

Bangladesh's untapped coal potential

Even where Bangladesh's coal reserves appear to be mineable, there are compelling reasons why the alternatives should now be urgently investigated. This should be done before hasty and irrevocable decisions are taken which expose citizens to further disasters like Barapukuria.

MARK MULLER with ROGER MOODY

THE Bangladesh Ministry of Power and Energy recently asserted that the country must more than double delivered power within the next five years (from around 4,000 MW to 9,000 MW per day). With the installation and operation of four new coal-fired power stations, it is claimed that the current daily gap between generation and demand would be reduced to 1,500 MW.

According to Bangladesh's National Energy Policy 2004 (quoted in The Independent, May 9) total coal reserves are 2,527 million tonnes, contained in four fields: Barapukuria with around 300 million tonnes; Phulbari with 400 million tonnes; Jamalganj containing 1,000 million tons, and 450 million tonnes at Khalaspir. Of these resources, 492 million tonnes are estimated to be recoverable by mining.

However, the key questions are: how much of this coal, and of what quality, is actually usable; and when would it realistically be available to generate electricity? This is something that the proposed joint feasibility study between government and the Japan International Cooperation Agency (JICA) will hopefully address. But it's not yet known how long it will take to complete this study. Nor can we anticipate any conclusions it might make concerning the economic, social and environmental costs contingent on hugely increasing Bangladesh's dependency on coal over the coming years.

The mining recovery estimate seems

highly optimistic. Mark Muller, as an experienced mining geophysicist, recently carried out an independent technical review of Bangladesh's coal reserves. Based on existing surveys, he concluded that they amount to between 3,200 and 4,700 million tonnes, using the most optimistic figures found.

These reserves appear sufficient to close the gap markedly between current power generation and predicted requirements. However, coal-seam depth, thickness and separation are the primary geological factors that determine the appropriate extraction method. Many seams will not, in fact, be amenable to extraction at all using currently available mining methods.

Bangladesh's only operating coal-mine, at Barapukuria, has so far delivered less than 3 million tonnes. This is despite the 1992 projection that it would be able to produce 60 million tonnes. Six years later, in 1998, and following severe flooding, that target was cut in half to 30 million tonnes.

As is well known, the mine's impacts at the surface have been devastating. Land subsidence of between 0.6-0.9 m has been reported over an area of approximately 1.2 square kilometres; the water-table has dropped, leaving commonly-used reservoirs dry in 15 villages; and at least 81 houses have developed cracks. Untreated water (acknowledged by the mining company to contain phosphorous, arsenic and magnesium) is passing through canals in farming areas.

The Phulbari open-cast project is beset by heated debate over its likely

impacts on local communities, its dependence on a foreign company, and by major doubts about its economic viability, particularly if the mine isn't to rely on exporting most of the coal it produces. Last year, Roger Moody performed an in-depth critique of these aspects of the proposed Phulbari mine.

This leaves the hardly-investigated Khalaspir field, and Jamalganj, cited by the ministry as potentially the largest source of coal, comprising more than a third of the country's "cache." However, our research -- now backed by an article in the May 21 issue of Energy and Power -- strongly suggests that the majority of the Jamalganj resource is too deep to be mined: 96% of it is deeper than 700 m.

Moreover, given the lead-time required to bring any of these three deposits into commercial operation and start producing electricity from power plants, the claim that coal could reduce Bangladesh's shortfall by around 3,500 MW within the next five years seems terribly over-optimistic.

This is not to say that coal should be abandoned altogether. On the contrary, our research has identified two potential sources of coal-generated energy that have four significant virtues. They are comparatively cheap, can deliver power to nearby power stations, are relatively clean in terms of pollution emissions; and they don't necessitate the disturbances of land and people that are associated with conventional mining.

These technologies -- Coal Bed Methane (CBM) and Underground Coal Gasification (UCG) -- have already proved viable in several countries, including the USA, Canada, China, Australia, South Africa and Uzbekistan, with pilot projects now underway in the UK, Spain and Belgium.

We don't claim that CBM and UCG will solve all Bangladesh's energy prob-



Solution to energy crisis?

lems; nor that they are "trouble free." They can have adverse impacts on land and water, interrupt agriculture, and be unsightly. There's also little doubt that they deliver less energy than the coal seams from which they derive, if those deposits are efficiently mined. Yet the energy return from UCG can be as high as 75% of that delivered directly by coal.

Coal-seams not accessible by mining are well within reach of both CBM and UCG, and can add significantly to the recoverable resource. (Again, this conclusion is supported by the May 21 issue of Energy and Power). Their surface impact, and that on hydrology, is significantly lower than with mining. Loss of valuable agricultural land is greatly reduced. The need for solid waste-rock and coal-ash management on the surface is entirely removed.

There is no subsidence risk at all for CBM, and little for deep-seam UCG (although the UCG subsidence risk for shallow seams needs to be carefully managed).

In addition, a CBM project could deliver electrical power output in half the time required for mining -- as little as five years from starting a feasibility drilling program and study.

Apart from two studies -- one carried out by M.B. Imam, M. Rahman, and S.H. Akhter in 2002 at Jamalganj; and the other at Barapukuria by M.R. Islam and D. Hayashi in 2008 -- no concerted investigation has yet been undertaken into the potential of these two technologies for Bangladesh. Nor -- despite the Asian Development Bank recently listing CBM as a "clean development" mechanism -- are these methods currently

being considered as part of the country's future "energy mix."

In conclusion, we want to emphasise that, even where Bangladesh's coal reserves appear to be mineable, there are compelling reasons why the alternatives should now be urgently investigated. This should be done before hasty and irrevocable decisions are taken which expose citizens to further disasters like Barapukuria.

Mark Muller's study, entitled "How coal may produce energy without being mined" is available at: <http://www.minesandcommunities.org/article.php?a=9218> Roger Moody's critique of the Phulbari project is at: http://www.boell.de/downloads/economy/social/Phulbari_Coal_A_Parous_Project_12112009.pdf

Mark Muller has a Ph.D. in geophysics and 20 years of mining industry and research experience.

Roger Moody is an international consultant on the social and environmental impacts of mining.

Our relations with China: Unexplored potential

Because of greater commonality in the social, economic, and cultural arenas, chances are better that learning from such experience of industrial growth and economic development would not only be more relevant but also more rewarding for Bangladesh. Cooperation with China needs to be exploited further to the mutual advantage of both the countries.

SYED MUNIR KHASRU

EXTERNAL aid forms about 50% of ADP of Bangladesh, constituting more than 2% of GDP, leading to strong presence of donors in the country. A significant portion of the aid goes to the health, education, infrastructure,

and social sectors. We need further and diversified support that will accelerate growth, since about half the population is still stricken by poverty, with nearly one-third underemployed. If we do need further help, then from whom should we seek it?

In our own region, we have a miracle



BD CHINA EMBASSY

story about a country with a long history and tradition, facing many of the same problems which we are facing now, if not more: poverty, surplus labour, overpopulation, backward agriculture, lack of food security, natural disasters, weak industrial base etc. The miracle lies in the fact that in just over 2 decades not only were these problems mitigated, but the country also became one of the largest and most robust and resilient economies in the world. It is the People's Republic of China that we are talking about, the third largest economy after US and Japan, with a nominal GDP of \$4.3 trillion (2008) when measured in exchange-rate terms.

China has been the fastest-growing nation for the past quarter of a century with an average annual GDP growth rate above 10%. Major reforms which began in the 1980s enabled hundreds of millions to be lifted out of poverty, which went down from 53% in 1981 to 2.5% in 2005, nearly 20-fold decrease, an achievement unmatched in poverty alleviation. Infant mortality rate fell by 39.5% between 1990 and 2005, and maternal mortality by 41.1%. Access to telephone rose by 94-fold, to 57.1%. At the same time, China invested heavily on developing its human capital, an integral part of a modern economy. The student population in higher learning has doubled in a very short period and is one of the largest in the world.

China is a close ally of Bangladesh, offering infrastructural support, technical assistance, financial aid, military assistance and other forms of aid. In 2005,

China emerged as the number one import source for Bangladesh, overtaking India for the first time. By 2008, China-Bangladesh trade volume reached over \$4.68 billion.

On the diplomatic front, 2005 was declared a "China- Bangladesh Friendship Year," marking the 30th anniversary of diplomatic relations. A firm believer in the one China policy, Bangladesh can gain much from this relationship. Since China rose rapidly from a situation not much different from our current predicament, it is of paramount importance that we effectively learn from the Chinese experience of reform and economic development.

In agriculture, there is much room to collaborate, considering that China is highly acclaimed for its ability to feed its growing population despite limited natural resources. Given China's strong agricultural research base, Bangladesh can benefit by developing a mechanism whereby we can tap into their research programs to transfer relevant learning to Bangladesh.

China can also help develop our human resource by offering increased technical support. It has numerous high powered, strong, and active policy research institutions that help the government in key decision making. Such institutions can help Bangladesh develop its capacity to effectively formulate, evaluate, and monitor policies. This will help us deal effectively with exogenous shocks like natural calamities or financial crisis.

ties or financial crisis.

Historically, Bangladesh has not performed well in trade negotiations -- either multilateral or bilateral. The Chinese have proved themselves to be some of the smartest trade negotiators, who have successfully worked out trade deals that have propelled domestic production and benefited overseas consumers. Particularly, Chinese experience in effectively negotiating FTAs with countries like Australia and New Zealand can provide helpful insights to our policymakers as the South Asian regional trade still has much to achieve when compared to other trade regimes.

Re-branding is another area where Bangladesh can learn from China. For example, China has been quite often cited as one of the major polluters of the environment. China has re-branded itself as an environmentally proactive nation by enlisting with the Kyoto Protocol. By adopting the Kyoto Protocol, China has developed the image of an environment-friendly economy, which in turn has increased acceptability of products exported from China.

Similar lessons from China can be taken on re-positioning with respect to the RMG sector. While Bangladesh mostly continues to cater to low-end products in the international market, China has increasingly shifted towards catering to high-end products, enjoying increased profitability. Our RMG entrepreneurs, instead of asking for cash subsidy while underpaying the work-

ers, can learn much by analysing the value additive strategies of RMG sector entrepreneurs of China.

China has successfully implemented a well thought out strategy of making large investments in its public infrastructure, which has led to greater output, more private investments, and higher employment.

In view of the recent emphasis of the Bangladesh government on using public-private partnership to spur economic growth, the role of the Chinese public sector in this regard can provide useful leads.

The Chinese economy also has substantially benefited by the manufacturing sector, which is backed up by an endogenous culture that supports reverse engineering -- thereby making China the largest exporter of electronic appliances.

While there is a tendency to emulate the Western models of economic development, countries like China and South Korea provide better examples to learn from. Because of greater commonality in the social, economic, and cultural arenas, chances are better that learning from such experience of industrial growth and economic development would not only be more relevant but also more rewarding for Bangladesh. Cooperation with China needs to be exploited further to the mutual advantage of both the countries.

Syed Munir Khasru is a Professor at the Institute of Business Administration (IBA), University of Dhaka.

Epitaph for the word 'literally'



BEWARE. The world has become so dangerous lately that I am no longer prepared to go unarmed into places associated with high rates of violence, such as kindergartens. It's true. A friend of mine was talking about his wife, who started work at a pre-school. "The kids were so cute and lively," he said. "They literally slew her."

I was shocked. "That's terrible," I said. No wonder preschoolers wear aprons. Slaying people is really messy. Reeling from this news, I fled to my computer where MSN featured an inter-

view with an actor playing Santa Claus in the United States. It was a tough job, he said, adding: "I've had children literally tear my heart out."

Eww. And I thought my kids were naughty. Even in their worst tantrums, none of them have ripped out my internal organs (yet). If they have done so at school, teachers have said nothing about it in their school reports.

Where did children learn how to disembowel people? Maybe from books. National Public Radio, a US broadcaster, carried a report on children's book writer Alison McGhee: "McGhee says that in Someday, her ninth book, she literally put her heart on the page."

That must have hurt. Did she do the surgery herself? Or get one of the kids who recently practiced organ removal on Santa Claus to do it?

Violence is all around us. Watching a

game show on an Asian satellite channel, I heard the presenter say about a young female contestant: "She literally blew her competitors away."

On Canadian television, actress Jamie Lee Curtis said: "How many college students do we hear in their freshman year literally explode? They explode with drugs and alcohol, they explode with sex, they explode with eating, they explode with not being able to get work done on time. These people are exploding."

This extreme mayhem is not limited to the world of education. I got a call from a woman who had forced her workaholic husband to take time off to go and see a live comedy show with his buddies. "Did he like it?" I asked. She replied: "He literally died laughing."

I didn't know how to respond to this. "Oh. How are you and the children taking it?" I asked. She replied: "We're delighted, of course."



To escape from all this carnage, I retreated to my sofa and the TV remote.

But the idiot box was also full of violence. On an Asian sports channel, I heard a

commentator say: "They literally cut the other team to shreds."

On Fox News a reporter said: "Court observers saw a key defense witness literally melt down on the stand."

On a cable lifestyle show heard a woman say: "I'm literally working my fingers to the bone, crawling the walls and pulling out my hair." (If her fingers are just bones how can she use them pull out her hair, let alone climb walls with them?)

But the most baffling statement came from an entertainer. Singer Naomi Judd appeared on the Larry King talk show on CNN. She said: "We literally become whatever we think about all day."

That makes me a dish of chicken and potato curry. I'm dangerous too, but only to your waistline.

For more humor visit our columnist at www.vittachi.com.