

MAUSAM

...talking climate in public space

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The climate crisis and people's struggles

The climate crisis

Isn't it time that people's movements, citizens and civil-society initiatives in India include climate in their agenda? Isn't it time that we demystify the subject and ensure that any 'green' and 'scientific' exclusivity no longer shrouds the climate crisis—and related 'issues' like global warming, biofuel, and carbon trade?

It is time to say loudly that the crisis is not really about climate. It is not about rising sea levels and the melting arctic, dead seals and polar bears facing extinction. It is about us, our lives, and the planet—and the way the powerful and rich of the Earth have dominated and kept destroying them for centuries, to accumulate private wealth. Though many natural factors can cause climate change, what we see now is directly related to the continuing

As *Mausam* sets in...

Mausam is aimed at initiating dialogues in 'public space', on the capitalism-induced climate change and its bogus market solutions like carbon trading and biofuel, mainly in the context of India. Such a space is now conspicuously missing, and knowledge of these 'issues' has so far been the exclusive property of governments, profiteers, and 'experts' of various shades and hues. As a result, the only information one gets on these subjects is either a confusing (and solid!) mass of 'technical' statistics and jargons or, worse, a series of simple 'to-do' lists, which reduces the climate crisis to the level of 'plant ten trees in your neighbourhood', 'pool cars', CFLs, and so on.

Mausam – with its stories, opinions, case studies, anecdotes, and facts – will try to focus on simple and basic information related to the climate crisis; for instance, how the development and India's sustainable-market-alternative projects are hitting this country's people, and how people are fighting back. However, it may not be possible to avoid 'official' and technical information altogether, such as the statistics and information on India's clean development projects included in this issue. We hope that the information helps reveal the real and ugly face of the CDM brohoha.

We invite your comments, views, suggestions, opinions, and, of course, contributions to keep *Mausam* going, and to strengthen the public space it seeks to create. The newsletter, as of now, is meant to come out in every three months, and, if possible, we will soon have its print avatar, and in more languages.

Let's hope it works.

'industrialization' of the planet and related human activities, all in the name of 'development'. Most of those likely to be affected by 'natural' calamities like floods, droughts, heat and cold waves, water crises, coastal submergence, and cyclones–hurricanes–typhoons, however, have no idea that these extremes of climate are being triggered by human actions. That the earth is gradually moving towards destruction because of energy and resource-intensive development is something the development economists of this country and the world steer clear of.

We need more energy for development, our government tells us, so that the GDP (gross domestic product) stick does not ever go limp, and the poor get cheap electricity. We need new coal mines stretching for miles and more oil imports so that more big industries can come up, air-conditioned cars speed along new freeways, and huge glossy supermarkets replace shanties in clean and green new cities replacing old and dirty villages. Our per-capita carbon emission is nothing compared to that of America, or the European Union, and we have a 'right' to develop. You cannot deny a sovereign nation its developmental energy, and the necessary, absolutely necessary, emissions, argues the government. The mainstream media; the political, scientific, and economic fraternities; and many 'responsible' NGOs echo the view. Yes, there is a climate crisis. But we did not create it, and necessary adaptation and mitigation measures will be taken; a national climate action plan is on board.

Yes, but who are 'we'? Who 'are' the nation we celebrate? What defines 'development'?

Development

These questions are now cliché, and from a range of experiences, which now border on mundane, we know how the words 'development' and 'displacement' have now become synonymous; as if, there can be no development without displacement, of peoples, cultures, economies, and nature. In the world of the industrial civilization, things have remained thus for a long time, albeit, never in such blatant, accentuated, and legitimized fashion as we witness now. Conceptually and physically, development has managed to acquire an absolute legitimacy – social as well as political – and become something that one has to perforce take for granted. Economically, in the era of global capital and so-called free-markets, development with its extremely visible and dominant iconography has become but embodiment of capital, and vice versa.

Dominance of the capital–development synergy in today's globalized world has an 'absolute' and uniform surface, where shopping malls, special economic zones, and sky-hugging towers flourish, and which increasingly seem to be rejecting the sub-altern 'other' that is poor, underfed, disgruntled, and displaced, and hence, not part of this 'developed' landscape. Cities and industries and markets merrily come up everywhere while the larger populations are condemned to famines, diseases, and wars. People are made to helplessly watch their homes, agricultural fields, forests, rivers, seas, and mountains taken away, to keep the development juggernaut rolling. Mouthing endless gospels of democracy, liberty, and globalization; armies, combat forces, and transnational corporations take hold of the world's commons, and privatize them, so that a few can profit at the cost of a multitude that has traditionally depended on such commons. This neo-colonial and neo-imperialist world order is overseen by international financial institutions led by the World Bank, whose advisers and cronies invade sovereign governments, and one after another national economy gets inextricably trapped in the cycle of debt.

By now, we are all familiar with this picture, and the end-of-history predictions of the global supporters of the 'market' economy. This is the best of systems, we are told everyday, where the market – as the ultimate crusader – frees everyone from bondage. Healthy competitions symbolized by the buoyant stock market and a growing consumer 'class' keep the GDP indicators moving upward, and you get to know that the country is developing. What about the multi-layered displacements caused by such developments, then? The state sheds whatever welfare load it was left with, and let the market and the corporate world deal with such anomalies—which essentially means more 'kill and grab', to optimize profits. Basic state services like health, education, transport, and electricity get privatized. The organized labour is decimated by taking away one after another benefit that years of hard struggles had won. The World Bank calls it 'structural reform', without which economies do not grow!

Alternatives

What happens if the market decides to become 'clean'? And, start 'creating' forests, which could supposedly act as 'carbon sinks'? Or, plant millions and millions of hectares of land with bio-diesel plantations using species like *jatropha*? Or, set up huge wind turbines, or worse still, large nuclear reactors? How would the huge land requirement be met? How many millions of families



have to be displaced for these clean/green projects? The same process of land-grab marks the processes of both development and 'alternatives', as people in India discover each passing day. They already see their land taken away and destroyed for large hydel-projects, special economic zones, new monoculture tree plantations, and unsustainable industrial growth. The great 'development' package also includes its market-savvy alternatives.

There is a major US-backed initiative to proclaim that nuclear power is safe, environmentally benign, and an economically viable source of electrical energy for the future. In spite of the fact that during the last decade nuclear power plants were no longer being set up in most developed countries, the government in India plans 24 new nuclear power plants, in addition to 23 already functional or under-construction.

Do we want a future where 'alternatives' appear in the guise of giant nuclear projects, large hydro projects, and huge windmill farms all of which affect peoples' land and livelihoods, and destroy the environment that they have kept inviolate for centuries through traditional means? The recently concluded Indo-US agreement on Sharing of Nuclear Technology and the Bush Administration's emphasis on large renewables and nuclear power as carbon-neutral and 'clean' projects raise these questions yet more strongly.

Development and its market 'alternatives' together thus create a nightmarish scenario where the temperature of the planet rises, glaciers continue to melt, extremes of weather play with people's lives and resources, and, at the same time, the 'industrial' society thrives by burning more coal and oil to produce energy, and emitting more carbon to the atmosphere.

And thus we come to carbon trading—the big answer to the big crisis, the ideal and unbeatable solution, which combines development and sustainability, the mainstream and the alternative. It is win-win, where nobody loses and everybody gains, overseen by the market, god-like, omnipotent, and omniscient.

Carbon trading: the biggest market alternative!

In the wake of the Kyoto Protocol, an international agreement for 'slowing down' climatic change, a 'free' and 'globalized' market-based approach to the climate crisis emerged. Many of us took Kyoto to be a serious

inter-governmental effort. It is typical of our times that the 'market' continues to define and shape both the climate crisis and its so-called 'solutions'. Hence, the treaty provided the rich nations and their polluting corporations with an excuse for starting an absurd trade over the world's carbon-absorbing capacity. Companies, many of them chronic polluters in developing countries, sensed a windfall, and jumped onto the bandwagon. The inconceivable carbon trade became a reality.

The carbon 'offset' market that the Kyoto Protocol legitimizes is proving to be extremely profitable for polluters and greenhouse gas emitters in both hemispheres. Polluting industries in 'developing' countries continue polluting, yet they earn extra money through filmsy claims that they are reducing carbon emission by, say, changing designs of some boilers, or planting trees. The core question of actual, physical reduction of carbon remains shrouded in a forest of jargons and figures. The project developers, consultants, validating agencies, and brokers who earn fat fees and/or cuts of the carbon-credit revenue are all key players in this game, and the ground realities of these supposedly carbon-reducing projects seldom become public. The world, being a 'globalized village', allows these claims, howsoever false, to be sold at the carbon markets worldwide (exchanges have been set up to facilitate the trade). The buyers of these 'carbon credits' in developed countries get certified licenses to emit more carbon into the atmosphere, so that they can carry on with business-as-usual. The carbon trade is thus turning out to be the greatest legitimized hoax to have hit the world. The global marketplace has designed an unbeatable win-win model and while the roots of the problem have been left untouched, the European carbon market alone has already touched the magic 20-billion-dollar mark.

Like the USA and China, India has not made any commitments to reduce greenhouse gas emissions and it has still a predominantly fossil-fuel-dependent energy programme. However, at the same time, India has emerged as one of the most favoured carbon market 'destinations'. All big Indian corporations are on board—Reliance, Tata, Birla, Ambuja, ITC. With more than 1100 prospective CDM (clean development mechanism) projects queuing up to sell carbon credits, India has opened a new door for the worst kind of polluters. An indulgent, corporate-friendly government, aided by a blissfully ignorant civil society, has made India a paradise for carbon trading—India's own contribution to the era of globalization.

Corporate windfall

Because of carbon trading, Indian corporations now increasingly view climate change as a heaven-sent business opportunity. Carbon is a commodity that can be exported with ease, and the profits to be made in the game are enormous. The current market price of a ton of CO₂ reduced (sold in form of certified emission reductions or CERs) in the global market is around 20 euros, for projects approved by the UNFCCC (United Nations Framework Convention for Climate Change). For the last two years, the CER price never went below the 15-euro mark, whereas the most optimists of carbon consultants would not have given more than 3.5 euros in 2005!

Some of the profit figures for companies engaged in the carbon trade are astounding. Till early 2008, the Jindal group made 11-billion rupees (and perhaps more) from selling supposedly 'reduced emissions' (1.3-million CERs) at their steel plant in Karnataka. According to company sources, this boosted other incomes, and helped the Jindal Steel Works to record their best ever quarter in terms of profit. The Tata Motors sold 163,784 CERs from clean wind projects at 15.7 euros/CER in 2007. Tatas' sponge iron projects in Orissa are set to yield 31,762 CERs every year. Reliance publicly boasts of its CDM Kitty—with 7 projects registered with 88,448 CERs per year (till 2007 December), four more CDM projects under validation with 149,533 CERs per year, and seven more potential CDM projects with about 400,000 CERs per year. By far, however, the biggest profits have been made by the SRF (Rajasthan) and the GFCL (Gujarat Fluorochemicals Ltd), both by selling carbon credits from their HFC (hydrofluorocarbons) reduction projects. In 2006/07 alone, the GFCL group's earning from carbon money was twice its total corporate assets.

Given the amount of money to be made, it is no wonder that projects, which pollute the most, are increasingly turning 'clean', like sponge iron units. In Chhattisgarh alone, there are more than 25 sponge iron CDMs, and 4 just from the Jindal plant. ITC's Bhadrachalam Pulp/Paper plant, famous for pollution and tribal land-grab, has 6 separate CDM projects going on. Even otherwise benign projects like small hydro and wind power are being controlled by corporate agencies, with results easily guessed—flouting of environmental norms and incidents of land-grabs are common.

The struggles: peoples' alternatives

This has been the saga of India (and many other countries across the world) for the past two decades, but it tells the story only partially.

The absolute hegemony of capital in reality was never so absolute as its proponents and defenders want us to believe. The smooth surface of development is, in fact, extremely scraggy and its peacefulness an illusion, because it has trillions of small and big volcanoes awaiting uncontrollable eruptions underneath. The displaced and threatened people, whom the developed world wants simply to fade away, refuse to do so, and resistance struggles now dot the globe and this country. Often spontaneous – and structurally disorganized – such struggles are led by victims of development—peasants whose lands have been forcibly occupied because of industries, pipelines, or roadways; adivasis whose forests are destroyed because of big dams, mining, and capital-controlled conservation tourism alike; and workers who lose their jobs because of structural reform and global market imperatives. From Narmada to Plachimada, and Nandigram to Jagatsingpur, one after another anti-displacement struggle rocks the country, and awakens new hopes of converging movements, and a new social order where development will be redefined in a just, equitable, and humane way.

This is a war which does not get reported. It is little known, little understood, but a war nonetheless. We will have to take sides in this war and challenge the 'whatever-they-do-is-good-for-us' and 'market-knows-the-best' forms of a faceless human civilization that increasingly haunts us.

It is time to resist the paradigm of the so-called industrial development and wasteful consumption; it is time to oppose the global polluters making profit at the cost of the Earth's future; it is time to assert the right to choose non-fossil-fuel, non-nuclear energy options.

All peoples' struggles against displacement caused by development projects (or alternatives) have their own micro-histories. They are spatially, politically, and often culturally, separated, each in its own unique way. At the same time, however, each one of them defends a way of life that capital could not yet swallow and destroy. Each one defends its own spiritual and sometimes physical commons against forcible enclosures. Each one of them



is a climate struggle. We do not need to build a separate climate struggle. All we need to do is to understand the dimension – and enormity – of our small and not-so-small struggles, and try to come together against attempts at commodifying our lives and resources and putting up the planet on sale. Whether be it Singur, Nandigram, Kalinganagar, Alibag, or Jagatsingpur – and, for that matter, dozens of such lesser-known locations in the

country – perhaps only strong resistance from the people can provide some direct answers to climate change.

– Soumitra Ghosh

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Rising India is another country

Deep in the Himalayan Forests and mid-altitude mountains, the simple and hard-working villagers of Datmir were wondering why it happens to them in such increasing frequency? Datmir, or similar other remote Himalayan villages, are no California; so its miseries of ravaging forest fires (or raging flash floods) do not get reported, even in the so-called mainstream Hindi dailies here in India. Datmirians have heard that '*Mausam Badal Raha Hai*' (the climate is changing), but are at a loss to connect things together.

Datmir is a big-by-mountain-standard village in the far-reaches of Uttarkashi district in the State of Uttarakhand. It is deep inside the Govind Wildlife Sanctuary, at an altitude of about 7,500 ft. It takes even for a seasoned hiker nearly a full-day's walk to reach the village—from the jeep-head of Sankri at about 5,800 ft and 14-km away, that includes a back-breaking steep climb of nearly 2000 ft in the last stretch. For the disaster-struck villagers though that was of no concern, as they were staring at the approaching winter with almost half the village's 100-odd houses burnt by a devastating forest fire.

When I – along with my 10-year-old son Manthan - was passing by, it was almost mid-October of 2007. For the villagers, it was time for stocking-up for the winter—collecting fodder for the sheep and goats and cows, collecting firewood for the whole of winter when these areas will be snow-bound, drying up their last harvest. But with no roof over the heads of nearly 400 people (out of the total of nearly 1000), even these vital tasks were relegated to the back; at the moment, getting some kind of shelter ready was the top priority. They have not heard about home insurance, and there are no worldwide media glare on these 'climate crises' – unlike the California or Sydney cases, where the houses burnt will be quickly replaced with the insurance claims – as have happened time and again. The brave but naïve people of Datmir

were blaming fate, and trying to rebuild their homes, the only way they know—log by log, plank by plank.

As in California, Sydney, African Sahel, or parts of Eastern Europe, the increasing temperature is making even some lower Himalayan forests drier in the summers, and the occasional forest fires are increasing in frequency. Same is the case with the occasional flash floods. As higher temperatures make glaciers melt faster during summers, more flash floods due to higher water discharge are sweeping roads and bridges away, as we witness so often, disrupting the only lifelines for the mountain towns and villages.

As we moved on, up and away from Datmir, through the non-stop nagging rains – very 'unusual' (till a few years ago) for this time of the year – we encountered women, including young girls, hastily harvesting the partly-flattened rajma crop, that was being damaged by the rains so close to the normal harvest times. This was Dharkot village, a few kilometres ahead, reflecting another side of the *badalta mausam* story. *Rajma* is one of the most important cash crops of the mountain villages, and losing a significant part of it to the 11-day-long unseasonal rains, was nothing sort of a small disaster for these mountain villagers.

As we reached Osla, at nearly 9,500 ft and the biggest village in this trail with around 1300–1400 residents, we kept enquiring and kept hearing similar stories. Some locals – no doubt 'empowered' by occasional visits to Dehradun, the state capital – told us, '*Jabse Tehri bandh bani, tabse ye Sitambar-Octubar wali barish jyada ho rahi hai*' (these un-seasonal rains in late September and October intensified ever since the Tehri Dam has come into being). Why? They do not have an answer to that; but the observational connection remains.

Having prided myself on my scientific bent of mind, I tried to figure out the connection. And so goes my untrained meteorological reasoning: when as big a water body as a big-dam reservoir suddenly comes up in an area, which is also exposed to the increasing temperatures (Tehri is a low-altitude place and quite warm in summer and autumn), the amount of water evaporated annually would increase significantly. So, at the higher reaches – just tens of kilometres in the north, as the crow flies – will cause this moisture-laden rising air to cool and condense out as rain—the more the moisture the more the rain. Neat, but this logic cannot bring any consolation to the people of Jaunsar (as the whole region is called); they have to figure out what struck them and why? For them, neither the government nor the ‘market’ is of much help. They are left largely on their own, to deal with the impacts of a *badalta mausam*, year in and year out.

From the world’s mightiest mountains, let’s now turn to the rolling seas, for haven’t the poets called India the land of *A-samudra Himachal* (a land crested by the Himalayas and washed by the oceans)! This was March 2008, and the stage was some remote coastal villages of Orissa. From Kolkata, Manthan and I took a train and got down at a small, non-descript rail station, Jaleswar. Here we were received by our guide-to-be, Mr Kalpataru. He is a resourceful science teacher in a small village school 20–25 km from Jaleswar and was keen that I conduct some science workshop for teachers in their area also.

After over two hours of back-breaking, rollicking journey on 4-foot-wide, flood-washed, sand-and-dirt tracks that passed for roads, at times amidst rows of village houses, first in a jam-packed bus, then in a crowded jeep, and finally on a motorbike (riding all four on the single hapless 100-CC machine), we reached the house of Mr Kalpataru’s in-laws. The small fishing harbour of Kirtania/Chandrabali is about 3 km from here, and a sizeable number of families depend on this, though the majority of the poor still depend on agriculture. Rains are plentiful and the temperature and sunlight are perfect for good harvests. Then, why do so many small farmers sell off their lands to the *chingri* companies (commercial companies doing shrimp and prawn culture)?

It seems that the changing climate caused by warmer oceans is having the poor for lunch and dinner here too. Over the past two–three years, the number of major storms and cyclones over the Bay of Bengal have nearly doubled—from 6–7 a year to 11–13. Though there was no spectacular super cyclone that hit the Orissa coast

in these two years (*Sidr* and *Nargis* having turned to and devastated Bangladesh, and more recently Myanmar instead), these creeping disasters of stronger storms are pushing both sand and salinity inland. As the land loses its productivity, the small and marginal farmers are worst-hit, because their lands can no longer support an economically meaningful agriculture.

In such a scenario, when rich corporations from the cities – with government support and subsidies for promoting shrimp exports – offer some money to buy out their ‘poor’, unproductive land, how can you complain? Sell the land, collect and tie-up all your belongings in a few jute bags and steel trunks, board the train with your family from Jaleswar, head for Kolkata or Delhi, with uncertain lives cupped in your fragile hands.

We keep seeing these climate refugees pouring out of the major rail stations of metros and big towns, in thousands, every day. Only we do not recognize them as such. They only increase the statistical figures of the poor, homeless, destitute in our big cities. Sadly, there is no support, nor any subsidy, for these poor farmers who have lost their lands, their livelihoods, and, in a sense, the very way of living they knew and enjoyed. That is the rule of the game here—the more disempowered you are, the more kicked around you will be. *Aam aadmi* be damned.

How does the government respond to this unfolding, creeping disaster? They are going to ‘modernize’ Kirtania’s fishing harbour! I checked with some planned figures. There is a plan to introduce dozens of mechanized trawlers, with corresponding ‘infrastructure’ for support. Who will buy, or own these? Certainly not the small-time fishing families owning a *bhutbhuti* (a small boat powered by a small diesel engine; the name is derived from the sound of this engine) collectively now, not to speak of the even ‘smaller’ fisher-folk with their un-powered boats and floater-nets.

A mechanized trawler costs many millions of rupees. And once they start their devastating bottom-trawling, the catch of the *bhutbhutis* will go down drastically—not some environment-wala’s wild projection; that is exactly what has happened just across the state border in West Bengal. The old fishing harbour of Shankarpur has been ‘modernized’, and most of the happy, self-reliant, vivacious fisher-folk there have been turned into hired hands in the trawlers, or left in search of less miserable livelihoods. Once they leave, their lands can be (and were, in several cases) taken up by up-market coastal resorts or

India's Climate Action Plan: where is the plan?

The changing climate and its impact is probably the most important challenge that humanity is facing in the 21st century. Though the climate has always been variable, the pace and magnitude of the change witnessed in recent times seem to be unprecedented. Observed changes in terrestrial and marine ecosystems have become more pronounced. By expanding and intensifying land uses, polluting the environment, introducing exotic species, and over-harvesting biological resources, human activities have directly contributed to the changing global climate, which, in turn, has dangerously accelerated the extinction rate of species.

The Fourth Assessment Report of the IPCC indicates that developing countries like India are likely to be highly vulnerable to climate change, both due to the projected magnitude of the change and the lack of coping ability. Climate change is likely to impact natural ecosystems as well as traditional socio-economic systems of India, as its nearly 700-million rural population directly depends on climate-sensitive sectors (agriculture, forests, and fisheries) and natural resources (such as water, biodiversity, mangroves, coastal zones, and grasslands) for their subsistence and livelihoods.

As predicted by the IPCC, projected sea-level rise could flood the habitats of millions of people in the low-lying areas of South, South-East, and East Asia such as in Vietnam, Bangladesh, India, and China (Wassmann, Hien, Hoanh *et al.* 2004; Stern 2007). According to even the most conservative scenario, it is predicted that by the end of the 21st century, sea level will be about 40-cm higher than today and will increase the number of people affected by floods every year along coastlines from 13 million to 94 million. Almost 60% of this increase will occur in South Asia, along the coasts from Pakistan through India, Sri Lanka, and Bangladesh to Burma (Wassmann, Hien, Hoanh *et al.* 2004).

The IPCC warns that warmer sea-surface temperatures along coastlines of South and South-East Asia would support higher phytoplankton blooms, which would increase the risk for spread of infectious bacterial diseases such as cholera (Pascual, Bouma, and Dobson 2002). Frequent floods and sea-level rise will degrade the surface water quality owing to more pollution and, hence, lead to more water-borne infectious ailments such as dermatitis, cardiovascular diseases and gastrointestinal diseases.

So, the IPCC report reflects how the distribution and quality of India's natural resources and livelihoods of its people will be affected due to the changing climate. However, if we look at what initiatives the government has taken in terms of mitigation and adaptation, there is nothing worthwhile to mention.

The Indian government released the NAPCC (National Action Plan on Climate Change) on 30 June 2008, offering a list of eight technological efforts along with other future plans to adapt to and to mitigate climate change. The document, in effect, suggests nothing. In the 49-page report, it takes even less than a page to explain the 'observed changes in climate and weather events in India' (section 1.4, page 15) and less than half a page to describe the 'projections of climate change over India for the 21st century' (section 1.5, page 15–16); and the same with the 'possible impact of projected climate change' (section 1.6, page 16–17).

So, the 49-page NAPCC report explores the present and the predicted impacts of the changing climate on India in just less than three pages. The report hardly mentions anything about the likely impacts on the natural ecosystems as well as socio-economic systems in India. For instance, it mentions that there will be rise in sea level, thus triggering decline in crop production, loss in the dairy and fishery industry, increase in floods and cyclones, and increase in vector-borne diseases; but to what extent and degrees, it does not say.

The NAPCC report fails to explain the severity of the possible economic loss of the country. According to the UNFCCC, in the past 100 years, the surface temperature of India has risen from 0.5 °C to 1.5 °C, showing its adverse effect on crop yields. Overall temperature increase may influence crop pathogen interactions by speeding up pathogen growth rates, thereby making the crop more vulnerable. More recent studies suggest that there is threat of a 2% to 5% decrease in yield potential of wheat and maize in India (Aggarwal 2003). Not only this, the gross per-capita water availability in India will decline from ~1820 m³/yr in 2001 to as low as ~1140 m³/yr in 2050 (Gupta and Deshpande 2004). However, the Central Water Commission predicts even a grimmer picture: the country will reach a state of 'water-stress' before 2025 when the availability falls to below 1000 m³ per capita



(CWC 2001). The limited herbaceous production, heat stress from higher temperature, and limited water intake due to a decrease in rainfall could cause reduced milk yields in animals and increased incidences of diseases (Sukumar, Saxena, and Untawale 2003; Christensen, Coughenour, Ellis *et al.* 2004; Tserendash, Bolortsetseg, Batima *et al.* 2005).

The IPCC study has revealed that, under the existing GHG (greenhouse gas) scenario, the overall climatic conditions may deteriorate, leading to more severe droughts in some parts of the country and enhanced intensity of floods in others. Luni, Kutch, and Saurashtra regions shall face acute scarcity of water. River basins of Mahi, Pennar, Sabarmati, and Tapti shall also face water shortage. River basins of Cauvery, Ganga, Narmada, and Krishna shall experience seasonal or regular water-stressed conditions. River basins of Godavari, Brahmani, and Mahanadi shall not have water shortages but are predicted to face severe flood conditions (Gosain, Rao, and Basuray 2006).

Himalayan glacial snowfields store about 12,000 km³ of freshwater. Climate-change-related melting of glaciers could seriously affect half a billion people in the Himalaya-Hindu-Kush region who depend on glacial melt to meet their water needs (Stern 2007). According to the IPCC, glaciers in the Himalayas are receding faster than in any other parts of the world and its total area will likely shrink from the present 500,000 km² to 100,000 km² by 2035 (WWF 2005). The current trends of glacial melts suggest that the Ganga, Indus, Brahmaputra, and other rivers that criss-cross the northern Indian plain could likely become seasonal rivers in the near future as a consequence of climate change and could likely affect the economies in the region. Sea-level rise is the greatest threat and challenge for sustainable adaptation within South and South-East Asia, according to the IPCC.

These aforesaid vital explanations are missing in the NAPCC report. The report mentions that there will be floods and glacial melting but which rivers will be affected in what ways is not even hinted upon, despite the fact that large populations banking on these rivers will face severe consequences, with unprecedented socio-economic losses.

In many of the Indian mangrove wetlands, freshwater reaching the mangroves was considerably reduced since the late 19th century due to diversion of freshwater in the upstream areas. And this could even lead to the destruction of 75% of mangroves in the Sundarbans. Further destruction of the Sundarbans mangroves would

diminish their critical role as natural buffers against tropical cyclones (UNESCO 2007). The results obtained from climate model HadRM2 on surface atmospheric parameters and the storm surge simulations suggest that global warming due to increase in CO₂ may cause changes in the regional climate of the Bay of Bengal and could cause increases in the occurrences of intense tropical cyclones and high surges (Unnikrishnan, Kumar, Fernandes *et al.* 2006). It is predicted that if a one-metre sea-level rise were to take place today, it would displace 7 million people in India. Increased occurrences of extreme events due to climate change will also affect the poor the most. In the cyclone in Andhra Pradesh in India in 1996, more than 1000 people died and there was huge property loss. The NAPCC report fails to explain this great loss of natural resources. There is not a single word on the loss of mangroves in the Sunderbans.

India's forests account for about 20% (64 million ha) of its geographical area. The climate impact assessment made for the Indian forest sector using regional climate model (HadRM3) outputs and vegetation model (BIOME4) has shown that nearly 68% to 77% of the forested grids are likely to experience change, which includes loss of area under a given forest type and replacement by another type from the prevailing forest type by 2085. In other words, over half of the vegetation is likely to find itself less optimally adapted to its existing location, making it vulnerable to adverse climatic conditions and to biotic stresses. And, since different species respond differently to the changes in climate, it is expected that a few species may show a steep decline in populations and, perhaps, even local extinctions. This, in turn, will affect the other population dependent on the different species, which will eventually lead to major changes in biodiversity. Thus, climate change could cause irreversible damage to unique forest ecosystems and biodiversity, rendering several species extinct, locally and globally (Ravindranath, Joshi, Sukumar *et al.* 2006).

Besides, climate change will force some plant and animal species to migrate as they are unable to adapt to their changing environments, which poses a problem for the conservation of biodiversity hotspots listed as natural World Heritage sites. There are also reports suggesting expansion of the natural habitats of vector-borne diseases (Izmerov, Revich, and Korenberg 2004) due to the changing climate. Temperature can directly influence the breeding of malaria protozoa and suitable climate conditions can intensify the invasiveness of mosquito (Tong and Ying 2000). Malaria being endemic in most parts

of India, such as the central and eastern Indian regions covering Madhya Pradesh, Jharkhand, Chhattisgarh, Orissa, West Bengal, and Assam, it is expected to spread to newer areas with the change in climate (Bhattacharya, Sharma, Dhiman *et al.* 2006).

Very recently, India has pushed ahead with the controversial Indo-US Nuclear Deal, apparently to meet its energy demands. It is a paradox that while on one hand the government is talking of its adaptation and mitigation plan, on the other hand it is going for the deal, when only three to four percent of its total energy requirement can be met from nuclear power. Surprisingly, the nuclear issue does not find a single mention in the NAPCC report. It is clear that, even in the generally baffling context of the NAPCC, the government really does not consider nuclear to be a serious energy option for which so much political drama is being staged.

If the government is seriously concerned about the changing climate and its vulnerable effects on India, then it would have implied tight constraints on emissions. But, surprisingly, the NAPCC makes no commitment on cutting carbon emissions, which are obviously on a steep rise in the country. Putting economic development ahead of emission reduction targets, the report makes a case for the right of emerging economies to pursue development and growth without having to worry about the volume of atmospheric emissions they generate in the process.

Reading the NAPCC report, it seemed that the government is very much reluctant to let the nation know the devastating effects of climate change. Throughout the report, what dominates over the issue of climate change is the need for energy and technology; for, in the very 'plan' for tackling climate change, what is missing is the very issue of climate change! The report seems to be just a compilation of listless ideas that lack insight, perspective, necessity, and urgency.

– Hadida Yasmin

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Towards more energy, towards more emissions!

'An energy-efficient India' is the latest slogan fashioned by the Indian government. The Eleventh Five-year Plan (2007–12) aims at putting the economy on a 'sustainable' growth rate of approximately 10% by the end of the Plan period, at an average of 9%, mainly by raising the growth rate of the industrial sector to 10% and of the manufacturing sector to 12% per annum (Planning Commission 2006). In order to achieve these developmental aspirations, substantial additional energy consumption will be necessary, and coal being the abundant domestic energy resource would continue to play a dominant role. Coal accounts for 55% of the country's total energy supplies. The power sector alone consumes 75% of the coal produced in the country. However, India still faces a shortage of coal by 23.96-million tonnes (TERI and Government of India 2006). This shortage will be met through imports, mainly by steel, power, and cement sectors (Ministry of Coal 2005).

The total demand for coal is projected to increase from 432-million tonnes in 2005/06 to 670-million tonnes in 2011/12. The need for the power sector itself would increase by 180-million tonnes taking the total to about 500-million tonnes in 2011/12. Meeting these demands poses a formidable challenge in increasing coal production. The Coal India Ltd is aiming to increase production by an unprecedented 60% during the Eleventh Plan period inclusive of the recently approved emergency production plan (Planning Commission 2006).

Very recently the Ministry of Power had launched an initiative for the development of coal-based UMPPs (ultra mega power projects), each of about 4000-MW capacity. The CEA (Central Electricity Authority) in consultation with the states had identified the following nine locations for these UMPPs: Sasan in Madhya Pradesh; Mundra in Gujarat; Krishnapatnam in Andhra Pradesh; Akaltara in Chhattisgarh; Tadri in Karnataka; Girye in Maharashtra; Cheyyur in Tamil Nadu; Sundergarh in Orissa; and Tilaiya in Jharkhand. The bidding process has been completed in respect of the UMPPs in Mundra and Sasan, Tata Power Ltd and Reliance Power Ltd being selected as the project developers, respectively.

According to the Government of India, its top priorities include providing all its citizens with reliable access to electricity by 2012, so as to boost both economic growth and human development. For this, it is estimated that

the country needs to install an additional 100,000 MW of generating capacity, expanding grid-based generation to about 225,000 MW. It is important to keep in mind that the gross energy requirement of the country increased from 390 bkWh (billion kilowatt-hours) during 1995/96 to 591 bkWh by 2004/05, and peak demand increased from 61 GW (gigawatts) to 88 GW over the same period (TERI and Government of India 2006).

To continue with the governmental brief, the targeted growth of 9% in the Eleventh Plan – for which 11.2% of the GDP (gross domestic product) will be required in terms of public investment and 23.9% of the GDP in terms of private investment – is not possible without a commensurate increase in supply of electricity, coal, oil and gas, and other fuels. In order to meet the projected energy demand the government of India encourages private-sector growth.

Already, the private sector accounts for 76% of the total investment in the economy, and the government states that, during the Eleventh Plan, policy-induced constraints and excessive transaction costs need to be removed so as to increase the number of entrepreneurs and to provide enough finance for enterprises to expand. Thus, the government seems hell-bent on creating a very smooth and docile environment for the corporate sector. Interestingly, the eight national missions forming the core of the NAPCC (National Action Plan for climate Change) also incline towards the growth of the private sector.

What are the net results of this policy, and what are India's energy targets? To go to the core of the issue, it is emission, and yet more emission. In the 'Integrated Energy Policy' report, the Indian Planning Commission projects that, in the coming 25 years, electricity generation will increase seven- to eightfold, causing India's per-capita emissions to rise to 3.6–5.5 tons of carbon dioxide by 2030. Over the period, its total emissions are expected to increase over fourfold. The rapid pace of India's economy in the last 10 to 15 years has already led to an increase in emissions. From about 0.87 tons per capita per annum it has increased to 1.2 tons per annum since 1994, which is, of course, still well below the US per-capita emission of 20 tons. But as the economy grows, atmospheric emissions in India too will rise. On a sectoral basis, the maximum growth in emissions will be from the industrial process

sector (21.3% per annum), followed by emissions from the waste sector (7.3% per annum). And, it becomes even worse for a nation whose population is expected to be 1.5 billion people. Since GHG (greenhouse gases) emissions are directly linked to the prevalent models of energy-intensive economic growth, India's economic activities will inevitably lead to increased GHG emissions.

Emission, for energy equity!

And who will the additional energy, and more emissions, really benefit? The Indian government admits that the country needs a sustainable energy policy that will not only meet the future energy demand for rapid economic growth but also protect the environment and conserve scarce resources. But, how is that going to be achieved? One story is that current emission levels have to go up, in order to meet its millennium development and energy equity goals. Yet, another story is that reduction in emission would automatically slow the GDP growth rate, and adversely affect the economy. Both stories maintain that in the 'greater interest' of the nation, extraction of fossil fuel has to continue, and even go up. The total projection for generation shows a definite bias towards thermal sector, which translates into extraction and burning of more fossil fuel.

There has been a consistent effort by the Government of India to show that India's energy policy is directed towards meeting an equitable development agenda and whatever emission would ensue from India's present and future energy programmes would be essentially towards energy equity. The Environment Minister of India, A Raja, told in December 2005 that India as a developing country with a large number of people living in poverty cannot give a firm commitment to reduce GHG emission. This is the standard line Indian representatives have been taking in various inter-governmental climate talks. It is said, over and over again, that any commitment to reduce GHG emission would be a stumbling block to poverty alleviation. The fact that most of India's additional energy would feed the industry and the services sectors contradicts this typical government rhetoric. There is also the fact that GDP growth and economic boom mean more energy availability for the consumerist elites, and definitely not energy equity!

A comparison between India's potential or projected GHG emission over the years and its total CO₂ abatement potential shows that only an extremely tiny segment of total domestic emissions would be 'abated' by India's CDM

projects. This, in turn, shows that despite all types of renewable energy projects and clean alternate technologies, the energy scenario of India would continue to remain unclear. This is poor logic to say that we will continue with our emissions because developed countries are doing so, and this logic serves neither India's environment nor its communities. On part of the Indian government, it is the height of hypocrisy to be part of Kyoto and talk of clean development while continuing with its business-as-usual energy programme. The same hypocrisy manifests itself in the Indian government's active indulgence and rapid clearance to one after another dubious and dirty CDM project.

It is interesting to note that some of the biggest coal-based power plants in India have decided to go for the easy and abundant CDM money, claiming that these projects will cause relatively less emission than usual coal-fired plants. For instance, the Tata Power's project in Mundra, and several other projects of Reliance are gunning for CDM status, and this 'clean coal' campaign is being backed up by the World Bank.

Renewables, clean energy?

India's 'clean' and 'green' renewable energy agenda is no less dubious. According to the Indian power ministry, and the Planning Commission, maximum emphasis would be laid on the full development of the feasible hydro potential in the country, in order to meet the country's growth needs. In this run, the central government will support the state governments for expeditious development of their hydroelectric projects by offering services of central public-sector undertakings like the NHPC (Shankar 2005). The 50,000-MW hydro initiative has been already launched and is being vigorously pursued with DPRs for projects of 33,000-MW capacity already under preparation.

The kind of parallel the Indian government tries to draw between maintaining its standard of GDP growth and increasing its hydropower generation capacity ignores the crucial questions about how the new power projects would impact communities and their socio-ecological environment. It also ignores the fact of possible increase in net GHG emission due to large-scale construction activities and storage of large amount of water. It also ignores the fact that, even with the 'full' –and highly destructive – development of the hydro potential in the country, coal would continue to remain the primary fuel for meeting future electricity demand.



Colonizing the commons: it is jatropha now!

Enter the biofuel...

On 7 November 2006, on the occasion of the sixth anniversary of the formation of the State of Chhattisgarh in India, not far away from the capital city of Raipur, the former President, A P J Abdul Kalam planted jatropha saplings on the outskirts of the Sunderkera village and claimed that Chhattisgarh 'would be in the forefront in bio-diesel production from jatropha'. The state government had welcomed him with the slogan: 'Welcome to the Land of Jatropha!'

People's organizations and movement groups in Chhattisgarh responded very strongly in an open letter to the former President, saying, 'Rice Bowl or Land of Jatropha: the patriotic people of Chhattisgarh would decide.' ...Any reference made to Chhattisgarh as the 'land of jatropha' undermines the significance of 'rice' as the foundation of people's economy, cultural identity, and dignity and is an insult and open attack on their 'rights to life and livelihoods', the letter said.

Today, 50 m off the road to Sunderkera, jatropha saplings with visibly stunted growth behind barbed wires indicate

that something has gone wrong somewhere. Chhattisgarh government's dream of becoming the first bio-diesel self-sufficient state in India has perhaps failed.

Biofuels, as they are called, got their first impetus in India in 2003, when the Planning Commission released a report showing India's great potential in a sector where Brazil and the US have taken the lead with the European Union and China fast catching up. The Indian government claimed that the biofuel-rich plants have the potential to make India an energy-secure country and help it to get over its annual requirement of 124-million tonnes of petroleum products, of which around 72% is met through imports at a cost of over 1.5-trillion rupees.¹

Following the Planning Commission's proposed (Table 1) action programme – National Mission on Bio-diesel – Chhattisgarh moved in very quickly to cash on the hype. With a policy resolution in January 2005, the state planted jatropha saplings on 84,000 hectares of farmers' and government fallow land.² The state targeted to plant one million hectares with jatropha by 2012 to produce two million kilolitres of bio-diesel.

Table 1: The Planning Commission's target for bio-diesel production

Year	Diesel demand (million tonnes)	Bio-diesel @5% blending (million tonnes)	Area for 5% blending (million hectares)	Bio-diesel @10% blending (million tonnes)	Area for 10% blending (million hectares)	Bio-diesel @20% blending (million tonnes)	Area for 20% blending (million hectares)
2001/02	39.81	1.99	NA	3.98	NA	7.96	NA
2006/07	52.33	2.62	2.19	5.23	4.38	10.47	8.76
2011/12	66.90	3.35	2.79	6.69	5.58	13.38	11.19

...out go forest communities

Chhattisgarh Chief Minister Raman Singh, who once claimed to be using jatropha fuel for his official vehicle since May 2005, had said that his government wants to replace imported diesel with jatropha fuel in all the state-owned vehicles by 2007. 'If we plant jatropha seeds in one lakh hectares, it will be a source of livelihoods

for one lakh people. But we do not intend to do this through any multinational company or private players; the government itself will carry out this project,' Raman Singh had declared.

To fulfil its ambitious target, the state gave a free hand to the FDC (Forest Development Corporation) and the FD (Forest Department) to carry out this mission. Both the

¹ Small steps, big goal, *Frontline*, Volume 23 - Issue 21, 21 October–03 November 2006

² www.cbdacg.com, website of the Chhattisgarh Biofuel Development Authority

FDC and the FD started indiscriminate planting of jatropha saplings on any land – forest or non-forest or disputed, and often forcibly – leading to blatant violations of rights of the vulnerable forest communities, dalits and tribals in the state. The state has around 40% forest cover and more than 44% of the people depend on forests for their livelihoods.

In villages of Raipur, Dhamtari, Bilaspur, Kanker, and Kawardha districts, jatropha saplings and seeds were planted often without any follow-up care and left to

perish, only to be replaced in the next year with a fresh batch of saplings and seeds. In Bhumia panchayat, located only 20 km from the state capital, more than 25 acres of uncultivated and grazing land under the FD were planted up with jatropha saplings during 2006–07. The plants died and, in January 2008, new saplings were planted. According to the sarpanch, Ashis Sharma, the plants were destroyed by cattle and the FD did not take enough care to nurture the saplings. This time, the FD requested the panchayat to put up a protection fence around the new saplings.

THE BIOFUEL HYPE IN INDIA: A PLOY TO ENTER THE FORESTS

India is sixth in the world in energy demand accounting for 3.5% of the world's total commercial energy consumption. Domestic supply can presently satisfy 22% of the demand; hence, dependence on crude oil imports (\$18 billion/annum) is on the rise. So, the demand–supply gap is looming. It is argued that locally produced biofuels will reduce this gap. The Planning Commission suggested large-scale jatropha cultivation, starting with 400,000 hectares of land in the first phase, 2.5-million hectares in the second, and then extending to 13.4-million hectares.

As is evident, the jatropha mission was initiated with an eye on the ample availability of wasteland in the country along with cultivable fallow lands, barren lands, etc. There is a prevalent notion among policy-makers that large areas within forests are wastelands and any land other than dense forests (including 'degraded' forests and pastures) could be used for jatropha plantation, thereby avoiding large tracts of cultivable agricultural land.

What this argument missed was the fact that pastures and grazing lands in India are often *de facto* village commons and CPRs (common property resources), many of which form part of the larger forest landscapes and contribute to the forest communities' economy and livelihoods. There are no official estimates of CPRs in India. According to the Wasteland Atlas of India, of the total wasteland of 63.8-million hectares, cultivable wasteland amounts to 45-million hectares. A majority of this – at least 26-million hectares – comes under forest land, providing sustenance to large number of forest communities in myriad ways. The uncultivated land, excluding current fallows, covers areas classified under 'permanent pastures and grazing land' amounting to 11.8-million hectares.^a These lands are also intrinsically linked to communities' livelihoods.

There is ample evidence worldwide that such a biofuel programme of raising monoculture jatropha plantations seriously compromises the communities' rights and entitlements over village commons, and the food security of the poor and marginalized, and alienates farmers from agriculture by corporatizing their lands and forcing compact and contract farming upon them.

On the other hand, there is no scientific evidence to prove that biofuel produced from plantations would lead to lesser emission and contribute to the process of slowing down global warming. Two studies – published in *Science* (8 February 2008) – have shown that changes in land use to produce crop-based biofuels can actually result in more greenhouse-gas emissions than burning fossil fuels. Both conclude that the resulting carbon emissions, released through decomposition or burning of biomass, create a 'carbon debt' that takes decades or even centuries to be paid back through biofuel usage. This finding negates the claims that substituting fossil fuels with biofuels would offset greenhouse-gas emissions because biofuels sequester carbon while they grow.

^a National Action Programme to Combat Desertification, In the Context of UNCCD, Vol 1, Ministry of Environment and Forests, Government of India, September 2001

In Medha village of Dhamtari district, jatropha was planted on CPRs and grazing land after the rains in 2007. In June 2007, near Abhanpur in Raipur district, the panchayat of Hansda forcibly planted jatropha on 40 acres of agricultural land on which 20 dalit families depended for sustenance. A herd of cattle was let loose on the standing crops and then jatropha saplings were planted. 'They used bulldozers to destroy our crops and the land,' said Ajit Ekka, wife of Paul Routray, whose family survived on two-and-a-half acres of agricultural land.

During the second half of 2007, hundreds of tribal families, living for generations in the forests of Chhattisgarh, were displaced from their cultivable land by the FD, and jatropha was forcibly planted on those lands. 'Incidents of such forcible planting of jatropha by the FD have happened in at least five districts of Kawardha, Bilaspur, Korba, Kanker, and Rajnandgaon,' said Pravin Patel of the Tribal Welfare Society. Complaints filed by the villagers were forwarded to the Superintendent of Police of Bilaspur, the District Collector, the Divisional Forest Officer at Marwahi, and the State Human Rights Commission. Majority of these villagers belong to the Baiga community, a primitive tribal group, spread across the forest regions of Chhattisgarh and Madhya Pradesh. These tribals live in extreme poverty and grow some staple food such as *kodu*, lentils, and paddy wherever they have access to cultivable lands. A large number of them get engaged in various types of manual work, like looking after someone else's cattle.

In Pendra block of Bilaspur district, the FD and local panchayats have planted around 30,000 jatropha seeds on one-and-a-half-kilometre long tract of land along the Sonari river, all of which are village commons, grazing lands and CPRs. Saplings have been forcibly planted on Bhaiyalal's (a farmer belonging to the Gond tribe) land, which his family has been cultivating for generations. A CPT (cattle protection trench) was then dug around the land, to indicate that it was now out of bounds. Villagers in Barbesan and Dongeria have similar stories. Many of the jatropha plants have not grown at all during the past two years; some had grown and leaved, but the growth did not match the expectations. Jiyalal, an activist working with the local communities, said that no discussion on jatropha ever takes place in the panchayat meetings. Only the sarpanch knows what is happening and he takes unilateral decisions, siding with the FD.

As Budhu Ram of Baridih described, 'Local forest officials, usually forest guards and the deputy ranger, accompanied by the sarpanch, come with a big herd of cattle, and

simply let them loose on our crops. The crops are trampled upon, and destroyed. Subsequently, non-tribals and/or members of a more dominant tribal community forcibly plant jatropha saplings on that particular land.'

This is precisely what happened in Baigatola of Baridih village on 7 August 2007. The sarpanch, Bedinbai Neti, accompanied by some upper-caste Thakurs, the forest beat-guard, a few powerful Gond tribals, and 400 heads of cattle, descended on the cultivable land of the Baigas, destroying their *kodu* crop. The whole area was then planted up with jatropha saplings. It is, of course, a different story that the Baigas fought back, uprooted the jatropha saplings and filed a complaint with the local police. But the Baigas and dalits in other villages were not so lucky. Protesting villagers in Belgahona, Konochara, Mitthu Nawagaon were beaten up by forest guards and arrested by the police.

The story repeats itself in the forests of Kanker and Bastar districts. According to Ratneshwar Nath of Paribartan, an NGO working among the tribals of Kanker and Bastar districts, at least 355 families of 27 villages were affected and displaced by the forcible planting of jatropha on their lands. 'More than 1700 acres of land cultivated by the tribals for generations have been taken away from them for planting jatropha,' Ratneshwar said. 'Forest officials and the administration across four forest divisions in Kanker and Bastar are terrorizing the villagers for the past six/seven months,' he added.

In Ghota village, forest officials forcibly planted jatropha saplings on 50 acres of land under cultivation and erected a CPT. The local forest guard told Hiru Ram, Jai Singh, Fateh Singh, Mohan Singh, and Bihari Singh whose lands were taken away, 'The CPT indicates that these lands no longer belong to them.' In fact, access to Bihari Singh's own house was cut off since it is surrounded from all sides by the CPT. In this village, jatropha has also been planted on a huge chunk of CPR land. The villagers have been threatened by the beat-guard against reclaiming these lands. In Narayanpur, 35 villagers were arrested by the police for uprooting jatropha saplings in a bid to reclaim their lands.

As Alok Shukla of Abhyaranya Panchayat, a platform of forest communities in Chhattisgarh struggling against displacement from national parks and sanctuaries, analyses, 'It is not that the FD here is simply over-zealous to plant jatropha on as much land as they could lay their hands on, it is much more insidious and planned. The



tribal and dalit forest-dwellers in Chhattisgarh are in possession of these lands for generations; their ancestors and forefathers have been living on these lands and cultivating subsistence crops. But, they were never given any land entitlements even though there were bitter struggles for rights over forest lands.'

Since the enactment of the Forest Conservation Act, 1980, these forest-dependent communities have been repeatedly harassed by the FD, evicted from their own lands, their standing crops destroyed, because they were termed 'encroachers on the FD land'. Now that the Indian Parliament passed the Scheduled Tribe and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act in December 2006, the FD is using the weapon of jatropha plantation to grab as much cultivable forest land as possible before the Act is notified, citing that these people are encroachers of forest land. 'Such incidents are happening in Madhya Pradesh and Rajasthan too,' Alok further informed.

Confronting the state and corporate aggression

It is evident that the Government of India's ambitious bio-diesel programme and its aggressive promotion of jatropha have serious economic and ecological implications.

Starting from the Planning Commission of India to the Ministries of Rural Development, Agriculture, New and Renewable Energy Resources; the state governments and their agencies, the FD in particular; the industry lobby; the public and private players; the global majors—all are collaborating in promoting jatropha without caring for a serious assessment of its impact on the rural population, farmers, forest dwellers, tribals, and dalits. Instead, they are all dreaming of the 'green gold'... since all this ultimately just leads to profits for a few, as if they only matter.

If jatropha continues to spread in this rapid manner, there are serious risks of creating a battle between food and fuel that will leave the poor and hungry in developing countries at the mercy of rapidly rising prices for food, land, and water.³

In India, nobody bats an eyelid, mesmerized by the

'growth' glitz. Succumbing to industry and corporate pressure, the government has sent a draft National Biofuel Policy to the Group of Ministers in the Cabinet, headed by the agriculture minister, Sharad Pawar, for approval.⁴

It is with this concern that a group of NGOs, movements, peoples organizations, and individuals from different parts of India initiated the first ever civil-society debate on biofuel in India during 3–4 December 2007 in a National Consultation on *Biofuels in India: Will they deliver, or destroy?*, held in Pataspur village of Medak district in Andhra Pradesh.

The Consultation stressed on the fact that indigenous peoples, pastoralists, small farmers, and tribal communities all across India have a holistic view of life that is reflected in their interaction with the living world, which, in turn, provides for all their needs of food, cure, fuel, fodder, and energy. In a statement issued at the end of the Consultation the participants declared, 'We believe that the promotion of large-scale corporate-sponsored biofuels (agro-fuels) in the garb of improving energy security is yet another form of not only physically destroying the above, but also a psychological assault perpetrating the idea that farming as our peoples have done it is no longer good or tenable...'

'Rural and forest communities [...] say that there is no such thing as wastelands. Most of these lands are grazing lands, common pastures, degraded forests, and also lands of small and marginal communities. They not only support a multitude of livelihoods but also have a critical ecological role. This is where the government and corporations are pushing for *their* fuels, displacing thousands of peoples...'

'We are convinced that agro-fuels are no way of tackling climate change but a way of further supporting the current consumptive paradigm that is *the source* of the climate-change crisis. What also needs to be reversed is the advertising and propaganda that encourage peoples to consume more and more! Also the large *farm-to-food* model that promotes chemical agriculture, mechanized operations adding unnecessary *food miles*, and wasteful packaging, not only adds to the problem of climate change but erodes our bio-diverse traditions. The food-retail revolution that we are poised on would only

3 IPSnews.net, February 6, 2008

4 *The Financial Express*, 1 February 2008

aggravate the situation. Without changing all this, any one renewable energy law or policy will not address the concerns. What needs to be genuinely reversed is the mindless *development* that is being hankered after..'

nor do we believe that they offer solutions for our real problems..'

– *Souparna Lahiri*

'We reject any pseudo-*solutions* that are thrown upon us from outside, that too touted as clean and green, which they are not. We neither asked for *agro-fuels* as they are being propagated with such speed and on such scale,

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Carbon trading interferes with positive solutions to global warming

On India's Bhilangana river, local farmers run a finely-tuned terraced irrigation system that provides them with rice, wheat, mustard, fruits, and vegetables. This ingenious – extremely low-carbon system of agriculture – is threatened by a new hydroelectric project designed to help power India's heavy industry. Villagers may have to leave the valley, losing not only their livelihoods but also their knowledge of a uniquely sustainable modern technology.

Is carbon trading a step towards providing solutions to global warming? If yes, why does it then destroy villagers' already established knowledge and practices that restrict carbon emissions in the first place? It is rather supporting the hydropower company, which has hired consultants to argue that their dam will result in fewer carbon emissions than would have been the case if it had not been built. The firm plans to sell the resulting carbon emission rights to polluting companies in Europe.

The example is typical of the way carbon markets are undermining positive approaches to climate change everywhere. The bulk of carbon credit sales under the Kyoto Protocol benefit chemical, iron and steel, oil and gas, electricity, and other companies committed to a fossil-fuel-intensive future, but not communities, organizations, or firms working to overcome fossil addiction.

In California, the environmental justice movement opposes carbon trading as a 'charade to continue business as usual'. One reason: carbon trading would help facilitate the construction of 21 new fossil-fuel-fired power plants there. Local activists want the money to be spent instead on building a green economy that would provide new jobs for the poorer communities that now suffer the most from fossil-fuel pollution.

Carbon trading obscures the real solutions to global warming. Chicago derivatives trader and economics professor Richard Sandor – one of the architects of carbon trading – claims, for instance, that forests in less industrialized countries can be saved from 'slash and burn' agriculture by turning them into production zones for carbon credits.

More experienced observers of the plantation, dam, logging, and oil industries know, however, that such forests are threatened not principally by poor farmers, but by precisely the type of land grab that Sandor advocates. Saving forests – and their moderating effects on climate – means respecting local people's needs, not trying to evict them or turn them into workers on a carbon production line.

– *Larry Lohmann*

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For more on forests and carbon trading, see <www.wrm.org.uy>



India's clean development!

After carbon trading was conceptualized in the Kyoto Protocol, India seems to have been the busiest country to put the concept into action. By early August 2008, India had 355 CDM projects accounting for about 31% of the world's total of 1136 projects registered with the CDM Executive Board of the UNFCCC. India's share is highest among all countries, with China standing second with 250 projects. About 2700 million CERs (certified emission reductions) are expected to be generated by 2012, if all these host-country-approved projects in India go on stream. By 8 August 2008, a total of 179,888,442 CERs had been issued to projects worldwide, with India accounting for 25.83% and China for the maximum 35.56%.

If we observe the distribution of all UNFCCC-registered projects by scale, there are 611 large-scale projects and 525 small-scale ones, with the energy industry (renewable and non-renewable sources) predominating with 796 projects.

Taking into account all projects in various stages – such as those already registered, requested for registration, and waiting for validation – the total number of CDM projects in India comes to be 1021. These include both unilateral and bilateral projects. Projects with involvement of a third party (any Annex-I country) are called bilateral. Countries that are financing most of the bilateral projects in India are the United Kingdom, Switzerland, the Netherlands, and Japan. Other countries involved are Sweden, Germany, Spain, Italy, Austria, France, Canada, Denmark, Finland, and so on.

By 2012, all these projects are expected to generate a total of 415,994 kCERs after registration. The 355 registered projects in India, and the 46 more that have requested for registration, are expected to generate 214,572 kCERs by 2012. Among the registered projects, 151 have been issued 45,385 kCERs (Table 1).

Table 1: Overview of CDM projects in India (as on 9 August 2008)

Project status (including bilateral ones)	Number of projects	*kCO ₂ /yr	**2012 kCO ₂ /yr	***kCERs issued
Validation	620	41,127	190,132	
Registered	355	31,471	214,572	45,385
Registration request	46	2,303	11,290	
Total	1021	74,901	415,994 (It will be 808,537 kCERs at 2020)	45,385 (from 151 registered projects)

*Annual reduction claimed in 1000-tons of CO₂-equivalent per year

**Total reduction to be claimed in 1000-tons of CO₂-equivalent by 2012

*** Saleable CERs, in 1000-tons of CO₂-equivalent, officially issued by the UNFCCC so far (Source: <unfcc.org>; <www.cdmpipeline.org>; 9 August 2008)

Sector-wise distribution

Most CDM projects in India come primarily under four sectors—biomass (293 projects), energy efficiency (239), wind (208), and hydro (103). Other sectors include fossil-fuel switch (42), biogas (31), cement (21), landfill gas (17), and HFC (6). Though HFC comprises the least number of projects, it is expected to generate the maximum quantity of kCERs (78,566 by 2012). Out of the six HFC projects, four are registered and they have already been issued 28,814 kCERs. Table 2 gives an account of sector-wise emission reductions to be achieved by CDM projects in India by 2012.

State-wise distribution

With 153 CDM projects, Maharashtra's share is the maximum in the country in terms of number. Out of these 150-plus projects, 66 are wind energy projects. If all of them get registered, they would generate 8548 kCERs by 2012. Registered projects across sectors in Maharashtra have already been issued a total of 1245 kCERs, of which 545 kCERs are from wind and 295 kCERs from hydro, while 205 kCERs come from cement and 143 kCERs from biogas. Maharashtra with its 153 registered projects will generate 5852 kCERs annually and 32,623 kCERs by 2012.

Tamil Nadu comes second in terms of number with 141 CDM projects. At 6511 kCERs per year, the state is expected to generate 40,810 kCERs by 2012. The state now has 36 registered projects, and 14 of them have been issued a total of 1444 kCERs. Tamil Nadu has the country's maximum number of wind projects – 69, of which 17 are registered – with 368 kCERs issued and a potential to generate 18,459 kCERs by 2012. Five of its nine registered biomass projects have been issued a total of 399 kCERs. Tamil Nadu comes third in terms of number of biomass projects it hosts (31), after Karnataka (35) and Andhra Pradesh (48).

Gujarat – though it does not have as many CDM projects as Maharashtra, Tamil Nadu, and Karnataka – tops the list in terms of CERs issued (18,772 kCERs) and is also

expected to generate the maximum quantity of CERs by 2012 (97,673 kCERs). This is because of its two HFC projects, which have already been issued 17,955 kCERs and are expected to yield 40,459 kCERs by 2012. Out of the total 108 CDM projects in Gujarat, EE (energy efficiency) projects account for 30 and fossil-fuel switch projects for 19.

Very interestingly, Rajasthan with its 53 CDM projects stands second in terms of CERs issued (11,456 kCERs from its 14 registered projects (total projects 23) and is expected to be issued another 45,504 kCERs by 2012. Here also, just a single HFC project accounts for 10,518 kCERs. In Rajasthan, 50% of the CDM projects are wind energy projects; out of which seven have been issued a total of 352 kCERs.

Table 2: Sector-wise emission reductions by 2012

Sector		Number of CDM projects	*2012 kCERs	**kCERs issued
Biogas		31	6,549	304
Biomass energy		293	67,395	4,215
Cement		21	19,599	923
EE (energy efficiency)	Energy distribution	1	234	0
	EE households	4	860	0
	EE industry	133	18,935	527
	EE own generation	106	64,962	6,486
	EE service	7	287	2
	EE supply side	16	10,456	159
	Total		95,734	7,174
Fossil fuel switch		42	47,720	794
Fugitive emission		12	4,451	0
HFCs		6	78,566	28,814
Hydro energy		103	34,296	965
Landfill gas (waste-energy)		17	4,895	76
Reforestation		5	1,018	0
Solar energy		5	1,280	0
Transport		2	288	0
Wind energy		208	45,848	2120
Others		9	8,208	0
Total		1021	415,994	45,385

*Total reduction to be claimed in 1000-tons of CO₂-equivalent by 2012

** Saleable CERs, in 1000-tons of CO₂-equivalent, officially issued by the UNFCCC so far

(Source: <www.cdmpipeline.org>)

Among hydro projects, both Karnataka and Himachal Pradesh host 25 each, Out of the total of 103 in India, Karnataka holds 14 registered hydro projects, with 307 issued kCERs . More than 80% of CDM projects in Himachal Pradesh are hydro projects.

The highest number of biomass projects in India is in Andhra Pradesh, with 48 projects. Out of 24 registered biomass projects in the state, 17 have already been issued 2027 kCERs. Karnataka, with 35 biomass projects is expected to generate 11,283 kCERs by 2012.

In West Bengal, out of 44 approved projects, 33 (75%) are EE projects, which have been issued 278 kCERs. These EE projects are expected to generate 9332 kCERs by 2012.

Emission reduction, or business expansion!

With the Kyoto Protocol turning emission reduction – arguably, the most important responsibility on humankind today – into profitable ‘business’, corporations could not have asked for more. Looking at India’s CDM scenario in terms of corporate participation, we find that the energy sector, including HFC, is generating the maximum CERs. The unfortunate fact is that big corporations such as Tata, ITC, Reliance, Ambuja, Birla, Bajaj, GFL, HFL, NFIL, and many others, who keep on emitting millions of tons of carbon dioxide into the biosphere are earning handsome returns in the name of ‘clean development mechanism’ (Table 3). The current market price of a ton of CO₂ reduced and sold in form of CERs in the global market is generally between 15 and 20 euros, whereas the most optimists of carbon consultants would not have given more than 3.5 euros in 2005! While society gains nothing, corporations reap huge benefits from the business of a new kind.

More than 98% kCERs of CDM energy projects are run by big corporations. More than 50% of the total kCERs (45,386) issued to India went to its four HFC projects by Gujarat Fluorochemicals Ltd., Chemplast Sanmar Ltd, Navin Fluorine International Ltd, and SRF Ltd. HFC projects will be issued another 76,212 kCERs by 2012, promising huge monetary returns.

Out of the total 3770 kCERs issued to India’s biomass projects (up to 6 June 2008), 3726 kCERs went to the corporate sector. Big corporations also own most of the CDM wind projects in India; corporate-owned projects account for 5824 out of the total 6960 kCERs being

generated annually from all wind projects in India. In case of fossil-fuel switch projects, all 788 kCERs issued went to big corporations. So, as usual, the corporate sector has made new fortunes from the CDM regime.

Some of the profit figures for companies engaged in the carbon trade are astounding. Till early 2008, the Jindal group made 11-billion rupees (and perhaps more) from selling supposedly ‘reduced emissions’ (1.3-million CERs) at their steel plant in Karnataka. The Tata Motors sold 163,784 CERs from clean wind projects at 15.7 euros/CER in 2007. Tatas’ sponge iron projects in Orissa are set to yield 31,762 CERs every year. Reliance publicly boasts of its CDM Kitty—with seven projects registered with 88,448 CERs per year (till 2007 December), four more CDM projects under validation with 149,533 CERs per year, and seven more potential CDM projects to generate about 400,000 CERs per year. In 2006/07 alone, the GFCL group’s earning from carbon money was twice its total corporate assets.

The point is not why they are earning so much! The disturbing fact is that their PDDs are full of half-truths and lies: claiming something, doing something else, and, in the end, showing yet another picture about what they have achieved (as has been documented in the last section of this issue). Most of the CDM projects we studied in Maharashtra are as polluting as any other industrial project, besides exhibiting barefaced violations over the mandatory social commitments and environmental norms.

Then, how is it possible to pass off these projects as clean ones? Well, in India, the emerging economic superpower, everything is clean; even if you discover layers of fly ash in the food you are about eat, it is clean—especially if it has emanated from a nearby CDM project run by some big corporation! Or else, how do they even get *green* prizes—the bigger the corporation, the more prestigious the prize!

RIL (Reliance Industries Ltd), India’s largest private-sector entity with businesses in the energy and materials value chain, whose group’s annual revenues are in excess of US\$ 34 billion, has recently received a coveted *green award*. RIL’s Hazira manufacturing division has bagged the *Golden Peacock Award for Combating Climate Change–2008*). According to the jury, headed by former chief justice of India and UN Human Rights Commission member P N Bhagwati, Reliance grabbed this award for promoting

Table 3: Big Indian corporations and their CDM revenues

Owner of CDM projects	Sector	Number of projects	*kCO ₂ /yr	**2012 kCO ₂ /yr	***kCERs issued
TATA	Wind	3	133	836	167
	EE own generation	4	663	3521	106
	EE industry	7	49.7	400	4
	Biomass energy	1	24	115	
	Biogas	1	7.2	61	19
BIRLA	EE industry	4	18.5	178	
	Cement	1	43	436	18
RELIANCE	Wind	2	108	538	
	EE industry	6	208	1267	115
	Fossil fuel switch	1	1169	6041	
REI Agro	Wind	3	78	434	
Synergy Global Pvt. Ltd	Wind	11	415	2138	
Loyal Textiles Mills Ltd	Wind	3	74	378	
Jindal	Wind	1	15	71	
	EE own generation	3	533	3338	
	EE industry	1	50	265	
	Biomass Energy	1	33	162	
Bannari Amman Sugars Ltd	Wind	1	19	102	
	Biomass Energy	3	253	1481	
Enercon	Wind	18	1206	6792	349
Essar Power Ltd	EE own generation	3	885	6010	
	Fossil fuel switch	3	885	6010	
	EE industry	1	136	656	
Shri Bajrang Power & Ispat	EE own generation	1	108	789	182
	EE industry	1	9	42	
	Biomass Energy	1	34	177	
Satia Paper Mills Ltd	EE industry	1	15	80	
	Biomass Energy	2	55	324	
Indo Rama Synthetics	EE industry	2	9.5	59	
	Fossil fuel switch	1	11	67	
	Cement	1	43	248	
Aditya Birla	EE industry	6	75	429	12



Haldia Petrochem	EE industry	1	34	135	
	Fossil fuel switch	1	131	657	
H& R Johnson (India) Ltd	EE industry	1	35	167	
	Biomass Energy	2	21.5	103	
GACL	EE industry	1	4.6	46	
	Cement	3	345	3131	
	Fossil fuel switch	2	108	1046	
Grasim	EE industry	2	43	252	
	Biomass Energy	1	52	402	22
Mawana Sugars Ltd	Biomass Energy	5	190	1118	
BAJAJ	Biomass Energy	6	180	1070	
JCT	Biomass Energy	3	102	592	86
Dwarikesh Sugar Ind Ltd	Biomass Energy	2	102	530	
	Biogas	1	40	192	
Birla Corporation Ltd	Cement	2	69	700	78
	EE industry	2	18.5	178	
ITC	EE supply side	1	4.0	40	13
	Reforestation	1	49	470	
	EE industry	5	108	929	201
	Biomass energy	2	138	1000	
Chemplast Sanmar Ltd	HFCs	1	539	5392	342
Gujarat Fluorochemicals Ltd	HFCs	1	3393	51778	12948
	Wind	1	52	243	
Hindustan Fluorocarbon Ltd	HFCs	1	464	4644	
Navin Fluorine Int. Ltd	HFCs	1	2802	28022	1215
SRF Ltd	HFCs	1	3834	38336	9624
Acme Tele Power Ltd	HFCs	1	25	109	
NEG Micon (I) Pvt. Ltd	Wind	4	118	821	

*Annual reduction claimed in 1000-tons of CO₂-equivalent per year

**Total reduction to be claimed in 1000-tons of CO₂-equivalent by 2012

*** Saleable CERs, in 1000-tons of CO₂-equivalent, officially issued by the UNFCCC so far

[Source: www.cdmindia.nic.in (MoEF, India); www.unfccc.org; www.cdmpipeline.org; www.iges.or.jp; June 2008]

'energy efficiency' as much as 'controlling greenhouse gases' by initiating various CDM projects.

With India's unprecedented thrust on industrialization during the past two decades, big companies are increasing their manufacturing process by the day, thus increasing their turnover. And while doing so they are adding greenhouse gases to the atmosphere like never before. The irony is that they are also making bucketful of money

simply by putting a so-called 'clean development' tag to some of their dirtiest projects.

How the carbon market works

All clean development mechanism or CDM projects need to get themselves registered with the CDM Executive Board of the UNFCCC. Registration does not, however, mean that the projects can go to the market immediately and

sell their CERs. A project can only sell its CERs 'officially' when the UNFCCC issues those. Such officially issued CERs fetch the maximum price in the carbon market, because it is assumed that the 'delivery' is guaranteed, or, in other words, the projects are really, beyond any doubt, reducing emissions. Projects without UNFCCC issuance certificates (and even without registration) can still go to the unregulated offset market, and sell VERs (verified emission reductions), which means the validating agency has certified that such projects are promoting 'clean development'. This does not get the same price as a UNFCCC-issued CER is known as 'secondary CERs' in the market, while CERs from a registered project – but not officially issued – are known as 'primary CERs'. Depending on the ability of the broker – and the nature of the marketplace – a VER can get anything between 5 to 10 euros. In comparison, while CERs can fetch as high as 26 euros (the price peaked in last July), the last one-year average stands at around 19 euros.

Unless there is a prior and direct ERPA (emission reduction purchase agreement) with a particular brokerage concern, consultant, or, rarely, an European buyer, secondary CERs are usually sold through various climate/carbon exchanges in Europe and America, though, of late, Asian exchanges have come up, one of them in India. The end-buyer for Indian CERs is usually untraceable, and the exchanges give only bulk sales figures and, that too, not always. Similarly, unless and until a project declares its CER revenues, there is no 'public' way to know how much money a particular project makes, and whether the figures given by the project-proponents in their red-herring prospectus and annual reports are at all correct.

Most Indian projects are unilateral, which means they do not have a specific buyer lined up at the time of registration. Though this apparently increases marketing risk, the arrangement seems to suit most Indian companies,

who are in this game simply for more money. Being tied with no specific buyers gives them good bargaining opportunities, and further, to indulge in speculation. Indian projects have been repeatedly reported to hoard CERs for higher prices! This tendency of hoarding, of course is, not confined to unilateral projects. Going by the fact that most of the Indian projects to which CERs have been issued so far are bilateral (which means it declared an 'other party' from Annex-I countries at the time of registration), it is evident that all Indian projects, small and big, unilateral and bilateral, are out for a kill (Table 4)!

One thing has to be said, though: the CDM Executive Board of the UNFCCC has so far been consistently niggardly in issuing CERs to unilateral projects. Indian unilateral projects have only been issued a paltry 619,000 CERs (up to 26 August 2008), whereas the bilateral projects got a whopping 46.15 million! Many of the bilateral projects, especially the HFCs, have been issued many times, whereas only one unilateral project (0112: Nagda Hills Wind Energy Project) was issued twice, rest only once. Does it happen because the UNFCCC considers such projects to be cleaner? Does the 'other-party' involvement in the bilateral project have any influence in making the issuance process faster? Why the discrimination then, when both unilateral and bilateral projects show a characteristic disregard for the declared principles and guidelines of the CDM?

The lure of easy money has led to a muster of vultures in the carbon market; all kinds of speculators, consultants, self-professed carbon gurus, and now the hedge funds and private equity funds have set up their own shops in India. Futures trading in CERs/VERs has picked up in recent months, which means that CDM projects are entering into secure deals with traders who now carry the project's risk burden (the greatest risk is it being rejected by the CDM Executive Board, which seldom happens) in lieu of the

Table 4: Unilateral and bilateral projects in India with CERs issued to

Status	Number of registered project	Number of registered project with CERs issued to	*kCERs issued
Bilateral	171	134	46,135
Unilateral	185	20	619
Total	356	154	46,754

* Saleable CERs, in 1000-tons of CO₂-equivalent, officially issued by the UNFCCC so far (Source: <www.unfccc.org>; 26 August 2008)



larger share of sales profits. It is quite possible that we will see increased financing of new CDM projects by both hedge and private equity players, and given the essentially unregulated, shady, and non-transparent nature of their operations, such projects will continue to be dirtier and more fraudulent. Already the larger parts of the issued credits from Indian projects are being purchased by new carbon finance companies, private equities, and banks. A look at the credit buyer section in the UNEP CDM Pipeline confirms the presence of big names in the field: Meryll Lynch, BNP-Paribas, ABN-AMRO, and so on. CDM is a big-money game, and big players have arrived (Table 5).

Fraud? Yes, one must clearly use the word, talking about carbon trading in general, and Indian CDM projects in particular. The main problem with these projects' tall –

and immensely profitable – claims of reducing greenhouse gas emissions is that there is no credible and definite way to verify these claims. The validating agency is an organization paid by the project—not for 'validating' the project, but precisely for 'establishing' what the project is claiming is true. Though it ritually invites comments on projects it validates, such comments are, as a rule, ignored. The result is that dirty and utterly ineligible projects sail through, and make money, without bothering to clean up their acts.

The biggest instance of this is the waste-heat-based energy projects, mostly located in various sponge iron plants. These projects are legally required to operate ESPs (electrostatic precipitators) to ensure that the smoke emitted by the plants remain reasonably clean. Because

Table 5: Major credit buyers in Indian carbon market

Credit buyers	Number of project	*Annual kCO ₂	**kCO ₂ by 2012	***kCERs issued
Germany (KfW)	14	42,43	35,328	10,832
United Kingdom (Cantor Fitzgerald Europe)	10	769	3,383	15
Sweden (Carbon Asset Management)	17	1,350	12,981	2,058
Switzerland (Ecoinvest Carbon)	9	298	2,400	489
United Kingdom (ABN AMRO Bank)	9	226.5	2,318	581
United Kingdom (Agrinergy)	52	3,268	21,879	598
United Kingdom (EcoSecurities)	9	379	2,255	187
United Kingdom (Noble Carbon)	20	225	20,130	7,554
United Kingdom (EcoSecurities)	9	379	2,255	187
United Kingdom (Merrill Lynch)	3	69	624	146
France (BNP Paribas)	1	35	271	46

*Annual emission reduction claimed in 1000 tons of CO₂-equivalent per year

**Total reduction to be claimed in 1000-tons of CO₂-equivalent by 2012

*** Saleable CERs, in 1000-tons of CO₂-equivalent, officially issued by the UNFCCC so far

(Source: <www.cdmpipeline.org>; 9 August 2008)



The great CDM scam

The biomass fiasco in Maharashtra

In Maharashtra, as though a revolution has set in, with the advent of the CDM regime. Much like wind farms dotting the countryside, biomass-based power plants

What the PDD says

According to the PDD, prior to setting up the power plant, the Rake Power Ltd held a stakeholders' meeting

Table 1: Biomass-based CDM power projects in Maharashtra

Project status	Number of projects	*kCO ₂ /yr	**2012 kCO ₂	***kCERs issued
Validation	19	579	2950	
Registered	13	507	3227	264
Registration request	1	6.6	32	
Correction request				
Request review	1	35	168	
Under review				
Total	34	1092.6	6209	264

*Annual reduction claimed in 1000-tons of CO₂-equivalent per year

**Total reduction to be claimed in 1000-tons of CO₂-equivalent by 2012

*** Saleable CERs, in 1000-tons of CO₂-equivalent, officially issued by the UNFCCC so far

have proliferated in many parts of the state (Table 1), reaping enormous profits, powered and protected by their CDM status. Unfortunately, studies confirm that, much like the wind farms, these biomass plants too exhibit barefaced violations of the tall claims widely publicised in their PDDs (project design documents). We visited a few biomass power plants in the state to discover the ground realities.

The Patgowari power plant

Village Patgowari in Nagpur district is home to two 10-MW biomass-based power plants set up by the Rake Power Ltd. Its PDD makes one believe that there could not have been a better initiative, which benefits as much the villagers as the environment.

at Patgowari village where people's opinions on social, economic, and environmental issues were sought. The PDD assures that the project would directly involve the local population, in more ways than one. Firstly, the local population would be consulted about the construction and operation of the biomass plant in their vicinity. Secondly, while designing the project, adequate attention would be given to ensure that a good and mutually beneficial relationship exists between the plant and the local population, since the project would be depending upon the supply of biomass from local farmers. Thirdly, the project would create direct and indirect employment opportunities. The villagers encouraged the project to come up, the PDD says.

The PDD also suggests that the plant site is in an isolated

Project title	Host country	Methodologies	Reductions	Period for comments
10-MW biomass-based power generation project by Rake Power Ltd at Ramtek, Nagpur	India	AMS-I.D. ver. 10	50,374	21 Feb 07 - 22 Mar 07
10-MW biomass-based power generation project by Rake Power Ltd at Ramtek, Nagpur	India	AMS-I.D. ver. 13	50,374	22 Dec 07 - 20 Jan 08

rural area where unemployment, poverty, and other economic backwardness are prevailing, and that the project would lead to the development of the region.

What the field study reveals

Villagers, including the sarpanch, Sukhdas Shyamraoji Madavi, said that no stakeholders' meeting was ever held, and nor were they ever consulted over the setting-up of the biomass plant in their vicinity. Only the SDO (sub-divisional officer), casually handed over a memorandum to the gram panchayat, stating that such a project would come. The project has provided no employment to the local people; people are not even familiar with the mechanical and technical work that the project involves.

Contrary to the PDD claims, the project is not at all in an isolated area; the area is well connected as it falls on the National Highway no. 7 connecting Nagpur and Jabalpur. The area is also close to the Kahan coal mine and the Mansar manganese mine. The project site near a coal mine was probably chosen to ensure easy availability of coal. In all probability the plan was to use coal whenever it faces a shortage of biomass (in this case, waste paddy), which the PDD says will be procured from the villagers. Because the villagers have no idea about this 'arrangement', and the PDD in fact mentions the necessity of using coal from time to time, the whole thing becomes suspect.

The Mundipur power plant

An 8-MW biomass-based power plant has been set up by Gayatri Agro Industrial Power Ltd in village Mundipur in district Gondia. The violations of CDM criteria are no different here.

What the PDD says

The PDD of the CDM project claims that the local populace was invited to a meeting at the plant premises on 25 January 2007 where they were informed about the project. When asked for opinions, all members had welcomed the project since they thought it would create a market for crop residues, besides job opportunities.

Here too the PDD says that the project may co-fire coal as a supporting fuel in the plant, and the corresponding emissions from coal would be deducted from the baseline emissions to arrive at the final emission reductions. There would be no leakage of emissions during the project activity. Emission resulting due to transportation of biomass and coal would be negligible compared to the baseline emissions scenario.

The biomass-based power project, besides providing direct employment to the local population, would encourage indirect employment as other agro-industries would come up because of availability of power from the project, the PDD claims.

What the field study reveals

Villagers including the sarpanch, Sumendra Bhamgade, made it clear that no meeting was ever called by the company with the local people. People of this area have rather resisted this biomass project as it is creating serious pollution.

Rice husk and fly ash are dumped by the company on agricultural fields, which has polluted water sources, food, and household things. Many villagers are now suffering from diseases like asthma, tuberculosis, cough, eye ailments, and breathing disorder. Even the hand-pump water now contains dust; yet the local medical officer insists that the water is clean. The residual fly ash from the power plant is also found in the nearby Nagzira sanctuary, threatening loss of biodiversity.

Gondia is a well-known paddy-growing district in the state, and is rich in biomass resources. Then where is the need to use coal in the CDM project? The marginal use of coal mentioned in the PDD seems just an excuse: the amount of fly ash generated makes it clear that coal is being used randomly. The area is already extremely polluted from the waste generated by a number of rice mills, and the new biomass plant, instead of bringing any relief, is only aggravating the pollution problem. People of this area have appealed to the District Collector, the Commissioner, and that state pollution control board many times, but no attention has been paid.

Registered	Project title	Host country	Other party	Methodology	Reductions	Ref
17 Apr 08	8-MW biomass-based renewable energy generation for the grid, Gondia District, Maharashtra	India		AMS-I.D. ver. 10	28,268	1530



Villagers say that the project has not benefitted them in any way, and did not generate any job opportunities. The PDD says that the biomass-based plant would increase the commercial value of agricultural residues, thereby improving the farmers' income. But the project collects rice husk only from the numerous rice mills in the area and not from the farmers; hence, no benefit to the local people.

The PDD claims that the project would invest additional capital to an extent of Rs 306.47 millions and indirectly support local infrastructure. Nothing has been done so far which could support such a claim, villagers say.

This plant promised continuous power supply to rural industries and to farmers. In reality, the project supplies power only to the Maharashtra State Electricity Board and the sponge iron industry; the local people do not figure in its scheme of things.

People have raised voices, but their efforts have gone in vain.

The Chandrapur power plant

The Yash Agro Energy Ltd has set up an 8-MW biomass-based co-generation project in Chandrapur, which has compounded people's plight rather than benefitting them.

Project title	Host country	Methodology	Reductions	Period for comments
8-MW biomass-based co-generation project at Yash Agro Energy Ltd in Chandrapur district, Maharashtra	India	AMS-I.C. ver. 9	30,020	21 Apr 07 - 20 May 07

What the PDD says

The PDD says that a stakeholders' consultation meeting was conducted at the project site on 22 August 2006. Invitation for the meeting was extended to various government bodies, nearby panchayats, local environment groups, and villages.

According to the PDD, the plant would distribute the residual ash for free to the local farmers, so as to help them prepare compost from farm residues. The company would also organize to transport ash to the composting facility managed by the community and provide the required technical assistance.

The PDD claims that, even though it was not obligatory, the company had conducted a rapid EIA, which illustrated that there was no threat to the environment due to the project activity; rather it would lead to environment-friendly industrial development with beneficial impacts such as uninterrupted power supply. The PDD also says that there would be no use of coal for energy production, which ensures zero-leakage.

According to the PDD, the plant would help address unemployment, poverty, and other economic backwardness prevailing in the area.

What the field study reveals

According to villagers, including the sarpanch, no such meeting involving the stakeholders was conducted. Most people were completely unaware of the project when it came. The claim of the company to provide fly ash for composting is rubbish; the ash is useless, dusty, and polluted. The company rather forcefully dumps the ash on farm fields, creating problems for farmers.

Ash emanating from the project is causing air pollution, leading to bioaccumulation of various toxic compounds, thereby causing serious health problems to the local populace. This operation can also be a hazard to animals in terms of genotoxicity and other toxicological endpoints.

There are traces of coal ash in emissions, which would definitely lead to havoc leakage.

Local people stress the fact that the project has not resulted in any developmental work in the region; it has neither provided employment to the local people nor initiated any constructive ventures. Rather the unabated pollution has impoverished them further.

The Wani power plant

We also visited the 10-MW biomass-based power generation project at village Wani in district Yavatmal. The plant is owned by the Shalivahana Project Ltd.

Project title	Host country	Methodology	Reductions	Period for comments
10-MW biomass-based power generation project at Wani, Yavatmal by Shalivahana Projects Ltd.	India	AMS-I.D. ver. 10	50,374	27 Jan 07 - 25 Feb 07

Agreement with the stakeholders

The company had held a stakeholders' meeting, following which the gram panchayat gave a 'no objection' to the project primarily on the basis of the conditions that the company has to (1) provide permanent jobs to at least 50% of the local population and up to 75% including contractual ones; (2) carry out plantation in the area; (3) provide compensation to farmers if their crops are damaged due to dust generated from the plant; and (4) pay a stipulated tax to the gram panchayat.

What the field study reveals

The promised tax of Rs 60,000 per annum to the gram panchayat was paid only once; the company refused to pay it thereafter. The villagers decided in a gram *sabha* to have the biomass project closed, and intimated the same to the company, but the company did not respond as the District Collector had already issued a 'no-objection certificate' to the project without consulting the villagers.

Though the company has collected biomass free of cost from the villagers, the project has not given any electricity to the villagers. No initiative was taken by the company to enhance the socio-economic status of the villagers. Even the educated youth have been denied employment. Out of the total 101 families in the village, 48 are below the poverty line. The absence of a primary health-care centre in the vicinity compounds the miseries of the local populace. The project got the CDM validation on the basis of the promises made in the PDD, that is, to develop the area; but the company did not consider it obligatory.

Though the PDD claims that there would be no use of coal for energy production, field study revealed the presence of coal inside the project area.

Mockery of the CDM regime

A CDM project gets validation only if it is eco-friendly, beneficial for the society, enhance the economic status of the project area, and bring in technological development. Do the hordes of projects that are getting approval by the host country and subsequently making profits by carbon trading conform to the stipulated criteria? The answer is NO.

Field studies suggest none of the companies is either carrying out any developmental work in the project area or at all concerned about protecting the environment. Rather they are causing serious pollution, health hazards, and even loss of biodiversity. People remain unemployed and deprived of even basic amenities whereas they should benefit from the CDM project after having 'allowed' the project to take off on their land.

It is something to ponder about when a biomass-based CDM project uses coal in its plant for energy production and does not even mention it in the PDD! Moreover, it does not even calculate the emission level of the plant. There is even no reference to how much, and for how long, coal would be used. The very objective of CDM projects – that is, to ensure emission reduction – thus turns out to be a big joke.

Most of the promises and claims made by the CDM projects remain confined only to the fancy PDDs, prepared by another agency for a handsome price. The companies manage to obtain the approval through practices, which are evidently not above question, and then concentrate in only making profits. While all the assurances for serving the society become a black joke, the regulation mechanism lives up to its reputation of being a mere paper tiger.



Table 2: Biomass-based CDM power projects India

Projects	Number of projects	*kCO ₂ /yr	**2012 kCO ₂	***kCERs issued
Validation	144	5,998	32,301	
Registered	115	4,489	30,737	3,770
Registration request	7	281.4	1371	
Correction request	3	77	419	
Request review	5	103	495	
Under review	2	47	254	
Total	276	10,995.4	65,577	3,770

*Annual reduction claimed in 1000-tons of CO₂-equivalent per year

**Total reduction to be claimed in 1000-tons of CO₂-equivalent by 2012

*** Saleable CERs, in 1000-tons of CO₂-equivalent, officially issued by the UNFCCC so far

Windmill CDM business: the Tata way

Wind mills in Maharashtra

How it all began In 1996, MEDA (Maharashtra Energy Development Agency) initiated the *Demonstration Wind Mill Project* in the Satara region. The apparent success of the project resulted in an influx of private companies to the state to set up wind power projects. It started with Suzlon Energy Ltd, which was already in the trade, acquiring huge tracts of land in the Satara region and erecting several wind plants. Suzlon later sold many of its power plants along with the land to other companies at a reported minimum price of 5-crore rupees each. Now the valley has more than 1000 plants; owned by MEDA, Suzlon, Bajaj Auto, Tata Motors and others. Following Satara, the Maharashtra government went ahead to repeat

the experience in the Supa region where wind farms now dot the landscape.

Easy money Though cheap infrastructure and bulk subsidies at source lured the companies to Maharashtra, the idea of earning additional revenue through sales of carbon credits acted as a strong incentive after the advent of the CDM regime. Instead of setting up new and authentic CDM projects wherever possible, giving CDM status to the existing ones was seen as an easier way to make money. This clearly defies the 'additionality' logic of the CDM regime (Table 3). Also, a favourable tariff plan, cheap land and subsidies make a wind mill project in Maharashtra an extremely attractive economic

Table 3: Wind energy CDM projects in Maharashtra

Status	Number of wind CDM projects	*kCO ₂ /yr	**2012 kCO ₂	***kCERs issued
Validation	36	994	5,042	
Registered	1	372	2,602	440
Registration request	1	52	243	
Correction request				
Request Review	2	20.3	97	
Under Review				
Total	40	1,418	7,887	440

*Annual reduction claimed in 1000-tons of CO₂-equivalent per year

**Total reduction to be claimed in 1000-tons of CO₂-equivalent by 2012

*** Saleable CERs, in 1000-tons of CO₂-equivalent, officially issued by the UNFCCC so far

proposition, which does not even require carbon credits to become viable. For instance, plants are selling power to the Maharashtra State Electricity Board at Rs 3.16 per unit while consuming power provided by the board at Rs 1.20 per unit.

Dubious designs More than the additionality aspect, however, the inherent dubiousness of the wind energy projects in Maharashtra stems from their often unethical and illegal dealings with the villagers. Villagers are seldom paid proper price for the land acquired for the windmills and the lands are often obtained fraudulently. Below, we look at the windmill project of the Tata Motors Ltd in Sahajanpur village of the Supa region, and see how the company has grossly violated the sustainability criteria and environmental norms, and has made a mockery of the claims the PDD (project design document) makes.

Tata Motors' wind mill project at Supa

Tata Motors' Supa windmill project is seated on the land of Sahajanpur, an interior and hilly village, about 8 km from Supa. Located on the Ahmednagar–Pune Highway, the area was part of a plateau. The population of the village is 1100 with about 200 families: a mixed community of scheduled castes, other backward castes, and others.

Claims and promises: what the PDD says

The PDD announces it loud and clear that the company had no problem acquiring land from the villagers for the project, suggesting that people had willingly given their land. In the PDD, Tata Motors Ltd promises jobs to the

local people, both in the technical and non-technical areas.

Before setting up the wind farms on village land in 2001, the company had made several commitments to the villagers, such as they would pay the gram panchayat tax; construct buildings for the *Mangal Karyalay* (village welfare office) and the village school; establish a health school with necessary equipment; and build toilets in every house.

The company has mentioned in the PDD about alternative use of coal-based power for meeting the energy requirement of the project. The PDD also claims that there is no technology risk associated with the project even though it does not involve any technology transfer to ensure clean mechanism. The logic given was that the 350-kW turbines to be used in the 51 windmills have been designed by Suzlon and are already in operation in Indian conditions since 1996; so no technology transfer to newer ones required.

What is happening: people's perspectives

Villagers in Sahajanpur told us that the windmill company had hired a few local residents to act as agents to facilitate land acquisition from fellow villagers. The agents would prepare the document of sale deeds and pay the villagers only Rs 20,000 per acre, much below the then existing market rate. The company had already acquired about 900 acres of village land from about 80% of the residents. Villagers informed that they were harvesting two good crops a year on their land without using fertilizers.

Table 4: Tata's CDM projects in India

Sector	Number of CDM projects	*kCO ₂ /yr	**2012 kCO ₂	***kCERs issued
Wind	3	133	836	167
EE own generation	4	663	3,521	106
EE industry	7	49.7	400	4
Biomass energy	1	24	115	
Biogas	1	7.2	61	19
Total	16	876.9	4,933	296

*Annual reduction claimed in 1000-tons of CO₂-equivalent per year

**Total reduction to be claimed in 1000-tons of CO₂-equivalent by 2012

*** Saleable CERs, in 1000-tons of CO₂-equivalent, officially issued by the UNFCCC so far



Motilal Dashrath Gavali, 45, who is the chairman of the Vikas Seva Sahakari Society in Sahajanpur, told that, when the windmill project started in 2001, people were very apprehensive since they had neither been told anything about the type of project coming in on their land and what sort of work they would do there. Despite this, the agents somehow managed to trick the people into selling their land. Among the agents were influential people like the sitting sarpanch and the erstwhile sarpanch who would prepare documents of sale deed sheepishly in the evening and take thumb impressions or signatures of the villagers; they would also hand over the money to the villagers before completing the sale process, to lure them into the deal.

Gulab Toloba Maiske, 65, said that he was being paid for his 3 acres of land at the rate of Rs 20,000 per acre in 2001, company officials told him that they were overpaying people in Sahajanpur by Rs 8,000 since people in Satara had got only Rs 12,000 per acre.

In Sahajanpur area, the large landless scheduled-caste community were surviving on patches of government land, and all this land, about 78 acres of it, was also captured by the wind farms, destroying the community's livelihood.

People had initially resisted the acquisition of their land. The agents then took them on a visit to the Satara region and, in the process, influenced them to fall into the trap laid by the companies, villagers said.

Baba Maiske, an engineer who earlier worked for Ispat India and now has been working as an agriculturist for the past 12 years in Sahajanpur, told us about a meeting conducted by Tata in the project area. Some Tata officials came and picked up some villagers, including the engineer, in their vehicles for the meeting. The company people talked about something about CDM projects and the environment, but the villagers could not make out what they were talking about. However, the banner behind the meeting read *Stakeholders' Meeting*, he said.

False promises

Jobs promised by the company to local people have not come by, save for some 4/5 persons getting some work. Sanjay Baba Mote, a local youth, who was earlier employed in the company's Satara farm, was first transferred to Sahajanpur and then was dismissed from his job. Mote told that there were many more like him who had met with a similar fate. When asked by people, the company

explained that the project was now complete and there was no more work for the villagers. According to the PDD, the ten-year project is expected to end in April 2011. After having lost their lands, the only hope the villagers had was jobs in the company!

The sarpanch of Sahajanpur, Vishwanath Laxman Shinde, who earlier worked as an agent for the company, stressed that the company had brought no benefit to the region. It had promised many things when it came, such as a 770-metre road, a building for the *Mangal Karyalay*, a two-floor building and vehicles for the gram panchayat, employment to the villagers, employment-generation programmes, water ponds, bunding, electricity to the temple, and so on. But, assisted by some influential and corrupt individuals of the area, the company did not keep a single promise.

The sarpanch also complained that despite having acquired so much land from Sahajanpur, the wind farms were not paying any tax to the gram panchayat. Earlier, they promised to pay Rs 56,000 to the gram panchayat as tax for this year.

Villagers also said that with power cuts continuing for 8 to 12 hours a day, this windmill project was a failure. The sarpanch was contemplating to go to the court against the windmill farms, demanding justice.

The CDM hoax

In the PDD, Tata Motors Ltd has mentioned alternative use of coal-based power for meeting the electricity requirement. But according to the UNFCCC additionality tool (EB 39 Report, Annex 10, Page 4, Footnote), 'coal-fired power station or hydropower may not be an alternative for an independent power producer investing in wind energy or for a sugar factory owner investing in co-generation, but may be an alternative for a public utility.' This makes it clear that use of coal mentioned in the PDD cannot be used as an alternative fuel in a wind farm while addressing additionality; so how did the project pass off as CDM?

With the company not providing basic information about its objectives and activities of the windmill project, people's participation in the 'CDM project' is absolutely non-existent, let alone any benefit coming their way. People are even unaware about not only the CDM status of the project but also the very concept of CDM. People perceive that the company has acquired their land by

Table 5: Wind energy CDM projects in India

Status	Number of wind CDM projects	*kCO ₂ /yr	**2012 kCO ₂	***kCERs issued
Validation	117	4,120	22,026	
Registered	52	2,073	17,891	1,527
Registration request	2	80	377	
Correction request	7	600	3,144	
Request review	4	87	445	
Under review				
Total	182	6,960	43,883	1,527

*Annual reduction claimed in 1000-tons of CO₂-equivalent per year

**Total reduction to be claimed in 1000-tons of CO₂-equivalent by 2012

*** Saleable CERs, in 1000-tons of CO₂-equivalent, officially issued by the UNFCCC so far

fraudulent means. Most people in the area are poor; and now with their land gone and no alternative means of sustenance provided, they are migrating to other places in search of jobs.

In other words, local people are deliberately not made stakeholders in the carbon-trading business, which is mandatory in the CDM regime. This does not, however, prevent the company from reaping huge profits—Tata Motors were issued 167,127 CERs for the project by March 2007. This translates into an obscene 26,74,032 euros (or, about 150-crore of Indian rupees), going by the then average market rate of 16 euros per CER—and more, if

the company had hoarded some CERs for releasing into the market in a more opportune time. In 2008, it will be wise to remember, the CDM market reached an all-time high; and in July, one CER fetched no less than 26 euros. Interestingly enough, the Tatas have kept aside 3343 CERs in the Adaptation Fund.

– Nishant Mate with inputs from Hadida Yasmin

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Carbon trading is anti-democratic

Who benefits from carbon trading? The answer is: big fossil-fuel-using companies; governments that want to delay climate action; energy traders; the nuclear industry; polluting companies that are rich enough to hire the consultants and grease the wheels that enable them to sell certified carbon credits; hedge funds and commodities traders; banks; and law firms.

Who loses? People fighting polluting fossil-fuel developments in their local areas; communities in countries like India or Brazil who find that their local corporations have just gotten an extra cash injection from carbon trading despite being bad citizens; communities trying to preserve or develop low-carbon ways of life; renewable energy developers, and a global public increasingly at risk from climate change.

– Larry Lohmann

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For more on carbon trading, see www.carbontradewatch.org

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