

How environment-friendly is the railway?

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THE agenda for railway reform in Bangladesh has been stepped up through the recently held seminar (3 July 2006) in Dhaka which was attended by top government policy-makers and the World Bank along with associated donors. It is revealed in the seminar that the World Bank, ADB and JBIC are ready to extend up to \$800 million as loan and other related support. Given the debilitating situation of the Bangladesh Railway (BR) this announcement from the donor community is certainly welcome news.

The arguments in favour of the reform of the BR are clearly spelled out in the opening remarks by Dr Christine Wallich, the WB Country Director. Her arguments can be summarised into three key sets of issues. First issue revolves around the question of management. In this she recommends that the BR turns into a corporate entity, while the Government of Bangladesh retains ownership. Second issue relates to the question of the modernisation of the system including online ticketing arrangements and procurement of rolling stocks. Another line argument is that the railway is environment-friendly, precisely because it generates less fuel-based pollution. Probably in the context of such conviction on environmental sustainability, which is consistent with national and

global goal for sustainable development, the reform agenda also includes extension of networks in the areas still without railways.

While there is hardly any doubt about the importance of the right management and modernisation of the BR, one tends to believe that the assertion on environmental sustainability of the railway needs serious re-examination. Exactly how environment-friendly is the railway, if we reasonably consider that there are more of environmental problems beyond air pollution? Do a few more wagons stop the fuel-run vehicles in the cities? To what extent do the railway competes with traditional air-polluting vehicles? If the railway had to have a part in this, we needed to extend our railway system to every nook and corner of the country. But the problem lies precisely there. It is not that it is impossible, but that in a deltaic country like Bangladesh, it is the impact of the confrontation of the railway embankments and the water regime which is of central concern.

If historical data is analysed, we would find that it was the railway embankments which have done the most harm to the water system of Bangladesh. For an instance, it would perhaps not be an exaggeration to state that the Chalan Beel, where as late as 1945 forty-seven small and large rivers drained, deteriorated because of the surrounding railways. One of such lines, Sara-Sirajganj line, passed

Has the decline in the construction of the railways by the succeeding governments in late colonial and postcolonial periods been informed by environmental consideration? If such assumption is even partially true then we perhaps need more research on the question of ecological sustainability of the railway before having more railway lines. We should concentrate more on redeveloping our lost and existing inland waterways. If done properly the development of inland waterways, including rivers, small streams, khals, beels and baor, will not only serve the purpose of transport, but will also lessen the problem of flash flood and river bank erosion.

close to the Beel and thus obstructed its flush water which tended to escape to the Jamuna/Brahmaputra; the result of this interruption was the speedy silting up of the beel and the consequent reduction of its water-holding capacity. This reduction was one of the factors underlying the frequent flooding following the construction of the Sara-Sirajganj Railway. There are many other instances which show that railway directly confronted the water system of the Delta and this led to a whole range of problems affecting agricultural production and social well-being.

In general, the related problems in colonial as well as post-colonial periods have been the small and inadequate outlets for running water through the embankments. Mouths of many small streams and natural khals have been closed for the facilitation of the railway lines. The wetland through which the railway runs remains still unexamined as to the impact of the railway embankments. More pertinent fact is that railway has been essentially a colonial phenomenon in this part

of the world. In the Bengal Delta it has, from the very beginning, run east to west in order to carry raw materials from Bangladesh hinterland to Kolkata port, but in this way it has also crossed with the river systems of the Delta that run north to south. Thus the railway has served the colonial political economy at the cost of ecological viability of the water regime of Bangladesh. The speed of the railway construction, however, slowed down in the wake of debates on the negative impacts on environment or perhaps on the ground of non-feasibility as evidenced in the lack of colonial interest in introducing new railway in Barisal and Dhaka-Aricha route. Of about 2800 kilometres of railway in Bangladesh, there has been less than 200 miles of railway that was constructed in Pakistan period, and even lesser in Bangladesh period.

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eration? If such assumption is even partially true then we perhaps need more research on the question of ecological sustainability of the railway before having more railway lines. At the moment three policy suggestions can be made. First, no new lines should be constructed. The 3 July seminar on the railway reforms has considered new railway lines in Barisal and Dhaka-Aricha routes. To do so would be a gravely wrong policy. It will complicate the situation of water logging and flooding which have already been aggravated because of the highway embankments with inadequate outlets. Secondly, if possible, some railway lines across the country that are remarkably causing flood and thereby damaging standing crops should be removed. Thirdly, we should concentrate more on redeveloping our lost and existing inland waterways. If done properly the development of inland waterways, including rivers, small streams, khals, beels and baor, will not only serve the purpose of transport, but will also lessen the problem of flash flood and river

bank erosion.

The inevitable question is that in this age of broadband speed, do

we really want to go for the slower and more tedious mode of water-based transport? Certainly we should, if we do care about our water system and its various services toward human well-being. I am sure the World Bank itself would also agree to this, for it is actively supporting India to develop its inland waterways. If it can support India in developing its waterways it can certainly do so for Bangladesh waterways. It may, therefore, be suggested that of the proposed \$800 million, a portion

can be used for improving management and modernisation of the BR. The money saved by not constructing new lines can be spent on improving Bangladesh's inland water system. The simultaneous development of the inland water system in India and Bangladesh may lead to closer trade relations and no doubt that would be eco-friendlier.

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Going green

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IT seems like a hippie entrepreneur's dream come true: an ecostore with cash registers powered by rooftop wind turbines, skylights instead of light bulbs and photovoltaic solar cells on the roof to help power the bakery's oven. It's so environmentally friendly that even the toilet water is collected from raindrops outside. Only this is not some pipe dream of a fringe activist.

The vision comes from Tesco, the world's third largest retailer. Tesco is pumping euro 100 million into environmental technologies to reduce the amount of energy they use by 50 percent, compared with 2000 levels, by 2010. In addition to building 80 new ecostores across Britain over the next year -- the greenest of which will be constructed of recycled materials and will burn food waste for electricity -- they're also making small changes that could have big effects. They're paying customers not to use plastic bags, which they expect will cut consumption by 25 percent in two years.

Tesco is not the only commercial firm that has taken an interest in saving the planet, and making a killing besides. Renewable Energy Corporation, a Norwegian solar-energy company, had the world's largest-ever renewable energy IPO in May. It was 15 times oversubscribed and raised more than \$1 billion, valuing REC at nearly \$7 billion. You wouldn't mistake REC's CEO Erik Thorsen for a New Age Joni Mitchell. "I don't have anything against helping the environment," says Thorsen. "But the main driver for us is profit."

Something weird is happening in the once marginal world of environmentalism. The green cause is no longer the preserve of woolly-minded liberals and fringe activists. Its tenets are being actively pursued by business leaders, stockholders and investment managers. In the popular mind-set, natural disasters such as New Orleans' Hurricane Katrina, floods in Eastern Europe and swirling desert sands in Beijing are now linked to a change in climate that threatens our way of life and our grandchildren's future. Europe's second record-breaking heat wave

More than three decades after Joni Mitchell sang "They paved paradise and put up a parking lot," environmentalists and big business now seem largely to be working in tandem. Earlier this year, the leaders of 14 of Britain's top companies, including the Shell Group and Vodafone, even wrote to Blair urging him to set clear greenhouse emissions reduction targets for as far into the future as 2025, well past the 2012 Kyoto deadline.

in three years -- with the hottest July in UK history and more than 40 dead in France and Spain -- has only cemented this relationship. Environmental concerns have grown so widespread that no politician can ignore them.

Conservative politicians once skeptical of the green movement have been reacting to the pressure. Recently, California's Republican Governor Arnold Schwarzenegger met with British Labour Prime Minister Tony Blair to promote the idea of a trans-Atlantic carbon-emissions market. He also wants to reduce his state's greenhouse-gas emissions to 80 percent below 1990 levels by 2050.

David Cameron, the new leader of Britain's Conservative Party whose revamped slogan is "Vote Blue, Go Green," has visited the Arctic to see firsthand the effects of

global warming. He cycles to work, and is redesigning his Edwardian house in London to include a wind turbine and solar panels, which will cut energy use by 30 percent.

In Germany, the Greens and the conservatives recently agreed to join forces to run the city government of Frankfurt, the first such coalition in the country's history. President Jacques Chirac of France is promoting a new "solidarity" levy to be paid by all air travelers. John Gummer, Britain's secretary for the Environment under the last Conservative government, likens the green issue to defense policy before the fall of the Berlin wall: "People expect parties to have a clear environmental policy, (otherwise) people won't even consider voting for them."

The most startling turnaround, however, is among business leaders. Corporations are giving themselves green makeovers to improve efficiency, save money and look more attractive to investors and the public. According to a recent report from the Climate Group, an international environmental charity, 43 multinationals -- including Bayer, BT and DuPont -- saved a combined \$11.6 billion last year by improving energy efficiency, reducing waste output and harnessing solar power. General Electric's Ecoimagination campaign to cut carbon emissions, partly by selling low-emissions products ranging from power plants to fluorescent light bulbs, raked in \$10.1 billion last year, up from \$6.2 billion in 2004. Their slogan: "Green is green," as in the color of American dollar bills.

Fund managers and corporate developers, too, are beginning to take into account the environmental viability of the companies they invest in. Venture capitalists are investing in green businesses because they believe it's a growth opportunity. "Five years ago, the environment was seen as a preoccupation of the ethically minded. No one really took you that seri-

ously," says Tom Whitehouse, CEO of Carbon International, an environmental consultancy. "Today, the environment is totally mainstream. We're operating in a different paradigm."

Like politicians, executives see which way the wind is blowing. To meet the Kyoto targets, governments have set limits on industrial greenhouse-gas emissions that affect the balance sheet. The European Emission Trading Scheme, launched across Europe's 25 member states last year, allocates "carbon credits" to companies, which they can either use or trade for cash on the open market, like any other commodity. So far, credits for 880 million tons of carbon, worth more than euro 17 billion, have changed hands.

Even in the United States, where carbon cuts are voluntary, many companies are signing on anyway, either in anticipation of future controls or to keep increasingly eco-conscious customers at the tills. In Japan, Sony announced last month that it will lower carbon emissions by 7 percent from 2000 levels by 2010. Britain-based HSBC became the world's first bank to go carbon neutral late last year, and is now turning its 11,000 buildings in 76 countries worldwide into models of energy efficiency. "Our customers have told us that they decide where they shop based on whether the business is a good neighbor," says David North, Tesco's community and government director. "Being responsible on the environment is a growing driver of customer choice."

Investment analysts are starting to see the environmental awareness of managers as a barometer of the likely long-term success of their companies. Green policies, they say, tend to indicate hands-on management, high consumer confidence and good corporate governance. HSBC won't do deals with companies on projects, like oil pipelines through Russia, that don't measure up to their environmental,

social and governance standards -- a bar HSBC has been raising progressively higher since first publishing its Environmental Risk Standards in 2002. The world's two largest insurance companies, Swiss Re and Munich Re, are now taking companies' policies on climate change into consideration when determining risk. In Japan, about 800 companies annually publish reports explaining how they plan to cut carbon emissions and make their products and factories greener. "We believe that operating in a sustainable fashion is a proxy for good management practices overall," says Chris Walker, head of sustainable business development at Swiss Re. "They're the type of companies we're more comfortable doing business with."

Multinationals are investing tens of billions of dollars in proving that they're that type. Recently, General Electric and British Petroleum signed a \$10 billion deal to develop hydrogen power plants that will capture carbon and bury it underground so it doesn't contribute to global warming. Goldman Sachs has invested more than \$1 billion in renewable energy sources, including biofuels, like ethanol, and wind in the last 12 months. PowerLight and GE are currently building the world's largest solar plant in Portugal to the tune of \$75 million. Shuichiro Tanaka, the general manager of Japan's Daiwa Securities Company investment trust department, says, "In the past, companies regarded dealing with environmental issues as a cost. Today they see it as a business opportunity."

Markets are also beginning to recognize that companies that don't do right by Mother Nature may have more volatile stock prices. Goldman Sachs' ESG (Environmental, Social and Governance) Index now ranks the world's largest companies based on how environmentally friendly their operations are because, says Sarah Forrest, head of ESG

Research at Goldman, "environmental issues do influence stock prices." Signatories to the United Nation's new Principles for Responsible Investing include hundreds of major investors worth \$4 trillion in assets -- 10 percent of global capital.

All of these developments are being scrutinized carefully by venture capitalists, some of them the same ones who bankrolled the dot-com boom of the 1990s and now see alternative forms of energy as the Next Big Thing. Vinod Khosla, the Silicon Valley venture capitalist who got in big and early with Google and Amazon, is now betting \$50 million of his dot-com cash on next-generation ethanol. While Khosla is impressed by the fuel on environmental grounds, he says he's driven mainly by investment logic. "Ethanol's a great investment because it's (going to be) cheaper than gasoline," he says. "End of story."

Venture-capital investment in renewable-energy companies was up 36 percent last year to a record \$739 million. The WilderHill Clean Energy Index, which charts 40 alternative-energy firms, has risen 48 percent since its 2004 debut. The world's largest wind-turbine company, India's Suzlon Energy, was 28 times oversubscribed when it launched for \$340 million at the end of last year. Chinese solar company Suntech Power raised \$400 million in December; its share price has since shot up 50 percent. The largest venture-capital-backed IPO in Europe last year was of German renewable-energy company Q-Cells, which raised \$400 million in October.

Despite these prominent deals, the share of venture capital going to alternative energy is still tiny -- less than 1 percent of the \$22 billion invested last year in the United States, where the lion's share of the world's venture capital is doled out. One reason is that venture capitalists tend to be biased in favor of companies that build on existing technologies rather than ones that need to construct infrastructure from scratch. Even the gods must play by these rules: to indulge his ethanol enthusiasm, Khosla had to use his own cash rather than that of his old firm.

The venture capitalists themselves place the blame on ongoing

uncertainty about how governments will treat alternative fuels. Every major country regulates energy transmission and use, in effect elevating some technologies and penalizing others. The United States, for example, subsidizes ethanol producers but refuses to adopt caps on greenhouse gases or to establish a regulated framework for trading carbon credits, both steps that venture capitalists say would take a lot of the fear factor out of investing in clean energy.

Passing environmental legislation also requires getting past a powerful anti-regulation lobby, which argues that Kyoto-like targets put companies in the developed world at a disadvantage to unregulated ones in the developing world. "We don't think it's sensible to become the greenest country on earth when we might go bust doing it," says Mark Swift, a spokesperson for Britain's Manufacturer's Organization.

Still, more than three decades after Joni Mitchell sang "They paved paradise and put up a parking lot," environmentalists and big business now seem largely to be working in tandem. Earlier this year, the leaders of 14 of Britain's top companies, including the Shell Group and Vodafone, even wrote to Blair urging him to set clear greenhouse emissions reduction targets for as far into the future as 2025, well past the 2012 Kyoto deadline. Although profits are the main driver, many execs privately welcome the sea change that has allowed them to do the right thing by the environment. The joint head of HSBC's environmental action plan, Francis Sullivan, stresses "financial fundamentals" when explaining why his company is planting trees to offset its carbon output and building banks that use rainwater and solar power instead of oil and coal. But he's also concerned about there being enough green spaces for his two daughters, who bug him to turn off the lights when he leaves a room so he doesn't waste energy. Making money is great. And if you can save the world at the same time, so much the better.

With John Sparks in New York, Karla Adam in London and Akiko Kashiwagi in Tokyo.

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Turbines in northern Germany: Part of the growing passion for saving the planet

ALEXANDER HASENSTEN-GETTY IMAGES

Fertility for food security

KBD MD SHAHIDUL ISLAM

OUT of 16 essential elements for plants, boron is one of the micro nutrients used for normal growth and development of cereal crops and vegetables. In Bangladesh two third farm areas have boron deficiency. The north and north-east area i.e. greater Dinajpur, Rangpur, Bogra Gaibandha, Sylhet Comilla, some parts of Chandpur and most areas of Bandarban and Khagrachhari have been found to be

boron deficient. **Deficiency symptoms:** Normal growth and development of cereals like rice, wheat maize and pulses like lentil, mug as well as oilseeds such as sesame, linseed, mustard, soybean and different kinds of vegetables are hampered and leaves of the crops become deformed; middle portion of the bean rots and becomes blackish in colour. The mid portion of apple and upper portion of tobacco leaf also rot and a brownish colour is seen in cauliflower.

Boron fertilizer: It acts in the plant where sugar is formed and resists polymerization. The following fertilizers are mentioned in the government approved list. The quantity of boron in Solubor Boron is 20% and that in boric acid is 17%. Borax is used to meet up the demand of boron. This contains 10.6 per cent of the latter, it is white in colour and not fully soluble in water. In developed countries 100 per cent soluble boron is used in the agricultural land. But it is a matter of regret that in our country

boron decahydrate and boric acid supposed to be used in the industry are being used in the agricultural land. It happens because of ignorance of farmers and weak supervision of institutes concerned. Calcium borate is also used to meet up the demand of boron. This fertilizer is also known as carbanite. And this is also not soluble in water fully as a result plants cannot take it properly. **Disadvantages:** As borax does not mix in water perfectly its effectiveness is less and also boron con-

tent is only 10.6 per cent. It does not work promptly so it takes time to work and mixes with other materials and turns into a complex compound and then becomes available to the plant gradually. As general farmers are not well aware about its quality and effectiveness some tradesmen are importing this kind of industrial grade boron fertilizer and marketing it and as a result poor farmers are losing money. **Utilisation in developed countries:** To fulfill the scarcity of boron in developed

countries Ciba Specialty Chemicals has developed Librel Boron which is very useful and directly available to the plant. It is 100 per cent soluble in water and has 20.5 per cent boron content. This fertilizer can be used directly to the soil as well as sprayed on plants. It does not mix with other materials and plant can take the nutrient properly and promptly. **Advantages of Librel Boron:** As said it does not form complex compound mixing with other materials. It acts quickly. It is non-

hazardous and can be stored and transported round the year at any temperature. It has no residual effect, supplies ready food to the plant being pure and is 100 per cent soluble in water. **Application:** It can be used in the soil and on leaf in measures -- leaf 90gm/bigha (15gm in 10 Ltr. water) and soil 180gm/bigha (broad casting). **Conclusion:** It is not harmful to the soil or environment. So this most effective and popular librel boron is being used throughout the world for increasing crop production. **Agriculturists,**

researchers, Agriculture Extension Department, concerned businessmen and NOGs should come forward to use and popularise this fertilizer for our food security. The farmers will be benefited by getting more yield using this fertilizer and they will be economically well off. Moreover the country will go one step forward for self-sufficiency in food.

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