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The carbon bomb

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To understand the perils and the multi-billion dollar promises of living in the age of climate change, start amid the bus-high piles of garbage in a municipal compost plant in the south Delhi suburb of Okhla.

Egrets and crows dodge backhoes that rake the rotten vegetables, plastic, paper and glass into romantically named “windrows”, what the piles of garbage are called. Over six to eight weeks, after some spraying, sieving and packing, the garbage is turned into a fine-grained fertilizer and trucked out to farmers in northern India. Tough questions

Turning garbage into compost is a fine idea, except there’s no money in it. At Okhla, the sale of fertilizer covers only 60 per cent of costs.

So why is one of India’s leading infrastructure and finance companies, through a subsidiary called IL&FS Ecosmart, wading into Delhi’s unprofitable garbage? Why has it started 17 such operations across India in the last 24 months?

The answer lies in Germany, where executives at its second-largest electricity producer, RWE AG, are keen the Okhla project works, so they can keep their giant coal-fired power plants running.

The Okhla business model sounds easy. Make fertilizer from garbage. Save the earth from a greenhouse gas (and clean up Delhi as well). The composting prevents the emission of methane, one of the gases responsible for warming the globe. For every tonne of greenhouse gas India can keep out of the air, there’s $10 (Rs 470) to be made.

Now, sell the value of the eliminated methane to the Germans.

IL&FS’s Okhla plant and hundreds of diverse operations across India are at the heart of global climate-change negotiations, as they release enough clean air to create what has already become India’s fastest-growing industry: the carbon trade.

The actual sale of what are called carbon credits is more complicated. Two years after it started, the Okhla operation hasn’t got a dollar — and if a critical meeting in Copenhagen, Denmark, fails in December, the future of IL&FS’s project is in doubt.

THE HEAT IS HERE

It's been nearly twenty years since international leaders accepted that earth's temperature is on the rise, and that human industrial activity is to blame.

New projections by leading researchers show climate change will affect every aspect of modern life. Agricultural production will plunge as erratic weather shifts sowing seasons and monsoon rains. The melting of Himalayan glaciers — which many say is already taking place at double the rate elsewhere — will lead to challenges in water supply. Rising sea levels, brought about by glacier melt, could submerge islands and coastal towns.

In India, where flood and drought already affect more than 400 million people, the results could be catastrophic. Close to 68 per cent of India's land is vulnerable to drought. A third of India's great plains are vulnerable to floods, which account for 50 per cent of our natural disasters. The cost of floods and droughts is as high as

Rs 15,600 crore over five years, according to the Planning Commission's 11th five-year plan. This money is enough to provide free food to a third of India's 300 million poor for a year.

Indian policymakers have said for years that rich nations created global warming by burning fossil fuels to fire industrialisation. Even now, although India is the world's fourth-largest emitter of greenhouse gases, its per capita emissions are just over 1/20th that of the US (see graphics).

The first National Action Plan on Climate Change, issued in 2008, says that any international agreement on climate change must "allow each inhabitant of the earth an equal entitlement to the global atmospheric resource". India has maintained that line in international negotiations, insisting that rich nations pay up, and that India won't accept binding cuts on its greenhouse gas emissions because the cuts might limit economic growth.

In recent months, environment minister Jairam Ramesh has suggested a change. In an October note to the prime minister, Ramesh proposed domestic emissions cuts. Pradipto Ghosh, a former environment secretary and India's lead climate-change negotiator, says he sees "nothing wrong in discussing these issues". To take Ramesh's debate forward, the prime minister has called a meeting of the National Development Council, a body of all state chief ministers, before the Copenhagen conference in December.

Much of the recent talk about international negotiation focuses on "co-benefits", or measures that India would want to implement for its own reasons, and not just because of international pressure. Some of these measures — increasing the efficiency of power plants, investing in public transport — carry costs, but they are opportunities.

"We should tell the world that we are serious about climate change," says R.K. Pachauri, head of the Nobel Prize-winning Intergovernmental Panel on Climate Change.

Already, India is considering mandating more efficiency in the electricity and automobile sectors, a move that might open up a domestic market for carbon credits. Many businesses are ready to go green.

"We don't see much problem in adopting fuel efficiency standards by 2011," says Dilip Chenoy, director with Society of Indian Automobile Manufacturers (SIAM).

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MONEY FOR AIR

But to truly understand the impact of climate change on economic growth requires a return to Okhla, New Delhi, where a compost plant that started operations in 2007 has not yet made money.

The operators of the Okhla plant have a twin revenue model. They sell their compost for

Rs 1,200-2,000 per bag, but they also sell clean air, free of methane gas.

Under a 1997 international agreement known as the Kyoto Protocol, developed nations like Germany and the United Kingdom must limit their greenhouse gas emissions to 5.2 per cent below 1990 levels by 2012.

But governments and corporations that have trouble meeting this target can buy carbon credits, or Certified Emissions Reductions (CERs), from carbon-reduction projects in developing countries like India and China.

The Kyoto Protocol aims to create a barter system, known as the Clean Development Mechanism or CDM, where rich nations can pay for the adoption of new, greener technologies in the developing world.

The operators of the Okhla compost plant will keep about 300,000 tonnes of methane from being released into the atmosphere between the years 2008 and 2012.

IL&FS won’t say exactly how much it’s getting for each carbon credit, but each is worth roughly $10 (Rs 470) in the international market. Before they can start making carbon money this month, the project must be registered with the Indian government and the United Nations, and validated by a team of Norwegian regulators, a two-year approval process.

Since 2005, the year the Kyoto Protocol came into effect, India’s carbon market has shot from 0 to $5 billion (Rs 23,500 crore) annually, an increase of many hundreds of times. The closest comparison is the telecommunications market, which grew by 1,000 per cent, or 10 times, over the same period.

“It is the fastest growing market,” says Ashutosh Pandey, CEO of carbon consultancy firm Emergent Ventures. “It will become the largest market in the world, and it impacts everybody in the world.”

Pandey’s company has a portfolio of more than 200 projects, mostly in India. Like an increasing number of Indians, they have turned the costs of global warming into business opportunity.

India has registered 456 CDM projects with the United Nations, more than any other country except China. The projects are expected to generate 233 million tonnes of carbon reductions by 2012, according to carbon ratings agency IDEAcarbon.

India’s carbon market includes major players like the Delhi Metro, which cuts carbon dioxide from the air by reducing the amount of fossil fuels burned by cars, to small-scale initiatives like the introduction of more efficient stoves in rural households.

For firms like IL&FS Ecosmart, the CDM system has enabled projects that would otherwise not make financial sense.

“These projects are not cash generating from day one,” says Ecosmart’s CEO Mahesh Babu. “Without CDM, they are not viable."

COPENHAGEN CALLING

The future of India's carbon economy now depends on whether negotiators can agree on what to do about climate change after 2012, the year the Kyoto Protocol expires.

The debate hinges on the United States, the world's second largest greenhouse gas emitter and the seventh largest per capita emitter. The US signed the Kyoto Protocol but never ratified it, which means it doesn't have to cut emissions, and it can't buy carbon credits.

That may change.

A bill currently being considered by the United States Congress would require emissions reductions of 20 per cent over 2005 levels, and encourage the trading of carbon credits.

The US can enter the carbon market only if some deal is worked out at Copenhagen, says Alessandro Vitelli, director of Strategy and Intelligence at IDEAcarbon.

Despite its unknown future, in some ways, CDM might have already succeeded in creating a greener business environment in India.

"Our cement industry is the cleanest and our steel sector is the most efficient in the world. In wind energy generation, India is ranked fifth," says Jamshed Godrej, past president of industry body Confederation of Indian Industry.

"If somebody asks me what has been the single biggest success factor of CDM, I would say awareness of companies," says Pandey. "They know that climate change is occurring, they know that customer preferences and businesses will change, they know they have responsibility to create greener business, and I see this now in India."

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