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SWOT ANALYSIS OF MAJOR COAL IMPORT DESTINATIONS FOR INDIA

Dr. Rohit Verma^{*1}

^{*1}Associate Professor, National Power Training Institute, Faridabad, Haryana

Abstract

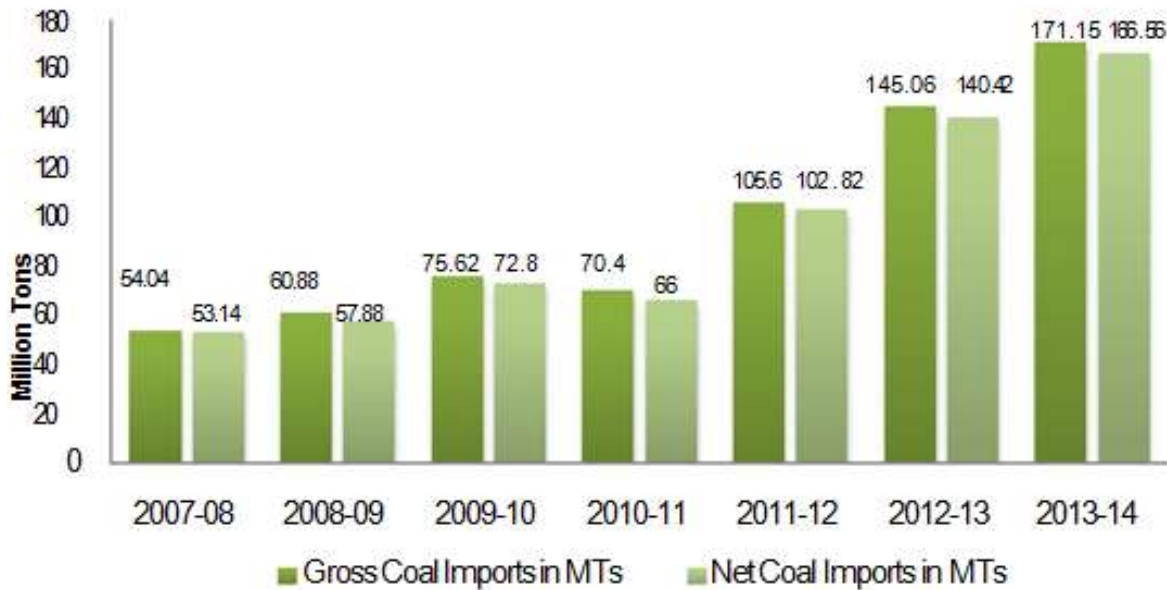
Indian coal is inherently of poor quality. Even production of Indian coal is not able to meet the coal demand. India has to import coal for meeting the unsatisfied coal demand or for mixing good quality imported with poor quality Indian coal to improve the overall Gross calorific value of coal. There are various options for importing coal in India. In this paper, SWOT (Strengths, Weaknesses, Opportunities & Threats) analysis of various options of importing coal in India has been done. This may help the industries dependant on imported coal in their decision making for selecting coal importing destinations.

Keywords: coal import, coal demand, SWOT, coal demand.

Introduction

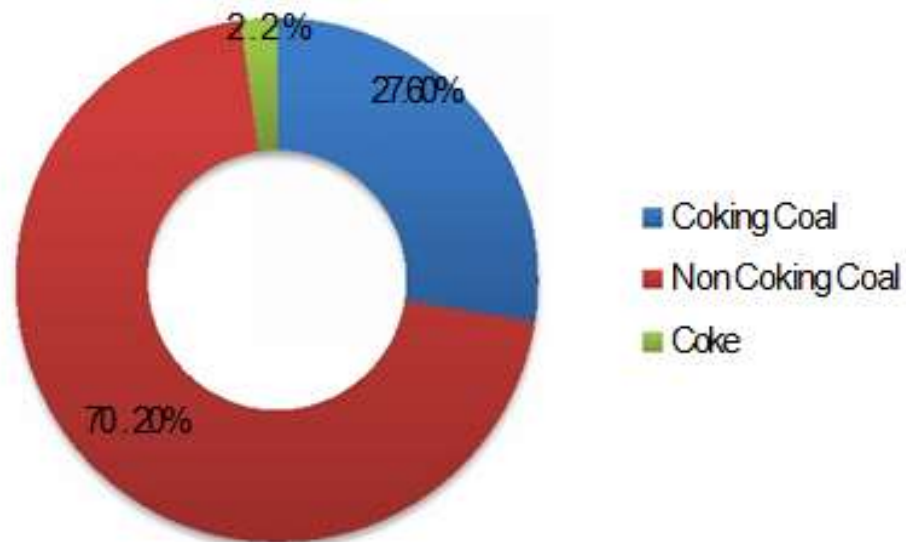
Indian coal is inherently of poor quality. Even production of Indian coal is not able to meet the coal demand. India has to import coal for meeting the unsatisfied coal demand or for mixing good quality imported with poor quality Indian coal to improve the overall Gross calorific value of coal. The average quality of the Indian coal is not very high this necessitates the import of high quality coal to meet the requirements of steel plants. Chandra et al said fossil fuels is going to remain the primary source of energy in India [1]. Coal is likely to remain a key energy source for India, for at least the next 30–40 years, as India has significant domestic coal resources (relative to other fossil fuels) and a large set of existing installed base of coal-based electricity capacity [2]. India's coal reserves are not as large as previously thought, at the current usage rate, India's reserves would be depleted in 80 years and at the projected rate of growth in production, that number becomes 40 years [3]. India's main conventional energy resource that is coal, Oil and natural gas are available in limited quantities [4]. In India, the demand and consumption of coal have grown enormously which is primarily dominated by the electricity sector. Since 1970, the demand for coal has increased due to the rapid installation of thermal power plants. In India, the demand and consumption of coal have grown enormously which is primarily dominated by the electricity sector. Since 1970, the demand for coal has increased due to the rapid installation of thermal power plants. Despite huge allocation of coal reserves in the country, it is required to import it from other countries [5]. There has been an increasing trend in the import of coal. Import of coal has steadily increased from 54.04 MTs during 2007-08 to 105.6 MTs during 2011-12. For FY 2013-14, the coal imports touched 171.15 Million Tonnes (MTs). The Combined annual growth rate (CAGR) of Gross Coal imports of India over these 7 years are 17.9%. There was an increase of 17.9% in gross import and 18.61% in net imports of coal in 2013-14 over the previous year. India has been majorly importing coal from Indonesia, South Africa, USA, Mozambique and Australia. Figure 1 shows the Gross and net coal imports in the last seven years in million tons. India is the fourth largest coal importer in the world. India imports 27% of total coal produced in Indonesia, the largest for Indonesia. Shipments of thermal coal used for power generation could rise about 14% to 152 MT this year

Figure 1: Coal Imports in India



Source: Annual Report of Ministry of Coal

Figure 2: Percentage break-up of Coking coal, Non-coking coal and coke Import

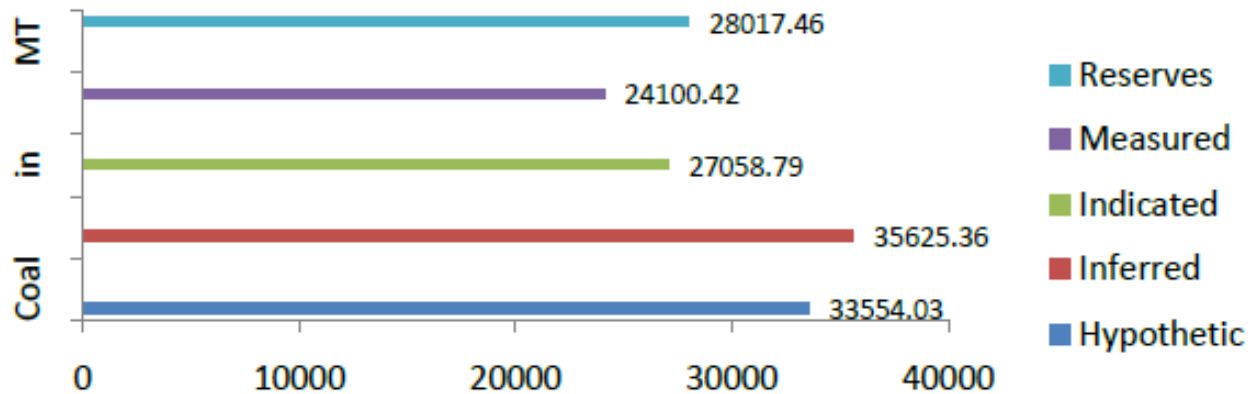


Source: Ministry of Coal

Country Wise Imported Coal Quality, Specification And Swot Analysis INDONESIA

The Indonesian coal deposits are predominately found on the islands of Sumatra and Kalimantan. The sub-bituminous to bituminous tertiary coals of South East Asia are fundamentally different from the geographically close Permian coals found in Australia, India and South Africa. In general, the majority of the coal is Paleogene in age but high sea levels during the beginning of this period resulted in deposition of mainly marine sediments and whilst the coal was formed during the Neogene period it tends to be of a lower rank. The existence of higher rank coals at the land surface is dependent on uplift or the presence of igneous intrusions.

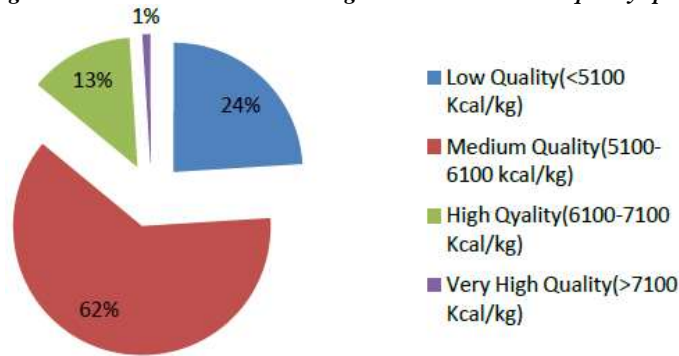
Figure 3: Indonesian Coal reserves



Source: Handbook of Energy and Economic Statistics, Indonesia, 2012

In Indonesia around 62 percent of the coal reserves are of the quality of medium quality (5100 - 6100 kcal/kg), 24 percent of low quality (less than 4100 kcal/kg), 13 percent of high quality (6100 - 7100 kcal/kg) and 1 percent of very high quality (greater than 7100 kcal/kg).

Figure 4: Indonesian Coal Percentage wise share vis-à-vis quality specification



Source: MEMR, Indonesia

Table 1: Indonesian Coal Quality Specification as per Coal spot.com

Coal Brand (Basic Coal Brand)	GCV (GAR)	TM (GAR)	Total Sulphur	Ash
Prima Coal	6,700	12.00	0.60	5.00
Pinang 6150	6,200	14.50	0.60	5.50
Melawan Coal	5,400	22.50	0.40	5.00
Jarang J-1	4,400	32.00	0.25	4.15
Indominco IM East	5,700	17.50	1.63	4.80
Gunung Bayan I	7,000	10.00	1.00	15.00
EnviroCoal	5,000	26.00	0.10	1.20
EcoCoal	4,200	35.00	0.18	3.90

Table 2: Indonesian Coal Quality Specification as per Directorate General of Mineral, Indonesia

Product	Type of Coal	GC V	GC V	%Moisture (AR)	%ASH (AR)	%Sulphur (AR)	%Volatile Matter

Indonesian "A"		Bituminous	5700	6200	18	10	0.9	40
Indonesian "B"		Bituminous	5600	6100	19	8	0.6	40
Indo Sub-bit 1		Sub-Bituminous	4700	5650	30	8	0.5	44
Indo Sub-bit 2		Sub-Bituminous	4700	5650	30	8	0.5	44
Indo Low Q 1		Sub-Bituminous	4700	5550	36	8	0.5	45
Indo Low Q 2		Sub-Bituminous	4000	5300	39	8	0.5	45

SWOT Analysis of Indonesian Coal

Strengths

1. Nearest To India - Logistics Rates will be lower.
2. Good Connectivity to Port.
3. Internal Rivers- Tug Pulling Barge system.
4. Floating Transshipment Facilities of 170 Mtpa

Weakness

1. Poor in Quality compared to other countries.
2. Poor Land Transportation in Indonesia

Opportunities

Sumatra is Very Close to India and still a lot of mine resource is available to explore

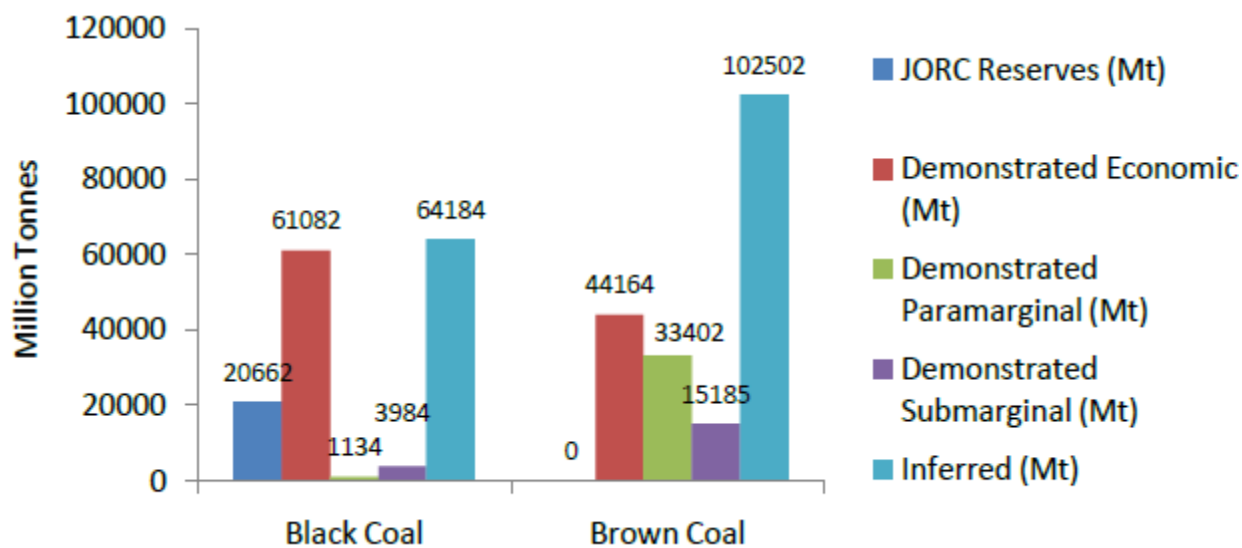
Threats

1. Uncertainties in Government regulations.
2. Prone to natural calamity like earthquake & Tsunami.
3. Other countries also eyeing the reserves

AUSTRALIA

Australia is the fourth largest producer, the largest exporter, and has the fourth largest reserves of coal in the world. Coal accounts for around three quarters of Australia's electricity generation, with coal-fired power stations located in every mainland state. Queensland and NSW account for almost all of Australia's coal production and all of its exports.

Figure 5: Australian Coal reserves



Source: Australia's Identified Mineral Resources 2012, Australian Government

Table 3: Australian Coal Quality

Coal Quality	GC V (kcal/kg)	GC V (kcal/kg)	% Total Moisture (ARB)	% Volatile Matter	%ASH	% Sulphur
Southern	6750	6390	6.4	20.8	19.5	0.45
Western	6600	6220	8	28.7	20.4	0.55
Hunter	6810	6360	9.1	32.7	13.5	0.6
Newcastle	6760	6330	8.5	30.6	15.1	0.6
Gunnedah	7050	6515	9	26.8	17.5	0.65

Source: Global Coal.com

SWOT Analysis of Australian Coal

Strengths

1. Maximum Coal mines are of rich quality of around 6000 - 6600 Kcal/kg.
2. Good Port Capacity of around 420 Mtpa.
3. All coal mines are located close to Ports.

Weakness

1. Longer sea distance to India
2. Poor weather Conditions leads to longer Turnaround days for the ships.
3. Need to keep more Inventory due to longer travel time

Opportunities

1. Surat Railway Basin link and Northern Missing link will improve the Rail capacity.

Threats

2. Mining Resource Rent Tax
3. Carbon Tax
4. Climate change

SOUTH AFRICA

As per BP Statistical Review of World energy 2013, South Africa has huge coal reserves of 30156 Million Tonnes encompassing a total of 3.5 % share of the world's total coal reserves. About 77 percent of South Africa's primary energy needs are provided by coal addition to the extensive use of coal in the domestic economy, about 28 percent of South Africa's production is exported, mainly through the Richards Bay Coal Terminal. 92% of coal consumed on the African continent is produced in South Africa.

Figure 6: South African Coal Reserves in MT



Source: Council of Geoscience, Republic of South Africa

South African Coal mining companies are: Ingwe Collieries Limited, a BHP Billiton subsidiary,Anglo Coal,Sasol, Eyesizwe; and Kumba Resources Limited, accounting for 85 percent of the saleable coal production. Production is concentrated in large mines, with 11 mines accounting for 70 percent of the output. South African coal for local electricity production is among the cheapest in the world. The beneficiation of coal, particularly for export, results in more than 65Mt of coal discards being produced every year. The largest coal deposits in South Africa are to be found in the Ecca Group, a stratum of the Karoo Super group, dating from between 280 and 250 Ma. The Ecca Group is extensive, covering around two thirds of South Africa and contains more than a third of all coal reserves in the Southern Hemisphere. Notable coalfields in South Africa are: Waterberg Coalfield, Highveld Coalfield, Witbank Coalfield, Ermelo Coalfield, Utrecht Coalfield, Klip River Coalfield.

Table 4: South African Coal Grade Specification

Calorific Value Basis (kcal/kg NCV)	Calorific Value Min (kcal/kg NCV)	Total Moisture (ARB)	Volatile Matter (ARB)	Ash (ARB)	Sulphur (ARB)	HGI	Nominal Topsize
6000	5850	15%max	24-35%	15% max	1%max	45-70	50mm
6700	6200	10%	24%	15%max	0.90%	45	50mm

Source: Globalcoal.com

SWOT Analysis of South African Coal

Strengths

1. Coal for Export is available after Washing- A homogeneous Product
2. Close to the West Coast of India
3. Cheap Labor Costs
4. Good Port availability

Weakness

1. Even though RBCT is of 91 Mtpa but the rail capacity is 62 Mtpa only.
2. Rail Network is operating at Full Capacity

Opportunities

1. By product from coal washery can be sold to local Power Producers.
2. Coal from Waterberg is still to be tapped.

Threats

1. Local electricity market is heavily dependent on coal, so possibility for export Cap in future.
2. Uncertainty in their railway expansion

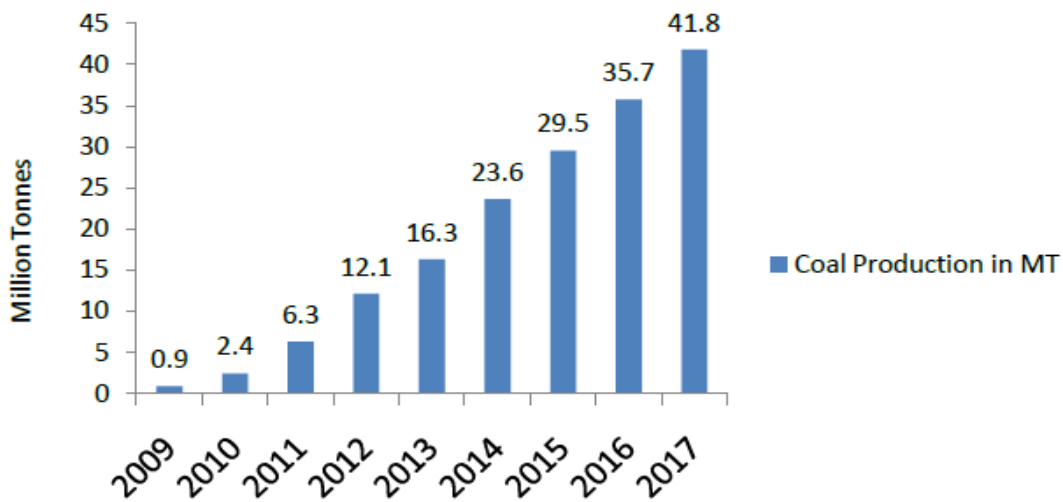
MOZAMBIQUE

Mozambique is one of the African country located near to South Africa and is having a small amount of coal which are yet to be explored. After the end of civil war 1993 the country has a stable government and the country is moving in the developing path. The coal reserves in Mozambique are mainly distributed in the Tete province which is located at the centre of the Mozambique. So far three major coal fields has been identified in the Tete province which are

1. Benga Coalfield
2. Moatize Coalfield
3. Zambeze Coalfield

According to the National director of Mines, Mozambique, there is a possibility of coal reserves in the Maniamba basin in Lago district, in the Northern Province of Niassa.

Figure 7: Mozambique Coal production in million Tons



Source: KPMG report on Mozambique mining

Mozambique has Corporate Income Tax at the rate of 35%, 50% reduction is allowed for a period of ten years from the start of production. For investing in coal mining sector in Mozambique, there is an added advantage that there is a Memorandum of Understanding (MoU) for co-operation for development of coal mining between Government of India and Government of Mozambique.

Table 6.4: Mozambique Coal Grade Specification

GCV (Kcal/kg)	6000
% Ash	22
% Moisture	8
% Sulphur	0.8

SWOT Analysis of Mozambique Coal

Strengths

1. Coal quality for Export is of up to 6700 Kcal/kg
2. Compared to South Africa 600 Nautical miles closer to India
3. Fastest growing African Country
4. Politically stable since 1992 after the civil war

Weakness

1. Under developed Infrastructure
2. Lack of skills and low productivity of Labor
3. Lack of Proper geological Data about the resources

Opportunities

1. Internal logistics through Zambezi River will reduce the transportation cost to Port
2. Opportunities for Mine mouth Power Plant which can supply to the power starving South African power Pool Market.
- 3.

Threats

1. New & Small Market.
2. High population of Tribal people.
3. Small country & Uncertainty about regulatory development.

Conclusion

There are various options for importing coal in India. India has been majorly importing coal from Indonesia, South Africa, USA, Mozambique and Australia. In this paper, SWOT(Strength, Weakness, Opportunity & Threat) analysis of various options of importing coal in India has been done. This may help the industries dependant on imported coal in their decision making for selecting coal importing destinations.

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