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Down To Earth

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COVER PHOTO: PRAMOD KALE

Thinking big?

The article on Sethusamudram project ('Short circuit', *Down To Earth*, March 15, 2006) was well researched.

If I can fault it at all, it is on one account. The economic reasons for not taking up the project, which are mentioned later in the article, should have been brought upfront, where the main points have been summarised.

This is because, even now, many people are under the impression that the objections to the project are only on grounds of environment and ecology. The project was conceived on the lines of canals like the Suez, where the economic logic was clear. For, in the absence of the Suez canal, ships would have had to take a very long detour round the African continent.

The Sethusamudram project had been examined several times in the past and found unviable because it would have caused environmental, safety and security problems, especially given the peculiar topography of the Bay of

and infrastructure in our villages. We have to think big to arrest the trend to copy the wasteful practices of the developed countries and adopt the right mix of traditional and modern practices to promote sustainability in agriculture and allied sectors. We have to promote decentralised governance in a big way and link it to the goal of value addition in villages, instead of adding to mindless urbanisation.

We also have to think big to invest in cutting edge technologies in fields like solar energy, micro hydel energy and decentralised water harvesting systems. Such investments will help evolve production processes that will give us the edge in both domestic and international markets, without which we cannot sustain our burgeoning population and our natural environment.

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Livestock wealth

Apropos of the article on livestock ('Livestock boom', *Down To Earth*, February 28, 2006), the writer has emphasised the need for appropriate regulations, but has not spelt them out.

The article suggests that meat offers a unique opportunity to increase income of the poor farmers. But meat is disastrous not only for human health but also for the ecology. Using the male progeny of livestock for draught animal power is a far better alternative.

The difference between the two options is elucidated by the story of the goose that laid the golden egg, one at a time. But when its owner got greedy and killed the goose, he found he had made a big mistake.

Likewise, it makes poor economic sense to send animals reared for several years to the slaughterhouse. Besides, the practice usually involves cruelty to animals while killing and even transporting them, which violate Article 51A(g) of the Constitution.

I also don't agree with the view that managing cattle manure is difficult. Your founder editor Anil Agarwal had compared dung with diamonds in one of his editorials and even demanded the post of a *gobar mantri* be created, during his presentation before a consultative committee of Parliament. According to a recent report from Japan, scientists

Water tunnel

Tradition flows

A traditional water extracting system called *suranga* — which means a tunnel — in Padre



claim cow dung can be used to power a vehicle. It is a surprise that such a valuable material is considered waste or problematic.

It is a myth that livestock contribute to raising atmospheric methane levels. If the animals are given proper food, methane production is reduced by more than half.

I, however, agree with the writer on the need to introduce fiscal measures for environmental damages, removal of subsidies on chemical fertilisers and on fossil fuel based tractors and machinery. Chemical fertilisers can be replaced by manure and tractors that run on diesel by Kamdhenu bullock-drawn tractors, which have proved quite successful in field trials and are now usually available on demand.

LAXMI NARAIN MODI
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Misplaced reaction

I read the response from L C Nagaraj ('This is not what research should be', *Down To Earth*, February 28, 2006) to the story published in the January 31 issue of the magazine, based on the findings of our paper. I just wish that Nagaraj should have carefully read the story and our paper (published in the December 25, 2005 issue of *Current Science*) before sending the letter.

In the story ('Reaping double benefit', *Down To Earth*, January 31, 2006) or the paper, we never advocated growing lowland rice in areas where there is



Bengal with its sand drifts. Yet, if it is going through, is it because of the Think Big syndrome or for less obvious or opaque reasons?

We are going through a similar exercise on interlinking of rivers, unmindful of the problems created by water not reaching the seas to enrich the deltas, mangroves and marine life or the link between water ingress and monsoon cycles over the seas. River interlinking might also lead to the pampering of areas growing water-intensive crops at the expense of systematic dry-land agriculture, which promises greater returns at lower costs.

We have to think big, but it should be to eradicate poverty by investing in education, health, sanitation, nutrition

village of Kasaragod district, Kerala. It's excavated horizontally either across a hillock or from a well. Padre village has around 2,000 *surangas*. According to a rough estimate I made years ago, almost 40 per cent of the village's irrigation requirement was met by *surangas*. These tunnels are dug in a way that water flows through them on its own; it does not require any kind of pump.

The length of a *suranga* is measured in *kolus*; one *kolu* is 2.5 feet (0.75 metre). Some *surangas* stretch up to 150 *kolus*. The *surangas* are quite similar to the *qanats* of Iran.

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water shortage. Our paper was based on the long-term effects of arable and wetland rice cultivation on organic carbon and nitrogen status of the soil. The results demonstrated a higher content of organic carbon and nitrogen under double rice cropping than under arable cropping or rice-upland rotations. The results support our earlier findings from a global review of literature.

I find that the letter by Nagaraj is completely out of context and is a bizarre reaction. I thought I should set the record straight lest readers, especially those who might not have read the story or our paper, be misled.

KANWAR SAHRAWAT

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Eco-mark

It is news to me, and I am sure to many others, that the *matka* (pitcher) is India's eco-mark ('Holes in the pitcher', *Down To Earth*, January 31, 2006).

Since eco-labels are granted to natural and biodegradable or recyclable materials, one wonders how the *matka* fits into this criterion. Burned pottery can remain intact in the soil for thousands of years, as we have seen in the case of archaeological excavations. Pottery is not degradable as such, but when powdered become part of the soil. But how many people powder the pottery before discarding it?

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Sourcing power

I enjoyed reading your editorial on the nuclear power imbroglio ('Its dark outside the TV grab', *Down To Earth*, February 15, 2006).

As a proponent of both renewable and nuclear power, I feel that though the present installed capacity of nuclear power is half that of renewable resources, generation from the former is double that of the latter due to its very low capacity utilisation factor. Second, nuclear power cost per MW is approaching that for wind power. Of course, the gestation period for nuclear power is about 8-10 times higher.

Both of them deserves thrust since nuclear power based on thorium can replace coal for base load power stations in a competitive manner. Both resources are non-polluting and sustainable. Disposal of waste, extra security measures and the risk of explosion can be done economically as evident from the experience of France and other industrialised countries.

With a forecast of nearly 50,000 MW of nuclear power by 2030, when

demand will surpass 650,000 MW, and probably 100,000 MW from renewable resources, it will still be difficult to get the balance from hydro and coal-based power stations because petroleum price will be too high. As such, both the resources should be encouraged.

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Disjointed management

This is in response to the article 'Water budget' (*Down To Earth*, February 28, 2006). It is a comprehensive analysis of the approach of the government and the budget allocations for 2005-2006.

It brings out the lack of appropriate strategies to implement government plans. It seems that the schemes/programmes that have been designed are disjointed and reflect the blurred vision of each ministry. Their implementation is likely to create confusion and more problems rather than solving them.

We have enough experience and clarity as to what needs to be done in this sector. But in the eagerness to

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Will this help?

In an earlier letter that you printed ('Eco-sanitation: let's get going', *Down To Earth*, February 28, 2006), Ray Wijewardene wrote saying he wanted details on eco-sanitation.

I happened to meet Paul Calvert of Eco Solutions on Toilets at a seminar recently. Calvert has done pioneering work in this field and can be contacted at www.eco-solutions.org/ecosaures.org/ecosan.org/waste-water.net.

I hope getting in touch with Calvert will help Wijewardene get going.

ANIL KAMDAR
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launch new programmes, many important lessons learnt earlier are overlooked or sometimes forgotten.

The last two decades have clearly indicated that watersheds are the most appropriate units of management for land and water and it is imperative that management of both these resources be done together. The Union ministry of rural development is obsessed with a unit of 500 hectares for a watershed at the village level. It does not consider the fact that these small units are part of a bigger watershed for which no macro-level planning is done and thus, ultimately, a very limited purpose is served.

There is evidence to show micro watersheds are treated with community participation and ownership as part of a larger planned watershed of 50,000-100,000 hectare. The results are not only optimum but also sustainable and wastage of resources and funds is avoided. The bigger picture integrates each activity irrespective of its nature and size in such a way that all the stakeholders get what they plan.

Macro-level plans can be joined together to have a river valley planning. This approach would support the activities between different ministries but also bring about a composite, planned management of land and water resources on a sustainable basis.

Unfortunately, all the efforts made to install modern technologies based on satellite-based information and mapping are yet to be used for scientific

management. My experience of over 25 years in this sector leads me to conclude that the Union government has not been able to limit itself to its role of providing budgets for those programmes which are part of a bigger vision. The approach cannot be changed with each government, plan or ministry. I hope the government will accordingly consider all aspects of watershed development, right from building dams and gully plugs, to its management.

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Turn around

This is in response to the article on the French ship *Le Clemenceau* ('About turn', *Down To Earth*, March 15, 2006). The ship was headed for India to be dismantled at Alang in Gujarat. But the

protests in India pressured the French government to recall the vessel. This action made everyone realise that India cares for its local environment and its people. It also shows that industrialised countries cannot use developing countries as dumpsites for their waste.

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A question of ownership

This is in response to your editorial 'Iron in the soul' (*Down To Earth*, January 31, 2006).

I was under the impression that what lies below the surface belongs to the government. Which is why I wonder if private water suppliers who pump out groundwater should pay the government for the resource?

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Down To Earth welcomes letters, responses and other contributions from readers. We particularly welcome you to join issues and share your opinion with others. Send to Sunita Narain, Editor, *Down To Earth*, 41, Tughlakabad Institutional Area, New Delhi - 110 062.
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Talk technology, not subsidies, to benefit the poor



The C Rangarajan committee to review prices of petroleum products says that the government should increase the price of liquefied petroleum gas (LPG) cylinders by Rs 75. This is essential for oil companies, which are burdened by financial losses because they sell gas below the cost of production and distribution, says the committee. It also sees no merit in subsidising LPG, which it says is predominantly the cooking fuel of the middle classes and not the poor. The ball is now in the government's court, which is possibly worried about the impact of a hike on the forthcoming state elections as much as it is worried about the oil companies' bottom-line. But why am I writing this now?

The fact is that we talk about subsidies in rather simplistic economic terms, as good or bad expenditure by government to provide for needs which are not affordable to the poor. The answer then is to reduce subsidy as the poor become richer and to pass on the burden through user charges — paying for the cost of producing electricity, supplying water and of course, in this case, providing fuel to cook food. If pushed further, the same economists will tell you that for purposes of social justice, the subsidies can continue but in a targeted manner (meaning subsidies will only go to those it is meant to reach: the poor). Therefore, the assumption is that subsidies are for the poor and that the rich must and can

pay full costs of the resource.

The point, however, is that in India, most subsidies are not for the poor but for the rich. The fact also is that the reason we have to remove subsidies is because the state cannot bear the expenditure of larger numbers of people. In other words, it cannot afford that larger number of Indians become richer and users of subsidised goods, which are the privilege of some. It is also assumed that Indians once they become rich (or richer) can pay for the same subsidised goods at full cost. We do not question the fact that given current levels of technology or methods of production, even the middle-rich (not the richest) will not be able to afford a number of things at full cost. And that what is really needed is not to reduce subsidy *per se*, but to seriously rethink technology so that these things can be provided not just for some but for all.

Take the case of LPG. This fuel has been traditionally subsidised, even though it has been the cooking energy of the more affluent. It was subsidised because it was accepted that this fuel is now convenient, less polluting and more efficient and, therefore, should be promoted as the preferred way of cooking. It was promoted even though it was clear that the rich, for whom it was being marketed, could not afford it, hence the subsidy. But over time, given the lack of alternatives available and its obvious benefits, LPG has become the fuel, not just of the rich but also of the lower middle classes. The March 2005 National Sample Survey (59th round) on household consumer expenditure reported that the most striking change was in the proportion of households using LPG as a fuel. Now over 55 per cent of urban households use LPG as against 44 per cent in 1999-2000. The reach in rural India was still minuscule but had doubled during this period to reach roughly 9 per cent. In other words, the state now has to subsidise larger numbers of people, who have become users of this gas for cooking.

The question is, are people rich enough to pay the price of LPG without the subsidy? Currently, the price of an LPG cylinder is roughly Rs 300 and it is

widely reported that the oil companies need another Rs 150 to cover costs of production and distribution. The average use of gas is roughly one cylinder each month by a household, but richer families use more gas and therefore, more subsidy. But this is not to say that the poorer households are not using gas. The earlier 55th round of the National Sample Survey reveals that fuel penetration is growing fastest in lower middle class urban households, where use is growing but purchasing power is not.

Then there is the issue of rural households, where the subsidy has still not even reached. The Andhra Pradesh government launched a programme called Deepam in 1999 to provide one-time capital costs of the cylinder and regulator to households below the poverty line. But it was soon found that they did not have the money to pay for the recurring costs of the gas cylinder and even within the relatively richer households firewood remained the main cooking fuel.

In this scenario what are the options? The current subsidy is inadequate to meet the fuel needs of vast numbers of people, but it is too high to be sustained by oil companies.

The fact is that food cannot be cooked without energy. But the tragedy is that we have never really considered 'alternatives' to LPG, which we continue to promote, even if we cannot afford it. But because we were in the business of subsidising a few, the issue was never urgent. But what do we do when the subsidy burden cannot be shared?

The answer is to reduce costs so that more people can afford to pay. The answer then is to rework our technological options — from thinking of advanced biogas in rural India for cooking fuel to cost-effective local solutions in urban India, like generating gas from municipal waste and many other options. The fact is that we do not need 'alternative technologies' only for the poor, but also for the rich. Otherwise, Indian-style socialism will continue to mean that the rich are subsidised in the name of the poor. ■

— Sunita Narain

Spirit of videshi



By turning our backs on swadeshi, we have left cotton farmers in the lurch

STUDENTS of Indian agriculture are brainwashed to believe that Indian cotton is of inferior quality. They are never told that ‘Indian cotton’ is not really Indian. It is actually American cotton used in mismatched Indian conditions (see pp 31-41). Originally the British rulers promoted this cotton in India because their machines in Lancashire were unsuitable for Indian cotton but failed.

But the agricultural establishment in independent India succeeded in what the colonial rulers failed. American cotton now constitutes 70 per cent of the cotton crop from a mere 3 per cent at the time of independence. As a result, Indian cotton farmers have to live with low levels of productivity — 500 kg per hectare (ha), compared to 1,100 kg per ha that Chinese farmers get from their indigenous Chinese variety. This low productivity, coupled with rising input costs, force many farmers to take their own lives.

As the cotton growers’ profitability goes down, the textile and garment industry throw up a few new millionaires every year, at the cost of the farmer. The favours doled out to these industries are understandable, they are potential forex earners. The situation becomes bleaker because 20,000 US cotton farmers armed with US \$4 billion in subsidy can offer raw cotton at a price that is 40 per cent lower than Indian production cost.

The cotton farmers’ problems are too complex to be solved simply by announcing more credit. Following our colonial rulers, we discarded indigenous seed to match available technology. Not much institutional work has been done to create technology that can match indigenous raw cotton. The time has come to create technology and work on seed varieties more friendly to Indian conditions. Farmers in Gujarat and Rajasthan have developed seeds that suit Indian conditions. The search for suitable local hybrids gains more importance because American cotton is a real water guzzler. A quick look at the balance of the virtual water trade through cotton (see p 56), clearly shows that China and the US end up receiving more virtual water than they give. But India is a big loser of water in this regard.

Gandhi’s *charkha* was not a mere symbol for *swadeshi*. It took care of local cotton varieties, provided more decentralised employment possibilities, and above all good quality of cotton. We may have deviated far away from the spirit of *swadeshi* along our way to higher growth. ■

Rich and well-connected



Online land records good tool for land-grabbing

IT WAS waiting to happen. After all one can trade shares, buy airplane tickets and conduct a variety of commerce via the Internet. So, the Maharashtra government’s — and that of several other state governments’ — move to computerise the state’s agricultural records doesn’t really evoke much surprise. What, however, appears ludicrous is the state government’s self-congratulatory statements that accompanied the announcement to place the land records on the Internet. T C Benjamin, settlement commissioner and director of land records, for example, lauded the move as the harbinger of greater transparency.

Transparency for whom, Mr Benjamin? According to recent Internet World Statistics, Internet users represent just 3.6 per cent of the country’s population; rural users were negligible according to the survey. So, the Maharashtra government’s hosannas for an e-utopia — if ever there was one — where farmers can access land records at the click of a mouse are utterly misplaced.

So, who benefits? Quite obviously, industry and the land mafia itching to click their way to the new e-market. Many NGOs and activists have voiced fears that rather than help farmers, this move will just help corporate entities to target land they want for their growing operations in this age of liberalisation and get it for a song — or a click. Their apprehensions are justified. But there are greater worries. The maze of land rights in India has confounded administrators since ancient times. The upheavals caused by the colonial attempts to codify them are well documented. Are those singing paens for the e-market ready for similar upheavals? Perhaps it doesn’t matter to them.

The situation is also apt to sound a warning to those ‘well-meaning’ groups who are easily swayed by the current hotch-potch of e-democracy, e-voting, interactive citizens, and so on. Under the circumstances, filling a hard disk with information, then circulating it to e-mail addresses in India, Bangladesh and a handful of US campuses, may bolster the illusion of belonging to a worldwide fraternity. But it is a very far cry from “global democracy”. We should do well to recall the words of the sociologist Manuel Castells: “The most sophisticated features of interactive communication are the privilege of the most highly educated, prosperous segment of the population in the richest, most highly educated countries.” ■

..Logged out

Questions over Maharashtra's online land records

NIDHI JAMWAL *Mumbai*

SEEKING information on land deals in Maharashtra? Log on to <http://mahabhulekh.mumbai.nic.in:8080/>. The website, the latest 'milestone' achieved by the Pune-based settlement commissioner and directorate of land's office, furnishes information on agriculture record of rights in the state's *talukas* and villages. And there are big plans to expand it for greater 'transparency'.

According to T C Benjamin, settlement commissioner and director of land records, Pune, "The entire data of land records are available online. By March 31, we will also chart out details of all urban properties throughout the state online. People will have access to all kinds of land-related information free of cost." Experts, however, claim that builders, industries and land mafia stand to gain over farmers by accessing and using such information, because they can use it in a manner that can harm farmers' interests.

State of the land

Bhoomi, Karnataka: computerised 20 million records and fully implemented in all 177 *talukas*

Tamil Nilam, Tamil Nadu: covers 206 *talukas* and provides additional services of birth/death certificate, old age pension particulars, etc.

e-Dharni, Goa: computerised and digitalised and records

Bhuyan, Chhattisgarh: fully implemented in 98 *tehsils*

Apna Khata, Rajasthan: implemented in 237 *tehsils*, land records available as per *tehsil*, name, *khata* and *kharsa* number

e-Dhara, Gujarat: covers 226 *talukas*

Bhumi, West Bengal: covers 341 block offices

Himbhoomi, Himachal Pradesh: being implemented in 18 *tehsils*



ILLUSTRATIONS: SHYAMAL

The website provides data under two main heads: '7/12' (*saat-baara*) and 'query'. The former establishes the owner's right over a combination of village forms 7 (record of rights) and 12 (record of crops). Under '7/12', information is sorted out under sub-heads of district name, *taluka* name and village name.

A 'query' entry has two options: to either locate land on the basis of area in hectares; or on the basis of tenure of land — fully government-owned, partially government-owned, fully private, partially private and common land. It also provides details like crops sown on particular piece of land and liabilities of a farmer towards local land development banks.

Virtual reality

T C Benjamin says the Rs 24-crore project, funded by the Union ministry of rural development, brings about greater transparency and makes information readily available to villagers.

But there are precedents of such abuse of information. In Bangalore, the Bhoomi project has helped IT companies locate pockets of land for acquisition with the click of a mouse. Solomon Benjamin, an expert on urban governance, along with his colleagues, carried out a study in January 2005 titled,

'Bhoomi: E-governance, or an anti-politics machine necessary to globalise Bangalore?' to understand the impact of the programme. Their study found that the computerisation and the centralisation of land records made it a more expensive affair and less efficient for poorer groups to access and use such records.

The study also found that villagers had to wait for three to four months to get a copy of records of rights. Besides, to avoid losing a day's wage, villagers often hired agents and paid much larger 'market-rate' bribes. There were complications arising due to problems like wrongly spelled names.

In fact, the problems of e-land records run much deeper simply because no Indian state has a straight and simple land tenure system. There is a major controversy regarding Maharashtra's Vidarbha region's forest villages. Recently, a *Down To Earth* correspondent travelled to Amravati district and met tribals from the Melghat area who were on a hunger strike for not receiving 7/12. Most of them have been branded encroachers because they have no legal proof of land ownership.

T C Benjamin claims all efforts have been made to verify the data on the website. "Three steps for data verification have been followed. NGOs working in tribal areas should use information provided in this website to know the actual status. Portions of land in forest areas is encroached and thus 7/12 cannot be obtained."

This may be a fancy online land record system but what it also does is further alienates marginalised people and possibly writes them out of official records. A lot of people may just have been erased. ■

Source: Good governance through ict, National Informatics Centre, Government of India, November 2005

Privatising parks

Nepal law could reverse pro-people conservation policy

RAJESH GHIMIRE *Kathmandu*

ON New Year's Day 2006, King Gyanendra of Nepal quietly issued an ordinance that many environmentalists fear could prove a major setback to this Himalayan kingdom's efforts over the last decade to restore people's rights over their natural resources.

Made public last month, the ordinance is ostensibly aimed at amending the National Park and Wildlife Conservation Act, 1973, to allow for private management of Nepal's national parks and conservation areas. But a clause in the amendment that stipulates only organisations devoted to nature conservation and registered in Nepal can bid for contracts, narrows the number of outfits that can apply to just one — the King Mahendra Trust for Nature Conservation (KMTNC).

Civil society groups in Nepal that have largely kept mum about the development, privately call the ordinance the Regent's New Year gift to his son. King Gyanendra is the trust's patron and Crown Prince Paras, its chairman.

KMTNC is already managing the Manaslu and Annapurna conservation areas and has shown interest in taking over management of the Rara and Shivapuri national parks. Now there's speculation that the government might hand over resource-rich national parks like Chitawan and Sagarmata to the trust too. "It is clear that KMTNC wants to manage national parks that make a profit," says a local conservation expert.

The ordinance also seems to restrict people's participation in the management of protected areas. "This is against the public trust doctrine," says community forest rights activist Dil Raj Khanal. "The state had acquired private land to protect biodi-

versity. They have displaced thousands of people in the name of conservation. Now the government wants to hand over the land to a private organisation. Is this justice?" Khanal said of the new law that could change Nepal's image as a country that's pro-people conservation.

National parks and wildlife reserves in Nepal occupy about 19 per cent of the country's area (the world average is 6 per cent). In the 1990s, Nepal's democratic government put in place legislations that helped give people rights over their local resources. The country's 1993 Forest Act, led to the growth of community forest management in the country, and is seen as one of the most progressive resource management regulations in the world. The Act made it mandatory that 30 to 50 per cent of the income of conservation areas be spent on development of communities living within the buffer zone.

This new (fifth) amendment, however, doesn't specify whether the private managers will have to share their profits with local communities. "The law is not clear on that provision, this means the new managers will be able to bypass the

provision," says Ravi Sharma Arlyal, a wildlife law expert. The amendment has scrapped an earlier provision wherein local communities were consulted and they coordinated in welfare projects before implementation.

The council of ministers, of which the King is chair, passed the ordinance without any consultations or public discussions. The amendment was apparently made in line with the government's 2003 policy to 'privatise' the management of national parks and wildlife reserves. The same year, the ministry of forest and soil conservation issued a 'letter of intent' to study the feasibility of handing over management to private organisations. But the earlier policy, put in place without consulting all the stakeholders, gave equal access to all NGOs devoted to nature conservation.

Government officials say handing over the national parks' management to private organisations will make operations efficient and economical by cutting back on employees. The government will have the responsibility of 'monitoring' only the private organisations' work in managing these protected areas. However, the amendment doesn't clarify who will provide security to the parks and conservation areas. Currently, the Nepalese Army does the job, which, the local media claims uses 80 per cent of the national budget.

"On one hand, the fifth amendment to the Act will help the National Parks' management become more transparent and on the other, private organisations may not be able to control poaching and illegal trade of wildlife parts," says Arlyal.

The department of national parks and wildlife conservation presently works with a network of nine national parks, three wildlife reserves, three conservation areas, one hunting reserve including nine buffer zones around national parks. ■

Local communities want a say in forest and wildlife conservation and a rightful share in the profits



NUCLEAR PACT/ INDO-US

Big deal

India appears to have managed to ward off an impending nuclear fuel crisis. On March 2, 2006, New Delhi settled its differences with Washington over the highly controversial nuclear separation plan. An agreement on the bifurcation of civilian and military nuclear facilities during George Bush's visit meant the removal of a sore point that almost derailed a bilateral nuclear cooperation pact the two countries signed on July 18, 2005.

The bifurcation of nuclear facilities was a contentious issue for the Indian department of atomic energy, whose operations have been cloaked in secrecy. At the same time, a nuclear accord with the US was eagerly awaited by India to end its nuclear isolation since it refused to sign the 1968 Non-Proliferation Treaty (NPT). The country's nuclear establishment is also awfully short on funds and fuel to pursue its expanding nuclear ambitions.

As per the agreement, India will open 14 of its nuclear reactors (nearly 65 per cent of the installed capacity) for international scrutiny. However, the prototype fast breeder reactor being built in Kalpakkam, near Chennai, will be exempt (see 'No bullying', *Down To Earth*, February 28, 2006). The agreement will now be presented to the US Congress for approval.

The US, too, had been keen to rope

in India on the nuclear front since India is the only recognised nuclear power (amongst those who have refused to sign the NPT) outside US influence. The other two — Pakistan and Israel — are known allies of the US. Getting India on its side will give a boost to Bush's war on 'nuclear rogue' states such as Iran and North Korea.

More importantly, the agreement may help revive the US nuclear power industry weighed down by environmental and safety concerns.

During the visit, Bush promised that he would push for changes in US laws and Nuclear Supplier Group (NSG) to ensure full implementation of the civilian nuclear deal with India.

NSG, a group of countries that exports nuclear fuel and technology, was formed soon after India conducted its first nuclear tests at Pokhran in 1974. The deal has opened India's channels of communications with NSG countries like France, Russia and Australia. This could be a signal for them to start similar negotiations with India. ■

A fruitful visit



STEPPING INTO THE PAST

A 1,400-year-old leather artefact found in the Yukon province of Canada has turned out to be a moccasin — a soft leather slipper traditionally worn by American Indians. The object was recovered from a melting alpine ice patch in 2003 by Cody Joe of the Champagne and Aishihik indigenous community. He was working as part of a research team looking for clues to early life in the northern part of Canada. But at that time it was thought to be a hunter's bag. It was only after archaeologists cleaned and reassembled the hide that it was identified as a moccasin. The discovery is significant as the moccasin was likely to have been made and worn by early Athapaskan people and pre-dates any European trade, contact and influence.



CANADA NEWSWIRE GROUP

>> The Seychelles government has banned foreign ships licensed to fish in its territorial waters from cutting off of fins of captured sharks, in a move to conserve marine life. Finning is a cruel practice since the maimed fishes are thrown back into the sea, where they usually bleed to death or are attacked by predators. The fins are considered a delicacy and fetch a high price. Shark fishing, however, is not covered by the ban.

>> McDonald's faces at least three lawsuits in the US after it disclosed that its French fries contained wheat and dairy products, which can cause allergic reactions. Earlier, tests had revealed that its fries contained more trans fats than believed.

>> Spain's infrastructure ministry has imposed fines ranging from US \$3,500 to US \$7,000 on 74 fishing crafts for blocking Castellon Port in Valencia city over a recent dispute on a rise in fuel prices. The fines were imposed to discourage such protests.

>> More than 100 incidents of fumes contaminating the air inside British aircraft have occurred over the past three years, according to UK's Civil Aviation Authority. A report suggests that up to 197,000 passengers are affected every year.

>> The US Food and Drug Administration has allowed use of carbon monoxide in meat packaging to retain the red colour of meat, despite complaints against it by consumer groups.

GM TECHNOLOGY / USA
Monsanto marked

A group of Texan cotton farmers has sued Monsanto and two affiliated companies for massive crop losses. The farmers claimed the companies failed to warn them of a defect in their genetically altered cotton seed. The lawsuit seeks an injunction against a “longstanding campaign of deception”.

The two affiliated companies named in the lawsuit are Delta & Pine Land and Bayer CropScience LP, producers and retailers of Monsanto’s biotech cotton.

Filed by about 90 farmers, the suit claimed that Monsanto’s “Roundup Ready” cotton failed to withstand Monsanto’s Roundup weed killer as it had been genetically altered to do. They claim Monsanto was aware of this but didn’t make the information public so that farmers would continue to buy and



Ground zero: Texan farmers take stock

use their weed killer.

Monsanto has denied the allegations and is trying to reach an out-of-court settlement with the farmers. ■

WATER / CHINA-RUSSIA
Close watch

China and Russia will jointly monitor cross-border rivers to ensure water quality. An agreement on the issue was recently signed in Beijing, following a meeting between Russian President Vladimir Putin and Chinese prime minister Wen Jiabao in Kuala Lumpur last year. They had discussed the Songhua river chemical spill that occurred in November 2005 in China’s Jilin province. The river flows into Russia, where the chemicals from the spill were detected in December 2005.

The waterbodies under joint surveillance will include the Heilong, Wusuli, Erguna and Suifen rivers and Xingkai lake. Under the pact, experts from both the countries would regularly exchange information and work together to prevent recurrence of such accidents. ■

WASTE / CZECH REPUBLIC
Reality check

The Czech government has stepped up border checks and vowed to increase monitoring of remote farmland areas after officials discovered over a dozen sites that German companies were illegally using to dump their waste.

The Czech environment ministry is now ascertaining the extent of the illicit waste disposal trade between German and Czech businesses. So far, about 15,000 tonnes of German waste has been discovered in the country. Most of the dumpsites have been found in north Bohemia.

Officials fear several more dumpsites will be found as investigations progress. The government has already imposed a US \$12,000 fine on four Czech companies. It’s not yet clear how this discovery will impact the Czech-German relations, which had been improving over the last year. ■

FOREST / BRAZIL
More protection

The Brazilian president, Luiz Inacio Lula Da Silva, recently signed decrees to expand the Amazon National Park and also create seven new protected areas in the western part of the state of Para.

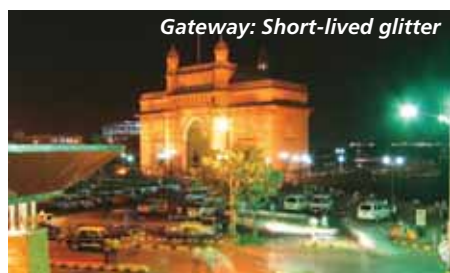
The decrees bring the total protected area in Para to 6.4 million hectares. The protected areas would ensure that the planned paving of highway BR-163 does not result in uncontrolled logging on lands bordering the road.

Claudio Maretti, coordinator of the Protected Areas Program of the World Wide Fund for Nature of Brazil, said the step would keep land grabbers at bay. ■



RADIO BRAS

Seal of approval



Gateway: Short-lived glitter

POWER / INDIA
Rigorous penalty

To address the problem of power shortage in the coming summer, the Maharashtra Electricity Regulatory

Commission (MERC) has decided to penalise power intensive consumers.

MERC has directed all residential and commercial consumers consuming more than 300 units per month and all industrial consumers (irrespective of their level of consumption) within the Bombay Electric Supply and Transport Company License area, to reduce their monthly consumption by 20 per cent of their average monthly consumption in the past year. Failing which, they will have to pay an additional 100 per cent of the highest tariff chargeable to the respective category as part of the energy bill in that month. ■

AVIAN FLU / GERMANY-EU
Birds hit cats

German scientists have warned cat owners to stop snuggling with their pets following the death of a pet cat from the H5N1 avian flu virus in Ruegen island on February 27.

Most of Germany’s 120 cases of H5N1-infected wild birds were found on the island. Scientists at Germany’s national animal diseases laboratory, which had confirmed the infection, feel that the cat may have contracted the virus from the infected birds. Soon after, Austria also reported few cases of bird flu in cats.

The virus has been affecting other feline

CLIMATE CHANGE / GLOBAL

Ice hockey feels the heat

Ice hockey players recently voiced their protest against the failure of many countries to sign the Kyoto Protocol. They feel that the ineffectiveness of the Kyoto threatens the future of their game.

A series of matches, meant to raise awareness about global warming, were organised under the 'Save Hockey, Stop Climate Change' campaign in many cities across Canada, Sweden, Austria and the US.

The campaign first started during the 2005 United Nations Conference on Climate Change in Montreal last November, where young people started a slushy game of hockey outside the conference to highlight the threat global



Thin ice: Are you game?

warming posed to winter sports. The symbolic hockey games commemorated the first anniversary of Kyoto Protocol.

The World Resources Institute, a US-based environmental think tank, has also warned that less snow and shorter and warmer winters threaten the Winter Olympic Games. Ski resorts at lower altitudes would also be affected. ■

ENERGY / CANADA-USA

Pollution export

The Ontario government recently filed a complaint with the US Environmental Protection Agency. It has criticised proposals it believes will lead to more pollution on the Canadian side of the border from thermal power plants in midwestern US states.

The Ontario environment ministry said that the US government intended to weaken emission control on coal-burning power plants. It claimed that proposals to its new source review under the Clean Air Act would allow some older power plants to skirt mandatory pollution controls when they make upgrades or modifications. This would

lead to more smog in the Canadian province.

There are 1,300 coal-burning power plants in the US. Environmentalists and critics say their emissions contribute to acid rain and global warming. More than half of the air pollution in Ontario originates in the US, in particular from the electricity industry.

A 2005 provincial study showed that air pollution causes nearly US \$8.6 billion in total damages to Ontario, including US \$5.7 billion in health costs.

"Air pollution from US coal-fired generators is hurting Ontario's health, and the people of this province are counting on our neighbours to do better," said Ontario Environment Minister Laurel Broten. ■

SMOKE THREAT: Public health in Meherpur district of Bangladesh is at high risk from heavy vehicular emissions due to the use of adulterated fuel. Cases of respiratory and cardiac diseases have increased in recent years. It is alleged that kerosene is used to adulterated petrol. Consumers complain that their vehicles are consuming more mobil oil due to the un-burnt kerosene. The underground fuel reservoirs are also not cleaned regularly and supplying depots are not monitored. But petrol pump owners and dealers have denied the allegations of adulteration.

**POULTRY BAN LIFTED:**

Sri Lanka has decided not to ban imports of poultry feed from India, after the latter assured the feed would be fumigated prior to shipping, the All Island

Poultry Association said earlier in March. The island nation had banned maize imports from India in February following a bird flu outbreak in Gujarat and Maharashtra. Sri Lanka imports 200,000 tonnes of maize annually. About 90 per cent of this comes from India. Maize accounts for 50 per cent of the total inputs into the poultry feed. Sri Lanka has no reported cases of bird flu till date, but it has kept a firm control over imports of poultry and related products since the first global case of bird flu. The poultry industry has asked the government to temporarily lift a 15 per cent value-added tax and a 20 per cent cess on maize imports as a concession to the ailing poultry industry.

species, too. In February 2004, the virus was detected in a clouded leopard that died at a zoo near Bangkok. In March, a white tiger had also died of H5N1 infection.

In October 2004, captive tigers fed on fresh chicken carcasses began dying in large numbers at a zoo in Thailand. Altogether 147 tigers out of 441 died of infection or were euthanised.

Meanwhile, the European Union (EU) has approved plans by France and the Netherlands to vaccinate millions of poultry against bird flu. The decision came as health officials in Austria said two chickens had the deadly H5N1 bird flu virus — the first time it has appeared among poultry in the EU.

HEALTH / HONDURAS

Drug crisis

Honduran President Manuel Zelaya has declared a health emergency in the country following an acute shortage of drugs in the hospitals.

The declaration was spurred by media reports about the death of a teenage haemophiliac boy at a hospital in Tegucigalpa, because of shortage of supplies of the clotting agent, factor eight, used for treating haemophilia.

The declaration authorises the purchase of medicines worth US \$8 million and setting up a committee comprising



Patience tested

national health bodies to regulate the purchase and distribution of medicines. Healthcare officials blamed poor administration, crime and lack of funds for the poor state of health services. ■

ANIMAL WASTE / AUSTRALIA-USA

Poop pays

Impressed by the uses of cow dung, researchers around the world are looking at excreta of other animals for their possible benefits.

Researchers from the University of Queensland in Australia recently found that a repellent made from tiger excreta can keep animals such as wild goats away for at least three days. This is despite the fact that the goats may never have seen a tiger. The repellent is made of fatty acids and sulphur compounds



SHYAMAL

extracted from tiger excrement and also works on pigs, kangaroos and rabbits. These animals cause about US \$311 million worth of agricultural damage in Australia each year.

In another instance, San Francisco is set to use dog waste to generate energy.

The city plans to collect the waste and use it to produce methane, which will then be used to make electricity or heat homes. San Francisco has an estimated 120,000 dogs and a recent study showed that nearly four per cent of the garbage that reaches the landfills was animal waste. ■

OIL / NIGERIA

Shelling out bucks

A Nigerian court has ordered Royal Dutch Shell to pay US \$1.5 billion as damages for causing pollution in the state of Bayelsa located in the Niger Delta.

The court upheld a resolution by the Nigerian National Assembly, which said that Shell should pay the money to the ethnic Ijaw communities in the state.

The Shell Petroleum Development Company of Nigeria Limited, the

Nigerian arm of Shell, said it had “appealed against the judgment on, among other grounds, the strength of independent expert advice, which demonstrates that there is no evidence to support the claims of the group”. The appeal will lead to lengthy procedures before the case is settled.

Communities have accused Shell of spilling oil into the rivers and swamps of the Niger Delta, spoiling crops and driving fish away. But Shell claims most spills were caused by saboteurs trying to steal the oil. ■

ANIMAL RIGHTS / UK

Experimental anger

More than thousand people, mainly students and researchers, took to the streets of Oxford, UK, to participate in a rally on February 25, 2006. Some marched in support of building Oxford University’s biomedical research laboratory and against harassment by animal rights activists, while a counter protest opposed the lab construction.

Pro-lab protesters complained of physical attacks and said their homes had been attacked by animal rights activists. They said the violence was stifling the debate on the use of animals in scientific research. This is the first time that researchers have come together against animal rights groups.

Earlier, the animal rights groups

had targeted other prominent laboratories like Huntingdon Research Centre in Cambridgeshire. The pro-animal testers say animal research is more than “putting shampoo in rabbits’ eyes”. ■

Test ban: Fighting for research



PRO-TEST

DAM HEIGHT TO BE RAISED: A Supreme Court division bench has directed the Kerala government to increase the water level in the Mullaperiyar dam to 142 feet from its existing 136 feet. A petition by the Tamil Nadu (TN) government and Janata Party president Subramanian Swamy had appealed to raise the water level to 152 feet, and as an interim measure to 142 feet. Mullaperiyar is situated in Kerala, but TN uses its water for irrigation and for generating electricity under a pre-independence agreement. In the 1970s, the dam’s water level was 152 feet, but after cracks appeared in it, Kerala decided to bring Mullaperiyar’s water level down to 136 feet. But the bench dismissed Kerala’s apprehensions.

LEAD POISONING: The US Rhode Island Superior Court jury recently ruled that paint manufacturers were responsible for causing lead poisoning among children in the state. The companies have been asked to pay for the cleanup but no punitive action has been taken. The companies found liable are Sherwin-Williams Co, NL Industries Inc and Millennium Holdings LLC. Though lead paint was prohibited in 1978, it is still found in older homes. More than 30,000 children had been poisoned by lead paint in the state. The metal causes learning disabilities and brain damage in children.

FOOD GRAIN / ZIMBABWE

Caught in a maize

Zimbabwe is importing unmilled, genetically modified (GM) maize from Argentina, despite a ban on it. According to Reuters, local traders said that Argentinean ships loaded with yellow maize (a GM crop), were making their way to Zimbabwean shores.

Government officials, however, pleaded ignorance and said their policy against GM crops remained unchanged. Though Zimbabwe is suffering from acute food shortage, it is wary of importing GM foods because it believes they haven’t been adequately tested. The country accepts only milled GM crops to avoid crossbreeding with local crops. ■

No greenhorn

FM focuses on political environment

FINANCE Minister P Chidambaram's budget gave eight flagship programmes 43 per cent more allocation (at Rs 50,015 crore) in the 2006-07 Union budget. Chidambaram took note of the National Commission for Farmers report and reduced the interest rate on short-term credit to farmers to seven per cent for an upper-limit loan of Rs 3,00,000, from the prevailing rate of 9.5 to 10 per cent. The farm credit target has been increased to Rs 1,75,000 crore to bring an additional five million farmers into the institutional credit net. Given that four states and a Union territory are going to the polls this year, it's clear that the government has learnt its lesson the hard way.

This increased spending isn't going to do much to address the need to rein in the fiscal deficit. But what is going to help is the refusal to make allocations for addressing environmental concerns. Sample this. India's hospital waste management got Rs 1 crore, while government residential buildings got Rs 665 crore — almost Rs 200 crore more than last year's allocations. Programmes for environment impact assessments got Rs 2.55 crore, and development and promotion of cleaner technologies Rs 1.5 crore. Peanuts?

There were no surprises at all on the waterfront as well. Chidambaram announced a Rs 4,481-crore scheme to revive 20,000 water bodies, though its predecessor — the Rs 300-crore National Programme for Repair, Restoration and Renovation of Waterbodies linked to Agriculture — remains a non-starter. Groundwater quality monitoring and research and implementation of artificial recharge do not figure in his scheme of things. Which means, the National Scheme for Artificial Recharge of Groundwater announced in 2004-05 will not take off.



Environmental problems in urban areas due to lack of a functional network of sewerage lines and treatment systems, are here to stay. So are the water problems. Merging the urban water supply and sanitation system under the Jawaharlal Nehru Urban Renewal Mission has finally undermined the importance of urban water supply and

sewerage. The allocation in this sector has been scaled down to Rs 50 crore, nearly half of last year's allotment. Though allocations for water supply for urban poor have not been spelt out, the low-cost sanitation gets Rs 30 crore — the same as last year's allocation (of which only Rs 5 crore was spent). The only saving grace, perhaps, was the proposal to institutionalise community-based water quality monitoring in rural areas.

Chidambaram reduced the excise duty on aerated drinks and small cars (length not exceeding 4 metres and with an engine capacity not exceeding 1,500 cc for diesel cars and 1,200 cc for petrol cars). The idea is to make India a hub for the manufacture of small and fuel-efficient cars. The government will reportedly be losing around Rs 700 to 800 crore on this excise concession.

An alternative approach, one that would not have led to significant revenue losses, would be increasing taxes on vehicles that are fuel-inefficient and which use fuels that are demonstrably more polluting — sports utility vehicles, which guzzle diesel, the most polluting fuel, could have been a target. This would have been a more rational approach to achieving what Chidambaram apparently wanted: increasing the sales of smaller, more fuel-efficient cars.

Again, by reducing the excise on soft drinks, in one sweep the government has undone all the work that voluntary organisations, the judiciary and the political class accomplished with respect

to restraining the consumption of these beverages. Public health issues clearly have not been factored in.

So what is budget 2006 all about? Status quo. Riding a high-growth trajectory, sops have been made available to the biggest constituency — agriculture — in a major election year. Environmental audits are obviously not the flavour of this month. ■

FLAGSHIP PROGRAMMES

- Sarva Siksha Abhiyan: Rs **10,041** crore
- Mid-day meal scheme: Rs **4,813** crore
- Rajiv Gandhi Drinking Water Mission: Rs **4,680** crore
- Total Sanitation Campaign: Rs **720** crore
- National Rural Health Mission: Rs **8,207** crore
- Integrated Child Development Services: Rs **4,087** crore
- National Rural Employment Guarantee Scheme: Rs **14,300** crore
- Jawaharlal Nehru National Urban Renewal Mission: Rs **6,250** crore

Boon or bane?

WB walks out of Mumbai urban transport project

NIDHI JAMWAL *Mumbai*

THE World Bank (WB) has suspended the grant of US \$150 million loan to the Mumbai Urban Transport Project (MUTP) to express its dissatisfaction over MUTP's resettlement package. But the Maharashtra government seems unfazed by the funding body's move.

The bone of contention is the resettlement of over 2,500 shopkeepers displaced by the road projects under MUTP. Maharashtra's relief and rehabilitation policy allows them free accommodation of 21 square metres, but WB wants the shopkeepers be given commercial space equal to the area they are going to lose. It has said the moratorium, issued on March 2, 2006, will continue until concerns about equitable treatment of those displaced are resolved.

"Suspension reflects how serious we are about a successful outcome of post-resettlement problems," said Michael Carter, country director, WB. "We will be working closely with the government to ensure that. Once progress has been made, we will review the suspension."

Maharashtra government seems unfazed by WB's move. WB has released most of the loan, state is not worried about the balance

State officials, however, seemed relieved. "The World Bank was imposing too many impossible conditions," T Chandrashekhar, metropolitan commissioner of the Mumbai Metropolitan Region Development Authority (MMRDA), the agency implementing MUTP, told the media. "It wants global laws for local conditions. We provide free housing for the project-affected, but were asked to provide equal space to every encroacher. This isn't possible. We would have to shell out Rs 20-30 lakh per slum dweller," he said.

Since WB has released most of the loan, suspension of only US \$150 million

will not affect the ongoing projects, MMRDA officials said. WB provides loans, not grants, and these should be accompanied with more relaxed conditions, they assert.

The Maharashtra government is already holding talks with the Japanese Bank for International Cooperation (JBIC) for funding infrastructure projects such as the Mumbai metro project; JBIC has less stringent rehabilitation conditions and offers loans at a 1.3 per cent interest rate. JBIC has funded Delhi metro project.

MUTP's road and railways renewal plan is worth US \$940 million. Of this, US \$542 million — US \$463 million for road and railway components and US \$79 million for resettlement — was to have come from WB.

More than 17,000 households and around 2,500 shops and small industrial units will have to be relocated because of the project. Around 14,000 households have already been shifted into multi-storeyed buildings.

Even here, WB has found "serious problems". It says the resettlement of some households "has not been carried out in compliance with the agreement between the Bank and the Maharashtra government". Post-resettlement problems include issues related to water supply and waste removal, increased commuting times (see page 44), delay in transferring funds for upkeep of buildings and the tardy functioning of the grievance system. ■

Frying pan to fire

US environment agency cool with chemicals

KUSHAL PAL SINGH YADAV

THE United States Environmental Protection Agency (USEPA) is in the process of replacing methyl bromide, an ozone-depleting fumigant, with methyl iodide, a highly toxic and carcinogenic chemical. The issue of replacement was open to public comment till February 21, 2006 and the final decision is expected in late March.

Methyl bromide is used as a fumigant to sterilise soil before planting

strawberry, peppers, tomatoes, grapes and several other crops. However, the chemical is included in the list of ozone-depleting chemicals that were to be phased out under the Montreal Protocol. While most nations have complied with this, the US has been pressing the UN to let it use the chemical under a "critical use" clause, saying that the country does not have a replacement.

Now, USEPA is planning to approve



Limited options: Carcinogenicity

the use of methyl iodide as a replacement. The gas, though not ozone depleting, can be dangerous if inhaled.

As per the USEPA's January 5, 2005 risk assessment, breathing methyl iodide in large doses causes miscarriages, thyroid tumours and respiratory tract damage. Studies further show it can alter thyroid hormones, essential to regulating the growth of a healthy foetus.

Based on recent field tests for the chemical, conducted in California and Florida, EPA toxicologists concluded that unprotected farm-workers could breathe harmful doses. The chemical in low concentrations could even drift off fields, thereby affecting the neighbouring people.

The toxicologists also determined that the workers would be safe if they wore respirators and that the people near the fields would breathe such small amounts that they would face no known health risk.

"The registration decision by EPA will have no bearing on our process. It has to pass muster in California (one of the states where field tests were conducted)," said Glenn Brank, a spokesperson for the state pesticide agency. "Methyl iodide is highly toxic," says Brank, and there are "a number of areas of concern — reproductive and developmental toxicity as well as carcinogenicity".

On the other hand, although “fumi-gants are problematic, they also are essential, given the lack of alternative soil treatments at present,” Brank said.

Environmental groups have opposed the EPA’s step. “This is an archaic, unsustainable approach,” says Susan Kegley, senior scientist, Pesticide Action Network North America. “EPA should be helping farmers move into the future by expanding the use of new integrated pest management techniques, not replacing one deadly chemical for the other,” Kegley said. ■

Fight over fish

Only a few in sensitive list

PADMAPARNA GHOSH

INDIAN fishing and marine product processing sectors are protesting against a proposed free trade agreement between India and the Association of South East Asian Nations (ASEAN) that excludes many fish varieties from its sensitive list.

This list, if finalised, would affect more than a million Indian processors of marine products. Free trade areas under this agreement — which aims at zero-duty imports — will be finalised by June this year.

The fishing sector fears that the agreement could sidetrack the Indian fishing sector by excluding many fish varieties from the sensitive list. In a tentative list, prepared for the first round of discussions on the free trade agreement, most varieties of Indian fish are under items that don’t need protection. This, industry sources say, would allow unre-

Big catch: Livelihoods at stake?



AMIT SHANKAR/CSE

SOFT DRINK BAN PROPOSED

Maharashtra FDA recommends

The Maharashtra Food and Drug Administration (FDA) has recommended a ban on sale of soft drinks in government schools on the basis of a study that showed they contained pesticides. However, the state government is yet to take a decision on the FDA recommendation, says an official spokesperson. “We received the FDA report in the last week of February

and have sent it to health department for their perusal,” an official in the school education department said.

The official said that the FDA had made a strong case for banning soft drinks from educational institutions, citing studies of the Centre for Science and Environment and findings of the joint parliamentary committee and said: “There was strong proof that there were residues of pesticides in these aerated drinks”.

strained import of fish varieties into the country from Thailand, Philippines, Malaysia and Indonesia for processing.

The output efficiency of processing in India is better than that of southeast Asian countries. Indian industry cites this as the reason for marine sector MNCs’ interest in the Indian free trade zone. They fear that global hulks will take advantage of Indian expertise to process imported fish at low labour costs and export them at higher prices after value addition. This, as they say, could set off a price war in the domestic market as well.

At a recent meeting between the United Nations Conference on Trade and Development (UNCTAD), the Marine Products Export Development Authority (MPEDA) and the fishing sector in Kochi, fishing industry representatives asked for reconsideration of the items under the sensitive list.

UNCTAD and MPEDA have recently conducted a study that identifies more fish varieties that should be included in the sensitive list, based on the economic analysis of the present trade. ■

In the name of rationalisation

Himachal government plans to denotify four sanctuaries

THE Himachal Pradesh forest department plans to denotify four sanctuaries in the state and redraw the boundaries of 15 others. Authorities say the move will “rationalise” protected areas in

Himachal Pradesh. The sanctuaries to be denotified are Norgu in Chuhar valley, Darlaghat and Sili in Solan district, and Naina Devi in Bilaspur district.

State plans to denotify some sanctuaries. Affected people welcome the move as friendly to development

Authorities say increased human interference in such “small” habitats isn’t conducive to wildlife protection. It is true that human interference is on rise: the people ousted by Bhakra dam have been rehabilitated to the Naina Devi sanctuary.

But, only two of these protected areas can actually be described as small: Darlaghat, which is 6.5 sq km and Sili, which is 2 sq km. Naina Devi and Norgu sanctuaries are spread over 123 sq km and 278 sq km, respectively.

Local residents are happy with the forest department’s plan. They say protected areas impede development. Communities living inside the sanctuaries had been pressuring the government to exclude their settlements from forestland classification. But environmentalists criticised the proposal.

However, the state forest department doesn’t have power to denotify sanctuaries. It has to seek permission from the Supreme Court before taking any step. The proposal will soon be presented to the state wildlife board and then to the Centre. Meanwhile, the department plans to add another 850 sq km to Kibber Sanctuary in Spiti, home to the snow leopard and marmot. ■

UK wants to emit more

But EU rejects its plan

THE European Commission (EC) has said that the UK can't increase the amount of carbon dioxide (CO₂) emissions allowed to its industry under the European Union's (EU's) emissions trading scheme — one of Europe's key instruments to meet commitments under the Kyoto Protocol.

The country had sought to change its original allocation of pollution rights to allow its industry to pump out an additional 20 million tonnes of CO₂ from 2005 to 2007.

Reacting to the EU executive body's ruling, the UK government accused the commission of hiding behind "procedure". The country's power industry,

When the EC initially rejected the changes in UK's plans, the country had gone to the EU's Court of First Instance. The court had sided with UK saying it was entitled to revise the plan. But the commission said it had studied the court's ruling and decided that the UK had missed the September 30, 2004 deadline to submit its proposed changes. "Since the UK amendment was notified after this deadline, the commission decided to reject the amended plan on the grounds of late submission," an EC official said.

UK officials say they are now studying a range of options, including further legal action. Ironically, the UK's move to allow industry to pollute more comes at a time when prime minister Tony Blair has made the fight against climate change a priority during Britain's presidency of the EU. ■

Right troubles

Why RTI stings Chhattisgarh

ALOK PRAKASH PUTUL Raipur

THE Chhattisgarh government has declined to make public the memorandum of understanding (MOU) it had signed with Tata Steel and Essar Steel to set up steel plants in the predominantly tribal district of Bastar. A Raipur-based businessman had sought details of the MOU under the Right to Information (RTI) Act, 2005. But the deputy secretary of the state commerce and industry ministry refused his request saying the MOU has a clause against disclosing its details to a "third person" without the signatories' consent.

Centre should review the RTI Act and decide on the extent of information to be made public, says chief minister Raman Singh

HOTBED

US greenhouse gas emission shoots up

US's greenhouse gas emissions shot up by 1.7 per cent in 2004 over the previous year, the country's Environmental Protection Agency (EPA) has reported.

The EPA report, "Inventory of US Greenhouse Gas Emissions and Sinks: 1990-2004," was released on February 27, 2006. It states that the rise is due to increased combustion of fossil fuel as well as carbon dioxide emissions. "Fossil fuel combustion accounted for 80 per cent of the total emissions that accounts for 7,075 million metric tonnes equivalent of carbon dioxide," the report says.

In addition to carbon dioxide, other greenhouse gases considered for estimation include

But legal experts say the RTI Act overrides any such conditions. "In case the information is treated as 'confidential' by the other signatories of the MOU, the public information officer can give a written notice to the parties and seek a submission to make this information public," says Shekhar Singh, convener of the National Campaign for People's Right to Information (NCPRI).

The RTI Act gives every Indian citizen the right to any information from any government office, other than those related to defence and personnel matters, for a charge of Rs 2 per page. Photocopies of requested documents are to be given free to those with incomes below the poverty line (BPL).

Providing information under the RTI Act has become a bother for the Chhattisgarh government. Officials say that the state is incurring costs to the tune of lakhs because of RTI requests and hundreds of officials are getting held up in the process of compiling information. Chhattisgarh chief minister Raman Singh wants the Centre to decide on the "extent of information" to be made public and to determine why a person needs a particular information. "But, this would invariably be used to withhold important information," says Shekhar Singh. "It is not correct to lament over resources, for the process would check corruption. Moreover, as the state makes information available, it would streamline the information, thereby leading to significantly lower involvement of time and cost factors." ■



Power play: EU stalls UK emissions

which faces the toughest CO₂ limits under the EU scheme, said it was disappointed with the commission's decision and would look for ways to fight it. "The decision could cost us US \$609.8 million a year," said David Porter, chief executive of the London-based Association of Electricity Producers.

Under the EU scheme, companies buy or sell rights to pollute, based on limits set by national governments, which are approved by the EC. The scheme covers highly polluting factories like power stations, oil refineries and cement plants. All EU governments have to submit their emission plans for the second trading period 2008-2012, by June 30, 2006.

methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons and sulphur hexafluoride. The report further shows that the greenhouse gas emissions in the US grew by 15.8 per cent from 1990 to 2004.

Had the US signed the Kyoto Protocol, it would have been expected to reduce greenhouse gas emissions by 5.2 percent of its 1990 levels, between 2008 and 2012. But, President George Bush refused to sign the pact — to which 156 countries are party — in 2001, saying it would harm his country's economy. In December 2005, the US indicated that it might consider joining the international treaty for controlling heat-trapping gases after its first phase (after 2012), but only if the text of the protocol is watered down and would not lead to mandatory emissions caps.

Maharashtra acts

Polybags out, system suspect

NIDHI JAMWAL *Mumbai*

MAHARASHTRA'S Non-biodegradable Garbage (Control) Ordinance, 2006 has come into force with immediate effect, following the governor's approval on February 27. The ordinance, controls ways in which non-biodegradable materials are to be disposed. It also bans the manufacture, transport and use of polythene bags. Maharashtra is the third state to pass such an act.

The state has set 50 microns as the least permissible thickness for polythene bags (Goa and Himachal Pradesh have specified a thickness limit of 40 microns and 70 microns, respectively). However, polythene bags used for food items, medicines, milk and oil packets are omitted from the ambit of this ban, with a specification that such bags are to be manufactured using virgin plastic raw material in its original colour.

The ordinance makes it mandatory for polythene bags to mention the details of the manufacturers, including the registration numbers issued by the Maharashtra Pollution Control Board (MPCB). It also enjoins manufacturers to provide information on the size and quality (virgin or recycled) of polythene. Moreover, no unit is allowed to manufacture polythene bags in the state without the consent of the directorate of



Baggage: These could be passe

industries and commerce and MPCB. A new waste management system, as mandated in the ordinance, also became effective from March 1, 2006.

Under the system, the Municipal Corporation of Greater Mumbai (MCGM) ensures that all housing societies, commercial complexes and hotels maintain separate bins for biodegradable and non-biodegradable waste and ward-level centres are set up to facilitate segregation. Violator will be fined anything between Rs 5,000 to Rs 25,000.

But MCGM has no system in place for this mandatory waste segregation. If the ordinance has to work, a system has to be put in place. ■

Modified?

GM regulators consult NGOs, seed companies on biosafety

SOPAN JOSHI

FOR the first time, regulators of genetically modified (GM) crops in India organised a workshop with state government officials to account for the requirements of the Cartagena Protocol on Biosafety. The workshop, held on February 27-28 in New Delhi, deliberated over the modifications required in the rules of handling GM crops.

The workshop was organised by the Genetic Engineering Approval Committee (GEAC) of the Union ministry of environment and forests, which

regulates the release of GM crops for commercial cultivation. It included a moderated interaction between the seed industry and the NGOs who oppose the way GM crops are handled in India.

"There was a need for consultation to streamline procedures of handling GM crops," says Bir Singh Parsheera, joint secretary to the ministry and GEAC chair. Twenty NGOs, led by Greenpeace-India and the Centre for Sustainable Agriculture, Hyderabad, had complained to GEAC in January 2006 that the seed companies were violating norms for field trials of GM crops.

Calling themselves the Monitoring and Evaluation Committee (MEC), these NGOs had conducted a study that showed irregularities in the handling of GM crops. The MEC demanded that GEAC should take a clear stand on marketing tactics used by seed companies to advertise field trials and hold demonstrations on trial plots. It alleged that produce from trial plots was being sold in the open market.

A body showed irregularities in handling of GM crops and alleged that produce from the trial plots was being sold in the open market

The seed companies acknowledged they were using field trials for advertisements, but said this was due to the nature of the seed trade.

The rules require companies undertaking field trials to inform the state governments. While the companies claimed they always keep state governments informed, some state officials present at the meeting denied receiving any such intimation about the trials in their states. The seed companies, however, played this down saying it was due to a "communication gap" and "teething problems".

It was suggested at the meeting that the GEAC set up an auditing mechanism to monitor the number of permissions granted to develop seeds of Bt cotton, the only GM crop allowed for commercial cultivation in India. This figure, one official said, should be tallied with the amount of Bt cotton seed sold in the market, thereby putting a check on the illegal Bt cotton. ■

Vaccine troubles

WHO accedes to paediatricians' concern over Hepatitis B

VIBHA VARSHNEY

THE inclusion of Hepatitis B vaccine in India's universal immunisation programme (UIP) could be stayed till there is adequate data on the vaccine's efficacy. Following a meeting on March 3 in New Delhi, between WHO officials and Indian paediatricians, the UN body said it would look into the doctors' concerns regarding the efficacy and cost-effectiveness of the vaccine.

It said, if required, they would ask

Vaccine for whom?



DEBOJYOTI KUNDU / CSE

the Union government to hold off on implementing the programme.

India is in the process of introducing Hepatitis B vaccine in a phased manner. So far, the government has dismissed health experts' concerns regarding the vaccine, saying the programme follows WHO recommendations. WHO aims to introduce the vaccine in all the countries by 2007.

The paediatricians contend that though the vaccine needs to be given at the time of birth to ensure that the disease doesn't pass from mother to child, infants here are given this inoculation, along with the DTP vaccine, six weeks after birth. But, there is no information on this late inoculation's effectiveness. WHO as well as a 2003 pilot project in Andhra Pradesh, don't provide much information on this either.

Paediatricians at the meet called for an appraisal of the number of children immunised at birth, and status of the disease in those vaccinated at birth compared to those vaccinated at six weeks and those not immunised — in areas where the programme has been introduced. Such a study is likely to take a year to complete. ■

What's the way out

Pharma industry looks for ways to end blacklist

PHARMEXCIL, an association of exporters and traders of medicine in India, held a discussion with the Union ministry of commerce, in the last week of February, to resolve the issue of Nigerian government blacklisting some 12 Indian pharmaceutical companies.

Nigeria's Food and Drug Administration blacklisted some Indian manufacturers in March 2005, saying that the products being exported by the companies were fake and substandard.

But Pharmexcil says "the problem was that the products were not registered in the Nigerian market and thus were being put in the category of fake or substandard". The blacklisted compa-

nies say that the government should have at least issued a show-cause notice before coming out with the notification.

The medicines being exported to Nigeria ranged from antibiotics to painkillers. These blacklisted companies, which cater only to the export markets, stand to lose around Rs 100 crore. Pharmexcil is therefore looking for an amicable solution: "We respect their (Nigeria's) decision. If found lacking in quality, we are willing to improve," says P V Appaji, executive director, Pharmexcil, Hyderabad.

The commerce ministry has asked for some additional information so that it can access the current scenario. ■

IN SHORT

► **SC CLEARS MILL LAND SALE:** The Supreme Court (SC) has cleared the sale of mill land in Mumbai, setting aside an earlier Bombay High court order. The SC has upheld the Maharashtra government's amendment to the rules for development of the 'open lands' of mills. The amendment had clarified that 'open land', as defined in the 2001 amendment of Development Control Regulations for Greater Bombay, does not include lands accruing after demolishing mills. But the HC had struck this down. (see 'More public good', pg- 16, *Down To Earth*, November 15, 2005).

► **RELOCATING GLACIERS:** The world's largest gold mining company, Barrick Gold Corp of Canada, is set to relocate three huge glaciers for high up gold extraction on the spine of the Andes Mountains. Ignoring concerns of environmental groups, a regional Chilean environmental agency has approved Barrick's US \$1.5 billion project on the condition that "the ice remains untouched while they dig up the gold". But the company hasn't explained how it will accomplish that.

► **ENQUIRY INTO OBESITY:** A parliamentary committee in New Zealand has voted for a public enquiry into obesity. Ten per cent of New Zealand's children and 21 per cent of its adults are obese. The enquiry will look into causes behind such epidemics, their effects on children's health, the costs to the health system, and also examine solutions.

► **GM FUND:** French farmers growing genetically modified (GM) crops will have to contribute to a fund to compensate any contamination claim from neighbouring farms growing traditional varieties, suggests a proposed legislation of the French research ministry. The proposed law, many fear, will dump all responsibility on farmers using GM seeds, relieving biotech giants such as Monsanto and Syngenta.

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One step forward,

Some recent amendments to the Wildlife Protection Act could infuse new life into a fusty act, but there are others that threaten to pull matters back

NITIN SETHI

The Wildlife Protection Act, 1976, is under the scanner again. The mainstay of biodiversity protection in India, the act has undergone only one major amendment — in January 2003 — since it was promulgated. Some of the changes then were substantial and at least had the potential of infusing new life to a moribund wildlife protection regime. The time, it seems, has come for the act to undergo major changes for the second time. Some amendments have been tabled in parliament, and a few more are on the anvil.

The creation of a National Tiger Conservation Authority is the most significant change that the Union ministry of environment and forests (MOEF) has sought. On the face of it another new authority, on the lines of the independent Central Zoo, might not seem a great innovation. But the fact that it comes with a slew of new ideas, devices and definitions for conservation, means it has a good chance to transform the business of tiger reserves — to begin with, and in time conservation at large.

The amendment bill creating the Tiger Conservation Authority has been tabled in parliament and is under a select committee's scrutiny. The bill takes into account the recommendations of the Tiger Task Force set up by the prime minister in the wake of disappearance of tigers from the Sariska Tiger Reserve, Rajasthan.

Teeth for the tiger

The five-member Tiger Task Force's report had made several recommendations to strengthen the institutional framework for protecting tigers in India. The most significant of them was to convert the Project Tiger directorate — a two-member team based in Delhi — into an authority with administrative autonomy. "Project Tiger is supposed to be a high-profile project of MOEF. But it has been beset with numerous roadblocks. Officers had to make several rounds of a ministry office to get a proposal vetted. Then state governments had to be pushed and cajoled into implementing the project's proposals," says one senior official in the main office of MOEF, Delhi.

These anomalies could be corrected, if the amendment bill passes muster in its current form. The Project Tiger Office, in its new *avatar*, would be administratively autonomous and answerable to parliament.

But tiger conservation faces another stern test: finding support from politicians in states where this large cat is conspicuous. Several presentations before the Tiger Task Force had highlighted the seriousness of this problem. It was pointed out that the task of conservation had become more onerous in the last decade, with multi-party coalitions becom-

ing the norm at the centre and states increasing their clout as a result. This is because the latter tend to see tiger conservation — in fact conservation at large — as an impediment to development projects.

The practice of creating strict nature reserves backed with guns and guards has compounded matters. At many places, local communities have been displaced; in others, their livelihood options have been taken away. In extreme cases, as in the Ranthambore Tiger Reserve, Rajasthan, the consequences have been quite violent. State politicians, naturally more concerned about their constituencies have lost interest in tiger conservation.

Even balance

The bill, which sources claim, should be presented before parliament in the ongoing budget session, seems to walk the tightrope. Along with the powerful central tiger authority, it also provides for a greater and more active role for the states in tiger conservation.

States with tiger reserves will have a steering committee for such protected areas (PAs). Chaired by respective chief ministers, the bodies would also comprise conservation scientists. The states would also be asked to create a tiger conservation foundation that would be at the vanguard of conservation projects and programmes for the development of people living



many steps back

in and around the reserves. Funding development projects for these people from the earnings of ecotourism is one of the mandates of this body.

So, while the bill seeks to give the political leadership in states a say in conservation-related decisions, it also tries to provide states the scope to spread the benefits and costs of conservation more evenly. Needless to say, such scope will be — if and when the bill gets through parliament — only legislative in character; real progress will hinge on the states' and the centre's implementation of the revised act.

But the boldest provision in the amendment bill could give legal teeth to a phrase commonly used in conservation: tiger-bearing forest areas. Till date, tiger conservation has been confined within boundaries of the 28 tiger reserves (sanctuaries and national parks) created under the Wildlife Protection Act. But more than half of India's estimated tiger population is actually found outside these PAS, in forests contiguous with these reserves, where they share space with humans (see table: *Inside and outside*). This fact is quite well known, but not acknowledged in actual conservation. A legally tenable meaning to the phrase 'tiger-bearing forest areas would remedy matters.

But how?

Currently tiger-bearing areas outside the PA network are managed under separate management plans executed by territorial forestry divisions of states —not their wildlife division. If the bill gets through parliament, the tiger conservation authority would have powers to manage tiger habitats as one unit: tiger-bearing forests. The proposed legislation states: "The Tiger Conservation Authority may, in the exercise of its powers and performance of its functions...issue directions in writing to any person, officer or authority for the protection of tiger in tiger reserves and tiger bearing forests." But the bill also emphasises that the agricultural, livelihood, developmental and other interests of people living inside forests or in tiger-bearing forests and around them shall be taken care of while devising management and land-use plans.

Residual matters?

In what seems like a follow-up on the Tiger Task Force report, the ministry has set up a committee to review the enforcement and penal provisions of the Wildlife Protection Act. The committee with the deputy inspector general (wildlife) as member secretary will review the provisions of the Wildlife Protection Act that relate to criminal offences; it will also consider recommendations

of the Tiger Task Force as well as those of the Central Bureau of Investigation — which had investigated the Sariska fiasco.

But the committee in its six-month tenure would also have powers to take up other 'residual' matters. The term has been deliberately kept vague to include almost anything, though MOEF officials maintain that these "residual matters" would not be of great significance. One can, however, treat their comments with a pinch of salt, particularly when the committee has also been asked to probe how well India's Wildlife Protection Act complies with the Convention on International Trade in Endangered Species (CITES) — an international binding treaty that India is signatory to. In fact, MOEF is bringing in another amendment to the Wildlife Protection Act to incorporate a chapter on CITES.

The contents of the chapter are not in public domain as yet, but government sources assert that its provisions are only designed to assuage the international community, upset after

Inside and outside

Tiger population over the years

	1972	1979	1984	1989	1993	1995	1997	2001-02
In tiger reserves	268	711	1,121	1,327	1,366	1,333	1,498	1,576
Outside reserves	1,559	2,304	2,884	3,007	2,384	—	2,010	2,066
Total	1,827	3,015	4,005	4,334	3,750	1,333	3,508	3,642

Source: Project Tiger directorate

the Sariska fiasco. The CITES chapter would have no bearings on the other amendments, they say. But, even while MOEF officials wax eloquent on an international agreement, the ministry has, in recent months warmed up to the UK and the US's overtures on bilateral wildlife conservation agreements (See: 'Tiger-tourism is critical to local communities,' *Down To Earth*, February 28, 2006). President George Bush's recent visit hogged headlines for the nuclear deals, but beyond the mainstream media's gaze, the US president also got India to join a "coalition against wildlife trafficking". India and the US have agreed to 'cooperate' in combating illicit wildlife trade, in matters related to PA management, on ecotourism, and for a better understanding of human-animal conflict. UK has been pushing for similar bilateral agreements. This, while both countries have done precious little to bring the major consumers of wildlife products, like China, to book.

Moreover, such bilateral agreements are not without peril. Observers of international environmental negotiations point out that signing such agreements is a standard US tactic to undermine international forums — it has done that most conspicuously on climate change negotiations. The US administration also regularly cites such agreements to tom-tom its leadership on environmental issues. India is the latest to fall under its sway. Ominously, by joining the coalition the country has opened itself up to parties whose interests at times run inimical to its priorities. Private players and international conservation NGOs have been officially recognised, though it's well



known that these international agencies have a far 'stricter conservation' agenda than suited for a country where biodiversity and people's interests are interlinked and constantly contest for space.

More committees

Yet another committee has been set up to report on the infrastructural needs of what is called the 'priority protected areas'. Official sources say that in the early 1990s the World Bank had funded, and the WWF had co-authored, a study to prioritise PAS on the basis of their biodiversity value and the risks they face. The committee on infrastructure will use the same report, though with some updating.

Another committee will look at the animal and plant species that get varying levels of protection under different schedules of the Wildlife Protection Act. There has been much discussion over the years over how such lists hamper or assist actual conservation work. Listing on schedules, which guarantee higher levels of protection, for example, make procurement of research permits painfully bureaucratic and sometimes render innovative methods of *ex-situ* conservation, virtually inapplicable. Authorities, however, cite another reason for tinkering with these lists: to make them tally with similar lists developed by the World Conservation Union. This when, wildlife researchers have often criticised these lists for inhibit-



Committees galore

- Rationalisation of Protected Areas
- Transboundary Protected Areas
- Guidelines on Policy for Scientific Research
- Animal and Plant Schedules under the Wildlife Protection Act Committees
- Revision of Wildlife Protection Act
- Infrastructure for Priority Protected Areas
- Guidelines for Endangered, Endemic and Threatened Species
- Databases
- Guidelines for collaborative research projects involving foreign researchers and institutions.

ing research (see: 'The holy book and the sacred list', *Down To Earth*, December 31, 2005)

The litany of committees doesn't end here. Another body with secretary, MOEF, as its head will look into the rationalisation of PA boundaries. A section of conservationists often criticise many sanctuaries and national parks for not conforming to the needs of conservation. Many see the current move (read: addition or deletion of land to PAS) as an answer to their criticisms. But, it's also true that various business and industry interests, like the mining sector, have constantly lobbied for de-reserving land in PAS for 'development'. The transparency with which this committee works will decide the fate of India's PA network. As of now, MOEF has not even shared with the public, any information on its creation.

Research and analysis

Research permits in forest and PAS remains a vexed issue. It was cause for much acrimony between wildlife research institutions and MOEF, some months ago. The researchers complained of the harassment they have to undergo in the absence of a clear policy on research permits, while the ministry claimed that much of their research was inconsequential for conservation (see: 'Hunted', *Down To Earth*, April 30, 2005). The standing committee of the National Wildlife Board did take up the issue in its meeting on January 20, 2006 and draft guidelines to resolve the problem were submitted by the Wildlife Institute of India, New Delhi. These have now been referred to a committee comprising eminent scientists such as Raman Sukumar and Asad Rehmani, for further review. Meanwhile, some states have more regressive measures on their anvil. Tamil Nadu's chief wildlife warden (CCW), for example, has demanded that in future all published research on forests in the state should credit forest officers as co-authors — even if they have done no research work. When contacted by *Down To Earth*, this CCW refused to answer questions, and instead accused wildlife researchers "of unnecessarily speaking to the media".

In the same vein, Karnataka's forest department has enunciated a strange rule that allows some research groups to work in 'tourism zones', but not in other portions of a few PAS. The state's CWW has justified it as a one-off case, while MOEF in Delhi has shrugged off responsibility for the state's actions.

Much of the confusion on this — and many other forest-related issues — stems from MOEF's reluctance to share information. There is little in the public domain on what the ministry envisages on issues such as private participation in PAS (see p 30) or even relatively insignificant moves like the setting up of half a dozen of committees.

So, while a section of the MOEF works to bring out an innovative tiger protection authority bill, another brings in a CITES chapter that no one knows of, yet another section of the same ministry signs bilateral agreements that undermine MOEF's own programmes. MOEF has not even evaluated how other large policy documents like the Forest Commission Report — to be released by March 31, 2006 — or the New Environment Policy — which shall soon be put before the cabinet — tallies with the ongoing amendments and the numerous committees.

The Tiger Task Force report may have brought focus to the work in the wildlife divisions of the MOEF, but the ministry still does not seem to have evolved a larger vision. ■

Unhealthy option?

Queries galore on health privatisation

RUP J PATER *Itanagar*

In November 2005, the Arunachal Pradesh government selected four NGOs to run 16 of its 85 primary health centres (PHCs). The list included only one local NGO, Future Generations Arunachal Pradesh (FGA), which is headed by chief minister Gegong Apang's son, Omak Apang. The Karnataka-based Karuna Trust, the New Delhi-based Prayas Juvenile Aid Centre Society and the Voluntary Health Association of India, together cornered 15 of the PHCs. This sidelining of Arunachal-based organisations has become cause for much discontent.

Kabak Tacho, president of the state Nationalist Congress Party, claims the selection and screening of NGOs was done in New Delhi and that the Arunachal-based NGOs were completely sidelined. "Community-based NGOs can run the health centres far better than those from outside the state," he contends. Tacho adds that the selected NGOs will receive about Rs 30 lakh per year per health centre.

What has miffed people like him is that most of the selected NGOs hardly have first-hand experience of the state. "Instead of allotting five PHCs to Karuna Trust, a few of these could have been allotted to local NGOs," says Tacho. Even the selection procedure is questionable. Says Biman Natung, head of the Voluntary Health Association of Arunachal Pradesh, the state chapter of the VHA, "FGA was selected because the chief minister's son, Omak Apang, himself an MLA, heads it," Natung said.

The government obviously denies any breach of procedure. The joint director of Arunachal's health services and state head for the project, T



Feeling the pulse: A doctor at Nacho PHC examining a patient

Basar, justified the move stating, "Karuna Trust is a reputed NGO, which successfully runs PHCs and dispensaries in Karnataka." He denies any fears that NGOs might not conform to their memorandum of understanding (MOU), since there is a get-out clause in the contract. According to the MOU, NGOs shall provide comprehensive health services to the local population, by engaging its own staff, preferably local people, for round the clock access.

In the past few years, the state government had established 85 primary health centres with four sub-centres each, but infrastructure was inadequate, both physically and in human terms. Given the magnitude of the problem, Natung stepped in with a proposal to privatise health care. Although the proposal raised quite a few eyebrows in the political and voluntary establishments, Anshu Prakash, the then state commissioner of health and family welfare, deputed D Padung, deputy director, maternal and child health, to work out the modalities. A public-private part-

nership project thus evolved.

The government thereafter invited expressions of interest in August and by November a disparate list was finalised: four NGOs selected to run 16 centres, with one getting the charge of nine (see table: *Undue favours*), and all but one with significant working experience in the state, the FGA. Incidentally, Natung, the so-called originator of the project, was left out in the cold.

Natung casts serious doubts over the selection procedure. The criteria for selection were not clear, he said, adding that the proposal was to select health centres in remote and inaccessible places, where they were almost defunct. But the health department earmarked centres with workable infrastructure.

Even the general populace have doubts. Addressing their concerns, Padung said, "The main apprehension regarding privatisation was that people would have to pay for all the services but it is not so. Below-poverty-line patients would not need to pay under any circumstances." He made it clear that a management committee would also be constituted. The committee would essentially be responsible for guiding and monitoring the day-to-day functioning of the centres.

It is not clear whether privatisation in the health care sector will work, but what is clear is without transparency, even the best of intentions will not meet with success. ■

Undue favours

Disparate distribution of PHCs

Organisation	PHCs allotted	Affiliation
Karuna Trust	Nine	Vivekananda Ashram
Voluntary Health Association of India	Five	Biman Natung, associate member, VHA, initiated the idea
Prayas Juvenile Aid Centre (JAC) Society	One	Headed by the state's director general of police Amod K Kanth
Future Generations Arunachal (FGA)	One	The Arunachal chief minister's son Omak Apang heads it

Old whine in new bottle

Debate over fresh IFC guidelines

KIRTIMAN AWASTHI

The International Finance Corporation (IFC), the private sector arm of the World Bank, has recently adopted a new set of regulations for companies borrowing from it. The new rules, called the policy and performance standards on environmental and social sustainability, add to the existing framework of the Equator Principles, (see box: *Managing risk*) which addresses issues of labour rights, community health, safety and security and disclosure of information. Issues of natural habitat, indigenous peoples, involuntary resettlement, dam safety and cultural sites already find a place in the Equator Principles, an agreement chalked out to adhere to social and environment safeguards of the bank. While the IFC maintains that the new regulation would make business more accountable and minimise the negative impact of projects on environment and affected communities, environmental watchdogs say it is not enough.

According to Lars Thunell, IFC's executive vice president, "The new IFC standards are stronger, better, and more comprehensive than any other international finance institution working with

the private sector. Our aim is to increase the development impact of projects in which we invest." However, not everyone agrees. While labour groups term the guidelines as a 'good start', environmental groups have termed it 'inadequate' and even 'vague'.

The Brussels-based International Confederation of Free Trade Unions (ICFTU) said IFC's new guidelines on labour are on par with those issued by the International Labour Organization (ILO). ICFTU notes that the borrowing companies would have to abide by the 'core labour standards' rules (forced labour, child labour, wages, discriminatory practices, recognition of freedom of association, right to collective bargaining) as defined by the ILO. "Thousands of workers in IFC-financed projects stand to benefit from this new decision, which we believe should set some kind of a precedent for international lending in both the private and public sectors," said ICFTU general secretary Guy Ryder.

Implementation blues

Although ICFTU has welcomed the guidelines and offered to work with IFC to implement the new labour standards, it has admitted to a lack of an effective



implementation mechanism within the framework. But without effective and efficient monitoring mechanism, the environmental groups are concerned whether private companies would change their behaviour. The Netherlands-based *Friends of Earth International* feels the new guidelines do

MANAGING RISK

In 2003, 10 of the largest commercial banks in the world agreed to the so-called Equator Principles: a set of policies for financial institutions to determine, assess and manage environmental and social risks in project finance. By 2005 end, 37 of the world's largest private financial institutions signed it. The principles' overall framework is based on environmental and social safeguard policies, pollution standards and environmental and social risk categorisation system.

The framework requires companies to carry out environmental

assessment. Projects are classified as Category A, B or C (high, medium or low environmental or social risk). For Category A and Category B projects, a borrower must carry out an environmental impact assessment (EIA), which addresses the environmental and social issues identified in the categorisation process. EIA must demonstrate that the project complies with host country laws, regulations applicable to the project, and World Bank Group Pollution Guidelines for the relevant industry sector. For all Category A and some Category B projects, the

borrower or a third party expert must prepare an environmental management plan which addresses mitigation and monitoring of environmental and social impacts. For these projects, the bank must be satisfied that the borrower has carried out a public consultation process among groups affected by the project.

The equator banks include global names like ABN AMRO, Barclays, Citigroup, Crédit Lyonnais, Credit Suisse Group, Dresdner Bank and Royal Bank of Canada. These banks sometimes co-finance projects with the World Bank in mining, oil, gas and related sectors.

New guidelines do not throw light on post-project monitoring and implementation



SHYAMAL

not throw light on post-project monitoring and implementation: “Rather than addressing fundamental deficiencies, IFC opted to launch a revised guidelines that would recognise and institutionalise this failure to implement standards.” Experts have also been critical of the lack of publicly available information on how banks implement such guidelines, thus making it virtually impossible to track down their compliance with safeguards.

Other groups that criticised the move include the US-based Bank Information Centre, Canada-based Environmental Defence, Indian Law Resource Centre, a US-based legal advocacy group for indigenous people, and International Accountability Project, an international public interest advocacy organisation. These groups are concerned about the enforcement of the guidelines. World Track, a global coalition of NGOs, described the new IFC approach as a ‘risky experiment’ marked by vague language and non-committal statements that they fear can affect local people and the environment

in much worse a manner than ever before. Moreover, if past experiences are any thing to go by, there is very little hope for things to get better (see box: *Low standards*).

Who will monitor?

Pre-project assessment is of extreme significance for developing countries.

Besides post-implementation monitoring, the new guidelines do not address the question of a monitoring agency. Currently, for any post-implementation monitoring, IFC expects and relies only on the companies. The guidelines advocate effective community participation in successful management of risks and impacts to affected communities. But when it comes to implementation, it leaves over the responsibility completely to its clients. It also expects its clients to manage any environmental or social risk.

Environmental groups stress the fact that the new IFC guidelines do not provide for outside monitoring and require independent overseeing and verification of project impacts. Experts believe that engaging and promoting knowledge-based NGOs in monitoring and assessment could be beneficial. There is a catch though. Although IFC says it would monitor and review the client’s social and environmental performance throughout the ‘life of investment’, it does not define what ‘life of investment means’. For some of the activities like mining and extraction, the impact remains for years, even after the project is over.

Safeguards

IFC gives billions of dollars every year to development projects affecting environment and livelihood of millions around the world. So far, IFC has backed projects of 3,319 companies in 140 developing nations. Last year alone, IFC invested more than US \$24 billion in developing countries. To protect people and environment against the harmful impacts of projects that it finances, IFC adopted safeguard policies in 1998. Companies qualified for IFC funding only if they followed its policies.

LOW STANDARDS

A recently published study by BankTrack and World Wide Fund for Nature that examined the environmental financing policies of 39 international banks found: banks were unable to maintain environmental and social standards developed by UN agencies and other international bodies. Though there is a growing commitment to sustainable banking within the international banking sector, the report highlighted the need for the banking sector to adopt more transparent financing policies, advancing sustainability while helping to reduce their exposure to risk. The report found that no bank has standards for fisheries and agriculture; only one bank has a policy specifically for dams (HSBC), extractive industries (ABN AMRO) and chemicals (HSBC); and that the vast majority of banks have no human rights guidelines.

The study also revealed that there was a near total lack of publicly available information on how banks were implementing such guidelines, making it virtually impossible to track down the banks’ compliance with the safeguards.

Loopholes however, remained and IFC came up with guidelines as a so-called corrective measure. It is important to note that only the revised guidelines are not being questioned. The policy review that happened in three stages was filled with controversies and NGOs and advocacy groups had boycotted the process because of lack of transparency and clarity in the review process.

With the changing global perceptions on corporate responsibility and the need for sustainable development, safeguard policies can be helpful. The time is right for private companies to start integrating environmental and social concerns with their business operations in the true sense of the term. However, without an effective system of monitoring during the project and more importantly, after the project, it is unlikely that private companies will follow what IFC says. ■

ENVIRONMENTAL SCIENCES

Power corrupts

Coal-based power plants cause haze over Indo-Gangetic plains

T V JAYAN

UNCONTROLLED emission from poorly managed thermal power plants in northern and eastern India is the main source for the haze that envelops the Indo-Gangetic plains during winter, shows a new study. The region extends from Rawalpindi in Pakistan to Rangpur in northern Bangladesh.

Institute of Technology (IIT), Kanpur, researchers Anup Prasad and Ramesh Singh with Menas Kafatos of the George Mason University in the US, measured the concentration of aerosols (fine particles like black carbon and sulphates) over the region using satellite data.

They found that the aerosol concentration over the thermal plants was much higher as compared to their

share of coal in power generation has increased from 29.4 per cent in 1990 to 33.6 per cent in 2000. On the other hand, the use of biomass as firewood in India declined by almost 10 per cent over the last decade, Singh adds.

Though thermal power plants are equipped with electrostatic precipitator filters to reduce emissions, Singh is not sure if the filters are checked or replaced regularly. In addition, there is a large number of old coal-based plants with a capacity as low as 50 MW. These plants have high emission levels because most of them lack requisite pollution control facilities. For instance, a 50-year-old plant in Kolkata used to emit 500-1,000 microgrammes per cubic metre ($\mu\text{g}/\text{cum}$). The emission came down only after the plant was renovated in 2001, following which the figure came down drastically to 10-20 $\mu\text{g}/\text{cum}$.

According to the Union ministry of forests and environment's *State of the Environment Report for 2001*, 20 of the 97 pre-1991 thermal power plants had not taken measures to control pollution as of June 2000.

High ozone

The winter haze not only seriously compromises the health of millions, but can also drastically reduce crop yield.

According to Madhoolika Agrawal, professor of botany at the Banaras Hindu University (BHU) in Uttar Pradesh, the presence of pollutants such as carbon monoxide, nitrogen oxides and hydrocarbons, leads to the formation of ozone close to the earth's surface. Unlike the stratospheric ozone, which

protects the earth from harmful ultraviolet rays, this ozone can enter the plants through their leaves and hamper photosynthesis, thereby reducing plant growth and crop yield, she said.

Studies by BHU scientists have shown that ozone levels near the surface were between 15-50 parts per billion (ppb) in 1989-1990, but now range between 30-70 ppb. Besides, high levels of ozone now extend to almost the entire year (except January and February), whereas earlier high levels were restricted to about three months (March-May). ■



Smog shrouds the region for weeks together in winter and the problem is getting worse

The findings contradict earlier studies that sought to put most of the blame on biofuel used for cooking by the majority of 600 million people living in the region (see 'Poor soil, global warming', *Down To Earth*, February 28, 2005). Another reason that has been cited for the thick layer of haze is the burning of biomass following the use of mechanical harvesters by rich farmers (see 'What's cooking', *Down To Earth*, April 15, 2005).

Getting worse

Meteorological data indicates that the duration and thickness of the winter haze has been increasing over the last 50 years. During the 2002-2003 winter, thick smog covered the region for more than 45 days at a stretch.

For the latest study, the Indian

immediate surroundings. For instance, in the case of the 240 MW Panki plant in Uttar Pradesh, the aerosol concentration was found to be 15 per cent higher than in its surroundings, which includes the highly-polluted Kanpur city. The study was published online on March 7 in the journal *Geophysical Research Letters*.

Singh, the lead author of the study, says that India has about 90 coal-based power plants with a capacity greater than 100 MW, of which a large number are located in the Ganga basin. These plants daily use thousands of tonnes of low-grade coal (with 30-45 per cent ash content), which is the major source of emission of carbon dioxide and other pollutants. According to the study, the

LIFE SCIENCES

Tree of life

New technique sheds fresh light on the origin of species

KIRTIMAN AWASTHI

A GROUP of scientists at the European Molecular Biology Laboratory (EMBL) in Heidelberg, Germany, has developed a computational method to reconstruct the tree of life — a representation of evolution and the relationships between different life forms.

The tree of life was developed by German biologist Ernst Haeckle in 1870. It is based on the theory of evolution proposed by Charles Darwin. Human beings figure at the top of the tree, reptiles in the middle and bacteria at the base. However, uncertainty remains over the position of bacteria and other microbes.

The tree of life has several uses including tracking the origin and spread of emerging diseases and their vectors, bio-prospecting for pharmaceutical and agrochemical products and evaluating risk factors for species conservation and ecosystem restoration.

The new model is based on genetic information available for different species. “DNA sequences of complete genomes provide us with a direct record of evolution,” says Peer Bork, who headed the project. The researchers identified 36 genes universally present in 191 species whose genomes have been sequenced to reconstruct their relationship. This tree can also be easily automated and updated. The study was published in *Science* (Vol 311, No 5765, March 3, 2006).

Using this open source resource, the authors looked at the evolutionary history of bacteria. They found that Acidobacteria (group of ecologically important bacteria) was a sister group of Proteobacteria (a group of mostly pathogenic bacteria). The study con-

firmed the hypothesis on the origin of bacteria. “We now know that the first bacterium was probably a type called gram-positive and likely lived at high temperatures — suggesting that all life arose in hot environments,” the researchers say. Another finding was that smaller genomes evolve faster than bigger ones.

According to the theory of evolution, all organisms descended from a

HEALTH & MEDICINE

TB knows colour?

Vitamin D deficiency weakens defence

VIBHA VARSHNEY

IT IS known that people with dark skin are more susceptible to tuberculosis. A recent study has found why this is so. Carried out by researchers from the US and Germany, the study shows that low levels of vitamin D in people with dark skins is the likely reason.

The scientists studied the response of human immune cells to tuberculosis bacteria. They found that the germs stimulate a set of receptors present on these cells. This triggers a set of reactions — the cells produce an enzyme that activates vitamin D to manufacture a protein that can kill the germs.

Compared to fair-skinned people, those with dark skins have high levels of melanin — the pigment that provides colour to skin. But melanin reduces the skin’s ability to produce vitamin D. The scientists found that when exposed to the bacteria, cells cultured in blood samples taken from dark-skinned people produced about one-third of the microbe-killing protein produced by fair-skinned people. Supplementing the samples from dark-skinned people with a vitamin D precursor boosted the production of the protective protein. The study appeared in the online version of *Science* on February 23, 2006.

common ancestor and so share common genes. But some of the genes may have been laterally transferred. “Organisms inherit most genes from their parents, but over the course of evolution, organisms swap genes with each other through horizontal gene transfer (HGT),” says Francesca Ciccarelli, the lead author. Because HGT does not tell anything about ancestors, the researchers identified and excluded them from the analysis.

The researchers now expect to classify microbes from unexplored regions like the ocean floor to further improve understanding of life on the planet. This may also help resolve the evolution versus creationism debate. ■



Burden of a dark skin

There have been no large-scale studies of the prevalence of vitamin D deficiency, which appears to be widespread among poor people throughout Africa, West Asia and South Asia. Data from the US shows that in 2004, tuberculosis rate among blacks was eight times higher than that for whites. The study also explains why exposure to sunlight — which increases production of vitamin D — is a common treatment.

“A combination of food and supplements would be better than getting the vitamin from the sun as it is difficult to regulate and its harmful effects are well-known,” says Robert Modlin, David Geffen School of Medicine at University of California at Los Angeles, USA, the lead author of the study. ■

The new model of the tree of life includes genetic details on species whose genomes have been recently sequenced

ENVIRONMENTAL SCIENCES

Groovy benefits

Mangroves contribute generously to oceanic carbon

A NEW research study shows that the function of mangroves is not limited to protecting the coastline and maintaining biodiversity. An international study has found that though mangroves cover less than 0.1 per cent of the global land area, they provide more than 10 per cent of essential dissolved organic carbon (DOC) that is supplied to the oceans from land.

"We wanted to find out more about DOC since it is an important player in the global carbon cycle that regulates atmospheric carbon dioxide and climate," says Thorsten Dittmar, the lead author from Florida State University in the US. The findings appeared in *Global Biogeochemical Cycles* (Vol 20, No GB1012, February 21, 2006).

The scientists found that the mangrove root system traps carbon-rich leaf litter and allows it to settle into shallow sediment. Tidal action then flushes the dissolved carbon into the open ocean.



Rooting for carbon

The authors analysed water samples from the massive mangrove forest in northern Brazil, using natural carbon isotopes and nuclear magnetic resonance spectroscopy. They found that the mangroves export about 25 billion kg of carbon to oceans per year, nearly triple the amount estimated from previous smaller-scale studies.

The findings are crucial as mangrove foliage has declined by nearly half because of increasing coastal development and damage to its habitat. As the habitat has changed, ever-smaller quantities of mangrove-derived detritus are available for formation of DOC. The researchers speculate that the rapid decrease in mangrove extent may eventually shut off an important link between the land and oceans, impacting atmospheric composition and climate. ■

PHYSICAL SCIENCES

Elementary motion

Protons caught in action

SCIENTISTS have caught the ultra-swift subatomic particles called protons in action. The feat, accomplished by a team of researchers from the Imperial College in the UK, opens a new window to fundamental scientific processes.

The breakthrough was achieved using hydrogen and methane molecules. It will provide opportunities to scientists for a more detailed study and greater control of molecules, particularly organic molecules that are the building blocks of life. The study appeared in the March 3 issue of *Science* (Vol 311, No 5765).

"We are very excited by these results, not only because we have 'watched' motion occurring faster than was previously possible, but because we have achieved this using a compact and simple technique that will make such study accessible to scientists around the world," says Sarah Baker, the lead author of the study.

The scientists used a specially built

The study will provide opportunities for greater control of organic molecules, the building blocks of life

laser system at the university's Blackett Laboratory Laser Consortium to produce extremely brief pulses of light. The laser exerted an oscillating electromagnetic force on the electrons surrounding the protons, repeatedly tearing them from the molecule and driving them back into it. This caused the electrons to emit x-rays, whose intensity was proportional to how far the protons moved between each oscillation of the electromagnetic field.

The Imperial College scientists think that control of subatomic particles underpins an array of future technologies, such as quantum computing and fabrication of nano-scale materials. ■

HEALTH & MEDICINE

BODY ODOUR

How a frog drives away mosquitoes

Are mosquitoes driving you crazy? Try the services of *Litoria caerulea*, a tree frog that inhabits forests in northern Australia and New Guinea.



SHYAMAL

Secretions from the skin of the frog can effectively ward off mosquitoes, claim researchers from the University of Adelaide, Australia. They washed off the secretions with distilled water and applied the solution to the tails of lab mice. When exposed to mosquitoes, the mice remained bite-free for up to 50 minutes. The researchers suggest the secretions could provide an alternative to synthetic mosquito repellents, which have been linked to various adverse health effects. The findings were published online on February 21, 2006 in *Biology Letters*.

Frogs and toads exude toxic chemicals from their skin to ward off pests and predators. Efforts are now underway to synthesise such molecules to enable their mass production.

HEALTH & MEDICINE

Getting EU's goat

GM anticoagulant not kosher

THE LONDON-based European Medicines Agency (EMA) has turned down a proposal to market a drug derived from genetically modified (GM) goats, saying "the product hadn't been tested enough". US-based GTC Biotherapeutics has spent almost 15 years breeding GM goats whose milk contains a human anticoagulant called anti-thrombin. The company planned to market the drug under the name ATryn.

EMA wanted GTC to test the drug on 12 patients, but the company presented

Any takers?



evidence only from five. The agency also said GTC had done too few studies to assess whether patients developed antibodies in response to ATryn. EMA, a European Union agency, is responsible for evaluating and supervising new medicines.

ATryn has been designed for people lacking a gene that keeps the blood thin, according to GTC spokesman Tom Newberry. Though blood-thinning drugs such as Warfarin are available, these can raise the risk of bleeding to death during childbirth or surgery. At such times anti-thrombin itself is used, the only present source of which is human blood.

But proponents of GM technology say that farming for drugs, some of which cost tens or even hundreds of thousands of dollars a year per patient, could substantially reduce their prices.

EMA's decision could be significant for other GM drugs in the pipeline. For instance, a Dutch biotech company, Pharming, is awaiting US approval for an antibacterial agent produced in the milk of GM cows. ■

HEALTH & MEDICINE

Clues from the Nile

May help with diseases like avian flu and SARS

A RECENT study on the West Nile virus disease throws fresh light on its rapid spread in the US, where it was introduced in 1999. The disease has affected an estimated 215,000 people of whom 770 have died.

The infection causes headache, fever and may also result in encephalitis. The virus is transmitted by *Culex pipiens* mosquitoes that mostly feed on American robin (*Turdus migratorius*).

For the study, researchers from the Consortium for Conservation Medicine, New York, New York State Department of Health, New York and Smithsonian Environmental Research

Center, Maryland collected *C pipiens* and caught robins from six affected sites. They then sequenced the DNA of blood found in mosquito's stomach.

They found that from May to June, the bird accounted for more than half of mosquito's meals. But when the robins left their breeding grounds, the probability of humans being targeted increased sevenfold. The study appeared in the April issue of the online journal *PloS Biology* (Vol 4, No 4).

The study may help understand and predict the spread of other diseases such as SARS, Nipah virus and avian influenza, where a similar species jump is feared. ■

BYTES



HELPFUL GERMS: Scientists have found a bacteria that could help transform disposable cups and plates into a biodegradable plastic, according to a recent study.

The useful microbes are a special strain of the soil bacterium *Pseudomonas putida*, according to Kevin O'Connor of University College Dublin, Ireland, the study's corresponding author.



CITRUS CHIP: Researchers from the University of California, Riverside, USA, in partnership with a private company

Affymetrix, have designed a chip to improve citrus varieties. By determining which genes are turned on in a tissue of citrus — for instance those associated with taste and disease — the chip provides information useful to researchers to rectify existing problems for better yield.

The chip allows analysis of expression of more than 20,000 different genes. The researchers will also use the chip to study traits pertinent to the citrus industry such as easy peeling, seedlessness and nutritional characteristics.



RADIOACTIVE WASTE: Researchers at Penn State University and the Savannah River National Laboratory, both in USA, have developed a method to process certain radioactive liquid wastes into a solid form, called hydroceramic, for safe disposal.

The new process uses low temperatures (less than or equal to 90°C) to solidify and stabilise low-activity radioactive waste. The resulting hydroceramic is strong and durable and has the potential to tie-up and hold minor radioactive components in its zeolitic structure. According to the scientists, the preparation is similar to the way rocks are formed in nature.

Worldly wise

India hard-sells its troubled protected areas abroad

NITIN SETHI

When it comes to saving biodiversity, India leaves no stones unturned to present a positive image at international forums like the Convention on Biological Diversity (CBD). India protects its biodiverse areas and maintains sanctuaries and national parks. It makes extensive 10-year management plans for each protected area and implements them in each of the 595 protected areas. It has a huge staff, a body of trained officials along with specialised courses for wildlife protection. There may be instances of decline of the tiger population at a particular park, but to India's advantage, the other member countries of CBD are so resource poor that cannot make a similar impression.

This year at the CBD's eighth Conference of Parties (COP 8) things should not be any different for India. It should be easy for the country to claim it has done much on the Programme of Work on protected areas that CBD had adopted in the COP7. The purpose of the Programme of Work on Protected Areas is to establish "by 2010 for terrestrial areas and by 2012 for marine ones, a comprehensive, effectively managed, and ecologically representative national and regional system of protected areas". India's experience, like any other developing country with megadiversity, indicates that creating a protected area is like opening another battlefield between people and conservation.

Tall claims

But India's claims are filled with contradictions. On one hand, it claims the existing protected areas network "ensure(s) appropriate representation of a range of biological values spread across the ten biogeographic

zones and twenty-six biogeographic provinces in the country. It claims that the Draft National Environment Policy 2004 envisages expansion of the network to represent all biogeographical zones. The Wildlife Action Plan (2002-2006) also calls for expansion of protected areas network." On the other hand, there is the excuse that creating them results in troubles in the hinterland: "Unfortunately, the process of rehabilitation has not been fully completed due to a variety of social, economic, political, administrative and financial reasons and thus several protected areas have not been legally gazetted to date," says the plan.

Lack of finances is a ready excuse for conflict-ridden places. The plan claims: "The country presently has no sustainable financing plans that support national systems of PAS." In its third draft report on compliance with CBD requirements it drops a bombshell saying, "The need is being felt to develop these plans and to develop public-private partnerships for effective protected areas management." No one, however, has ever heard of a private partnership in managing protected areas, although there have been occasional murmurs of maverick businessmen wanting to take

over some high-profile parks but there has been no public consensus on the issue yet.

One could partly blame the environmental watchdog NGOs in India for letting the Ministry of Environment and forest (MOEF) off the hook too often on the issue of protected areas.

The challenge

COP7's programme of work for protected areas has set an agenda that India is bound to follow, as CBD is an enforceable treaty. India has to create more terrestrial protected areas in the next four years. Unfortunately, CBD's programme is not as strong when it comes to dictating what kind of protected areas India should create. It does suggest that India follow the IUCN (World Conservation Union) guidelines for protected area management categories where the IUCN lists a category of strict reserves as well as one for zones of sustainable use. The guidelines do not explicitly say that one is more important than the other (though critics say IUCN's inclination for the strict reserves is in-built in its psyche). MOEF has only paid lip service to the guidelines. In 2003, it created a loophole-riddled legislation for protected areas where sustainable use can be practiced. Not a single such protected area has been created yet.

India has regressed with time when it comes to issues of access and benefit sharing in protected areas — a cross-cutting issue that is going to be central to the character of COP8. The arrangements it had in most

sanctuaries for use of forest produce are mostly caught up in legal entanglements.

India is most likely to come out of COP8 with self-lauding statements but lets hope the same officials are sent to some of the most contested tiger reserves in India (like the now infamous Ranthambore and Sariska) to tell the villagers why exactly CBD extolled them. ■



SHYAMAL

LONG YARN

The cotton story is a tangled tale. In many parts of India, farmers are committing suicide. It's been a while — Andhra Pradesh, Punjab and now Vidarbha in Maharashtra. What goes into the vicious cycle is indebtedness, brought on by a combination of international trade cycles, state policies on subsidies and tariffs and the trade-off between the interest of cultivators and manufacturers of the products that make cotton a commercial crop.

Caught in the spinning wheel, principally, are three of the usual suspects: the us, India and China. The biggest problem is that Uncle Sam gives big subsidies to its cotton farmers, a problem that has been haunting the World Trade Organization (WTO) for a while. So India is importing cheap raw cotton, especially the extra-long staple (ELS) needed for the high-end textile trade. With the death of anti-dumping regulations, India expects a substantial increase in its textile trade and the textile lobby is powerful — witness the recent proposal, approved by cabinet, to amend labour laws to help the industry deal with industrial ups and downs.

Indian subsidies are low — restricted to the southward-bound minimum support price (MSP) for a small amount of total output, based on quality. Privatisation in procurement has made cotton farmers more vulnerable. But for textile magnates, importing cheap us cotton still remains a more



DEBOYOTI KUNDU/CSE

worthwhile option. So, who cashes in? Private traders. And how? The strange thing is that while India is now importing raw cotton, it's also exporting — through a private procurement and export regime — mainly to Bangladesh and China. The profits are going to big trading houses, which is why farmers are committing suicide and not traders.

Stranger still is the fact that India is exporting cotton to its main rival in the global retail textile market. China imposes huge duties on Indian, and other, raw cotton to protect its farmers, which India does not. But it has overcome that extra cost to become the most competitive player in the global market because it has better technology.

SOURAV MISHRA unravels the enigma of the cotton story.



TANGLED WEB

Vidarbha cotton farmers hit by state failure

Its not as good as it looks in Vidarbha's Pandar Kaoda, where cotton is being taken for baling. The region's cotton farmers are actually reeling

RANJIT DESHMUKH / CSE

The number of suicides by cotton farmers in Vidarbha has risen alarmingly this cotton season (see graph: *Suicide spike*). This is not just a consequence of increasing input costs, water scarcity and the high interest charged by *sahukars* (moneylenders). The Maharashtra government's decision to bring down its MSP by withdrawing a 20 per cent premium over the national MSP it used to pay and abolishing a Rs 500 advance bonus it used to dole out at the beginning of the season to buy seeds has played a major role.

Vidarbha's 11 districts produce 75 per cent of Maharashtra's cotton and almost all farmers' suicides have happened here. But its not just MSP. Succeeding governments seem to be unsympathetic to the region's cotton farmers. Unlike the affluent western Maharashtra, represented by successful farmer-politicians like Union agriculture minister Sharad Pawar, which gets plenty of facilities by way of irrigation and credit, Vidarbha gets practically nothing (see graph: *Tale of two regions*), despite the fact that Vidarbha has harsher conditions — mainly low soil fertility and less rain.

The figures are telling. Input costs for cotton have risen from Rs 5,000 per hectare (ha) in 1995 to Rs 10,000-12,000 now. Moreover, only 11 per cent of the cotton crop has assured irrigation in Maharashtra. Water charges are also the highest in the country. They vary from Rs 180 to Rs 1,080 per ha, depending on several variable factors. In most other cotton states, water is either

free or charged nominal rates in the range of Rs 50 to Rs 200. Productivity is also a problem. Maharashtra has the highest area under cotton — around 3 million ha on average, each year. This is more than Punjab, Haryana, Rajasthan, Madhya Pradesh and Andhra Pradesh put together. But its productivity is the lowest in the country — it produces less than Gujarat, where the acreage is half.

Cotton farmers survived because of the higher MSP paid by the state government and procurement and marketing systems that assured farmers their produce would be bought and sold by the government. Private sector participation in procurement and marketing hit the state schemes in 2002; and higher MSPs went this year. And suicides started going up.

Marketing mayhem

Till 2003-2004 Maharashtra used to be the only state in the country where a monopoly scheme for procuring cotton was in operation. The state used to offer a 20 per cent premium on the central government's declared MSP, under the Maharashtra Raw Cotton Monopoly Procurement Act, 1972, to counter low production and prices. The act gave the Maharashtra

Cotton Producers' Marketing Federation (MCPMF) monopoly status as the sole procurement agency. Under the scheme, 75 per cent of MCPMF's profit was to be distributed as bonus to farmers while the rest was to be kept as a price-fluctuation buffer. Critics say the scheme was

Tale of two regions

Disparity in bank credit and irrigation infrastructure

Region in Maharashtra	Loans disbursed (in percentage)	Irrigation facilities (in percentage)
Western Maharashtra	80	82
Konkan	24	28
Marathwada	18	21
Vidarbha	8	11

Source: Vidarbha Jan Bachao Andolan

started to help the Mumbai-based textile industries rather than farmers. Visesh Joshi, an activist based in Mumbai, says the scheme was started in 1972 because the international prices were too high and there was a production crisis in India. But, clearly, farmers benefited.

This procurement scheme was better than the central procurement scheme by the Cotton Corporation of India (CCI). CCI procures only 10 per cent of the farmers' produce across the country, based on quality parameters, while MCPMF procured the entire harvest. But over the years, the scheme was destroyed by widespread corruption, which created huge losses. Till 1994, the loss was only Rs 172 crore. The figure rose to over Rs 5,000 crore in 2004-2005, when MCPMF incurred an incremental loss of Rs 1,600 crore. As a result, financial institutions refused to refinance the company, which the Maharashtra government cited as the reason for doing away with bonus and premium schemes.

No mercy

The Maharashtra government breached its promise to farmers twice this cotton season. The initial blow came in the beginning of the 2005-2006 cotton season when the bonus was abolished after 33 years. This prompted farmers to flock to *sahukars*, who charged them much higher interest.

A study by the Tata Institute of Social Sciences on Vidarbha farmers' suicides reveals that about 75 per cent of farmers in the region obtained loans from moneylenders. It also found that most of them had defaulted on bank loans over the last four years, which is why they had to turn to moneylenders. Even moneylenders have become cagey. With rising costs and the advent of Bt seeds increasing credit requirements, the situation has turned desperate.

The second blow came mid-way through the season. The government lowered MSP from Rs 2,500 per 100 kg to Rs 1,750. This translated into huge debt traps even before the season ended, triggering suicides before procurement started. "The government reduced procurement price to the all-India level to reduce the Rs 5,000-crore loss of the procurement agency, MCPMF," claims N P Hirani, the chief of the agency.

"This year's payment crisis has its roots in electoral promises made before past elections. The Democratic Front government (Maharashtra's ruling coalition) promised a rate of Rs 2,700 per 100 kg to cotton growers before elections. But it reneged. It reduced payment liabilities by asking MCPMF to declare a support price of Rs 2,500. Even that went down the tube, ruining most farmers," says Jaideep Hardikar, a journalist and researcher in Vidarbha. "The promise of Rs 2,700 per 100 kg and past years' boom in international markets saw the acreage under cotton rise by 20 per cent. Now with a price crash, the textile mills will have a field day," says Vijay Jawandhia, a farmer leader.

The cotton failure in Vidarbha is a lesson in policy failure — a fact underlined by Gujarat's spectacular success.

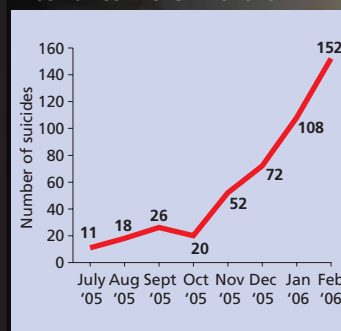
KILLING FIELDS

The suicide of Jamuna Ramdas Ade, a farmer of the Banjari community, is eloquent testimony to the plight of cotton farmers in Vidarbha. Banjaris have always had the reputation of being resilient however bad the situation seemed, but Jamuna finally succumbed on January 10, 2006, committing suicide by consuming monocrotophos, an insecticide, in Salod Krushanpur, a remote village in Yavatmal district, 178 km from Nagpur.

"She took this extreme step because the local moneylender used to harass her," says Sankar, Jamuna's son. Further questions about the moneylender yielded no answers. Sangeeta, Jamuna's married daughter, was more forthcoming. "We are afraid the moneylender may harass our family," she says. Chanda Masola, a friend of Jamuna, was more explicit: "The local primary school teacher-cum-*sahukar* (moneylender) was asking Jamuna for sexual favours in return for the Rs 5,000 loan she took six years ago to grow cotton. He was demanding Rs

Suicide spike

Deaths increased after state incentives were withdrawn



Source: Vidarbha Jan Bachao Andolan



Bleak future: Ramdas, whose wife committed suicide

RANJIT DESHMUKH / CSE

50,000 as the total amount owed. Jamuna was humiliated time and again by the moneylender and his goons in public. This ultimately led to her suicide."

Jamuna took to farming seven years ago, when Ramdas, her husband, was paralysed. Increasing input costs and decreasing yields on her 2.8-hectares (ha) farm compelled Jamuna to approach a cooperative bank, but she was denied assistance because Ramdas had taken a Rs 10,000 loan which he had not returned. The total sum owed had increased to Rs 24,000. This led Jamuna to approach the local moneylender, Shyamji, who is one of the increasing tribe of government employees who are turning to moneylending. Jamuna had cultivated cotton on 1.2 ha, investing Rs 22,500. She got 600 kg. At Rs 1,700 per 100 kg this could hardly cover input costs.

When a *Down To Earth* correspondent visited Jamuna's house, the *naib tehsildar* of Salod, S K Thamke was there. He didn't hold out hope: "Nothing can be done. The land was not in her name, so this cannot be classed a farmer suicide, which means no compensation," he said.

COTTON CRUCIBLE

State support helped Gujarat script success

In the past five years, when cotton farmers of Maharashtra, Andhra Pradesh and Punjab were struggling, Gujarat farmers were making hay, to the tune of Rs 5,000 crore a year. The state's total yield has increased by 5.6 million bales in the past five years. "This additional yield means an additional income of Rs 4,275 crore for the farmers," says J V Shah, retired managing director of Gujarat State Seeds Corporation. According to his calculations, 'pirated' Bt seeds have saved Rs 240-250 crore for Gujarat. Pesticide costs have also been saved, to the tune of Rs 360 crore (see table: *Staple diet*).

Gujarat had the lowest productivity in 2000-2001. Today, it boasts of the highest yield in the country, with a growth rate of 433 per cent, compared to 2-5 per cent in other cotton growing states. The cost of cultivation in Gujarat has decreased by 50 per cent, bucking the nationwide trend. This five-year miracle, moreover, was achieved without subsidy, premium MSP or any extension support, mainly due to 'pirated' illegal Bt cotton. The parallel, indigenous Bt industry thrived with state sponsorship and protection, though the use of local Bt cotton contravenes intellectual property right (IPR) laws and does not comply with the regulations of the Genetic Engineering Approval Committee (GEAC).

The Gujarat revolution was pioneered in the 2001-2002 cotton season by a hybrid variety called Navbharat-151, developed by a local seed company, Navbharat. GEAC alleges it has Bt genes, which legally it is not supposed to use. Since it has no licence for the gene from Monsanto and for trial or sale from GEAC, it was branded illegal by the central government. An order to burn 4,000 ha of crop was issued in 2001 in view of this contravention, but the state government resisted, since farmers had reaped good harvests from this variety of cotton. When Navbharat-151 was banned, it just went underground, with farmers circulating the seeds and small seed farms, about 300, being established. Former Gujarat finance minister Sanat Mehta says, "The variety not only survived the 2001 bollworm attack but also gave very good yield." Research by Anil Gupta of the Indian Institute of Management, Ahmedabad, confirms this. The average yield ranges from 1,200 to 1,500 kg per ha, which is better than the best of imported varieties. Price was the other important factor. "Navbharat-151 is available at just over Rs 500 per packet which is almost one-fourth the price of

Staple diet

Gujarat's strides in cotton cultivation

Details	2000-01	2001-02	2001-03	2003-04	2004-05	2005-06
Area (million ha)	1.61	1.74	1.63	1.62	1.9	2.0
Production (million bales) (1 bale=170 kg)	1.16	1.7	1.68	4.50	7.34	9
Production (in kg/ha)	122	165	175	469	653	765

Source: State department of agriculture, Gujarat & Cotton Corporation of India (CCI)

UNFAIR BAN

J V Shah, advisor, Navbharat and ex-MD, Gujarat State Seed Corp, on local seeds



What's the secret of Navbharat-151's success?

This is designed as a shorter-duration variety (140 days) as against 180 days to facilitate the *rabi* crop. Because it originates from the best local selections, it suits local conditions well. Besides, this is a long-staple variety and has potential yield of 5,500 kg per hectare.

Is it a Bt variety? If not, how was it developed?

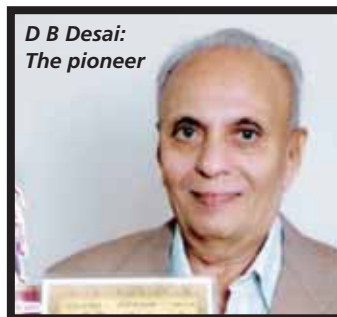
No, it's not a genetically engineered variety but is a hybrid developed with conventional methods. When the germplasm was selected for crossing it was not known to contain Cry1Ac gene. In the past, Gujarat scientists adopted the same technique to develop the world first hybrid, H-4.

Is the decision to ban Navbharat-151 fair? Are you fighting it?

The ban is not fair in the wider interest of the farmers and in protecting an indigenous company. The variety was registered and approval was obtained from the department of agriculture. We are not fighting any case to lift the ban, but we have filed a case in Gujarat High Court praying to be provided protection against GEAC's orders.

What loss have you suffered due to the ban?

Cotton is the most profitable crop. We've been out of the business for four years despite our contribution to the cotton revolution. But we are happy that farmers are prospering.



D B Desai:
The pioneer

legal Bt varieties," says Aditya Patel, a Baroda-based seed producer. Farmers cultivated this variety and variants, developing strains through cross-breeding. These strains are even cheaper, at Rs 100-200 per packet. This season, these varieties have covered over 80 per cent of the total area of the 2 million ha under cotton in Gujarat. The cottage seed industry produces more than 320,000 kg of seed annually. (see 'Bt for better times', *Down To Earth*, November 30, 2005)

N P Mehta, former scientist with the Cotton Research Station, Surat, who was involved in developing Navbharat-151 says, "We have selected this variety from a *desi* germplasm collection of 800. It was developed three years before GEAC approved Monsanto's Bt seeds." Navbharat says it doesn't need Bt genes because local germplasms can resist American bollworm. But GEAC says local strains tested positive for Bt.

The cotton revolution in Gujarat would not have been possible without the state support, dating back to the mid-1980s when Navbharat got permission for seed research under the state's Cotton Control Act. D B Desai started Navbharat Seeds Company in 1982. International seed firms branded him a biopirate. But Desai says, "We have only one objective—providing farmers with the best seeds at affordable prices. And I think we have achieved that over the years."

The Central Seeds Act, 1966, was instrumental in the success of local varieties: it provided for farmer-to-farmer seed exchange without inviting provisions of the global IPR regime.

With the global regime getting more stringent, the Gujarat experiment is the obvious way forward for developing countries. Punjab and Rajasthan have just begun replicating it.

GLOBAL PATTERNS

Skewed trade hits farmers hard

More than 70 countries globally produce and export cotton. Of these, eight countries are responsible for almost 80 per cent of global output. The world's cotton market is dominated by the US — which is the second largest producer after China and the largest exporter. The country exports almost 70 per cent of its cotton. The US is followed by Uzbekistan, Australia, Brazil and India. The major importers are Indonesia, the European Union (EU), China, Mexico and Thailand.

There is a kind of an oligopoly involved in this global trade, though compared to commodities like coffee, the base is wider. About 500 firms are involved, in contrast to coffee, which is dominated by four. But this statistic hides major skews in market share. Nineteen companies control about a third of the trade, handling more than 200,000 tonnes of cotton a year. CCI is one of them. Another 49 companies handle about 20 per cent. The smaller companies handle the rest. Both private and state-owned companies are involved: the latter controlling 60 per cent. Private companies dominate trade in most other commodities. The preponderance of state agencies means that government policies kick in to affect pricing, mainly through subsidies. Developed nations offer the biggest subsidies, distorting international trade, usually to the detriment of third world producers.

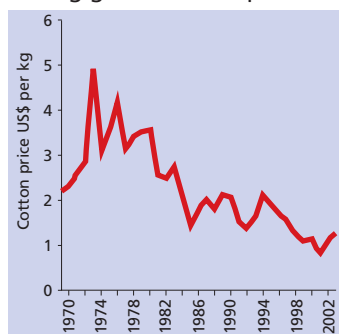
More than a fourth of the earnings from raw cotton production come from government support to the cotton sector — subsidies, in other words. Support to the cotton sector is greatest in the US, followed by China and the EU. The combined

support (domestic and export subsidy) provided by the US government to cotton producers is pegged at US \$4 billion. China provides US \$1.5 billion, while the EU's support of US \$900 million is mainly for Spain and Greece. Subsidy encourages surplus production and deflation of prices. International prices have decreased continuously over the last 30 years (see graph: *Downturn*) when the US started its aggressive subsidy programme, through funding storage in 1985 and price support in 1996.

In this century, the US has gone a step further. US cotton imports are now covered by the Step-3 Farm Policy of 2002, which allows imports of specified quantities for specific periods of time, thus protecting domestic production. The US subsidy system is based on direct payments to farmers who can sell cotton in world markets at prices well below the cost of production. Production costs are US \$1.70 per kg but its cotton is sold at US \$1.18 per kg. Export subsidies for 2005-2006 amount to US \$360 million. The same goes for the EU subsidy. Its support programme began in 1981 when Greece and Spain joined EU's Common Agricultural Policy. Together, Spain and Greece accounted for 2.5 per cent of world production and 6 per cent of world exports in 2001, but they account for 16 per cent of world cotton subsidies. "If the EU subsidy is removed, the cotton crop will be wiped out from Greece and Spain," says a 2005 Oxfam report. The average level of assistance across subsidising countries is US \$0.58 per kg, 48 per cent of average prices.

Downturn

Falling global cotton prices



Source: World Bank

Trade tidings

The worst losers are farmers in the least developed countries (LDC). "This subsidy is helping only a few thousand farmers in the developed nations but is putting millions of poor Africans into a death trap. For example the US \$4-billion subsidy that the US gives is only meant for 20,000 farmers who cultivate cotton in that country," says D K Nair, secretary-general of the Confederation of Indian Textile Industry (CITI). The fact that many countries in west and central Africa are heavily dependent on cotton exports makes the situation worse. In Benin, Burkina Faso, Chad, Mali and Togo, cotton accounts for two-thirds of agricultural exports and one-third of the total exports, meaning many livelihoods depend on growing cotton. In many non-African countries too, cotton is a major source of export revenue. In Uzbekistan, Tajikistan and Turkmenistan, it accounts for 45, 20 and 15 per cent of total commodity exports and make a significant contribution to GDP (8 per cent in Uzbekistan and Tajikistan, and 4 per cent in Turkmenistan).

At the individual level, a fall in prices means attrition of incomes that are already, in many cases, close to subsistence level. At the macro level, it means that adverse terms



Textile trade: Chinese textiles are flooding the US market. But Indian exports are set to boom



Taken care of: China protects its farmers through high import duties, India doesn't

REUTERS

of trade reduce revenues of governments in these countries and therefore their capacity to put in place programmes for livelihood security — say, in this case, subsidies to their cotton farmers. It's a vicious circle. In the WTO era, Brazil disputed the issue of cotton subsidies of the US in April 2004. The dispute-settlement panel ruled in favour of Brazil. The cotton issue is so important for the livelihood of the African nations that the WTO ministerial in Hong Kong decided to remove all kinds of export subsidies from cotton by 2006 and allow a duty-free and quota-free market access for exports from LDCs. But this is cosmetic surgery, given that export subsidies account for less than 7 per cent of total subsidies given by developed countries. Most subsidies are domestic and remain untouched by WTO rulings.

Tariffs are also an issue. The average world import tariff on cotton is 5.3 per cent, ranging from China's 90 per cent to zero for 64 countries including members of EU, Australia and Turkey. Of the other large cotton-producing countries, Brazil imposes a tariff of 9.2 per cent, India 10 per cent, Pakistan 5 per cent and Uzbekistan 30 per cent. The average tariff for West and Central African countries is 7 per cent. The US has variable tariffs ranging between nothing and US \$0.31 per kg.

Low support

India trades in almost all segments of the cotton market either as buyer or seller. Projected figures show it will be the third largest producer, second largest consumer and fourth largest exporter of cotton in the world in the 2005-2006 season. It used to be the 10th largest importer till last year. This year, however, imports are likely to see a decline of 600,000 bales from last year's 1,200,000 bales. India will end with the second highest closing stock of cotton this year (see box: *Balance*

Balance sheet

Fluctuating closing stock of cotton

Year	Opening	Production	Imports	Exports	Demand	Closing
2000-01	4.00	14.00	2.20	0.060	17.30	2.90
2001-02	2.90	15.80	2.60	0.050	17.20	4.00
2002-03	4.00	13.60	1.60	0.050	16.80	2.40
2003-04	2.40	17.70	0.65	1.32	18.65	2.10
2004-05	2.10	24.30	1.20	1.00	20.40	7.20
2005-06	7.2	24.20	0.6	2.5	23.8	8.25

Note: As on 7.12.2005; Figures in million bales of 170 kg each. The import figures do not include private imports.

Source: Confederation of Indian Textile Industries

sheet), more than the US and just below China.

The ending of the Multi Fibre Agreement (MFA) — a pact that ensured that textile trade was freed from tariff and non-tariff barriers — at the turn of 2004 has opened opportunities for India's textile exports. India has always been a big player, but has played second fiddle to China, ever since it implemented its policy of market socialism under Deng Xiaoping in the early 1980s. But for the textile industry, things could change. India is estimated to increase its share in the global textile trade from 4 per cent to 15 per cent by 2010. The promise of foreign exchange earnings is inviting. Major labour reforms are in the offing to help the textile industry. But what is good for industry may not be good for the people who grow the raw material.

Inputs provided by the Cotton Advisory Board (CAB) are the basis for determining MSP. Some experts say it acts as a lobbying group for the textile industry. CAB manipulates MSP policy by its monopoly over forecasting probable harvest outcomes. Once it works out the figures, it can also influence trade policy. "The timing of these predictions is very important. This strategy works year after year, ensuring great profits for cotton traders and the textile industry," says Vivek Cariappa in his study 'Crisis in Indian cotton', (*Economic and Political Weekly*, October 23, 2004). Cotton is imported in India under the open general licence (OGL), inviting a 10 per cent duty. Ultimately, however, cheap, subsidised US cotton drives down domestic prices.

Imported logic

Traditionally, India has been a net cotton exporter. But by 1998, it emerged as a major importer due to policy changes (see graph: *Sudden shift*). Imports were liberalised when the

CCI's import monopoly was terminated in 1991. Now imports are subject to the OGL, allowing unrestricted imports by private traders. To attract imports, duty was initially brought down to zero, but that did not help much since the domestic prices were competitive. But imports shot up in 1997 when world prices declined and the domestic demand increased. There were protests from several quarters thereafter, which led to an increase in duty. It rose to 5.5 per cent in 2000 and has remained at 10 per cent since 2002.

This, however, is still very low compared to tariffs imposed on other agricultural products. "If we can impose an import duty of 60 per cent on wheat and sugar to protect farmers, why not on cotton?" asks Jawandhia. A senior official in the Union ministry of textiles justifies the duty regime. "Textile is the second largest export earner for India and after removal of MFA we are looking for larger earnings. This can be achieved only when there is a smooth supply of cheaper raw materials. For this, we need more imports and any increase in import duty may hurt it," he argues. Export-oriented textile units, which are exempt from the import duty, account for more than 70 per cent of India's cotton imports. However, the bumper crop this year has seen a decline in imports.

Not long enough

Another reason for the rise in imports over the past few years is the need for ELS cotton, used primarily for fine fabrics. Domestic production of ELS amounts to 400,000 bales per year, whereas the requirement is 900,000-1,200,000 bales, a figure that is bound to rise. Indian ELS is also not of good quality.

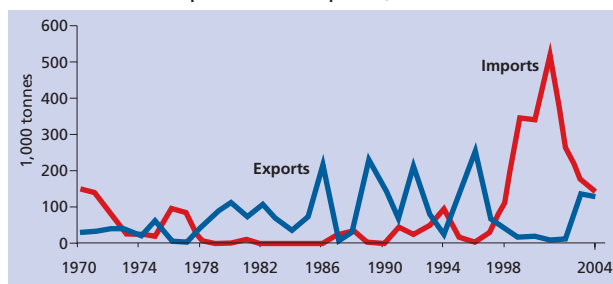
The varieties of ELS cotton we import are US PIMA and Egyptian cotton, mainly from the US. The extremely lucrative price at which the US sells cotton makes it the most sought after. It hogged 22 per cent of the imports during 1998-2005. Other major suppliers during the same period were Australia (11 per cent), Benin (7 per cent), Cote d'Ivoire (7 per cent) and Egypt (5 per cent).

According to a senior CCI official, this year the US is supplying more than 40 per cent of Indian imports (inclusive of ELS). This could, however, be an underestimate because it does not include private imports under OGL. "Understanding the Indian and Chinese demands, the US producers are offering cotton at 40 per cent of the Indian production cost. Tell me who can resist such offers?" asks Surjit Singh, a Jaipur-based textile mill owner.

Cheap US imports are bound to hit Indian farmers. Domestic prices have remained stagnant in the range of Rs

Sudden shift

India: Cotton imports and exports, 1970-2004



Source: US department of agriculture



IMPORTS, NO BOTHER

Chandrima Mukherjee, economist, Confederation of Indian Textile Industries talks to *Down To Earth*

Can we ever do without imports?

A few lakh bales of imports, even if they continue for a long time, should not be a major concern because the percentage of imports to total demand of raw cotton has been consistently low — at around 2 per cent only.

Will the import duty structure go down or up in the future?

Although the duty has increased from 5 per cent to 10 per cent, the possibility of a further increase is negligible because the duty cap has been reduced from 15 per cent to 12.5 per cent in this budget.

Is cotton losing out to synthetics? What does industry prefer?

In the Indian textile industry, cotton is still the predominant fibre — around 75 per cent. Internationally, cotton constitutes 38 per cent of total fibre consumption. The share of cotton in our total fibre consumption had been declining for several years but cotton has seen significant recovery last year.

How well linked are cotton growers and industry?

The link between the two has been steadily improving, though industry's requirements for longer staple cotton has not been met sufficiently so far. With increasing consciousness of the advantages of an industry-farmer partnership, contract farming and other arrangements are being developed.

If India's textile exports are increasing why are farmers dying?

The problems of the farmers are not caused by the textile industry. Farmers in many parts of India do not have access to quality seeds, technical know-how for growing better varieties, or access to cheap credit. It is a question of institutional failure rather than market failure.

How can industry protect farmers and promote exports?

Awareness programmes on latest techniques and varieties should reach farmers. This is especially true for Bt cotton, which has benefited cotton farmers worldwide.

1,700 to Rs 1,900 over the past 10 years. There is no domestic or export subsidy for cotton in India. The only domestic support available to the cotton farmers is procurement at MSP. However, CCI procures only 10 per cent of the produce rejecting the rest on quality parameters. The rest is procured by other state procurement agencies and private players, usually at prices less than MSP.

Despite the fact that India imports cotton to meet its needs, curiously, it also exports raw cotton. China is the most significant buyer, importing 60 per cent of India's cotton. Bangladesh comes next. Statistics show India's exports in the last three years have gone up from 0.05 million bales to 2.5 million bales. Being the biggest textile exporter, China certainly needs all the raw cotton that it can get its hands on. China's garment sector is significantly more competitive than ours. On an average, Chinese factories are 20 times larger than those in India and the returns of scale show. Second, China has made good use of the traditionally strong managerial expertise developed in Hong Kong since their integration. Third, foreign direct investment inflows are 10 times greater in China than in India.

Even without the Chinese competition, however, the cotton and textile sector in India is beset by a host of problems.



AMIT SHANKAR / CSE

TORN FABRIC

Cotton dogged by technological glitches

Take the pesticide problem. Although cotton occupies only 5 per cent of India's agricultural land, it accounts for 54 per cent of pesticide use. Andhra Pradesh cotton growers use more than 30 per cent of the country's pesticides and almost 70 per cent of pesticides used for growing cotton. "Since the advent of the green revolution we have been surviving on a high pesticide dosage. We adopted alien varieties, which brought new diseases and to control them we resorted to excessive use of pesticides," says Y S Ramakrishna, director, Central Research Institute for Dryland Agriculture. The pattern of pesticide use that is followed has led to pests developing immunity, which in turn leads to even greater use of these chemicals. It's a vicious upward spiral that increases the cost of farming, adversely affects soil quality and, therefore, yields. This is one of the major reasons for suicides in Andhra Pradesh and Punjab.

The first major cotton crop failure occurred in the mid-1980s by the whitefly bug. The synthetic pyrethroids class of pesticides failed. It was then that farmers started using alternative pesticides like endosulphan, quinolphos, monocrotophos and chlorpyrifos. But even these failed. In the mid-1990s, various varieties of the bollworm pest — American bollworm, pink bollworm and spotted bollworm — arrived. The devastation was spectacular. The epidemic claimed more than 10,000 lives countrywide. The pest was contained only when Bt cotton came into play. But Bt is resistant only to American bollworm. New low-volume pesticides, such as Avaunt, Tracer and Imidachloprid, which are supposed to be environment-friendly, have been introduced. They are seven to 10 times more expensive than the earlier ones. But the future is uncertain with the advent of new varieties of pests.

Limited success

Cotton is the only genetically modified (GM) crop to be cultivated in India. GM cotton accounted for an estimated one-third of the total cotton acreage in 2005-2006, which also includes illegal Bt cotton, mostly in Gujarat, Punjab and Rajasthan, where the yields are the highest. But the exorbitant price of Bt seeds and royalties are areas of concern (see box: *Grey areas*). Besides, they do not always fit into Indian conditions. Scientists also believe a variant that suits Indian conditions must be developed soon.

"Bt cotton can definitely help farmers, as it reduces the incidence of American bollworm," says B N Khadi, director, Central Institute for Cotton Research (CICR). The initial Bt cotton uses the Cry1Ac gene, which has been brought to India by its US-based patent holder Monsanto. Its effectiveness has always been under scrutiny. Studies by geneticist Suman Sahai of Gene Campaign found the first two varieties of Bt cotton, MECH-162 and MECH-184, introduced by Mahyco Monsanto Biotech, were unfit for Indian conditions. The study found that Bt cotton required higher inputs like water and fertilisers and was not effective against pink bollworm, the second most prevalent cotton pest. Another recent study by K R Kranthi of CICR found that the first Bt varieties sold by MMB and Rasi Seeds were not effective against bollworm pests. The study further said the Bt gene was 10 times less effective in the case of American bollworm, India's main pest, compared to the tobacco budworm, the major cotton pest in the US. "Though we assume these to be the best possible seeds available, we can do better," says S Nandeswar, a scientist at CICR. (see 'Cotton tangle', *Down To Earth*, Aug 30, 2005)

When Monsanto and the US department of agriculture developed Bt cotton, they considered pest incidence, existing varieties and agro-climatic situation in the US. The GM variant chosen was Cocker-512. Considering Indian conditions, this variant is not the best possible option, and second, when Bt hybrids were developed in India, Cocker-512 was crossed with Indian strains. This

Major pests



- American bollworm
- Pink bollworm
- Spotted bollworm
- Cotton leaf worm
- Jassids
- Aphids
- Cotton whitefly
- Thrips
- Mites
- Cotton semilooper

reduced the effectiveness of pesticidal toxins. Given India's vast biodiversity, the problem of introducing GM seeds becomes very complicated. Since Bt seeds were developed without taking this diversity into account, its success was limited.

After constant criticism of the initially introduced Bt varieties, Monsanto came up with Bollgard-II, an improved variety. "This is 10 times better than the earlier version and it includes a new gene Cry2Ab," says Ranjana Smetacek, director, corporate affairs, Monsanto. Senior scientists at CICR agree. "This is a better technology, no doubt, but the question is if they can do this today why not earlier," adds Sahai. But problems remain. The long gestation period involved in developing new seeds is one of them, Smetacek says.

American takeover

American cotton — *Gossypium hirsutum* — and its hybrid varieties today cover 70 per cent of the cultivated area in India while only 10 per cent of the area is under the Indian variety, *Gossypium herbaceum*. But American cotton is not suitable for Indian situations, which leads to frequent crop failures. It has brought numerous diseases, including the notorious American bollworm. It also requires at least three times more water and other inputs and its yield plummets after three years, unlike Indian cotton, which gives the same level of yield for 30 years. Although not suitable for Indian conditions, the long staple American cotton is popular because machines to gin and spin Indian cotton are not readily available.

The technology problem dates back to the mid-eighteenth century when Richard Arkwright invented the first spinning machine based on the staple length of American cotton. All machines developed subsequently were based on the same

GREY AREAS

Bt cotton seeds sold in India are priced in the range of Rs 1,750-1,850 per 450 gramme packet, while the normal hybrid costs Rs 300-500 and illegal Bt is sold at Rs 450-900. The higher pricing of legally approved Bt seeds is due to the royalty of Rs 1,200 which is paid to Monsanto. On January 2, the Andhra Pradesh government filed a complaint against Monsanto with the Monopolies and Restrictive Trade Practices Commission. The state agriculture minister, Raghuvveera Reddy, says farmers paid Rs 78 crore as royalty to the company to buy Rs 130 crore worth of seeds. Gujarat has followed Andhra Pradesh's example.

model. After the US civil war, when Lancashire started importing cotton in a big way from India, the mills found Indian cotton unsuitable. Lesser staple length meant that the fibre broke frequently. To avoid the high costs that were likely to go into fresh innovation, the colonial government introduced and promoted American cotton in the country. But these attempts were unsuccessful because it could not cope with Indian conditions.

Although American cotton could not replace Indian cotton, the Britishers replaced the best Indian varieties and succeeded in introducing it in some regions. Ironically, while after partition only 3 per cent of area under cotton was covered by American cotton, it has now risen to 70 per cent. To buck this trend, the technology issue has to be addressed.

A roller-ginning machine best gins Indian cotton, while the *charkha* is the best spinning option. A roller-ginner is slow and labour-intensive, but produces fabric of better strength, as fibres don't break very often. In the wake of increasing textile exports more centralised ginning is preferred. The *charkha* is best suited for spinning Indian cotton varieties. Although a time-consuming process, spinning with the *charkha* could generate more employment by providing a decentralised system of manufacturing.

Unfortunately, after Gandhi few people have tried to promote the *charkha* or improve it technologically. One important innovation was the 'Amber Charkha', which was developed by a Gandhian, Bholanath, in the 1960s. In recent years, a novel initiative has been started by an NGO called Dastkar Andhra in Chirala village in Prakasam district of Andhra Pradesh. The village has adopted a decentralised system. A 62-year-old woman, Uzramma, leads a team of 41 spinners and weavers.

To facilitate this operation, Vortex, a private company, has designed and developed a machine that consists of an assembly of 21 motorised Amber charkas. "The technology has been developed taking into account village-level factors like spinning small lots of cotton of variable quality, meeting the diversity of yarn specifications of small looms and availability of small and low capital costs," says L Kannan of Vortex, who designed the machine. "This technology discards a large number of expensive steps like baling, transport of bales etc," says G V Ramanjaneyulu of the Centre for Sustainable Agriculture, Hyderabad.

These are not the only problem areas in this sector.

MISDIRECTED RESEARCH

C Shambhu Prasad, engineer turned social scientist, talks to *Down To Earth* about bad practices in the cotton sector



Why is government and public sector research promoting American varieties and their hybrids even after independence?

There was a shortage of cotton after partition, as large cotton-growing areas were in Pakistan. Self-sufficiency was narrowly defined as self-sufficiency of long staple cotton and all research work has been directed on this basis. Since the government does not support indigenous research trends, researchers continue to follow international trends, which is not beneficial for the country. Industry pressure dictates the direction of research much more in cotton than other crops and industry norms have been narrowly reduced to the norms of mills. The research needs of the handloom sector have often been ignored and even to this day, insufficiently understood.

What should be our research approach for *desi* cotton variety development?

The fact that our cotton is unique and can be grown organically is one way forward. Tree cotton can be grown in wastelands and the crop can be made much less vulnerable.

GUZZLING, DIRTYING

Cotton, textiles face water, waste problems

Water is a big concern. Growing cotton is water-intensive at the best of times as is manufacturing textiles and treating the waste generated (see page 56). In India, cotton guzzles more water than anywhere in the world — even more than the other extremely water-intensive cotton crops of China and the US. India has the largest area in the world under cotton, 9.5 million ha in 2004-2005 — almost double the 1950 figures and 21 per cent of the global acreage. According to estimates of the Food and Agriculture Organisation (FAO), one cotton plant needs 700-1,300 mm water, depending on the climate and the growing period. In the early stages, the water requirement is 10 per cent of this figure, while during the flowering period, when the leaf area is dense, the requirement is about 50 to 60 per cent.

According to the Union ministry of agriculture, only 35 per cent of the area under cotton is irrigated, the rest is rain-fed. Conventionally, Indian farmers use the furrow irrigation system. According to research by Jain Irrigation Systems, a Maharashtra-based manufacturer of micro irrigation systems, a switch to drip irrigation can save 53 per cent of water and

increase the yield by about 27 per cent.

A technology mission on cotton was launched in February 2000 to address these issues, which worked in four phases. The agenda for the first two was the development and implementation of integrated water management practices including water-saving devices like drips and sprinklers. But there is no data on its achievements.

It is important that irrigation strategy is worked out because the area under cotton is certain to increase. Water saved by improving irrigation practices will have to feed the new acreage. Policy-makers will also have to factor in the impact of textile-processing units in Pali and Balotra in Rajasthan, Jetpur in Gujarat and Tirupur in Tamil Nadu, which create conflicts over water use. Once spinning and weaving have been done, the processes that follow require clean water. According to research by the Centre for Science and Environment, based on the wastewater data of the Central Pollution Control Board ('Industrial water use: Overused, underrated', *Down To Earth* February 2004), the water consumption of the Indian textile industry is about 2,200-2,900 million litres per day (mld). Of this, 25 per cent is consumed by small-scale industries.

While consuming clean water, the textile industry pollutes water sources forcing industrialists to shell out huge sums on water. "As the total dissolved solid (TDS) content in ground-

POLLUTION PERIL

Industrialists and regulators are unclear on best practices in India's wastewater management in the textile sector, which generates 1,750 million litres a day (mld). Says Mangilal Gandhi, owner of Sankeshwar Fabrics, Pali: "In Pali, though the common effluent treatment plants (CETPs) were designed for effluents from cotton processing, introduction of synthetic fabrics changed the waste composition, making the treatment less effective." In Tirupur, CETPs have a treatment capacity of 42.5 mld compared to the 120 to 150 mld wastewater that is generated. Industrialists express their inability to address the issue despite investing huge amounts on treatment. Kandasamy, president, Tirupur Dyers Association, says, "We spend over Rs 2 crore a month at the rate of Rs 6 per kilolitre to treat the waste."

Regulators do not have the capacity to guide polluters, but they have the power to punish. The 2004 report of the Loss of Ecology (prevention and payments of compensation) Authority in Tamil Nadu found that 68 villages in the Noyyal river basin were affected by pollution and ordered Tirupur dyeing units to pay villagers a compensation of Rs 25 crore.

All over India, total dissolved solids and chloride content in textile effluent is a major problem. *Down To Earth* was informed that treatability studies were not undertaken to establish the nature of pollutants in the effluents when

CETPs were upgraded in Pali. Now Tirupur is trying to find ways of achieving zero-discharge status. Though the high court and the Tamil Nadu Pollution Control Board are insisting on reverse-osmosis (RO) technology, experts are not sure that it is safe and sustainable. There are several concerns. First, RO does not follow the established principle of dilution, instead, it concentrates waste. Second, if it is not accompanied by an evaporation technology, it could be dangerous — this technology is expensive and no one is talking about it. Third, membranes used in RO are not meant to treat wastewater.

With RO getting a push, other alternatives are languishing. D Rajendran, owner of R R Colours, a small dyeing unit, tried out enzymes to treat waste. He says, "Despite the Madras High Court order of July 2005, the pollution control board did visit but did not validate the technology." Validation would have cost just Rs 7 lakh.

That's peanuts compared to the Tirupur Dyers Association and Tirupur Exporters Association's proposal to transport treated effluents some 300 to 400

km away and dump it in the Bay of Bengal. If cleared, the Rs 450-crore project will take four years to complete. Even if that quixotic proposal goes through, it won't solve the problem of the heaps of sludge textile towns piling up. No one seems to be thinking about this.

With governments showing little interest in cleaning up, villagers in Chennimalai near the Orthupalayam dam which stores Tirupur's effluents, who are badly affected by groundwater pollution, are threatening direct action.



water is high, we buy 120 kilolitres (kl) water a day from adjoining areas,” says Mangilal Gandhi, owner of Sankeshwar Fabrics, Pali. Gandhi spends Rs 50 lakh a year on water. Official water requirement for industries in Pali is 34 mld. Different agencies estimate the water requirement of Tirupur between 85 mld (Tamil Nadu Pollution Control Board) to 120 mld (dyers’ association). Groundwater is the backbone of Tirupur. Estimates show that roughly between 2,000-3,000 tankers of capacities between 10 and 12 kl make 7 to 10 trips daily to Tirupur with the costs fluctuating between Rs 1,000 per tanker during summer to a low of Rs 100 during monsoon season.

K Dhanapal, former member of the Madras High Court-appointed expert committee to look into the matter of pollution in Tirupur and director, EPIC-IN, a Coimbatore-based NGO, says, “Wet processing units in Tirupur spends Rs 115 crore annually on groundwater.” Water for Tirupur’s industries come from surrounding blocks like Avanashi, Palladam, Annur, Kangeyam, and parts of neighbouring Erode district. Pali gets its groundwater from a radius of 10-20 km. P K Batra, a hydrogeologist of the groundwater department in Pali, says, “Due to heavy extraction, groundwater levels are falling at the rate 0.62 m a year.”

Surface water is costly, while using groundwater is an unsustainable option. Industrialists in Tirupur, along with the government of Tamil Nadu, floated the New Tirupur Area Development Corporation Limited (NTADCL) in 1998 to supply 125 mld of Bhavani water at a cost of Rs 1,000 crore. Says Dhanapal, “At present for a small-scale dyer, tanker water (Rs 10-20 per kl) is cheaper as compared to Bhavani water which is Rs 45 per kl.” Kandasamy, president, Tirupur Dyers Association, brushes aside the concerns, “NTADCL water is clean and needs no pre-treatment and hence no additional costs.” However, groundwater levels are expected to fall, because NTADCL’s present supply of 50 mld is way below the dyers association’s estimated requirement.

The Indian textile industry is not water-efficient. Michael Crow, an MIT researcher who has studied small-scale bleachers and dyers in Tirupur says, “Water requirement is 250 kl and 80 kl for dyeing and bleaching a tonne respectively.” According to K P Nyati of the Confederation of Indian Industry, the combined global best figure is 100 kl per tonne.”

According to Kandasamy, the volume of clothes processed in Tirupur has risen by 50 tonnes per day in 2005-2006. With exports zooming after the scrapping of MFA, cotton textile output has also risen, increasing water needs.

— S V SURESH BABU

WHEEL OF FORTUNE

What happened to appropriate technology?

Cotton has a long and tortuous history in India and its ramifications are extremely complex. The origin of the problems of today’s cotton farmers was the attempt by the British to introduce long-staple American cotton, which did not suit Indian conditions. This was compounded after independence, when the establishment continued to push long staple.

When Gandhi picked the *charkha* as his symbol, he had, as usual got it right. Not only was it a symbol of self-reliance and resistance to imperialism, with its potential to fight the dominance of the Lancashire textile industry, and a means of providing decentralised employment, it was also appropriate technology. Since India grew short-staple cotton, which the *charkha* spun well, while the mills didn’t, it would have been rational to use it, modify it and develop its potential. That would have solved a lot of problems. On the ground, it would have meant that farmers could have cultivated their crops cheaper because the native varieties needed less water and were more resistant to pests, meaning expensive pesticides would not have to be used. Moreover, farmers would not have to be dependent on the West for expensive seed technology — GM — and per-

haps state-of-the art textile machinery to bring down costs (as China does) to be globally competitive.

But not all the problems that the Indian cotton farmers face are of the Indian establishment’s making. An iniquitous system of global trade is a major contributor. The US and, to a lesser extent, the EU, gives huge subsidies to their cotton farmers giving them an unfair advantage in the global market. But here too India can be faulted.

Unlike China, India does not protect its farmers by erecting tariff barriers against cheap US cotton. The reason is that it has a conscious policy of protecting the interests of the powerful textile lobby, which wants to be price competitive globally without investing heavily in technology as China does, remaining the most competitive global player in the textiles and garments sector despite its high tariffs.

In today’s world, the *charkha* or *charkha*-based technologies may not be the final solution to the problems faced by cotton farmers or the needs of the textile industry, but it is surely a powerful reminder that it may just be profitable for us to reinvent the wheel. ■



REUTERS

SHIFTING PAINS

Karnataka gets jitters as Goa clamps down

Toxic spread: mine waste poisoning forest areas in Sanguem taluka of Goa

NIDHI JAMWAL *Goa & Karnataka*

Whereas a sense of jubilation is palpable in Goa, tension is rising in neighbouring Belgaum district of Karnataka. The responses are divergent but their source is one: sponge iron plants.

The Goa government recently decided not to sanction any more sponge iron plants in the state. The units are extremely polluting and fall under the red category of industries. Following the decision, a state-level high-powered co-ordination committee that clears industrial projects, has rejected Mormugao Sponge Pvt Ltd's proposal to set up a plant in Sanguem taluka.

Goa's decision is making the industry turn to Karnataka, which has good quality iron ore mines. The Karnataka government is also reportedly welcoming the industry. A plant with a capacity of 60,000 tonnes per annum of the Goa-based Kundil Sponge Iron Ltd is nearing completion in Londa town near Belgaum. But the people of Karnataka are apprehensive.

"We have been supporting villagers of Sanguem taluka in Goa in their fight against these plants. No doubt we are happy that no more plants will be sanc-

tioned there, but it is extremely worrisome that the same are being welcomed by our own state government," says Shrihari Kugaji of a Belgaum-based NGO, Paryavarni.

Karnataka officials seem unconcerned. "We know that local environmentalists are opposing the upcoming Kundil plant. But it is also a question of development that needs to be balanced with environmental protection. Maybe it would be beneficial if such polluting plants come up in designated industrial areas but then that is the decision of the state-level single window clearance agency," says Shalini Rajneesh, district collector, Belgaum.

Separate guidelines

Officials of both the Karnataka State Pollution Control Board (KSPCB) and the Goa State Pollution Control Board (GSPCB) admit the lack of separate guidelines on siting the plants. No wonder then, that these plants are located either on agricultural land close to water bodies, or next to residential areas.

Over the last couple of months, *Down To Earth* received numerous letters from people in Goa and Belgaum relentlessly fighting a war against these polluting units, and

decided to follow the 'black' trail.

In a hurry to 'develop' Goa, its government cleared within a short span — 2002-2005 — five sponge iron plants with capacities between 100 tonnes per day (tpd) to 200 tpd. No siting guidelines were followed while constructing these plants, four of which have come up in the rich agriculture/orchard belt of Sanguem. The *modus operandi* was simple: low-capacity plants strategically located in remote villages with no public hearing provision to bother about.

But about two years back, residents of Santona village in Sanguem taluka decided to fight against the 100 tpd plant of Jain Udyog, then under construction. Despite the protests (a legal case is still on), the plant has not only been constructed but is operational.

In early 2003, Jain Udyog applied to the co-ordination committee to set up the plant in Santona village. The committee cleared the project on May 12, 2003, subject to approval from GSPCB, and the town and country planning department (TCPD). The villagers immediately sent written objections to the then chief minister Manohar Parrikar and government departments concerned. On November 20, 2003, a GSPCB team visited the village and said "the

proposed site... is a coconut grove and bounded... by the Kalay River ... It is anticipated that the River Kalay will get polluted". It also noted that the company had already started foundation work without getting the necessary clearances. The proposal was struck down.

About turn

But in less than a month, things changed. Another GSPCB team visited the site on December 16, which, allege villagers, was at the behest of the then industries minister who wanted the project cleared. In early 2004, TPCD issued a public notice in a newspaper saying out of the 111,339 square metre 'orchard' area in Santona village, it planned to convert 25,000 sq m into 'industrial' area for the plant. The villagers submitted detailed objections along with a plea for personal hearing. But to their utter surprise, on May 11, the then chief town planner, B K Sutaira, gave approval for land conversion. On May 21, GSPCB also gave its consent subject to certain conditions. The plant was constructed and started functioning in early 2005 amid widespread public protest.

"This plant runs 24 hours a day belching out black smoke. My entire house gets filled with soot, making it difficult for us to breathe. The stench from the unit makes us throw up at times," says Panduranga B Naik, the 44-year-old *panchayat* chief of Santona village, whose house is only a few metres away from the plant. By the time Naik finished talking, this correspondent, too, was all covered in a layer of soot.

The wells are affected by the soot and villagers complain that stomach ailments have become common. Agriculture, too, is getting affected. "Soot settles on the leaves affecting growth of plants," says Laxman M Nandrekar, whose farm abuts the plant. Villagers filed a public interest petition in the Bombay High Court's Panjim bench at Goa in February last year, but the problem persists. In its interim order dated May 3, 2005, the court directed GSPCB to conduct air and water monitoring. "But of the 28 days when samples were collected, the plant operated only for seven days," says a villager.

At present, Santona village is the only one openly fighting against these plants. And for a good reason, as two more plants — of Goa Sponge and Power Ltd and Shraddha Ispat Pvt Ltd — fall within a 5 km radius from it. As for Jain Udyog, land use was changed (50,000 sq m each of 'partly orchard' land and 'natural cover' land) to accommodate the other two units, too.

All the units are just a stone's throw from a reserve forest and the Netravali Wildlife Sanctuary. "There are no siting guidelines for sponge iron plants. We should be able to finalise them in a few months," explains GSPCB member secretary Amar K Vazirani.

Most plants are located next to rivers, when according to GSPCB, the plants should neither use river water nor discharge effluent into it. The plants are water guzzlers, and even if they continue using groundwater, they could cause an acute drinking water shortage, says GSPCB chairperson L U Joshi.

Belgaum blunder

Unlike Santona village, the town of Londa in Khanapur *tahuka* of Belgaum is yet to gauge the impact of the upcoming Kundil plant. The turn of events for the Kundil plant is almost the same as for

On January 4, 2005, the consent committee meeting observed that "the location is in a biodiversity hot spot in highly sensitive Western Ghat". But, on January 13, the committee cleared the project. KSPCB gave its consent for establishment (CFE) on January 28, 2005 on the condition that approval of the environment clearance committee (ECC) of the department of forest, ecology and environment was obtained.

But without bothering to get ECC clearance, Kundil went ahead with construction. Huge protests were organised by local NGOs, following which a KSPCB team again inspected the site on June 22, 2005. On June 29, KSPCB issued a show-cause notice to the company's director. On July 2, 2005, the deputy commissioner, Belgaum, issued a show-cause notice to the company directing it to stop construction. Towards the end of July, KSPCB also filed a criminal complaint against the company with the judicial magistrate, Khanapur.

While the series of notices were being issued, ECC hurriedly gave clearance to Kundil on August 5, 2005, allegedly to cover up the illegalities. But experts say the case against the company still holds water because it violated the KSPCB clearance condition and a delayed

ECC clearance does not absolve it of the illegalities. M K Prabhudev, environmental officer at KSPCB's regional office at Belgaum, refused to comment.

Says Ramesh Singhanath, ex-chairperson of Londa *gram panchayat*, "The company has misguided us. It promised jobs but never informed us about the pollution issues. No public hearing was organised.

Kundil has finished 80 per cent construction without getting construction permission from the *panchayat*. We are facing an acute drinking water crisis — receiving water for just one to two hours every four days from the *panchayat* borewell. The company has started drawing groundwater from its own borewells. The situation will worsen."

Karnataka is emerging as a new haven for sponge iron plants. But in trying to encourage development, must it repeat Goa's mistakes? ■

With inputs from Vasudha Sawaiker



The plant runs all the 24 hours, continuously belching out smoke. The soot creeps even inside the house, making it difficult for all of us to breathe

PANDURANGA B NAIK
Panchayat chief, Santona village

the Jain Udyog plant in Goa.

Following a site visit on November 8, 2004, KSPCB reported that the area "is surrounded by forest and location is not meeting with siting guidelines w.r.t (with respect to) railway track and (Phandari) river." It also found some data furnished by the company was faulty. For instance, the unit gave two figures for water consumption — 700,000 litres per day (lpd) and 595,000 lpd — at different places in its application form. KSPCB recommended that the company should seek clearance from the Union government, too.

Work matters

Proximity to workplace determines housing decisions of slum dwellers, finds a new study

JYOTSNA PURI

The question whether *in situ* housing improvements should be made in slums, or slum-dwellers should be relocated, is an old one. It is also fraught with politics and controversy (see 'No more slumming', *Down To Earth*, March 15, 2006). In a recent study supported by the World Bank, Akie Akekuchi, Maureen Cropper and Antonio Bento — all from the University of Maryland at College Park, where the latter two are professors — take a new look at the choice. The study does not reflect the bank's opinions, but is important because it presents a new way to value benefits from slum 'redevelopment' programmes. The study is also important because it lays a price on two important attributes of slums that are typically ignored in policy circles: the value of being located close to one's work place, and, the value of 'living amongst one's own people'.

The authors examine the question from the perspective of Mumbai's slum dwellers. They use data on a random sample of 5,000 households in the Greater Mumbai Region (GMR), and work on what is called a 'hedonic' model in economics. Simply defined, this model imputes a value to 'quality'; it represents a useful way to understand the utility of goods and is used to measure 'compensating differentials'. For instance, the model would answer the following question: What should one pay people who have been asked to do something unpleasant, so that they are 'as happy as before'?

Options people favour

Slums represent an urban environmental 'problem' because of their substandard housing and sanitation facilities. The spillovers from such sub-standard amenities and pilferage that ensue for the rest of the city, has made policy-makers think of other options. An often-used option is to relocate slum-

dwellers to new locations, with better housing and infrastructure. However, this solution does not consider the effect of relocation on costs of commuting to work. The other solution is to upgrade housing within slums by providing better infrastructure such as piped water and sewage connections. Both types of programmes have been pursued in Mumbai. In 1985, the World Bank's Bombay Urban Development Project aimed to provide tenure security to slum dwellers. In the same year, the Prime Minister's Grant Project, introduced by the Maharashtra government proposed new housing units in Dharavi. And currently, the Valmiki Ambedkar Awas Yojana Programme provides loans to build or upgrade houses.

But which are the ones favoured by slum dwellers? Data collected for the World Bank study offers some clues. For its respondents, commuting distances are an important determinant of housing decisions. Slum dwellers in the Greater Mumbai Region (GMR) live only 3.9 km from their employment locations. Other residents of GMR with a higher income, in contrast, are likely to live much further away from their employment locations. The survey confirms the well-known sociological theory: people of the same religion and language tend to flock together in slums. Thus on an average, in GMR, a Muslim household prefers a locality, where Muslims are 35 per cent of the population. Similarly, Gujaratis in an area favour a neighbourhood that is 26 per cent Gujarati.

People of same religious and linguistic communities tend to flock together in slums



SURYA SEN / CSE

The study measures the 'disutility' or the cost of relocating inhabitants in terms of monetary values. It finds:

- Living in a *chawl* is worth Rs 400 per month more than living in a slum. Similarly, living in cooperative housing is worth Rs 700 per month than living in a *chawl*
- A piped water connection is worth Rs 240 per month and a private toilet is worth Rs 580 per month

As expected, the study finds that commuting costs are important. It notes that a household with a monthly salary of Rs 6,250 would give up Rs 330 per month to reduce the main wage earner's commute by 1 km, if he/she were to keep the same job. If, however, the main wage earner were to change jobs, the household is willing to give up a little less: Rs 283.

Finally, neighbourhood attributes matter. The exact value of being with families, who speak the



Relocation often grinds the wheels to a halt

same mother tongue and have the same religion, depends on whether one belongs to the religious (and linguistic), majority or minority group, in the area. So, residents who are a linguistic minority — only 5-10 per cent of the population speak their language in a locality — would pay Rs 162 for a 1 per cent increase in residents of their 'kind'. But residents, who are in majority in a locality, would pay much lesser — only Rs 15 — for a 1 per cent increase in kindred spirits. Similar results hold for religion. The findings are significant, given the importance of migrant population to Mumbai's economy

One size doesn't fit all

Although the study lays a 'price' on amenities, it emphasises that there is no one-size-fits-all solution to the upgrade versus relocation choice. Benefits and costs must be evaluated on a case-by-case basis, and importantly, must consider employment effects and attributes

of neighbours. To illustrate this, the authors compare stylised version of these two programmes for two slums located in Zone 5 of GMR.

The two sections, Section 79 and Section 80 — poorer than the rest of the sample — are located within one mile (about 1.6 km) of Harbour Railway, have electricity, and have houses with approximately 14 square metre of area. Almost none of the houses (or shacks) have good roofs and a quarter have piped water connections. The primary earner in both slums, commute 5 km on average (a much larger commute than the average for the larger sample). Majority households in Section 79 are Marathi-speaking Hindus and in Section 80, most speak Hindi — 60 per cent of them Hindus and about 30 per cent, Muslims.

The authors find that dwellers in Section 80 are better off, on average, with the relocation programme, than those in Section 79. This is because

inhabitants in Section 79 are being moved further away from their work place, so they require a greater compensation for the same move, compared to residents of Section 80. Put another way, residents of Section 79 would be 'willing to pay' much more than their counterparts in Section 80, to resist a relocation, if they could pay. For purposes of policy, if there was a choice, upgrading amenities in Section 79 would be a cheaper and a 'happier' alternative compared to relocation.

The results are preliminary and are subject to many caveats but Akekuchi, Cropper and Bento present an important way to clear the haze surrounding slum relocation. If there is truly to be an effort to evaluate and understand the benefits and costs of relocation programmes, so that the one group of people, who should really matter more than any one else — the slum dwellers — remain at least as happy, then policy-makers must take heed. ■

40 New Species

An expedition to a remote Indonesian jungle unravels a few of nature's longstanding mysteries



TV JAYAN

A team comprising scientists from the US, Indonesia and Australia has recently uncovered a 'lost world' in an isolated Indonesian jungle. Its month-long expedition to the mist-covered Foja Mountains of Papua — Indonesia's easternmost and least-explored province, west of the great tropical island of New Guinea — yielded 40 new species including frogs, butterflies, plants, and an orange-faced honeyeater — the first bird discovered from the island of New Guinea since 1939. The explorers were mostly from the Washington-based Conservation International and the Indonesian Institute of Science — the two bodies also sponsored the study.

"This is closest to the mythical Garden of Eden," marvelled one of

them. On the second day of the expedition, he and his colleagues watched in amazement as a male Berlepsch's bird of paradise performed a mating dance for an attending female. This was the first time a live male of the species had been observed by Western scientists.

An elusive creature

Also called the six-wired bird of paradise, the Berlepsch's bird had been a subject of much scientific curiosity. It was assumed to share home with the bowerbird. But since both birds remained elusive to humans, the theory remained untested. In 1895, the British zoology enthusiast Walter Rothschild described the bowerbird, based on skins bought from field collectors in Western New Guinea. But about a dozen expeditions in the next 80 years failed to locate the bird's home. The US scientist and Pulitzer Prize-winning author, Jared

Most forests in Indonesia's Papua province have remained unexplored, even by local people

Jared Diamond missed photographing this: The Golden-fronted bowerbird

The longstanding ornithological riddle on the bowerbird's habitat has been finally solved

Diamond, did sight the bowerbird during reconnaissance missions in the Foja Mountains in 1979 and 1981. But he had no photographs to show for his efforts.

The ornithological mystery has been finally resolved. The Conservation International and Indonesian Institute of Science team found the bowerbird in the Foja mountains, and this time the splendid creature was photographed displaying its bower — a tower of twigs and other forest materials it collects for the mating ritual. The Berlepsch's bird was also captured in all its resplendence.

Tree kangaroos

Another highlight of the expedition was the discovery of a population of the golden-mantled tree kangaroo (*Dendrolagus pulcherrimus*), the rarest of all the arboreal, jungle-dwelling kangaroos. This was the first time that this critically endangered species has been sighted in Indonesia. In fact, the Foja Mountains are only the second site to house the tree kangaroos, after Papua New Guinea. Australian mammologist



Not munched: The fruit of an undescribed species of palm

Tim Flannery, who described this species in 1993, has written that subsistence hunting has extirpated more than 95 per cent of tree kangaroos in Papua New Guinea. The survival of this species will probably depend on the newly discovered population in the Foja Mountains.

Honeyeaters and others

One of the team's most remarkable discoveries was a honeyeater bird with a bright orange patch on its face — the first new bird species to be sighted on the island of New Guinea in more than 65 years. The creature has a bright orange face-patch with a pendant wattle under each eye. The expedition's other discoveries included the largest rhododendron flower on record — almost six inches across — along with more than 20 new frog varieties and four new butterfly species.

The scientists believe that the locale of their discovery is largely untouched by humans. But many of the creatures they encountered in the virgin forest were anything but shy of humans. Two long-beaked echidnas, primitive egg-

The largest rhododendron on record: The Giant White Rhododendron is six inches across



Smoky honeyeater: the first new bird species to be sighted in Papua in more than 65 years



STEPHEN RICHARDS/ CONSERVATION INTERNATIONAL

Kwerba and Papasena tribals , Foja Mountain’s customary owners, don’t venture into its forests

laying mammals, even allowed the scientists to pick them up and bring them back to their camp. This poorly-known species is the island’s most enigmatic mammal. It has never reproduced in captivity and scientists have never seen the species’ eggs before.

Similarly, botanists in the team collected more than 550 plant species, including at least 10 previously unknown woody plant species — five species of palms, and five non-palm woody species. The entomological team encountered more than 150 species of butterflies in the Foja Mountains, including four new species and several new subspecies, one of which is being named after Indonesia’s first lady.



Among the 20 new frog species discovered during the expedition

STEPHEN RICHARDS/ CONSERVATION INTERNATIONAL

The local people

Members of local tribes — Kwerba and Papasena — are the customary owners of the Foja Mountains. The tribals who served as guides to the expedition told the expedition members that they hunt, and collect herbs and medicines on the

fringes of this vast pristine resource, but they don’t venture deep into the forest. The local human population totals only a few hundred, and game is pretty abundant, so, there is little need for hunters to hike into the Range’s forbidding interior. Giant crowned pigeons, wallabies, cassowaries, tree kangaroos and wild boar are abundant within an hour’s walk from their villages, the local people told the explorers. Their ancestors lived closer to the Foja Mountains, in the headwaters of the region’s larger rivers where they were relatively safe from attack from neighbouring enemy tribes. But even these older interior sites remained many days’ walk from the highest summits.

The area merits substantive attention from conservation and government agencies seeking to conserve the best natural ecosystems in Indonesia. ■

Not lost anymore: The Berlepsch’s six-wired “lost” bird of paradise



BRUCE BEHRELY/ CONSERVATION INTERNATIONAL

On March 13, 1930, the Lowell Observatory in Arizona, USA, announced the discovery of the ninth planet of the Solar system, bringing an end to an exactly 150-year old search. On March 13, 1781, the German-born English astronomer William Herschel (1738-1822), more or less accidentally discovered Uranus using the biggest telescope then available. It was a momentous discovery: no one in recorded history had till then ever discovered a planet. The five planets, Mercury, Venus, Mars, Jupiter and Saturn, were easily visible to naked eye and every ancient civilisation worth its name had recognised them. But the discovery was to trigger some disquiet among astronomers culminating in the discovery of Pluto.

For, Uranus was not moving through space as astronomers had calculated using the Newton's laws of gravity. To tide over the problem some questioned the validity of Newton's laws over large distances; others suggested the existence of a planet beyond Uranus that was exerting gravitational influence on it, thereby making Uranus stray from its computed orbit.

That planet, Neptune, was discovered in 1846. Nonetheless, the discovery could not account for all observed disturbances in Uranus's orbit. Moreover, Neptune itself was seen to have orbital influences of its own. So, was another planet waiting to be discovered?

Enter Percival Lowell

Born into a wealthy and well-known Bostonian family, Percival Lowell showed interest in mathematics and astronomy even in his graduate days, but spent his first 17 years in business and served in the American diplomatic mission in Korea. Lowell called the unknown planet, Planet x — x being the symbol for the unknown. Using the perturbation theory devised by other astronomers, Lowell made a rough calculation of the likely location of the speculated planet. He used a telescope in his private observatory at Arizona.

The first search started in 1905 and lasted three years. By then the perturbation method was abandoned. The new



method relied on taking photographs of night sky, days (or years) apart, and comparing them. Four hundred photographs of the sky were taken with the same area photographed twice. The painstaking examination led to the discovery of variable stars, comets and asteroids — but no new planet.

Taking two photographs and comparing them was fine, but it was not humanly feasible to pore over countless

dots hoping to find one that moved between one photo and another. In 1911 Lowell obtained an ingenious mechanical optical device, the Blink Comparator. The contraption relied the human eyes' ability to detect motion or change. Two photographs were kept side by side in precise alignment and the two images were flashed back and forth in rapid succession. Against the backdrop of stationary stars any speck on the two photographs that brightened or dimmed or shifted position between one to another, became immediately apparent. Thus in plates taken a few days apart, rapidly moving objects such as asteroids and comets would stand out, because they would appear to be jumping back and forth between two positions, while all the other fixed stars stood still. Plates taken at longer intervals could be used to detect stars with large proper motion, or variable stars, or to distinguish binary stars from optical doubles.

But Planet x remained undiscovered. Lowell died in November 1916, bequeathing a large sum to the Lowell observatory. In 1929, Vesto Slipher, the then director of the observatory restarted the research. On the lookout for a suitable assistant, he chanced upon 24-year-old Clyde Tombaugh.

Tombaugh recast the programme by taking three instead of two sets of photographs, each one to two weeks apart. The campaign began in April 1929, but the year went by and there was no sign of Planet x.

On February 18, 1930, Tombaugh was scanning a pair of plates taken on January 23 and 29, when he noticed a minute speck of light, shifting from plate to plate exactly as a trans-Neptunian planet should. Within a month he announced the discovery of the new planet, Pluto. Even then, calculations indicated that Pluto was still too small to account for the perturbations in the orbits of Uranus and Neptune. But it has now become clear that actually there were no residuals in the orbit of Neptune or Uranus; the then calculated disturbances were based upon incorrect data. ■



He began it all:
Percival Lowell

— T V VENKATESWARAN

Let's not chase the atom

Nuclear power is expensive and unsafe, nuclear weapons are barbarous. We don't need them



M V RAMANA

The Indo-US nuclear deal raises two critical questions. Do we need a large-scale expansion of nuclear power? Do we need to expand our arsenal of weapons of mass destruction? The answer to both is no.

Any evaluation of the potential role of nuclear power should begin with the history of failure of the department of atomic energy (DAE). It had predicted that by 2000 there would be 43,500 megawatts (MW) of nuclear power. Instead, we have just 3,310 MW today — less than 3 per cent of total electricity generation. Nuclear power is unlikely to become significant anytime soon.

The limited nuclear capacity has been expensive. By their very nature, nuclear reactors cost a lot to build and operate. The DAE has compounded this by time and cost overruns. Even if one were to assume the DAE's optimistic projections for future reactors, nuclear electricity will be more expensive than comparable base load coal plants; nuclear reactors in operation fare even worse. Moreover, these comparisons don't include the hard-to-quantify economic costs of dealing with wastes, nuclear reactors produce; these stay radioactive for tens of thousands of years. Leaving behind such a horrific legacy is unethical: future generations will face the consequences while we use the electricity. Already, the nuclear fuel cycle has wrought extensive health and environmental damage, especially on the marginalised. Nuclear reactor accidents — which can't be ruled out — can cause even more damage.

Breeder reactors

The fast breeder programme that features prominently in the recent debate is worse on historical, safety and economic yardsticks. Despite decades of effort, the DAE has only managed to build a pilot scale breeder reactor, the Fast Breeder Test Reactor, which has been plagued with problems and accidents for much of its operating life. DAE's first industrial scale fast breeder reactor (FBR) is not expected till 2010, if all goes as planned.

FBRs are fueled by plutonium or uranium-233 (derived from thorium), extracted by chemically treating highly radioactive spent fuel at reprocessing

Their concerns — cost and safety — are just as applicable to India, perhaps even more so. The real choice therefore is not whether or not to put this programme under safeguards but whether to continue with it at all.

Many have argued that it was this poor performance by the DAE that led it to designing, manufacturing and testing nuclear weapons. Once the DAE realised the political power this endeavour brought, not to mention large budget increases, it has sought to maintain and increase that capacity. One important reason for the DAE to avoid opening the "civilian" breeder programme to outsiders is that breeders are efficient producers of weapons useable plutonium.

As with most nuclear matters, there is enormous secrecy about how much plutonium the DAE has already produced. Most estimates suggest that there is enough to make 60-100 nuclear weapons. Each of these can kill hundreds of thousands of innocent people. Should we really increase the capacity to commit such mass murder?

Even without being used in this manner, nuclear weapons have taken a toll on our security, economy, environment, public and occupational health, and more broadly on the nature of science, technology, politics and culture. (See the essays in *Prisoners of the Nuclear Dream*, Orient Longman 2003). Rather than scaling down or eliminating these gruesome weapons, the Indo-US deal will increase the capacity to make more of these.

The false promises of security from nuclear weapons and cheap power from nuclear reactors should be soundly rejected. Only then, can we even try to build a peaceful and environmentally sustainable future. ■



ILLUSTRATIONS: SHYAMAL

plants. Reprocessing is expensive, prone to accidents, and produces large amounts of radioactive wastes. Breeder reactors are likely to be more expensive than the reactors so far built by the DAE due to greater safety requirements both at the reactor and at associated fuel fabrication plants (because plutonium and uranium-233 are much more radioactive than uranium-235). So, they will be capital-intensive, be fuelled at greater expense and have higher maintenance costs, making electricity from these reactors very costly.

Country after country has abandoned the construction, and in most cases, even research on breeder reactors.

M V Ramana is with the Centre for Interdisciplinary Studies in Environment and Development, Bangalore and co-editor, Prisoners of the Nuclear Dream (Orient Longman, 2003)

The way the shell fills

Future bargaining on the nuclear deal will determine larger India-US relations



SUNIL DASGUPTA

The US and India may have reached a historic agreement on civilian nuclear technology, but history itself will be made by the bargaining that is likely to continue in the future. The deal began its life on July 18, 2005, as a shell meant to be filled with as much or as little the participants want to and can deliver. The separation plan — between civil and military facilities — agreed upon in the intense negotiations leading up to the Bush visit put some catch on the table, but forces beyond the control of the two government will buffet the agreement.

First, as is well known, the US Congress has to bless the deal. Second, the phased separation of the reactors is expected to take years. Third, expect tussling over new reactors and future fissile material production. The debate over the fast-breeders is a good indicator of what is to come. Fourth, what about leakage from the civilian to the nuclear programme? What happens if an engineer from the civilian side decides to work on the military side? Surely, the Indian constitution disqualifies any restrictions on employment. Fifth, what kinds of safeguards will India allow and what does it mean that safeguards will be contingent on fuel supplies? Sixth, what would happen if the Democrats, with close ties to the *ayatollahs* of non-proliferation, take over the US presidency?

As these questions come up, the US and India will have to continue intense negotiations: while the deal, at its

core, may keep moving forward, particularly after Congressional okay, the continued possibility of negotiations is what would keep the deal going.

Beyond theatrics

The question really is whether the nuclear deal drives the larger US-India relationship or does the overall relationship determine progress on the agreement? The difference lies in understanding the parallel and only somewhat symbiotic official and unofficial relationships. Progress on the government front depends greatly on the theatrics of the marginal negotiations over the agreement, but advocates of better US-India relations argue that the societal ties between the two countries are organic. They compare this relationship with the US's alliances with Britain and Israel, where deep mutual empathy has buoyed difficult episodes such as the Suez crisis.

Yet there is a sense that this is a moment of change. If the US and India do not consolidate the gains in the nuclear deal as well as in their larger relationship, another opportunity at a natural alliance might be lost. From the Indian standpoint, consolidating the deal means making the most of its nuclear rehabilitation. China and Pakistan are waking up to the smell of an alliance. It's now clear that Pakistan

will not be offered a similar deal, while China wants India to disarm its nuclear arsenal. But it is on the economic front where the true gains might lie. If followed by the deregulation of the nuclear industry and new investment in infrastructure, the deal could equalise India's foreign direct investment flow and GDP growth with that of China. Japan and the European Union, the ASEAN states and West Asia would want closer ties with New Delhi.

From the US point of view, consolidating the deal implies shepherding it through Congress and, less onerously, changing the rules in the international Nuclear Suppliers' Group. In seeking to turn India's advantages in democracy, diversity, faith, and entrepreneurship into geopolitical strength, US president George Bush is making a transformational bet. India could be the third great power to rise under American tutelage. But to what end? In helping Japan and Germany rise from the ashes of World War II, the US enlisted them in the fight against communism. What American cause will India serve in return for US commitment to India's rise as a great power?

Almost everyone knows what would bring about a full embrace between Washington and New Delhi and almost everyone knows that it will come at the cost of alienating China, possibly writing off Pakistan — and in the middle of a global conflict.

Since no one really wants this outcome, simple balance of power calculations will have to be abjured for a more deliberative approach, where the process of trying to fill the shell of the nuclear deal is likely to determine the tenor of US-India relations, at least on the official side of things. ■



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BOOK >> CULTIVATING DEVELOPMENT: AN ETHNOGRAPHY OF AID POLICY AND PRACTICE • by *David Mosse* • Vistaar Publications • New Delhi

The underbelly of aid

ANIKET ALAM

International aid has always been a highly controversial topic, whatever the context in which it is invoked. For long it has been the “human face” of the West’s official interaction with the developing world, and for equally long there has been opposition to it for being the “handmaiden of the developed world’s foreign policies”.

It was perhaps in answer to such criticisms that the UK government changed the name of its bilateral development agency from Overseas Development Agency (ODA) to Department for International Development (DFID). It was not a mere change of name: the new agency was made an independent ministry of the government as distinct from a being a part of the British Foreign and Commonwealth Office, as was the ODA.

It is, therefore, with considerable interest that one reads this book by David Mosse — anthropologist by training and DFID’s “expert” in social development for the Indo-British Rainfed Farming Project (IBRFP) in Central India. Mosse worked closely in both designing as well as monitoring and evaluating this project in the 1990s. He brings empathy, academic rigour as well as a sharply critical outlook to examine both the assumptions as well as processes of international development aid.

It appears that this book created a reasonable amount of bad blood when many of Mosse’s former colleagues accused him of being “too negative and unbalanced”, and of “damning of all our work”. These objections were so strongly felt that written complaints were made to the author’s university ethics committee, the anthropological association as well as to the publishers.

Fortunately for the readers, these objections could not stop the publication of this book.

To understand why such strong reactions were generated by, what is largely, an academic study placed firmly in the disciplinary traditions of anthropology, it would be necessary to look both at the contents of the book as well as the contexts in which it was produced and placed. The charge that the UK gov-

uation but rather in the style of an engaged academic research. Mosse has used his decade long association with the project studied as a surrogate for the classical anthropology field-work where researchers live among the objects of their study and writes from within that culture. There is hardly any ideological or “objective” criticism of either his subjects or their work by Mosse. This provides the book with an authenticity

that is un-achievable in project reports or polemical criticisms of international aid.

Interestingly, the contents of the book themselves do not hold that much of an incendiary charge as would appear from the storm they have generated. Human foibles and follies jostle with the generosity of spirit and altruism; creativity and empathy with the local people are as much evident in the working of this project as are donor driven agendas and the rootlessness of expatriate solutions to problems. It actually argues that the IBRFP was a success and discusses in detail many of its achievements. Its criticism of international aid as it functions

today is based, rather, on its inability to overcome the primacy of policy over practice. In other words, Mosse incriminates the inability to overcome donor agendas in favour of actual needs of the people. This original sin mars the best of donor interventions.

This book must be read by all those who are involved in development work, especially those who work in or with international aid agencies. As Mosse repeatedly underlines, DFID and its project is merely an illustration of a larger problem within the structure of international aid. It’s an honest look in the mirror and if it’s not a pretty picture one sees, there is little to gain from haranguing the mirror-holder. ■



In many areas, donor agendas override actual needs of the people. Aid, then becomes an imposition

ernment was using aid disbursements as a political tool to open up developing country markets as well as to further its geo-political aims was difficult to reject as long as the ODA remained a part of the British Foreign Office. In answer to this allegation the ODA was re-structured. A part of this makeover was making poverty alleviation as the core mission of the body’s new avatar, the DFID. In theory, this meant that the DFID would formulate policies, single-mindedly aimed at tackling poverty in the developing world — and implement them without bothering whether these furthered British foreign policy aims.

Further, this book has not been written in the manner of a project eval-

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LEGISLATION >> TOBACCO • Uzbekistan

Smoked in

For British American Tobacco (BAT), Uzbekistan was paradise unexplored. And unexploited. But not for long. According to a recent paper in the February issue of the *British Medical Journal*, the tobacco giant did everything in its power to kill off a landmark decree, which could have protected the Uzbek population from the health hazards associated with smoking.

In 1994, after privatisation of the tobacco industry, BAT entered into a monopolistic trade agreement with the then president, Islam Karimov. BAT realised the goldmine in the country in 1993, when they came across just one electronic billboard. They soon noted that Uzbekistan was singularly unexploited in its advertising and promotional environment, with advertising costs low enough to afford multinationals unrestricted market access. BAT, then, set off on its one-point agen-

da to market tobacco aggressively, projecting a 45 per cent increase in annual cigarette consumption between 1993 and 1999.

But a decree from the Uzbekistan's Chief Sanitary Doctor (CSD) threw a



Batting wicket: Uzbeks get nicotine fix

spanner in BAT's plans. The decree banned tobacco advertising and smoking in public places and issued health warnings against tobacco consumption. However, it didn't take BAT even 24

hours to come out tooth and nail against the decree. BAT interpreted the decree as a deterrent to foreign investment in Uzbekistan and refuted the health impacts of smoking, stating that there is no link between smoking and disease or that advertising would increase consumption. With the CSD refusing to give in to BAT's demands of amending the decree, BAT subverted the whole process by approaching Karimov, who immediately accepted the demands. The original ban on advertising was pared down to a voluntary code, limiting it to institutions dealing with health and children only. Moreover, even with BAT's claims of not encouraging the youth to smoke, the ban in educational institutes was removed. More impudently, BAT promulgated the amended decree as an example of a responsible attitude towards tobacco advertising. With the roadblocks removed, BAT managed to achieve a market share of 70 per cent and tobacco consumption has increased by eight per cent each year, mostly among young people. Cigarette sales rose by 51 per cent between 1990 and 1996. ■

SPEED DATING >> GLOBAL WARMING • London

1,2,3... go

Dating has found a new partner. Global warming. A speed dating event organised by the Stop Climate Chaos Coalition attracted senior party members to move from table to table, convincing 700 environmental activists of their solutions to global warming.



Keyword: Carbon dating

The pick-up line at the 'Carbon Dating' event in London had absolutely nothing to do with coffee or drinks or who would go home with whom. Instead, climate change and carbon trading proved to be the keywords. Party members were out in their oratorical best, trying to woo the other side.

Opposition Conservative leader David Cameron, who has made climate change and the environment core issues for his party, said that global warming should not be a party political issue as everyone was responsible for it and should be involved in the matter. But Menzies Campbell of the Liberal Democrats emerged as a hot favourite, thanks to his knowledge of foreign policies, which won the support of activists interested in development issues and global warming. ■

FILM FESTIVAL >> VIBGYOR • Thrissur

Agent orange?

Hindu right-wing activists attempted to disrupt a short film and documentary festival, *Vibgyor*, held in Thrissur, Kerala. The open forum was organised for the first time by a few NGOs in Kerala and the festival almost got shortened by the slogans and protests. A controversial film by R P Amudhan, "The Vande Mataram - A shit version", which lampoons the patriotic song, "Vande Mataram", for encouraging the traditional role of Dalits in manual scavenging of human waste, was screened and was held as the main bone of contention.



The right-wing groups raised slogans against the film and even filed a police complaint for screening anti-national films at the festival. Earlier, they had threatened to move the court to stop the festival. The festival organiser, filmmakers and concerned citizens have reacted sharply to the condemnation of the fest. They claim that *Vibgyor* has emerged as a dynamic space that has been showcasing a wide range of socially relevant films. ■

PROJECT >> WATER • Ethiopia

Friendly fire

Some development projects can cause collateral damage. A paper published in the *Public Library of Science Medicine* (14 February) cites one such example: a project that provided tap water to remote communities in Southern Ethiopia. The local women used to trudge for six hours daily to get water but after the introduction of tap water, the task took a quarter hour. Researchers found that the women ended up with more energy and time to give birth to more children.

Problems continued: the food supply remained unchanged, which is why food had to be spread very thinly across the burgeoning population. Therefore, introduction of the taps translated into



Leaking taps

higher infant mortality and more children with poorer nutrition. The values perpetuated in the communities specified that larger families were better, the reason for the lack of family planning. In the study, the researchers highlighted the need for development programmes to be multi-sectoral, such as by promoting contraception in addition to their primary goals. ■

GADGET >> BIRD FLU • Ahmedabad

Watch where you peck

A new surveillance system developed by an Ahmedabad-based firm might just save a few chickens. It does not necessarily mean deliverance from dinner tables but rather rescue from being butchered needlessly because of the bird flu panic.

Poultry farms can install the surveillance cameras, which can monitor signs of disease in chickens, detecting sick birds much before they start dying from bird-flu. The telemedicine-based system has already proved useful for detecting

severe acute respiratory syndrome in Malaysia and is now upgraded to detect bird-flu in poultry and people. It detects people with high body temperatures and abnormal breathing, even in crowded places. The scanners can be located in any public place and are monitored through a central base. Small enough to be carried in a brief case, the device will be able to penetrate remote areas.

Currently being offered at a rental of Rs 5,000 a month, the device provides faster data collection than surveys. ■

NEWS SNIPPETS

>> The film, *Cherub of the Mist* follows two zoo-bred pandas as they become the first ever released in the Singalila National Park in China. It reveals the mating, nest-building and rearing of newborn cubs. Filmed in treetop homes of the forbidding habitat in the eastern Himalayas, the documentary tracks the panda's lonely battle for survival.



>> The London Underground map, the Spitfire, the famous World War II jet and the supersonic Concorde, now out of commission, have been voted Britain's three favourite iconic designs of the last century. London Design Museum's visitors were asked to choose their favourite British design from 25 examples of innovation.

ONLINE

Nandadevi.org & mountainshperds.com

RIDING HIGH

Lata is an address of protest and conflict. It was the village in the higher alpine pasture areas of Chamoli, Uttaranchal, where the first sparks of the Chipko movement were fired. It's the home of the bhutiyas, who lost their right to shepherding, to trade and to trek through the mountains that were declared part of a national park. Now the people are striking back. They want to take hold of the tourism potential in the region and be more than mere porters. A group of them have launched a tourism company that shall ensure home-stead tourism, revenue to villages and zilch to brokers. You can book yourself on the experiment and the expeditions that the villagers of Lata want to start at mountainshperds.com. You can read more about them at nandadevi.org.

The mountainshepherd website is the portal through which they want to run the eco-tourism business. The sister site of nandadevi is used to discuss and share other issues of the region. The site in itself is not creatively done. But do not be taken in by the simplicity of the websites. The group's plans seem quite innovative.

They want single women travellers to help them design their treks and tours for other single women. They are offering the first group of eight women all the help to come and design the treks and tours.

Visitors get to stay in the summer homes of the bhutiyas and enjoy bicycle treks and high altitude mountaineering along with bhutiyas of Lata and nearby villages trained by the National Institute of Mountaineering in Uttaranchal.

They want to network with universities to begin study courses in the mountains. The first one has already been successfully concluded with the Appalachian State University, North Carolina, us.

The website officially launches on March 8, though the preparations have been on for the last two years now. Several hitches overcome, the biggest challenge for the website shall be to develop credibility among tourists and other people to avoid paying the touts and brokers in Delhi and instead plug for real ecotourism. The challenge for the group shall be to ensure that the experience and revenue is shared equally. Log on and ride the ranges.

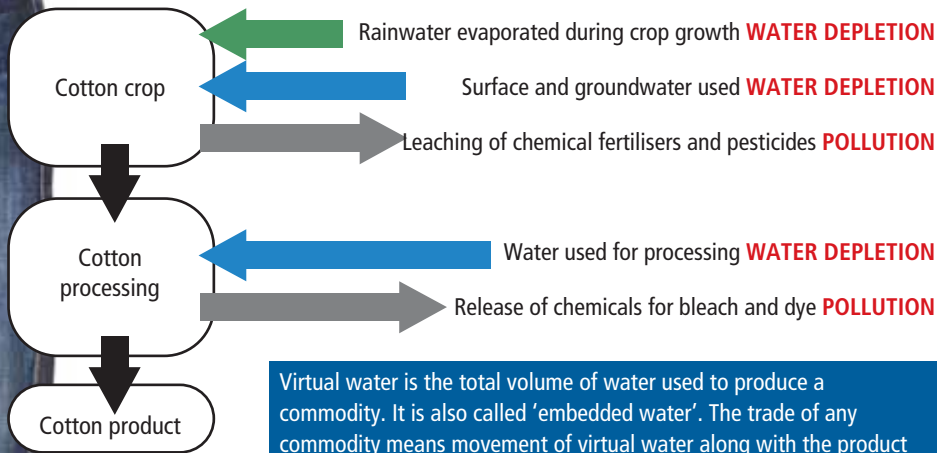
Wet clothes

New method of measuring 'water footprint' shows cotton is a guzzler



Water footprint of a nation is the total freshwater used to produce goods and services for its entire population. It includes rainwater evaporated (green water), surface and groundwater (blue water) consumed and water needed to treat pollution created by production

Cotton uses a lot of water in agriculture, processing and pollution ▼

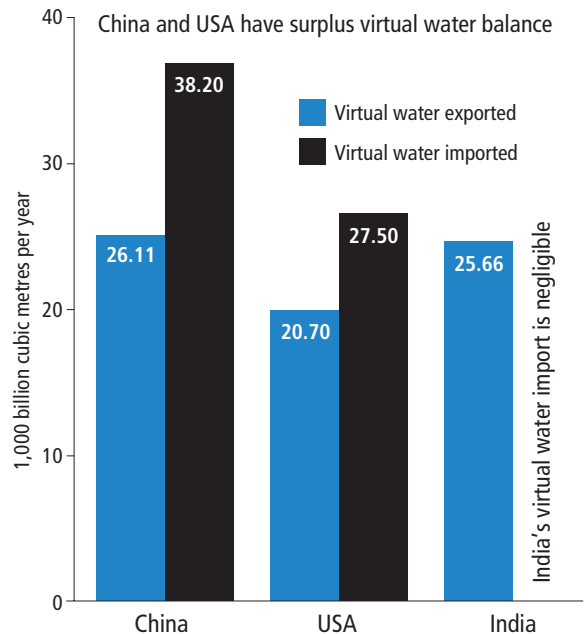


Virtual water is the total volume of water used to produce a commodity. It is also called 'embedded water'. The trade of any commodity means movement of virtual water along with the product

(a pair of jeans 1,000 gm) = **10,850 litres virtual water**

- ▶ A single bedsheet weighing 900 gm carries 9,750 litres of virtual water
- ▶ A T-shirt weighing 250 gms carries 2,720 litres of virtual water
- ▶ One diaper weighing 75 gms carries 810 litres of virtual water
- ▶ And a Johnson's cotton bud weighing just 0.33 gms carries 3.6 litres of virtual water

It is important to note the virtual water balance for cotton that is being traded between countries ▶



Water footprint of USA: virtual water flowing from all over the globe



Source: The Water Footprint of Cotton Consumption, UNESCO-IHE, September 2005

1. **Changing Currents: Plumbing the Rights, Part-1** *(also available in Hindi)*
26 Minutes • VHS / VCD • Rs 750 / US \$25
On the issue of water as a right indistinguishable from the right to life. The film documents communities in India and South Africa striving to maintain this right in the face of official opposition.
2. **Changing Currents: Plumbing the Rights, Part-2**
26 Minutes • VHS / VCD • Rs 750 / US \$25
Is water a divine gift, a human right, or just a tradable resource? A look at communities in Ghana and Bolivia fighting for their rights to water.
3. **Changing Currents: Tell Tale Signs**
26 Minutes • VHS / VCD • Rs 750 / US \$25
Climate change and its impact on water availability is the subject here. The focus: communities and official agencies in Orissa, India and Mozambique, Africa working together to adapt to changing climate.
4. **Changing Currents: Boiling Point**
26 Minutes • VHS / VCD • Rs 750 / US \$25
A story of water conflicts in the Okavango river system in Africa, the Rio Grande in North America and West Bank in the Middle East.
5. **Changing Currents: Pumping Pressure**
26 Minutes • VHS / VCD • Rs 750 / US \$25
The film documents people's responses to a resource in crisis -- in South Africa, a local community looks to a new water law to reclaim its land and water. In Gujarat, India, communities are innovating ways to catch rainfall.
6. **Changing Currents: Tunnel Vision**
26 Minutes • VHS / VCD • Rs 750 / US \$25
Dutch filmmaker Joshka Wessels records the revival of an ancient underground irrigation system in Syria -- the 'qanats'.
7. **Changing Currents: Dam Dam Dam**
26 Minutes • VHS / VCD • Rs 750 / US \$25
The case for and against big dams: are they really environmental and social catastrophes, or fountainheads of non-polluting energy and flood control systems?
8. **Changing Currents: Land of the Rising Water**
26 Minutes • VHS / VCD • Rs 750 / US \$25
Japan has had an enviable record in urban water management to tackle floods and conserve its wetlands: the film explores.
9. **Changing Currents: Water on the Brain**
26 Minutes • VHS / VCD • Rs 750 / US \$25
The setting: the Third World Water Forum in Japan. The investigation: will the world emerge with a plan for meeting the water 'crisis'?
10. **Changing Currents: Net Profits**
26 Minutes • VHS / VCD • Rs 750 / US \$25
Most of the world's fishing grounds are depleted,

and inland freshwater fisheries are replacing them. Against this backdrop, a look at measures to sustain fish farming.

11. **Changing Currents: Not a Dirty Word**
30 Minutes • VHS / VCD • Rs 750 / US \$25
Access to safe water and sanitation and their centrality to development processes is the film's subject. A look at India's Sulabh International and Pakistan's Orangi project.
 12. **Harvest of Rain** *(also available in Hindi)*
48 minutes • VHS / VCD • Rs 750 / US \$25
Dedicated to India's traditional water harvesting systems. The camera wanders through Uttar Pradesh, Rajasthan and Tamil Nadu, recording the science of the people.
 13. **Thar – Secrets of the Desert** *(also available in Hindi)*
52 minutes • VHS / VCD • Rs 750 / US \$25
The Thar Desert in India. Watch its people survive by harvesting water and devising ingenious systems to grow and maintain sources of fodder.
 14. **Waterworks India: Four Engineers and a Manager** *(also available in Hindi)*
22 minutes • VHS / VCD • Rs 750 / US \$25
Meet five 'ordinary' people, who have kept the traditional science of water management alive in various parts of India.
 15. **Arvari**
14 minutes • VHS / VCD • Rs 750 / US \$25
A people's movement in Rajasthan has revived river Arvari. Water management has completely changed the landscape and lives in this once-denuded region.
 16. **Water Wars**
3X50 Minutes • VHS / VCD • Rs 750 / US \$25
Investigates the role of water in power politics through three sub-plots: 'Good as gold' focuses on water as a marketable commodity in the US. In 'To the last drop', water raises the stakes in regional disputes or settlements in the Middle East. 'The giver of life' documents the implications of Aral Sea's demise.
 17. **Water: Everybody Lives Downstream – Parts I & II**
26 Minutes • VHS / VCD • Rs 750 / US \$25
An intercontinental journey of a symbolic river from source to sea. Interviews with experts reinforce the message of the World Day for Water: all the water that we use is second-hand.
 18. **Water – Every Drop Counts**
26 Minutes • VHS / VCD • Rs 750 / US \$25
More shots of the resource in crisis: Japan wastes water on golf courses, Kathmandu, Nepal gets polluted water every day, and Lesotho burns because dams are devastating its farmers.
 19. **Hands On 1 – Water Ways**
24 Minutes • VHS / VCD • Rs 750 / US \$25
- On using water wisely. In Malaysia, a model campaign protects forested watersheds to feed streams all year round. In South Africa, children playing on a roundabout pump up water for a vegetable garden. In Greece, water 'cigars' are coming to the rescue.
20. **Our Liquid Assets**
16 Minutes • VHS / VCD • Rs 750 / US \$25
The world's wetlands are often treated as wasteland – but they serve as homes for wildlife, sources of freshwater, filters for pollution, and barriers against floodwaters.
 21. **To Dam or Not to Dam**
24 Minutes • VHS / VCD • Rs 750 / US \$25
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