital market turned black into gold this week. The initial public offer of Coal India was set to be the largest in Indian history from the moment it opened on Monday, but even the biggest bulls in the ring were left stunned by the money it mined by the time it closed on Thursday: a mobilization of Rs 2.36 lakh crore, over 15 times the target of Rs 15,500 crore."

See also:

The Guardian, Jeremy Leggett (2010) Coal India IPO shows the mountain we have to climb Company's prospectus did not mention climate change once in 510 pages of exhortation to invest. guardian.co.uk, 9Nov2010. "In the largest ever initial public offering on the Indian stock exchange, Coal India, a huge government-owned coal company, recently offered 10% of its shares to investors at home and abroad. What was at stake was essentially a \$35bn (£21bn) bankrolling of enhanced global warming by the capital markets. Yet Coal India's prospectus, crafted with the help of a clutch of big-name investment banks, did not mention climate change once in 510 pages of exhortation to invest. And invest the fund managers did, unfettered by risk regulation or any meaningful requirement to place a value on the climate consequences of their scramble for short-term profit. The offering was oversubscribed 15 fold, and the stock soared on the first day of trading, 4 November, valuing Coal India at \$49bn. Those ending up owning stock include 484 foreign funds, 195 mutual funds, 44 insurance companies, and many banks. Many of these investors were using ordinary citizens' money, and this would have included the nest eggs of people worried about global warming and its dire impact on the world by the time they retire. But those people are mostly allowed no say in where their pension funds, insurance premiums, and banking deposits are invested."

Cell: D11

Comment: Rick Heede:

Coal production by coal mining companies and state-owned enterprises, including subsidiaries of oil and gas companies.

Coal types produced are not ordinarily reported by coal operators (except for metallurgical coal). We distinguish, where possible and reasonably well known, between hard (bituminous and subbituminous) and soft (lignite or peat) coals, especially for the larger companies operating in regions such as India where soft coals are predominant. Soft coals have lower carbon content per tonne than do hard coals.

Cell: J17

Comment: Rick Heede:

Coal production 1947-1960 from Prasad (1986), page 132.

Prasad, Anubhuti Ranjan (1986) Coal industry of India, S.B. Nangia, New Delhi, 256 pp.

Cell: E27

Comment: Rick Heede:

"About 88% of the total coal production in India is produced by various subsidiaries (a total of 390 mines) of Coal India Ltd. which is the largest supplier of coal (and one of the largest taxpayers) in the country. Although Coal India is currently State controlled, although efforts are being made to open the industry to Indian private investors. At present all private mines are allowed to operate only if they are producing coal to supply a specific industry (e.g. power station, industry). Coal India has seven coal producing subsidiary companies; viz. Central Coalfields, Eastern Coalfields (Sanctoria), Bharat Coking Coal (Dhanbad), Northern Coalfields (Nagpur), Western Coalfields, Southern Eastern Coalfields (Bilaspur), Mahanandi Coalfields (Sambalpur) and the Central Mine Planning & Design Institute (CMPDI) at Ranchi Bihar, which is entrusted with the job of providing total research and consultancy support to the industry. South Eastern Coalfields are planning to increase production from two of its operations, the Gevra and Dipka mines that supply coal to power stations. The only other major producer outside of CIL, is the Singareni Collieries Company that is located in Andhra Pradesh. Singareni contributes about 7-8 % of India's overall coal production, amounting to approximately 20 Mt each year."

Cell: D29

Comment: Rick Heede:

Data for 1960-1971: Bureau of Mines, Minerals Yearbook, Table 54, various years.

Indian coal production 1980-2010 from Energy Information Administration (2010) International Energy Statistics, Coal Production, Lignite.

Cell: J30

Comment: Rick Heede:

US Bureau of Mines data.

Cell: M36

Comment: Rick Heede:

Parallel estimated coal production in India: 71 tonnes. Citing United Nations. At Coal India assumed equal to 88 percent of India, Coal India = 62.48 million tonnes.

Peach, W. N., & James A. Constantine (1972) Zimmermann's World Resources and Industries, p. 364.

Cell: M43

Comment: Rick Heede:

Wiki: "Coal India Limited was formed in 1973 as Coal Mines Authority Limited. In 1975 it was changed to Coal India Limited as a holding company with five subsidiaries: Bharat Coking Coal Limited (BCCCL)(Dhanbad, Jharkhand), Central Coalfields Limited (CCL)(Ranchi, Jharkhand), Western Coalfields Limited (WCL)(Nagpur region), Eastern Coalfields Limited (ECL)(Sanctoria, Asansol, West Bengal), Central Mine Planning and Design Institute Limited (CMPDIL)(Ranchi, Jharkhand).

Coal India

In 1985 two more subsidiaries were added: South Eastern Coalfields Limited (SECL)(Bilaspur),and Northern Coalfields Limited, Singrauli (NCL,Singrauli).

In 1992 one more subsidiary added: ? Mahanadi Coalfields Limited (MCL) (Sambalpur) One International Subsidiary: Coal India Africana Limitada (CIAL) (Mozambique).

Cell: K45

Comment: Rick Heede (Feb10):

CMS has not found annual production data for Coal India from 1980 to 1999 -- except as a derivative of "fatal accident rate per million tonnes of coal production."

CMS calculates CIL coal production 1975 to 1999 on the basis of CIL-published data on its fatality rate and coal production per fatality per year (available at www.coalindia.in, at HSE statistics). It is worth noting that CMS' original calculation (81 percent of India's total lignite plus bituminous coal production, EIA data), reproduced in column "M", is in close agreement with CIL data.

Production for 1999-2010 is based on actual "off take" production data.

Cell: E50

Comment: Rick Heede:

Indian lignite production for 1980-2010 attributed to Coal India Ltd is estimated at 81.1 of India's total lignite production based on CIL's percentage in 2010 (AnnRpt: "CIL accounted for 81.1% of India's production"). This is converted to metric tonnes from column D.

Cell: H50

Comment: Rick Heede:

Indian hard coal production for 1980-2010 attributed to Coal India Ltd is estimated at 81.1 of India's total hard coal production based on CIL's percentage in 2010 (AnnRpt: "CIL accounted for 81.1% of India's production"). This is converted to metric tonnes from column G.

Cell: Q61

Comment: Rick Heede:

Chikkatur, Ananth P. (2008) A Resource and Technology Assessment of Coal Utilization in India, Pew Center on Global Climate Change, Coal Initiative Reports White Paper Series, October 2008, 48 pp.

Cell: K69

Comment: Rick Heede:

Coal India AnnRpt 2010-2011, Operational Statistics, page 19. This table details raw coal production as well as "off take (Raw Coal)" -- the definitions of which are not listed. We use off take coal to inform our consideration of Coal India's rank of coals mined (which is not available in their reports). However, we use "Production of raw coal" in the production estimate, which are somewhat higher than off take coal, and (presumably) include company's own use and combustion of coal.

Cell: V69

Comment: Rick Heede:

Coal India AnnRpt 2008-2009, Operational Statistics.

Cell: V71

Comment: Rick Heede:

Coal India AnnRpt 2010-2011, Operational Statistics.

Cell: M79

Comment: Rick Heede:

CIL website, viewed 11Nov1: "Coal Reserves and Resources of CIL As of April 1, 2010, we had total coal resources of 64,786 million tons, comprising, pursuant of ISP classifications, Proved Geological Reserves of 52,546 million tons, Indicated Geological Reserves of 10,298 million tons and Inferred Geological Reserves of 1,942 million tons. As of April 1, 2010, from our total coal resources of 64,786 million tons, 30,356 million tons had been considered for mining studies (mine planning and feasibility studies), and the remaining coal resources of 34,430 million tons had not yet been considered for such mining studies. From the 30,356 million tons of coal resources that had been considered for mining studies as of April 1, 2010, 21,754 million tons has been estimated as our Extractable Reserves."

There are strong disagreements about India's coal reserve estimates. See Chikkatur (2008) A Resource and Technology Assessment of Coal Utilization in India, Pew Climate, and Heinberg (2009) Blackout: Coal, Climate, and the Last Energy Crisis.

Cell: J80

Comment: Rick Heede:

EIA (2011) International Energy Statistics, Coal Production, all coal types, is available for 1980-2010. No data for 2010 (yet) on hard coal, lignite, ec. (2009 latest). CMS estimates lignite and hard coal production in 2010 on the basis of 2009 percentage of both coal types of the 2009 total.

Cell: G85

Comment: Rick Heede:

Note: Coal India does not specify the carbon content or calorific value of its coals (other than "thermal coal," "coke," and "other." CMS would normally apply average U.S. thermal coal emission factor (2.266 tCO₂/tonne) However, given the low very low calorific values of Indian powerplant coals compared to US plants (see below), CMS assigns the EF of sub-bituminous to Coal India's thermal coal production (1.864 tCO₂/tonne).

Cell: J90

Comment: Rick Heede:

EIA (2011) International Energy Statistics on World Coal Production (lignite, bituminous, anthracite, and metallurgical coal), by country; data for1980-2009; total Primary Coal Production data extends to 2010. www.eia.gov/emeu/internationalenergy.html or www.eia.gov/countries/data.cfm.

Cell: D166

Comment: Rick Heede:

Chikkatur, Ananth P. (2008) A Resource and Technology Assessment of Coal Utilization in India, Pew Center on Global Climate Change, Coal Initiative Reports White Paper Series, October 2008, 48 pp.