

Author

Additional Secretary A.L.M. Abdur Rahman was born on 10 April, 1958 in the district of Chittagong. He obtained Master of Arts in Economics from Chittagong University in 1981. He appeared BCS 1982 (Regular) and joined Bangladesh Civil Service (Administration) on 15 February 1984. He was lastly promoted to the post of Joint Secretary on 5 March 2005. He held various important positions both in the field administration and in different Ministries / divisions. In the Field of Administration he served as Upa -zila Nirbahi Officer, Additional Deputy Commissioner and Chief Executive Officer. In Bangladesh Secretariat, he served in Finance Division, M/O Agriculture, M/O Establishment and Cabinet Division as Senior Assistant Secretary. He had been Deputy Secretary to the Government in President's Office, Personal Division and in the Ministry of Establishment. As Joint Secretary he served the M/O Chittagong Hill Tracts and M/O Establishment. He had attended a lot of trainings, seminars, workshops and certificate courses at home and abroad. As a Government delegate he visited Thailand, India, Malaysia, Singapore and Turkey. He is married to Mrs Shahnaj Begum a Manager in Bangladesh Shilpa Bank. The couple has two daughters.

Stakeholders Role

Background. Until 2003 and 2004 people did not know anything much about the activities of AEC. Indeed people of the surroundings area felt that mining would bring good to them as well as the country¹⁴. While the company started exploration drilling many villagers heard violent sound and saw cracks developing in their traditional houses. Phulbari Protection Committee (PPC) and National Committee for the Protection of Oil, Gas, Mineral resources and Power and Port (NC) then developed an awareness program¹⁵. Locals now came to know about the mining method. They learned that more than 100 villages in some 59 square kilometers would have to be evicted and the inhabitants relocated¹⁶. The locals look fright and were motivate to join movement against the AEC. On 26 August 06 security forces opened fire on the crowd to contain protests in which three people died. The major stakeholders of coalmine are the GOB, the company, the protection committees and the villagers. Besides media, experts, civil society, NGOs and financing institutes can also be called as the stakeholders. The role of few stakeholders will be discussed. In the following pages.

Standing of the Government. The objectives of any government should be people centric. But when the GOB signed the deal with BHP, it did not consult other stakeholders. Till today people don't know much regarding the deal. The GOB wanted to suppress public opinion forcefully. During field survey locals were asked, "Once Phulbari coalmine will be developed then local people would have a stronger economy- was that correct?" In there responses almost 50% interviewees answered negatively-Government needs to gain confidence.

Yes, I think locals will better off economically	No, locals will not be benefited
51.72% (15)	48.28% (14)
Note: One man said that local people would be paid less.	

Activities of AEC. The company started taking appropriate measures to extract coal without considering the welfare of the locals. The company took into account the view of the community and interested stakeholders without explaining the effect of mining. It conducted two consultations with Phulbari Municipality Chairman (22 March 2005) and with Deputy Commissioner (7 September 2005) at

¹⁴ 'Open Pit Mining for Coal: Horror Felling Shrods Northern Bangladesh', available online <http://www.scd.org/phulbari/index.html>, date accessed 04 April 08.

¹⁵ Dr. Tapun Bagchi, Op.cit., p.69

¹⁶ 'Open Pit Mining for Coal: Horror Felling Shrods Northern Bangladesh', Op. cit.

Dinajpur¹⁷. But the Chairman withdrew his 'no objection' certificate in July-August 2005¹⁸. That meant that local people were not able to express their opinion about open pit mining. Therefore, the company must think up and undertake welfare projects for the locals before developing the coalmine to win their hearts and mind.

Involvement of Civil Society. Civil society activists did not know the details of the agreement between the GOB & BHP. The Unitil Phulbari incident took place raised on the issue of the transparency of the contract deal. They differed with the deal and company geologists didn't say clearly why the open-pit method had to be adopted for Phulbari coalmine. They only said that the country needed to extract coal to produce electricity for the development of the country. Therefore, they needed to sit down with locals and experts to find out appropriate methods of compensation, and payments.

Role of Protection Committees. Both protection committees wanted to preserve the rights of the locals as well as the interest of the country. PPC could develop public opinion through weekly processions¹⁹. But local political leaders didn't allow the movement to get momentum. Later activists contacted NC for leadership and continued activities under the banner of PPC²⁰. However, the four-day long protest of Phulbari population ceased after signing of a deal with Government representative, the Mayor of Rajshahi Division and the Member Secretary of NC on behalf of the people. The Committee didn't want to allow open pit mining and was bent on eliminating AEC to protect the national interest. This became further clear once the General Secretary of NC said, "We will not allow GCM to turn a land of food for the people into a black hole for corporate profit"²¹. But the committee wanted to extract coal for the use of the country only after the consent of the locals had been taken. But they didn't specify the method of extraction, which they should have done by mentioning the modus operandi of compensation.

Legal Aspect of the Agreement. The GOB has already fulfilled two points of the deal²². Branch offices of AEC were withdrawn from Phulbari and the families of the victims were paid compensation as fulfillment of the deal. Meanwhile the Law Ministry termed the Phulbari agreement 'illegal', and critiqued it. Legal experts

¹⁷ 'Unitil Phulbari Coal Project', <http://www.adb.org/Projects/project.asp?id=39933>, Op. cit.

¹⁸ 'Phulbari Communities Write to ADB President and Executive Director', 15.12.07, available online <http://www.phulbaristestance.blogspot.com/2007/12/phulbari-communities-writes-to-adb.html> date accessed 29 January 2008.

¹⁹ 'Tania Ahmed, In Phulbari Lives the spirit of liberty', New Age Independence Day Special, 26.03.07, available online <http://www.newagebd.com/2007/mar/26/independence07/07.html> date accessed 11 March 2008.

²⁰ 'Tania Ahmed, this', <http://www.newagebd.com/2007/mar/26/independence07/07.html> date accessed 11 March 2008.

²¹ 'The South Asian, Protected Struggle Forces ADB to Pull Out of Phulbari', 10 May 2008, available online http://www.theasian.com/archives/2008/05/adb_pull_out_of_phulbari.html, date accessed 11 March 2008.

²² Justice M Golam Rabbani, 'Court is legally bound to cancel deal with Asia Energy', New Age, 31 August 2007.

EVALUATION OF PHULBARI DEAL: SEARCH FOR POLICY OPTIONS

Group Captain Muhammad Mortuza Kamal, ndc, psc, GDI(P)

INTRODUCTION

Bangladesh has significant amount of quality coal as a natural resource in number of coal fields. This coal fields are found in the north-west region of the country. It could be a possible alternative energy source. Presently the country has five coal fields and Phulbari is one of them. It was discovered in 1997 by the Australian Company, Broken Hill Proprietary Minerals International Exploration Inc (BHP)¹. The total reserve of coal found here is approximately 3000 million tons (MT)². Bangladesh has been mining one MT of coal per year from Barapukuria Coalmine since 2003. This mine has been fueling the 250-Mega Watt (MW) power plant in Parbatipur since January 2006³. Its present power generation capacity is 3816 MW⁴ against 5500 MW. The present gas reserve of 11.6 trillion cubic feet (TCF) can generate electricity till 2015⁵ with the present commitments. Adequate and reliable supply of electricity attracts both domestic and foreign investment. The Government of Bangladesh (GOB) is committed to provide electricity to all by 2020 when the generation capacity will be raised from 3816 MW to 17,765 MW⁶. Therefore, huge investment is needed in this sector, which could be met largely by using the coal mined in the country.

To attract investment by International Mining Companies in the coal sector, GOB advertised in International journals in the early 1990. BHP showed some interest and on 20 August 1994 GOB signed a contract (11/C-94) with BHP based on the 'Minerals and Minerals Rules' (MMR) 1968 (amended). The contract had an 'Investment Agreement' in accordance with the Board of Investment (BOI) Handbook⁷. Following a few years of exploration effort, BHP discovered coal deposit in 1997 at Phulbari. It then left the country in 1998 assigning the contract for further exploration to Asia Energy Corporation (Bangladesh) Private Ltd (AEC)

¹ Dr. Tapun Bagchi, Phulbari Coal Mine: Environment and Reaction, BARCIC, June 06, p.13

² Md. Mostafar Hossain, 'A second look at the Energy sector in Bangladesh', Power & Energy, Vol-5, 1st Issue, June 2007, p.20

³ Langdon D. Clough, Energy Profile of Bangladesh, 30 January 07, available online, http://www.econorth.org/article/energy_profile_of_Bangladesh, date accessed 04 July 08.

⁴ Mr. Shawkat Ali, Chairman Power Development Board, Supplied paper during Interview on 30 July 08.

⁵ Md. Mostafar Hossain, Op.cit., p.19

⁶ Md. Mostafar Hossain, Op.cit., p.19, Mr. Shawkat Ali, Op.cit., during Interview.

⁷ Gary Lye, Correcting Misconceptions Regarding Phulbari Coal Project, AEC, 30.11.07, p.2

have opined, however, that the Phulbari agreement had become effective as the government had already fulfilled a number of the agreement's conditions⁸. The Democratic government on the other hand, has to accept the people's verdict.

Perception of Local Population. Although the local populations were affected directly they had been ignored. Neither the GOB nor AEC had consulted them⁹. A 75-year-old man wondered, "What will happen to us if we are forced to move from here? What will happen to our livelihoods? I don't want us to live like this. Our mosques and holy places and the places we were born will be destroyed. What will happen to the graveyards of our ancestors?"¹⁰ The Fear of the locals appears genuine but they were away of making any suggestions.

Media's Contribution. The Media constitute the watchdog of society. People didn't know Phulbari until media focused on the problems of the deal. It was the relentless coverage of the media. That informed the people about the problems with the deal. The Internet edition of newspapers and the satellite net work of the media informed many Bangladeshis about the situation. The Media stood beside the people during the general strike and forced the GOB to resolve the issue amicably. But it also divided people's opinion instead of trying to work for unity.

Comments with Field Survey Report

During the field survey none of the locals agreed to open pit mining and a few did not even want any coalmine in Phulbari. The following table answers the following question, "In your opinion which method should be followed to extract coal from Phulbari?"

Underground Method	Open pit Method	Any Other Opinion
96.56% (28)	-	Both methods are bad, therefore, not in favour of any one 3.44% (1)

In other words, locals need to be motivated as well as paid compensation. Even they can be made shareholder of the projects.

If government gives appropriate compensation then we will be in favour of the coalmine	Yes, we would be in favour of the land for the nation	No, I will not be in favour of the coalmine	Compensation wouldn't be sufficient, therefore, I will not give my opinion
34.14% (7)	37.93% (11)	33.33% (10)	3.44% (1)

⁸ Staff Correspondent, Committee terms ministry's opinion on Phulbari deal disrespectful of people', New Age, 06 September 2007.

⁹ Dr. Tapun Bagchi, Op. cit., p.69

¹⁰ Kristian Deonickin, 'BBC News, Bangladesh coal dividers region', 12 July 2006, available online <http://news.bbc.co.uk/1/hi/business/5080386.stm>, date accessed 11 March 2008.

on 11 February 1998 with the approval of GOB. AEC's 100% share is owned by Asia Energy Public Ltd Corp, London. Later, the company changed its name to Global Coal Management (GCM). However, AEC initially wanted to invest over US\$1 billion and develop a mine mouth coal fired power plant with a generating capacity of 1000 MW electricity totaling cost of US\$ 3 billions¹¹. This project would generate approximately 1% of gross domestic product (GDP) each year of the total project life¹². But this project has drawn heavy criticism as AEC wanted to extract the coal following the open pit mining method. Consequently, there is a dilemma about which method to be followed in extracting the coal.

AEC carried out drilling in 2003 at Phulbari and got 'Environment Clearance Certificate' on 11 September 2004¹³. The company established its office at Phulbari in May 2004¹⁴ and conducted Environment Impact Assessment (EIA) and Social Impact Assessment (SIA) for the project. It submitted its report to the GOB on 30 July 2005¹⁵. AEC submitted 'Feasibility Study and Scheme of Development' on 02 October 2005¹⁶ to Director, Bureau of Mineral Development (BMD). The GOB was supposed to respond within three months but has not yet done so. Though the deal between the GOB and BHP looks impressive yet there are some questions still being asked: "Why did the local population demonstrate against AEC? Why did security forces open the fire? Is there any problem with the stakeholders? Is there any problem with the agreement, which needs detail study? Is there any problem with the method of extracting coal, which is intimidating locals?" In answering these questions, the paper attempts to focus on three objectives. These are: Suggest measures to stop recurrence of violence, which will prevent bloodshed, discuss inputs for the GOB to decide regarding the assigned deal with AEC, and discuss the extraction method of coal and its use. The paper concludes that the coal to be extracted by convincing and compensating the locals appropriately primarily for the sale of power generation.

¹¹ Gary Lye, Op.cit., Pp.3-6

¹² 'Rahat Ahmed, 'Asia Energy's Phulbari Coal Project Delivering Energy Security to Bangladesh', Power & Energy, Vol-5, Issue-1, June 2007, p.67

¹³ 'Unitil Phulbari Coal Project', available online <http://www.adb.org/Projects/project.asp?id=39933>, date accessed 04 April 08.

¹⁴ 'Professor Nural Islam & Committee Members, Technical Committee Report on Feasibility Study Report & Scheme of Development', 20 Sep 06, p.39

¹⁵ 'Unitil Phulbari Coal Project Op.cit., <http://www.adb.org/Projects/project.asp?id=39933>.

¹⁶ 'Ibid., <http://www.adb.org/Projects/project.asp?id=39933>.

During the field survey it was found that many people didn't believe that the GOB would pay them appropriate compensation. The answer to the following question "If you are compensated for your house and farming land, would you opinion in-favour of Phulbari coalmine?" Will substitute this statement.

Impact of Coalmine

A study reveals that the groundwater of the north-western region of Bangladesh is almost arsenic-contamination free¹⁷. This groundwater is 80-120 meters thick in the Dupitila formation and situated at about 10-12 meters below the surface. Open pit mining requires dewatering of the mine area round-the-clock during the entire lifetime of the project¹⁸. 800 million liters of water will be pumped out of the mine everyday for next 30 years¹⁹, which would lead to desertification of 500 Sq/km. Farmers could lose their livelihood. Moreover, the topsoil would be displaced once the mining operation begins. It could, however, be brought back and spread on the top of the area filled in. Never the less, no one can say when the land could become cultivable again. At the final stage of the mining operation, Bangladesh would get a huge lake filled up with fresh water. Mining experts warn that the final hollow, after 30 years of digging and other activities, would contain toxic substances²⁰. In underground mining subsidence of soil would be seen. The land could, however, remain cultivable.

Open pit mine could produce Acid Mine Drainage (AMD) and if immersed with water could remain for a decade or so, destroying Sherries and crops. The cost of mitigating AMD in a mine is high but the SEIA conducted by AEC provides little detail about the management of AMD. In a country like Bangladesh, where hundreds of small rivers are linked like a huge net, polluted water can travel way beyond the mining area²¹. In this regard mining expert Roger Moody has commented, "It is extremely costly...GCM has not provided any financial details as to who would cover the bill for such an environmental disaster"²². In addition, therefore, there would be and enormous amount of polluted water generated from washing coal if it is not properly treated.

Coal dust would be produced from dynamic explosion and, burning of coal. Other agents would also be produced such as nitrogen oxide, mercury, lead, etc.

¹⁷ Engr. AKM Shamsuddin, Phulbari Coal, Hydrological Environment not Favourable for open Pit mining', The Daily Star, 29 September 2007.

¹⁸ 'Environment Correspondent, 'Open Pit Mining for coal', The Daily Star, 18 August 2006.

¹⁹ Engr. A.K.M Shamsuddin, Op.cit., 28 September 2007.

²⁰ Kristian Deonickin, Op.cit., 18 August 2006.

²¹ Engr. Kristian Deonickin, Op.cit.

²² 'Protected struggle forces ADB to pull out of Phulbari', 10 May 2008, available online <http://theasian.com/world/naturaldisaster/08/08>, date accessed 10 May 2008.

which could be a major source of air pollution. There is a fear that the company concerned would not take adequate measures to mitigate pollution because they involve much effort and cash. Again, transportation and export of coal presents several environmental dangers. The proposed offshore coal loading facility at Akram point would directly threaten ecology of Sundarbans. At least 1.2 billion tones of Co2 would be created from burning extracted coal. Moreover, there would be a reduction in carbon sinks through the destruction of 2.5 million trees around the project site³². Therefore, the government needs to strike a balance the development vis-à-vis environment protection. However, the coal would not need to be transported through rivers if it was not to be exported.

Phulbari Coal Mine will contribute an estimated \$15.5 billion to the GDP and \$7.9 billion to the gross national income over its projected life of 30 years according to an Asia Energy study³³. The company also claims that the cumulative net foreign exchange earnings from the mine would be \$8 billion and direct government earnings could exceed \$5 billion beside the GDP increase by 0.7% to 1%. Professor Anu Mohammad however, estimates that the contribution to our GDP would be \$150 billion instead of \$15 billion if the entire coal would be used in Bangladesh with its multiple uses amid the worldwide increase in energy prices³⁴.

AEC plans to export 12 MT out of extracted 15 MT of the coal each year. The total income of AEC from the coal mind would be above 1, 50,000 thousand crore taka against an investment of 9250 crore taka, which could later increase to 79,200 crore³⁵. The profit for the company would be a minimum 100% if the later figure is considered. But Bangladesh would earn US\$ 7 billion, which comes to 46000 crore taka and in one year it would earn around 1500 crore taka. Due to dewatering the economic loss of this area would be around 1800 crore taka³⁶. Therefore, the total loss would be 300 crore taka in each year. This is not considering losses to be suffered from depletion of trees, fisheries, sheep earning etc. But this loss can be made up if Bangladesh develops the coalfield. The mine would create total 3,200 jobs during the project³⁷ against 50,000 homeless and job less people. But NC claims that the number of affected population would be much higher. It believes

32. Chien Lung, 'Bangladesh: Phulbari Coal Mine- Loses beyond compensation', WRM Bulletin no.128, March 2008.
33. Staff Correspondence, 'Asia Energy study shows Bangladesh's benefits from Phulbari coal', New Age, 22 June 2006.
34. Staff Correspondence, *Ibid*.
35. Anu Mohammad: In an interview on 10 May 2008. The same is available Anu Mohammad, 'Phulbari Coal Project, Kar Love Kar Khori', in Sheikh Muhammad Shahidullah (ed), 'Kar Love Kar Khori', Dhaka, November 05, p.7
36. Anu Mohammad, Op. cit., p.8
37. Kristan Deoninck, *Ibid*.

following a schedule which has only seventy six clauses and is not the sixth schedule³⁷. This is a clear violation of MMR.

f. The initial term of the lease was not supposed to exceed ten years for open pit mining and twenty years for underground mining as per section 43 of MMR of 1968. But AEC asked for a mining lease of thirty years³⁸. This is still another violation of MMR.

g. Section-54 of the agreement says that the agreement between GOB & BHP would be treated as 'Confidential'³⁹. This is another violation of MMR.

h. Besides, there are mismatches between the agreement and MMR. GOB is not to follow the procedure of MMR while buying coal from the company. The training clause of BHP is different from that of MMR. These are also violations of MMR.

j. The Government has signed an Investment agreement with BHP, which gives it tax holiday for nine years. This is also a violation of MMR⁴⁰.

k. The License for block 'B' was given to BHP on 15 January 1995. The License for this particular area expired after three years even after renewal. The Validity of the license is up to 14 January 1998. But BHP renewed it on 26 January 1998. The same agreement was assigned to AEC on 11 February 1998, another, violation as BHP deposit have the validity of its license⁴¹.

l. AEC applied for a mining lease in 1995 without depositing 3% of the estimated cost of the scheme as bank guarantee which is equivalent to US\$ 373.8M. This is again was a violation of MMR -39 (C)⁴².

AEC proposed to extract coal following the open pit mining method. But AEC conducted a partial dewatering study for dry season and whether it will be successful in water management is something that needs to be determined. The proposal of AEC regarding reclamation may result in arsenic action of the ground water⁴³. AEC has proposed to divert the Khari Pul River by twelve and half kilometers length towards the East, which would create problems for irrigation and the entire drainage system of the area. Besides, road and railway tracks need to be shifted. But the agreement doesn't allow any mining activities within hundred

37. Professor Nurul Islam & Committee Members, Op. cit., p.22
38. Professor Nurul Islam & Committee Members, Op. cit., p.22
39. Professor Nurul Islam & Committee Members, Op. cit., p.26
40. Professor Nurul Islam & Committee Members, Op. cit., p.31
41. Anu Kamarkar, 'Agreement with Asia Energy Breaking the Law', Prothom Alo, p.17, 28.03.08.
42. BMD, Op. cit., p.15 & Anu Kamarkar, *Ibid*, p.17
43. Maimul Ahsan, *Ibid*, p.159

that Bangladesh would earn taka 40,000 against an expenditure of 50,000 crore³⁸. Therefore, it is important for the government to make its policy transparent.

Coal Policy and the Deal

The draft coal policy reveals inputs from all sectors. The committee that drafted it had visited the coal rich areas and had talked to some major stakeholders including the local population and representatives of different organizations³⁹. Therefore, the draft 'Coal Policy' is likely to reflect the opinion of the people and can be considered to be the 'Coal Policy' of Bangladesh. The agreement between AEC and GOB has been kept pending for the finalization of coal policy. AEC will accept the terms and conditions of the policy. Therefore, let's look at the major areas of policy and the deal which contradicts each other.

a. The coal policy suggests having energy security for 'Fifty Years'. But the present coal deposit is insufficient. So coal can not be exported⁴⁰. Coking coal can be exported if the country doesn't have any use for it. The overall policy would be to extract coal as per the need of the country. AEC on the other hand wanted to export 12MT out of 15MT extracted coal per year.

b. A holding company, 'Coal Bangla' is to be created under the Company Act 1994 which would be allowed to make fair competition with or join with other national, private or foreign companies for the purpose of mine development, mining, technical help or to create fund keeping the country's interest⁴¹ in view. AEC had no such shareholder.

c. The coal policy recommends selecting mining method carefully and prohibiting work which endangers environment. It has made the committee's opinion compulsory for open pit mining. Land proclamation and resettlement issues have been made the responsibility of the lessee. The Lessee will return the land to the original land owner after the schedule work time⁴². There is no such obligation in the contract.

d. The North-west part of Bangladesh is to be declared 'Coal Zone' to show stress and measures are to be taken to improve the livelihood of the people of the area by developing the mine and implementing additional projects⁴³. AEC has no such obligation to fulfill.

38. BIRENWS, 'Coal Policy to End in Profit Country's Interest', Express, New Age, 12 February 2006.
39. Professor Abdul Motin Parwari & Committee members, *Draft Coal Policy, December 2007*, Committee Report on Draft Coal Policy, Pg-2-3
40. Professor Abdul Motin Parwari & Committee members, Op. cit., p.2
41. Professor Abdul Motin Parwari & Committee members, Op. cit., p.34
42. Professor Abdul Motin Parwari & Committee members, Op. cit., p.18
43. Professor Abdul Motin Parwari & Committee members, Op. cit., p.3

meters from existing roads, railway etc. Therefore, GOB should reject the project, according to Maimul Ahsan, the Mining Engineer⁴⁴.

Professor Md. Nurul Islam has expressed his dissatisfaction as no step was taken against anyone although a technical committee reported that the deal with AEC was illegal⁴⁵. He has further commented that the Phulbari deal with AEC was made violating the laws of the country⁴⁶. The GOB should check the deal from the legal perspective and see if it is in the nation's interest. Analyzing the above clauses, it can be concluded that the deal is illegal and does not protect our national interest as the company will export two-thirds of the total coal mined where the country is starving for energy/electricity. AEC will not give any level of the coal to the nation for nine years after it has gone for full production, which means that the nation will be deprived off levels of coal for more than a decade. Therefore, the government should move prudently in deciding the issue.

Future of Coal

Phulbari coal is one of the finest bituminous coal mines of the world. It is situated in extensive seams from 15 to 60 meters thick at a depth between 140 and 300 meters⁴⁷. This type of coal has been found only in Australia. But is its exploration and production is a complex and technical issue. The lives lost at Phulbari and the deal signed between the locals and GOB have made the choice of mining method critical. The depth of coal, geology, hydrological situation of the overburden of coal layers, environment and studies impact study have to be considered to in choosing extraction method⁴⁸. Coal is mined by two methods- 'Surface' and 'Underground' mining. Surface mining is economic but only when the coal seam is relatively close to the surface, and recovers a higher proportion of coal deposit can be recovered than underground methods. Surface mining is also known as open pit mining. There are two methods of extracting coal through underground mining- 'Room-and-Pillar' and 'Long Wall' mining. Through room-and-pillar mining, initially one can recover 50-60%⁴⁹ coal. Long wall mining can recover over 75% of the coal⁵⁰.

44. Maimul Ahsan, *Ibid*, p.161
45. Staff Correspondence, 'Coal Policy to ensure People's ownership of coalfields', New Age, 10.08.07.
46. Economist Reporter, 'Export of Coal Gas would be Suicidal Decision', Bangladesh Pratidin, 09.08.07.
47. BISS, 'Phulbari coal reserve to generate 3000 MW power', New Age, 29 May 2005.
48. Abdulla-Al-Shahin, Bangladesh: Coal-An Alternate Energy Source, 11 January 07, p.1, available online, http://www.energybids.com/asia_list.asp?Sub=26, date accessed 02 March 08.
49. Coal Mining Methods, Overview, Australian Coal Association, available online <http://www.austcoalcoal.com.au/methods.html>, date accessed 10 May 2008.
50. 'Coal Mining Methods', *Ibid*.

e. 25% share of the mine to be released in the share market to ensure people's ownership. However, 20% share to be kept reserve out of this 25% for the affected population⁴¹. There was no such clause in the deal. AEC needs to share profit.

f. Under the Chairmanship of Energy Minister 'Coal Sector Development Committee' will be formed to co-ordinate with others. The committee will be responsible to implement coal policy⁴⁵. Unlikely AEC will be able to work.

g. The policy says that the GOB is responsible to create trained manpower for coal sector. Policy has also made mandatory clause for the lessee to train technical manpower and train mine labour on safety aspect at the lessee's institution before employing them at the mine⁴⁶. Signed agreement has no such clause.

h. The policy says to employ Chief Mine Inspector (CMI) as per the Mine Act 1923 including provisioning of his office. He will be Chief Executive once new rules will be brought out under Mine Act and he will over-see the safety aspect of mine and personnel working at the mine⁴⁷. There is no disagreement.

j. The policy says that company would be able to handover its license or assigned agreement to an experienced company and the company must be monetarily solvent⁴⁸. It is seen that AEC was created to hand over assigned agreement. Therefore, coal policy makes AEC as defaulter

There was no coal policy while GOB signed the agreement. Present draft coal policy suggests amendment and creation of many Acts, Rules and ordinance. The prime mover of the mine will be Coal Bangla. Coal can not be exported and can not be produced in excess of the country's requirement. Compensation package and environment protection laws will be strong. Accountability through auditing would be better and transparent. The company and people will share profit. Open pit extraction will depend on the opinion of the locals through a neutral independent committee. AEC is to comply with the provisions of policy.

44. Professor Abdul Motin Parwari & Committee members, Op. cit., Pg-5-6
45. Professor Abdul Motin Parwari & Committee members, Op. cit., Pg-34-35
46. Professor Abdul Motin Parwari & Committee members, Op. cit., p.34
47. *Ibid*.
48. Professor Abdul Motin Parwari & Committee members, Op. cit., p.35

The Coal also can be gasified and used to generate electricity without mining. This process is known as 'Underground Coal Gasification (UCG)'. The UCG process is developed, refined and practiced by Ergo Exergy and is called the Exergy UCG⁵¹ or eUCG⁵² Technology⁵³. The eUCG technology uses a variety of modern drilling methods, including high-precision directional holes. It can be applied to main coal in a wide range of geological conditions, with the following preferred parameters⁵⁴:

- The Coal seam thickness must be from 0.5 to 30m.
- Dip from 0 degree to 70 degree.
- Depth from 30 to 800m.

Uzbekistan has been using this technology for a few decades and now South Africa has started using it from January 2007⁵⁵. South Africa, USA, Pakistan, India, New Zealand and Australia have also made use of the technology. One can also utilize more than 95% coal through this method. Another way the coalfield can be utilized is by capturing methane gas from the coalfield. This is known as 'Coal Bed Methane' and it is the experimental stage.

The Mining method can be decided after evaluating a particular coalfield. Geologically all coalfields in Bangladesh are covered by a thick water bearing and loosely compacted sand layer. For an underground mine, this makes it costly to sink a shaft because the whole water aquifer has to be frozen into ice before the shaft is constructed and the sand aquifer can cause water flooding accidents. Another problem is that the coal seams of Barapukuria and Phulbari are very thick to ultra thick and multi slice method needs to be adopted, which is difficult⁵⁶ process. Again the surface mining of Phulbari coalfield requires continuous and massive dewatering for the entire lifetime of the mine. It would raise the cost too high, to lower the water level in the surrounding area, and negatively affect the environment. A second problem is that the entire coalfield is fertile agriculture land and too many people (4245/Sq km) live on this land. However, Maimul Ahsan has observed that open pit mining would be the best option for the Phulbari coalfield.

49. 'Coal Mining Methods, Overview', Australian Coal Association, available online <http://www.austcoalcoal.com.au/methods.html>, date accessed 10 May 2008.
50. 'Coal Mining Methods', *Ibid*.
51. UCG & Power Generation, Ergo Exergy, 'True Energy', available online http://www.ergoexergy.com/eUCG_pgw.htm, date accessed 10 May 2008.
52. *Ibid*, available online http://www.ergoexergy.com/eUCG_pgw.htm, date accessed 10 May 2008, Majma, South Africa-Eskom, <http://www.er>
53. Majma, South Africa-Eskom, available online <http://www.ergoexergy.com>, date accessed 10 May 2008.
54. Professor Balraj Insam, 'Local coal will not meet local demand', Energy & Power, 16.10.07, p.29

Deviation in the Deal

The GOB signed a controversial treaty (11/C-94) with BHP about which people have different opinions. Professor Nurul Islam for example, calls the treaty "illegal"⁴⁹. Jalal Ahmed, Chairman of Petrobangla believes that the treaty needs to be reviewed⁴⁹. Other experts have opined that the terms of the treaty are not fair. Therefore, the agreement needs to be scrutinized. It has three parts. The first part with the area, second with the prospecting license for the exploration of coal and the third with the mining lease⁵¹. The following lists are some of the problematic aspects of the treaty:

- Although the Government and BHP signed the contract on 20 August 1994, which was not notified through a gazette. This is a violation of MMR -15⁵¹.
- As laid down in section-29(1) of MMR of 1968 amended in 1995⁵¹. A license shall not be granted in respect of any area more than 4,000 hectares but GOB gave a total 14,020 hectares to BHP in area 'A', 'B' and 'C'⁵². This is a violation of MMR.

c. All schedules have specific formats and the fifth schedule has fifty clauses, which need to be filled up and signed for the contract. But BHP signed the contract following a schedule which has in it only 41 clauses⁵² and it is not similar to fifth schedule. This is another violation of MMR.

d. Section 44 of MMR of 1968, amended in 1989 says that the royalty from the coal mines would be 20% on the value at the pit's mouth. But the GOB signed the deal with BHP accepting a royalty of 6% on the value at the pit's mouth. This is one more violation of MMR⁵³. However, the GOB amended MMR in 1995 where the royalty was changed from 20% to 5% and 6% respectively for underground and open pit mining on the value at the pit's mouth.

e. According to section 16(1) of the MMR of 1968, license for mining lease will be given following the sixth schedule. The sixth schedule has a specific format that includes fifty-seven clauses. But BHP signed the mining license

49. In an Interview with Professor Nurul Islam dated 19 May 2008.
50. In an Interview with Jalal Ahmed, Chairman, Petrobangla dated 16 July 2008.
51. Professor Nurul Islam & Committee Members, Op. cit., p.17
52. BMD, The MMR, 1968 (amendments), 01 November 92, p.8 & Professor Nurul Islam & Committee Members, Op. cit., p.19
53. BMD, Op. cit., p.13
54. Professor Nurul Islam & Committee Members, Op. cit., p.19
55. Professor Nurul Islam & Committee Members, Op. cit., p.19
56. Professor Nurul Islam & Committee Members, Op. cit., p.13

provided proper dewatering method could be designed with effective water management, dust and noise control⁵⁷. Other factors, he notes, are manageable.

Professor Anu Muhammad has commented, 'In a country like Bangladesh, with hundreds of small rivers linked like a huge net, polluted water can travel way beyond the mining area.'⁵⁸ Water management is another problem and re-injecting water may have the risk of making underground water polluted through the mixture of AMD materials⁵⁹. Bangladesh does not have enough experts in coal sector and any mistake will bring disastrous result. Therefore, GOB should extract coal keeping social and environmental aspect safe. Open pit mining involves three major risks and these are dewatering, AMD and environment. Underground mining has two issues: low quantity coal recovery and flooding of the mine. But UCG technology can be better option which doesn't involve risk to produce electricity through coal gasification. If all the options are compared then UCG stands above all due to its merit. But how does GOB achieve the joint project?

The best way would be for Coal Bangla to go for collaboration with a multinational company to get technology and fund. But Professor Anu Mohammad opposes the idea because of our weak bargaining power⁶⁰. Any deal has to be struck in a 'win-win' situation for both parties. The GOB wouldn't have difficulty in convening local people to develop coalfields. Initially, the technology could be applied at Barapukuria as a testing ground. As the technology is not much in use, therefore, the fear of uncertainty remains. In such a case, what should be the second options? Long wall technique is suitable in a situations where coal seam is not very thick and it is at the same level. This method is not suitable for the Phulbari coalfield because of the uneven, ultra-thickness of the seam. Room & pillar method can ensure not more than one slice. The GOB is now left with open-pit or no mining option. Ahsan believes that open pit mining is the best method to extract coal from Phulbari and that other associated problems can be managed. This means better technology is needed by which all three risks associated with open pit mining can be managed. Therefore, Coal Bangla should go for a joint venture project with a multinational company for technology and fund. What are the challenges do Coal Bangla need to implement the project?

Firstly, It has to be said that it will be difficult to attract a reputed company due to the past incidents. But lucrative incentives may still induce solvent and

57. Maimul Ahsan, Op. cit., Pg-160-161

58. Kristan Deoninck, Op. cit.

59. Kristan Deoninck, Op. cit.

60. Professor Nurul Islam & Committee Members, Op. cit., p.121

61. An Interview with Professor Anu Muhammad dated on 10 May 2008.

reputed multinational companies and international funding agencies to come. Secondly, the company needs to get consent of locals by winning their hearts and minds. Answers to the field survey support the statement to the question, "Some of the earned money from Phulbari coalfield should be spent for the development of Phulbari. - What is your opinion?" most respondents answered positively. The Draft coal policy also makes locals share holders of the project.

Money should be spent to make provision of water, repair road, school, etc.	Yes, some money should be spent for the welfare of the people.	Money should be spent to make Industries so that locals can be employed.	Government couldn't do anything till now, therefore, she wouldn't be able to do anything in future.	Money should be spent to provide electricity	No comment
50% (15)	13.33% (4)	20% (6)	3.33% (1)	6.66% (2)	6.66% (2)

However, initially open pit mining is to be done at Barapukuria on a small scale to see its effect. On successful management of the project, the Phulbari project may be undertaken.

The per-capita energy use in Bangladesh is 118 KgOE (kilogram oil equivalent)⁷⁵. The GOB wants to provide electricity to all citizens by 2020⁷⁶. The population is projected to reach 180 million by 2020. Bangladesh, therefore, will need to produce over 16,000 MW just to maintain the same per-capita level of consumption of energy⁸¹. Bangladesh relies heavily on natural gas to produce electricity. The total proven and recoverable reserve of natural gas is calculated to be between 5 TCF and 12 TCF. At the current annual rate of consumption, the natural gas will be depleted in the next 10 to 24 years. With a growth rate of 5 to 10%, even the higher estimated amount of gas reserve will be depleted between 2014 and 2020⁷⁸. To provide electricity to its 180 million people, Bangladesh will need about 1.25 TCF gas per year beyond 2020. Higher growth rate will demand higher electricity consumption and more amount of gas. What would be an alternate source of energy on which Bangladesh can rely on? Coal plays a vital role in providing energy throughout the world. About 1.4 billion tons are recoverable out of three billions, which is equivalent to 37 TCF⁸² of natural gas, and this can

⁷⁵. Professor Md. Khaliquezaman, Same-side Coal, Forum, Vol-2, Issue-8, 3 September 2007, available online <http://phulbariresistance.blogspot.com/2007/09/same-side-coal.html>, date accessed 10 May 08.

⁷⁶. Khondkar Abhas Suleque, Bangladesh: Power for All by 2020, Energy Bangla, 7 December 2007, p.1, available online http://energybangla.com.liteserver.com/label_list.asp?labelId=49, date accessed 03 February 2008.

⁷⁷. Professor Md. Khaliquezaman, Op. cit.

⁷⁸. Ibid.

⁸¹. 37 million tons of coal is equivalent to =1 TCF of gas equivalent.

generate electricity for about 30 years beyond 2020. Bangladesh should exploit all her fossil fuel reserves to achieve national energy security for faster growth.

RECOMMENDATIONS

Following are the recommendations of this purpose:

- Coal policy is an important document of the government based on which concerned ministries, companies and other firms should formulate their plan. Therefore, the government needs to approve the policy document.
- 'Coal Bangla' should go for a joint venture project with Ergo Exergy to exploit UCG technology. The technology should be applied at Barapukuria coalmine before it is implemental at Phulbari coalfield.
- Open pit mining can be adopted if UCG is not be implemented. The challenges of open pit mining can be mitigated with available technologies but these need money. So, 'Coal Bangla' should go for joint venture project for both funding and expertise/technology acquisition. Motivational and welfare programs should be undertaken to win the hearts and minds of locals.
- Coal alone will not be able to ensure energy security of Bangladesh in the long term. Therefore, Bangladesh should go for both renewable and civil nuclear energy projects before its coal reserve is exhausted.

CONCLUSION

Bangladesh has vast coal reserve in the North-West part of the country, which can supplement its gas fields in producing electricity. Gas can support us till 2014 or perhaps to 2020 at the latest unless no new gas fields are discovered. Bangladesh is one of least power consuming countries now but it has promised to provide electricity to all by 2020. Therefore, huge investment is needed in this sector. However, the GOB signed an agreement with BHP in 1994 for the exploration and mining of coal. But the company assigned the deal to AEC in 1998. AEC wants to extract coal utilizing the open pit mining method but this choice came under criticism along with the credibility of the deal. Subsequently, the GOB forced to suppress the movement of the locals and in the process three people were killed. Ultimately, representative of the GOB and people respectively signed an agreement. As per the agreement, government needs to scrap the deal with AEC and the GOB cannot undertake any open pit mining project in the country.

Initial awareness programme among the locals was conducted by the PPC but The subsequent movement was led by the NC. The GOB and the company failed to act responsibly. AEC didn't provide a correct picture to the locals. As a result, locals protested against open pit mining. The GOB wanted to contain public agitation through force, which aggravated the situation. Except the PPC, NC and the media and other stakeholders could not create pressure on the GOB. Most stakeholders seemed divided on the issue. Therefore, the fears of locals regarding open pit mining remained. Though open pit mining ensures higher amount of coal recovery, it has its disadvantages. Firstly, it might affect a huge area by lowering the water. Secondly, the river system and rain will make management of AMD difficult. Lastly, the environment could be degraded and even the echo system of the Sundarbans could be endangered. However, this project gives hope of GDP increase by 0.7% to 1% though some people disputes over the figure.

The Draft Coal Policy doesn't allow coal to be exported; coal can only be extracted to meet the country's need and the coalmine is to be developed by a holding company named Coal Bangla. People should be compensated appropriately. The Policy also suggests strengthening the role of BMD, and making MMR effective etc. The policy has kept coal royalty negotiable and has kept both mining options open. But deal conflicts with the coal policy and MMR in some ways. The deal was not ratified through a gazette notification. Many clauses of MMR were not followed, including the fifth and sixth schedules. In fact, there are more dissimilarities than similarities with the existing MMR of the country.

There are two methods by which coal can be extracted. These are the open pit method and underground mining method. The coal can be utilized through gasification process without mining. This process is known as UCG. The coal extraction method is critical and technical in nature. The Geology structure of Phulbari coalfield indicates that underground mining could be difficult. Again, open pit mining would pose problems in the management of water, AMD and the protection of the environment would be difficult. However, coal can be utilized by UCG. Though UCG ensures more of coal utilization few countries have used this technology. Considering all factors, the paper suggests utilizing UCG technology with the help of a solvent multinational company. If such technology is not suitable for Phulbari then open pit mining becomes the option. Challenges of open pit mining can be overcome through technology. Here also the company to be formed to go for joint venture both for expertise and fund, such a company needs to win the hearts and minds of the people through some great work and by making them shareholders. Coal Bangla needs to provide good incentive package to draw the attention of solvent multinational companies and financial institutions.

To maintain the same amount of per capita energy consumption the country needs to produce more than 16000 MW. Bangladesh's, Gas reserve is likely to be

- Mamun Ahmed, "Energy Security, Challenges and Prospects for Bangladesh & South Asia", *Issue Brief, A Monthly Publication of the Bangladesh Institute of Peace and Security Studies*, www.bipss.org.bd
- Md. Mosharrar Hossain, "A second look at the Energy sector in Bangladesh", *Power & Energy*, Dhaka, 2007.
- Professor Badrul Imam, "Local coal will not meet local demand", *Energy & Power*, 2007.
- Rakib Ahmed, "Asia Energy's Phulbari Coal Project Delivering Energy Security to Bangladesh", *Power & Energy*, 2007.

Report

- Bangladesh Power Development Board, *Annual Report 2006-2007*.
- General Economics Division, Planning Commission, Government of the People's Republic of Bangladesh, *Millennium Development Goals, Mid-Term Bangladesh Progress Report 2007*.
- Jalal Ahmed, "Report of the Board of Barapukuria Coal Mining Company Limited To The Shareholders At The 9th Annual General Meeting", *Annual Report 2006-2007*.
- Muinal Ahsan, Mining Engineer, "Comments on Phulbari Coal Project", Technical committee report, *Feasibility Study Report & Scheme of Development*, 2006.
- Professor Abdul Motin Patwary & committee members, "Committee report on Draft Coal Policy", *Draft Coal Policy*, 2007.
- Professor M. Nurul Islam and Professor Badrul Imam, *Report on SAARC Technical Seminar on Strategies on promotion of Coal Development and Clean coal Technologies in SAARC Region*, 2007.
- Professor Nurul Islam & Committee Members, "Technical Committee Report on Feasibility Study Report & Scheme of Development", 2006.

Articles

- Chris Lang, "Bangladesh: Phulbari Coal Mine-Losses beyond compensation", *WRM Bulletin* no. 128, 2008.
- Gary Lye, "Correcting Misconceptions Regarding Phulbari Coal Project, AEC", 2007.

Policy Paper

- Bureau of Mineral Development, *The Mines and Mineral Rules-1968 (Amendments)*, 01 November 1992.

Interviews/Discussion

- Jalal Ahmed, Chairman, Petrobangla, Interviewed on 16 July 2008.
- Joint Secretary Wahiduddin, Energy Ministry, Interviewed March 2008.
- Mr. Anwarul Karim, Chairman Bangladesh Petroleum Corporation, Interviewed on 30 July 2008.
- Mr. Shawkat Ali, the Chairman of Power Development Board, Interviewed on 30 July 2008.
- Mrs. Hua Du, Country Director, Asian Development Bank, Bangladesh, Interviewed on March 2008.
- Professor Anu Muhammad, Jahangir Nagar University, Interviewed on 10 May 2008.
- Professor Md. Nurul Islam, Director, Institute of Appropriate Technology, BUET, Interviewed on 19 May 2008.
- Soo-Nam Oh, Head, Regional Cooperation and Integration Unit, Country Coordination and Regional Cooperation Division, South Asia Department, Asian Development Bank, Manila, Philippines, Interviewed on 12 August 2008.

Internet

- <http://www.adb.org/Projects/project.asp?id=39933>.
- <http://www.australiancoal.com.au/methods.html#>.
- www.bipss.org.bd.
- <http://www.bpd.govt.bd>.
- <http://www.bangladeshnews.com.bd/2007/06/11/coal-policy-to-be-finalised-by-july/>.
- <http://www.bangladeshnews.com.bd/2006/08/27/asia-energy-coal-mine-protest-7-killed-60-bullet-hit-as-cops-bdr-open-fire/>.
- www.dhakacourier.net.
- <http://en.wikipedia.org/wiki/Energy>.
- http://www.energybangla.com.liteserver.com/cata_list.asp?cid=29.
- http://energybangla.com.liteserver.com/label_list.asp?labelId=49.
- http://www.eoearth.org/article/Energy_profile_of_Bangladesh.
- http://www.ergoexergy.com.eUCG_pov.htm.

- <http://www.ergoexergy.com>.
- <http://www.newagebd.com/2007/mar/26/independence07/07.html>.
- <http://news.bbc.co.uk/1/hi/business/5080386.stm>.
- <http://news.phulbariresistance.blogspot.com/2007/12/phulbari-communities-writes-to-adb.html/>.
- <http://phulbariresistance.blogspot.com/2007/09/same-side-coal.html>.
- <http://www.radiometherlands.nl/features/>.
- <http://www.scdh.org/phulbari/index.html>.
- <http://southasia.oneworld.net/articlearchive/1893>.
- http://www.thesouthasian.org/archives/2008/adb_puuls_out_of_controversial.html.

exhausted by 2020 if new gas fields are not discovered. Therefore, the country needs to discover sources of energy other than gas. Coal is widely used around the globe to produce electricity. Bangladesh has extractable coal almost equal to 37 TCF Gas, which can produce electricity for next thirty years. So, coal can be a good energy solution for Bangladesh. But our coal will also be exhausted and country will need both nuclear and renewable energy options to produce electricity for the energy security of Bangladesh.

BIBLIOGRAPHY

Books

- Anu Muhammad, 'Phulbari Coal Project, Kar Love Kar Khoti', in Sheikh Muhammad Shahidullah (ed), *Kar Love Kar Khoti*, Dhaka, 2005.
- Dr Tapan Bagchi, *Phulbari Coal Mine: Environment and Reaction*, BARCIK, Dhaka, 2006.
- Jyoti K. Parikh, *Energy Systems and Development Constraints*, Demand and Supply of Energy for Developing Regions, Oxford University Press, Delhi, 1980.
- Patricia D. Park, *Energy Law and The Environment*, Southampton Institute, London, United Kingdom, 2002.
- Professor Md Nurul Islam, Jalani Shomoshsha: *Bangladesh Prekshit*, Gomoproskashoni, Dhaka, 2001.
- Qazi Kholiqzaman Ahmed (ed), M Anwarul Azim (ed), Abdul Awal Mintoo (ed), *Energy Security in Bangladesh*, Academic Press and Publishers Library, Dhaka, 2005.
- Stephen Howarth, *A Century in Oil*, The Orion Publishing Group, London, 1997.
- The Emirates Occasional Paper (ed), *The Arab Oil Weapon: A One Short Edition?*, The Emirates Centre for Strategic Studies and Research, Abu Dhabi, United Arab Emirate, 1999.

Journals

- Abdullah-Al-Shahin, "Bangladesh: Coal-An Alternate Energy Source", *Energy Bangla*, 2007.
- Dhaka Courier*, An Independent News Weekly. www.dhakacourier.net

Author

Group Captain Muhammad Mortaza Kamal was commissioned on 31 December 1984 in the General Duty Branch of Bangladesh Air Force. He is a fighter pilot and has flown more than two thousand hours. He has attended a number of training courses at home and abroad that include both academic and flying courses. He is a graduate of Defence Service Command and Staff College both at Mirpur and Wellington in India. Till date, the officer has held important command, instructional and staff appointments. Some of them are: Officer Commanding Flying Instructor School, Deputy Director at Plans Directorate, Chief Instructor at Command and Staff Training Institute in BAF, (CSTI), Directing Staff at Defence Services Command and Staff College, Mirpur (DSCSC), Officer Commanding Operation Wing and Officer Commanding Flying Wing of a Fighter Base. He served in United Nation as an Observer in Bosnia Herzegovina. He has visited a number of countries in official capacity that include Bosnia, China, Holland, India, Japan, Kuwait, Myanmar, Philippines, Pakistan, Saudi Arabia, Thailand, Turkey, USA. He holds Master degrees in Defence Studies from National University of Bangladesh and in Defence and Strategic Studies from Madras University of India.