

Environ  
HD-14

# Set clear targets, says E.U.

20/8

**JOHANNESBURG, AUG. 29.** The European Union today called on other countries to agree to clear targets and timetables in the battle against poverty and to protect the environment.

The 15-nation block was next week due to announce new public-private development projects on water, energy and urban development, said officials at the Earth Summit. But these so-called type 2 partnerships should be "a complement, not a substitute" for clearly defined, internationally agreed goals, said the Danish Environment Minister, Hans Christian Schmidt.

Mr. Schmidt, whose country now holds the rotating E.U. presidency, was speaking hours before a scheduled U.S. press conference on "partnerships for sustainable development". Non-government organisations (NGOs) have criticised especially the United States for so far rejecting more mandated goals and emphasising instead the role of the private sector in development. "In the light of the



**A child plays in a polluted river in Ampefiloha, one of the poorest districts in the Madagascan capital, Antananarivo, in this recent picture. Provision of clean water is a key issue at the Earth Summit being held in Johannesburg.**

criticism that NGOs, in particular, have levelled against partnerships," said Mr. Schmidt, the E.U. wants to see a "robust and credible follow-up mechanism". The European Commissioner for Development and

Humanitarian Aid, Poul Nielson, said a "Water for Life" partnership would help to halve the number of people without access to water by 2015. "As regards our energy initiative, the key aim here is to improve the

access of the people in the developing world to adequate, affordable and sustainable energy," he said. "There are more than two billion 'energy poor' who do not have this."

— DPA

## Seed banks ill maintained

AP reports:

A vital way of shielding future generations from widespread famine by preserving indigenous seeds is in jeopardy, according to a report released on Thursday at the World Summit on Sustainable Development.

Most countries currently have crop gene banks, large collections of seeds for popular farming crops and obscure indigenous plants that serve as records of a country's agricultural makeup. The collections maintain copies of seeds in case local farmers lose their own caches to war or natural disasters. They are also an irreplaceable resource for scientists attempting to breed new varieties of crops resistant to pests and able to thrive in harsh weather.

# India asks developed countries to lift farm sanctions

Summit  
5-3  
Press Trust of India 28/8

JOHANNESBURG, Aug. 28. — Taking up the cudgels on behalf of the Third World, India today asked the developed countries to eliminate farm subsidies and usher in new agricultural technologies to their homelands even as the intense debate over genetically modified food in India reached the streets of the South African capital.

The Union minister for environment and forests, Mr TR Baalu, today rallied support for ratification of Kyoto Protocol at the Earth Summit here.

"I hope that other countries will also soon ratify the Kyoto Protocol so that it could come into force before COP-8 (Conference of Parties to the United National Framework Convention on Climate Change) which starts in New Delhi on 23 October," he said informing that India submitted the instruments of accession to the UN two days ago.

He also urged the USA and Russia to sign the treaty to make it effective.

Mr Baalu also sought to remind the developed countries their pledge taken at Rio Summit ten years ago to give 0.7 per cent of their GNP as official development assistance to the world's poor countries.

Asserting that Agenda 21 which provides for an action plan to sustain the path of development, was non-negotiable, Mr Baalu said: "We won't compromise on the guiding principle." He also asked for establishment of a multilateral secretariat to deal with bio-diversity, and said India has also urged for recognition of property right, both intellectual and physical, of countries home to unique genetic resources.

A day after Vandana Shiva and other activists voiced protest against genetically modified (GM) food, scores of Indian farmers staged a march demanding that advanced nations should provide them the technology used to produce GM foods.

29 AUG 2002

**CAUVERY ISSUE / 'KARNATAKA GIVING ONLY OVERFLOWING WATER'**

# Nationalise inter-State rivers: Jayalalithaa

By Gargi Parsai

HD-11  
29/8  
By Gargi Parsai  
NEW DELHI, AUG. 28. Stung by Karnataka's refusal to release its share of Cauvery waters, the Tamil Nadu Chief Minister, Jayalalithaa, today demanded the nationalisation of all inter-State rivers as a long-term solution to solve disputes over sharing of river waters.

Answering questions at her press conference on the failed Cauvery River Authority (CRA) meeting on Tuesday, Ms. Jayalalithaa said the Central Government should nationalise all inter-State rivers and ensure that the awards given by tribunals were honoured.

She, however, asserted that despite Karnataka's stand on Cauvery, Tamil Nadu was not linking the (forest brigand) Veerappan's issue with that of Cauvery. "We consider these two as separate issues. While we are committed to fighting for Tamil Nadu's rightful share of water, on the Veerappan issue we are committed to fighting alongside Karnataka," she said.

On Tuesday, Ms. Jayalalithaa had walked out of the CRA meeting chaired by the Prime Minister, Atal Behari Vajpayee, when

the Karnataka Chief Minister, S.M. Krishna, declined to release any of Tamil Nadu's share claiming distress in the State. Ms. Jayalalithaa had pressed for the immediate release of at least 30 tmc feet (thousand million cubic feet) of water out of a pro rata shortfall of 43.14 tmc feet during distress.

## 'Krishna buying time'

Accusing Mr. Krishna of trying to obfuscate the issue and buy time, Ms. Jayalalithaa said that Tamil Nadu should get water when it needed, not as overflows when the Karnataka reservoirs were full and under threat of breaching.

The CRA later decided to evolve a formula on "pro rata sharing of distress" in a fortnight when the official level Cauvery Monitoring Committee would be convened. The Prime Minister had also suggested that another meeting of the CRA could be held in the third week of September.

Ms. Jayalalithaa said this decision was not unanimous. "It was not discussed in my presence." She said another meeting of the CRA in September was "not acceptable to

us".

The Chief Minister said the outcome of Tuesday's meeting underlined what she had been saying all along: that the CRA was not effective in getting the Cauvery River Disputes Tribunal's interim award implemented. She had attended the meeting in compliance with the Supreme Court's direction.

Asked about Tamil Nadu's next step, Ms. Jayalalithaa said she expected the Supreme Court to give justice to the State (on the next hearing on September 2). The State's "kuruvai" crop was ruined due to the non-release of waters and unless water was immediately released, the "sambha" sowing would also be affected. This would lead to a food crisis and unprecedented human suffering. "It is my duty to prevent that," she said.

Asked why she did not convene an all-party meeting before the CRA meet, Ms. Jayalalithaa said there was no need for such a meeting as there is no difference on opinion in the State on the fact that Karnataka should be made to honour the tribunal's interim award.

29 AUG 2002

# African tragedy

winning  
5-4  
A summit of little use

2008

**F**or those parts of the world which should be in the focus of the 10-day Sustainable Development summit, which started in Johannesburg on Monday, the theme might be a bit of a joke. There isn't much development in southern African countries, hours' drive away from the as-per-usual well-appointed summit venue. So, the question of its sustainability does not really arise. What needs to be sustained in the half dozen African countries ravaged by climatic shocks, drought, disease, AIDS and hunger is life itself. The summit will not make any difference to these unfortunate Africans. Because the attendees will not address the most important issue — the culpability of African leaders in pushing their countries to disaster. No better demonstration has been given than by Robert Mugabe, the cricket-loving, socialism-spouting, insanely land-distributing president of Zimbabwe. His policies of redistributing land from efficient white farmers to cronies and laggards, whose only qualification is that they are black, have brought food crisis to a country until recently known for thriving agriculture. He deserves to be read the riot act in any summit on development, sustainable or otherwise.

The point is misgovernance can reach levels where almost everything else becomes irrelevant, not to mention homilies that are the stock-in-trade of UN meets. As the Johannesburg summit will progress Zambians, for example, will be feeling the effects of their government's decision to take only non-genetically modified (GM) crops in food aid. Some rich world environmentalists, many of whom will be attending the summit, may applaud Zambia's principled stance — better dead than not green. The shocking fact is that Zambian rulers can indulge in such luxury when health evidence against GM crops is practically non-existent, when the US plants GM crops without fuss, when even third world countries like India have adopted a GM policy. Europeans do seem to have a problem however. Much of their concern seems more ideological than scientific. But Europe can afford to be fashionably radical about which kind of maize it wants to eat. Zambia can't.

After all these tragedies are ignored can the Johannesburg summit do anything? It can — a little harm. By focusing on specifics — water and energy management, farm practices, health policy and, that summit favourite, biodiversity — the summit will allow rich countries to dodge the one thing they can and must do for the poor world and middle income countries. Encourage free flow of goods, services and people. The first world still puts up too many barriers for goods and services from elsewhere — witness free trader George Bush slapping steel tariffs. Immigration — movement of labour — is restricted, and after 9/11, the West is paranoid about it. But capital, mostly a Western export, moves freely between most borders. These are inequalities that need addressing most, at every forum. Instead, rich countries will be harangued over their falling aid levels — a criticism they are happy to listen to. There will plenty more talking at Johannesburg — almost none of it worth listening to.

# Summit focuses on Third World agriculture

Associated Press

JOHANNESBURG, Aug. 27. — Delegates at the World Summit on Tuesday urged increased global efforts to bring new agricultural technologies to the developing world.

They delegates also railed against wealthy countries' agricultural subsidies for their farmers during the summit focusing on uplifting the world's poor and protecting the global environment. "There is no point of having healthy children if they are going to die of malnutrition," said Mr Pedro Sanchez, former director of forestry. "There is no point in being an environmentalist with an empty stomach."

Meanwhile, negotiators continued trying to reach a compromise on the conference's im-

plementation plan, which many delegates hope will include detailed timetables for tackling problems of energy, biodiversity, food security, clean water and health care.

Developing nations are trying to extract more aid, along with greater access to Western markets and technology from the summit. The USA is resisting any new aid targets or timetables, while demanding that aid recipients reduce corruption. Developing countries are hoping the summit's action plan will call for the reduction and elimination of "environmentally harmful and trade distorting subsidies."

Activists said massive subsidies did nothing more than protect inefficient agricultural systems. "Unsustainable agriculture would not be possible without these subsidies," Ms Van-

dana Shiva, a women's leader and organic farmer from India, told the summit.

**Haze linkage to divert world attention:** Malaysia has accused developed nations of diverting world attention from the "real issues" at the World Summit on Sustainable Development by linking Asian Brown Haze with the atmospheric pollution in the ASEAN region. Stating that the ASEAN haze occurs from June to September while Asian Brown Haze is experienced between October and April, science, technology and environment minister Mr Law Hieng Ding said "to link up this two is not fair. Actually, Asian Brown Haze has been there for many years, about half a century".

**Editorial: African Tragedy page 4**

## Green and Gold

The Earth Summit (World Summit on Sustainable Development or Rio Plus Ten) taking place in Johannesburg still has another week to go before it comes to a close. Yet, it is already being denounced as a non-starter. Lack of confidence in the likely outcome of the summit is unsurprising considering the bad track record of participating countries, post-Rio. Ten years after Rio, western eco-unfriendly business practices and exploitative industrialisation continue to be the bugbears of green lobbies and countries that have ratified the Kyoto Protocol. If anything, president Bush's hardline stand on emissions has sharpened the confrontation. For the moment, though, western emission standards may have come as a blessing for green corporates in the developing world. A recent report in *The Economic Times* talks about how most Indian companies who've adopted green practices since the beginning of the new millennium, especially in the energy sector, are probably not cognisant of the full financial import of this: Once the 1997 Kyoto Protocol comes into force in 2003 — when at least 55 countries ratify it regardless of US participation — millions of dollars will change hands with trading in certified emission reductions or CERs.

Formal trading in carbon credits could well commence in three years. Indeed, carbon credits may be traded on major commodity exchanges worldwide. Carbon credit rich Indian companies could, therefore, make a killing. However, emission quota trading is at best a short-term boon. These columns have consistently pointed out that good economics cannot exclude the environment, especially in the current backdrop of steady global environmental degradation and deteriorating public health. That is why the Supreme Court's directive two years ago asking polluting businesses to shift outside the Capital was viewed more as a temporary punitive measure rather than offering any sustainable solution. Critics of carbon credits trading point out that buyers — who are from the developed world, like the US — would slacken their R&D efforts to clean up 'dirty' technology since that would entail additional costs, and hence will fail to abide by the emission norms and deadlines set out by the Kyoto Protocol. Here, the private sector can play a very crucial role; some private companies are already going proactively green, conscious not only of their part in a collective social responsibility, but also because they have already got an inkling of the monetary gains.

# Jayalalithaa walks out of Cauvery meet

By Gargi Parsai

KD1  
NEW DELHI, AUG. 27. The Tamil Nadu Chief Minister, Jayalalithaa, today walked out of a meeting of the Cauvery River Authority (CRA), chaired by the Prime Minister, Atal Behari Vajpayee, in protest against the suggestion that the Centre will work out a "distress sharing formula" in a fortnight to resolve the water sharing problem between Karnataka and Tamil Na-

du. She later described the meeting as "fruitless from the beginning".

Ms. Jayalalithaa was pressing for the immediate release of at least 30 tmc ft (thousand million cubic feet) of water by upstream Karnataka against a shortfall of 43.1 tmc ft, to save crops in the Thanjavur delta region. But when her Karnataka counterpart, S.M. Krishna, said that no water could be released based on today's discussions,

she said she had no choice but to walk out "in view of the intransigent and unreasonable attitude".

In a statement issued late night, Ms. Jayalalithaa said despite the Prime Minister urging Mr. Krishna to specify the quantum of water which could be released to Tamil Nadu, Mr. Krishna said he was in no position to release any quantity of water to Tamil Nadu and that the issue could be reviewed at

the end of next month. She left "with due respect to the Chair".

Ms. Jayalalithaa walked out 40 minutes after the meeting began at Mr. Vajpayee's residence saying that such a decision would only delay the release of water. Among others who attended the meeting were the Pondicherry Chief Minister, N. Rangaswamy, and the Kerala Irrigation Minister, T.M. Jacob.

"So far Karnataka was not agreeing to share distress on a pro rata basis. It has agreed today and now the Central Water Commission will work out a mechanism for a pro rata sharing of distress," the Union Water Resources Minister, Arjun Charan Sethi, told mediapersons after the 90-minute meeting. He said Tamil Nadu had agreed to share distress in the last meeting of the official level Cauvery Monitoring Committee on August 9.

Asked whether the CRA decision had the concurrence of Ms. Jayalalithaa, the Karnataka Chief Minister told *The Hindu*, "How can that be? She staged a walkout."

However, when Mr. Sethi was asked the same question, he said there was a unanimous agreement on the distress situation due to scanty rainfall and that distress needed to be shared by all the basin States. He said that Jayalalithaa staged a walkout because she wanted the pro rata distress formula to be worked out right there.

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EARTH SUMMIT / LOW-KEY PROTESTS

2778  
Switzerland HO-19  
**Overcome global apartheid, says Mbeki**

**JOHANNESBURG, AUG. 26.** The U.N. Earth Summit opened in Johannesburg today with politicians from around the world facing 10 days of intense negotiations to overcome rifts on alleviating poverty worldwide while protecting the environment.

Diplomats from more than 30 key countries met behind closed doors in Johannesburg over the weekend in a bid to bridge differences over fair trade, market access for developing nations and timetables for action.

A major disagreement is over objectives for poverty relief, which the European Union says are indispensable but which the United States refuses to endorse, in line with its reluctance to enter into any new multilateral deals.

This summit, officially known as the U.N. World Summit on Sustainable Development, is a follow-up to the first Earth Summit in Rio de Janeiro in 1992, which put forward 2,500 recommendations, the majority of which have not been implemented.

The South African President, Thabo Mbeki, who welcomed delegates to the U.N. Earth Summit, urged them to unite to overcome "global apartheid" in the path towards sustainable development.

The world was still gripped in crisis 10 years after the first Earth Summit in Rio de Janeiro, battling unsustainable practices, war and conflict and coming to terms with threats of terrorism, Mbeki said yesterday. "We see a world ailing in poverty, inequality and environmental degradation despite the agreements at the Rio Earth Summit," he said at a colourful welcoming ceremony at the Ubuntu (Friendship) Village, the summit's cultural hub.

"Out of Johannesburg and out of Africa must emerge something new that takes the



**The South African President, Thabo Mbeki, hugs a child at the Earth Summit welcoming ceremony in Johannesburg on Sunday. — Reuters**

world forward away from the entrenchment of global apartheid to the realisation of goals of sustainable development. This is a moment of hope, not despair."

Meanwhile, Zimbabwean and Ethiopian activists staged low-key protests accusing their governments of rigging elections as the 10-day U.N. environmental summit opened on Monday.

Watched over by scores of riot police, about 200 members of Zimbabwe's opposition Movement for Democratic Change marched through the streets of Johannesburg's Sandton suburb, calling for new elections and the removal of the President, Robert Mugabe.

Singing and dancing, the protesters car-

ried banners reading "Mugabe is starving his own people" and "New election now." Zimbabwe has been gripped by more than two years of political violence, which has widely been blamed on the ruling party. A Presidential election held in March, which returned Mr. Mugabe to power, was deeply flawed, local and international observers say.

"There is an illegal regime in Zimbabwe," said Moses Mzila-Ndlovu, the Opposition's Shadow Environment Minister. "We as the opposition are demanding that the election that Mugabe held must be annulled and fresh elections must be held."

Earlier on Monday, about 20 members of the Oromo Liberation Front staged their own protest, calling for what they described as an end to persecution by the Ethiopian Government. The front's leadership left the country or went underground after quitting the transitional government in 1992 and accusing the ruling Ethiopian People's Revolutionary Democratic Front of rigging elections in the country. There have been several clashes between Ethiopian troops and Oromo rebels over the past seven years.

A cordon of police prevented both groups from approaching the summit's main conference centre, and the protests, held about 800 meters from the centre, ended peacefully. The protests were the first in a series planned during the 10-day Earth Summit bringing together world leaders to discuss policies to reduce poverty and prevent further environmental damage due to development.

About 8,000 security officers have been deployed to patrol the conference centre, working to head off the kind of street violence that marred previous anti-globalisation protests — AFP, AP

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# Fate of the Earth

Ten years is a long time in the life of an individual, but a decade seems pretty insignificant in a planet's lifespan. Planet Earth, however, groaning under the weight of a 6-billion plus exploitative human population, might think differently. Indisputably, the period between the 1992 Earth Summit at Rio de Janeiro and the 2002 World Summit on Sustainable Development that begins today at Johannesburg has been a very crucial one. In all this time, both governments and individuals have become more aware and informed about the fragile nature of our relationship with the environment. There is wide consensus that sustainable development — which can help meet the needs of today without sacrificing the ability of future generations to meet their needs — is the only way to undo at least some of the damage we've inflicted on our collective home, Earth, and also on our own selves. The Johannesburg summit will focus on getting commitments for integrated action in three key areas: Economic growth and equity, conservation of natural resources and the environment, and social development.

Although most fervent promises made by participants at the Rio Earth Summit have failed to translate into concrete action, the "Rio Circus" (as one US delegate described it) was not really a waste of effort. For a start, it succeeded hugely in drawing world attention to the above issues. Post-Rio, hundreds of inter-governmental meetings have taken place to discuss various aspects of sustainable development. Ironically, even as environmental awareness is growing, wasteful patterns of consumption and production continue to nibble at the sustainability of the planet. Proactive and corrective policies are aplenty on paper. Information on the state of the planet is also abundantly available, thanks to the magic of technology. All that is needed now is action. George Bush, a.k.a. Toxic Texan, president of the world's largest energy-guzzling and polluting country, will holiday in Mexico while Colin Powell presents the US's action plan at Johannesburg. Thus far, the US has been deafeningly silent on the issue of curbing wasteful consumption. American policy focuses more on monetary aid and regeneration of forests in the 'developing world', and long-term R&D in clean technology than on self-discipline that might compromise current US economic growth. The Johannesburg Summit promises to address vital survival issues like safe drinking water, energy management and food security. It also promises to move on from mere planning to implementation — in time to stop the deluge?

# Earth Summit to focus on world solidarity fund

Press Trust of India

JOHANNESBURG, Aug. 25. — A ten-day World Summit on Sustainable Development begins here tomorrow to discuss contentious issues of growing disparities between developed and poor nations and the need to eliminate trade distorting subsidies that inhibit sustainable consumption and production patterns in developed countries.

Leaders from different continents will gather here to thrash out the draft plan of implementation that will also seek to establish a world solidarity fund to eradicate poverty.

A high-level Indian delegation, led by environment minister Mr TR Baalu for the first six days and external affairs minister Mr Yashwant Sinha in the second part, will attend the conference. Congress MP Mr Laxman Singh and BJP MP Mr Brikam Keshari Dev, former environment minister Mr Digvijay Singh, and environmentalists Mr Mohan Dharia, Mr Sunita Narain and Mr KV Sarabhai will also be part of the delegation.

The summit will seek to establish the world solidarity fund which will stress on the voluntary nature of contributions and

the need to avoid duplication of existing UN funds. It will also encourage role of the private sector and individual citizens relating to governments in funding the endeavours.

The summit declaration would keep in mind the UN millennium declaration's commitment to make every effort to ensure the entry of Kyoto Protocol into the UN framework convention on climate change and embark on the required reduction of emissions of greenhouse gases.

On globalisation the draft document says: "Globalisation has meant increased trade and capital flows, increased sharing of ideas and the extension of democracy and rule of law to an ever-widening circle of countries."

It says although globalisation has improved lives around the world, the challenge remains to ensure that its benefits are enjoyed by all countries.

Following up on Rio de Janeiro meeting, the current summit will take up the issue of developing countries' sovereign right to exploit their own resources pursuant to their environmental and development policies while avoiding the misuse of that approach as a disguised barrier to trade restricting exports from developing countries.

MONDAY, AUGUST 26, 2002

40-10  
26/8

## CRITICAL ISSUES *Environment* ✓

MORE THAN 100 heads of state and Government will be meeting in Johannesburg this week at the World Summit on Sustainable Development. For a world weary of United Nations summits this may seem like yet another ritualistic gathering where world leaders will fly in, make their speeches and return to their capitals. But while the chances are that the WSSD will not produce concrete results of any note, the issues on the agenda are critical for the lives of future generations. A failure to act now pushes global and national environmental deterioration closer to the point of irreversibility.

The Johannesburg summit will be held exactly a decade after the Rio de Janeiro summit produced Agenda 21 and the Rio Charter, which were supposed to be landmark agreements that would guide the Governments of the world in fulfilling their "common but differentiated" responsibility in promoting sustainable development. The 1992 Rio summit generated a tremendous amount of public awareness about environment issues — particularly on climate change, degradation of forests and the consequences of unequal and profligate consumption — but this has not been transformed into remedial action. No fig leaf can hide the fact that Agenda 21 has been a complete failure. National, regional and local plans have been prepared in a number of countries, but other than isolated examples few have been seriously implemented. The fact is that the environment has lost its high profile on the national and global political agendas, in spite of the fact that ecological stress has worsened in the past decade. In the developed countries, only in the European Union do green issues have any constituency. In the U.S., the President, George W. Bush, would, if he could, be rolling back environmental regulations even more rapidly than he has during the past couple of years. In the developing countries, Governments are content with railing against the developed world while they continue to be indifferent even where they can act, like in depletion of water resources. Global environment agreements that have been signed are be-

ing ignored as well, the best example of this has been the U.S. attitude towards the Kyoto Protocol on climate change. The only successes in rich and poor countries have come about when citizens' groups have taken the initiative or the courts have stepped in to rectify negligence of the Executive. In such a situation it is difficult to see the Johannesburg summit making a substantial difference to national and global policies on the environment. True to form, negotiators have not been able to resolve their differences about a plan of implementation — Agenda 21 by another name — which is supposed to emerge from the WSSD. This is true as well of the text of a proposed Johannesburg Declaration, which will only be a Rio Charter 10 years later.

If the WSSD is yet important, it is because it provides an opportunity to world leaders to ask of themselves and of each other why, despite the profile and promise of the 1992 Rio summit the decade that followed was such a failure from the perspective of sustainable development. Yet, leaders of two countries, each important in its own way for the future of global environment protection efforts, have decided not to participate in the Johannesburg summit. While Mr. George Bush Sr. was brave enough to attend the Rio summit in 1992 despite the U.S. being cast as the environmental villain of the world, Mr. Bush Jr. has decided not to travel to Johannesburg. Just as no global climate treaty can work without the participation of the world's biggest polluter, no attempt at promoting sustainable development can go far without a political signal from the highest level in the U.S., which remains the largest consumer of natural resources. The Prime Minister, Atal Behari Vajpayee, too has decided to stay away from the WSSD, leaving it to the Foreign Minister, Yashwant Sinha, to lead the Indian delegation. It has been a long journey from the 1972 Stockholm U.N. environment conference where Indira Gandhi made her famous "poverty is the biggest polluter" speech, to 2002 when the Prime Minister of India is turning his back on global efforts to protect the environment and promote sustainable development.

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Summit  
110-19

## EARTH SUMMIT / WORLD SOLIDARITY FUND LIKELY

# Meet to address rich-poor divide

26/8  
**JOHANNESBURG, AUG. 25.** A 10-day World Summit on Sustainable Development begins here on Monday to discuss contentious issues of growing disparities between developed and poor nations in a globalising world and the need to eliminate trade distorting subsidies that inhibit sustainable consumption and production patterns in developed countries.

Leaders from different continents will congregate here to thrash out the draft plan of implementation that will also seek to establish a world solidarity fund to eradicate poverty and to promote social and human development in the developing countries.

The Johannesburg Summit will take off from the Bali meeting early this year where a draft plan was agreed upon.

The Johannesburg Summit will seek to establish the world solidarity fund which will stress on the voluntary nature of contributions and the need to avoid duplication of existing U.N. funds.

It will also encourage the role of the pri-

vate sector and individual citizens relating to Governments in funding the endeavours.

The summit declaration would keep in mind the U.N. millennium declaration's commitment to make every effort to ensure the entry of Kyoto Protocol into the U.N. framework convention on climate change and embark on the required reduction of emissions of greenhouse gases.

It will call upon the states to work cooperatively towards achieving the ultimate objectives of the U.N. framework convention on climate change.

On sustainable development in a globalising world, the draft document says globalisation is integral to development and has the potential to improve the living standards for all.

"Globalisation has meant increased trade and capital flows, increased sharing of ideas and the extension of democracy and rule of law to an ever-widening circle of countries", it says.

However, African environmental activ-

ists have said they feared leaders of rich countries would be unwilling to tackle problems affecting the globe's poorest continent during the summit.

African non-government organisations said eradicating poverty was among Africa's priorities. They added high prevalence of HIV/AIDS and malaria further threatened Africa's development.

Africa is the continent hardest afflicted by AIDS, which is killing its professionals faster than replacements can be trained.

To deal with the continent's problems, Africa wants the rich countries to ensure market access and competitive pricing for African products, increased debt relief, and aid conditions that encouraged private donor inflows, said an activist, Abou Bamba.

A high-level Indian delegation, which will be headed by the Environment Minister, T. R. Baalu, for the first six days and the External Affairs Minister, Yashwant Sinha, in the second part, will attend the conference.

AP, Reuters

# Bt cotton — bitter harvest

By Mihir Shah & Debashis Banerji

HD-10  
29/8

**F**IRST REPORTS from Khar-gone district of Madhya Pradesh, one of the cotton headquarters of India, endowed with fertile black cotton soil, speak of a 100 per cent failure of the Bt cotton crop. Farmers are up in arms demanding compensation from the company that supplied these seeds. While other cotton varieties have also been adversely affected by the drought, they report a failure rate of only around 20 per cent. This is a performance that has shocked even the worst critics of genetically-modified (GM) crops. We do not expect such a complete disaster to be repeated everywhere. But the Bt cotton story in India had all the makings of a terrible tragedy, even before official permission was granted for its cultivation in March 2002.

The tragedy began unfolding in Gujarat where over ten thousand acres of Bt cotton were planted illegally last year. The Genetic Engineering Approval Committee (GEAC) of the Union Ministry of Environment and Forests, whose permission is required for cultivation of any GM crop, ordered the destruction of this illegal Bt cotton. But the decision was never implemented.

In March this year, three hybrid Bt cotton seeds supplied by the Mumbai-based company, Mahyco, were approved by the GEAC for cultivation in central and south India. The U.S. multinational Monsanto has a 27 per cent stake in Mahyco. Bt cotton seeds have been genetically engineered to produce a toxin that can kill the bollworm, a major headache for cotton farmers. They are ineffective against other pests and even according to their suppliers do not have any mechanism to raise yields. The idea is that they would raise the net incomes of farmers since they are expected to reduce spending on pesticides.

But a simple calculation shows that the economics does not quite work out. Seeds currently being used by farmers cost an average of Rs. 325 per hectare. The pesticide

*The Bt cotton story in India had all the makings of a terrible tragedy, even before official permission was granted for its cultivation.*

cost is around Rs. 400 per hectare. The Bt cotton seeds are about four times as expensive as existing seeds, i.e., Rs. 1,300 per hectare. Some pesticide has to be used even with Bt seeds, particularly because 20 per cent of Bt cotton fields need to be covered with non-Bt seeds (to ensure that pest resistance to Bt cotton does not rapidly develop). Even if Bt seeds are presumed to lead to a dramatic reduction in pesticide costs to say Rs.150 per hectare, the total cost of seeds and pesticides would still be double in the Bt case — Rs. 1,450 compared to Rs. 725 per hectare for seeds currently in use.

The mandatory requirement of growing non-Bt cotton in each Bt cotton plot is based on "resistance management plans" devised in the U.S., where farmers have huge land holdings. The idea is that the surviving resistant insects to the Bt crop will intermate with susceptible ones on the non-Bt crop. But Indian cotton farmers with much smaller land holdings have found it quite impossible to set aside land for these "refugia". Their inability to do so will only accelerate the development of pest resistance to Bt cotton. There are also a large number of technical specifications for refugia management with which Indian farmers have not even been made remotely familiar. This is obviously not a technology meant for the poor, dry-land small farmers of India.

Inquiries in the field reveal that the attraction for Bt cotton had much to do with the kind of hype that surrounded its sale. Farmers worried about the cost were falsely promised dramatic increases in yield. Coercion was also employed — availability of credit and other inputs was linked to purchase of Bt. But, most farmers remained unconvinced because of the high price. And this is where the tragedy got really compounded.

Much to the consternation of Mahyco-Monsanto, illegal Bt seeds from last year's Gujarat harvest (that the Government failed to destroy) began flooding the market. A large number of illegal dealers started offering Bt cotton much cheaper, at anywhere between Rs. 100 and Rs. 800 per hectare. In Gujarat last year these seeds were covertly sold under the brand name "Navbharat 151" by the Navbharat Seeds Company. This year, with Bt cotton having been cleared by the Government, and with no action against Navbharat, the seeds obtained from last year's harvest, were openly sold as "Maxi 151" by a Vadodara-based company describing itself as "B.T. Cotton Trial Farm". Its proprietor, Piyush Patel, published huge ads in prominent Gujarati dailies not only extolling the higher yields of "his" Bt cotton, but also claiming its superiority over that supplied by "big companies" (which he described as a "terminator seed"). Following several representations to the GEAC, Mr. Patel was finally arrested in May 2002. But much damage had already been done. Many illegal F2 and even F3 (second and third generation) seeds are reported to have been sold to cotton farmers of Punjab and Haryana, where Bt cotton has yet to be approved. They have also found their way into Maharashtra and Andhra Pradesh. A khadi institute in Gujarat that apparently used last year's Bt seeds, reported uncommon itching and rashes among users of cloth produced from this cotton.

As this illegal trade of bogus operators spread, the Government largely remained a silent spectator. The irony is that those who set so much store by Bt cotton are also passively watching their magic product being made a complete mockery of! We are more concerned that farmers

are being taken for a ride. We have consistently argued that any new technology must be introduced only after farmers and consumers have complete information on all its aspects. So that they can make an informed choice. Such a choice has been denied to our people, who are being forced to learn the hard way.

Why can't a large number of public debates be organised in our cotton growing areas, with the participation of the Government, companies, scientists, farmers and consumers? Where this has been done, as in Chitradurga in Karnataka and Medak in Andhra Pradesh, farmers have overwhelmingly rejected GM crops. But the Government has still not placed in the public domain, data generated by Bt cotton trials in India. Ridiculously, the monitoring and regulation of Bt cotton has been entrusted to the very same company that is producing and selling it. Meanwhile, evidence against Bt cotton continues to accumulate worldwide. A study by the Nanjing Institute of Environmental Sciences under the Chinese State Environmental Protection Agency reveals that Bt cotton is harming natural parasitic enemies of the bollworm and seems to be encouraging other pests. The Chinese experience needs to be taken seriously since Bt cotton accounts for more than 1.5 million hectares (35 per cent of total cotton acreage) in that country. The study finds the diversity index of the insect community in Bt fields much lower than in conventional cotton farms in China. It also finds that the populations of pests other than bollworm have increased in Bt cotton fields and some have even replaced it as the primary pest. It would be pertinent to remember that since Bt cotton was developed in the U.S. to tackle only one main pest, the bollworm, its applicability to regions of the world with higher pest diversity was always suspect from the word go.

*(The writers are scientists in the field of alternatives to genetically-modified agriculture.)*

24 AUG 2002

# Row over GM food aid snowballs

By Batuk Gathani

*eminem*  
*HD-24* *29/8*  
**BRUSSELS, AUG. 23.** The ideological and political divide between the European Union and the U.S. has widened with the European Commission last night rejecting a plea by the Bush administration to give reassurances about the safety of genetically modified (GM) emergency food relief that it is proposing to supply to the drought-stricken nations in southern Africa.

The U.S. is ready to supply half a million tonne of GM food as humanitarian aid by the end of the year to nations in southern Africa where some 14 million people are facing starvation.

According to World Health Organisation (WHO) estimates, about three lakh southern Africans may die of starvation in the coming months.

It is ironical that the dispute between Brussels and Washington has erupted on the eve of the United Nations' sponsored world summit on sustainable development, which will be held in Johannesburg next week.

The famine in southern Africa is a priority item on the summit's agenda.

Three prominent food-starved countries — Zimbabwe, Zambia and Mozambique — have turned down the offer of GM aid on the ground that the grains' presence could damage their domestic crop and affect export of their livestock to E.U. countries.

Officials in the region also believe that consumption of GM food may harm the people in the region affected by food shortages.

A European Commission spokesman was on Friday quoted as saying that the E.U. does not wish to get involved in the controversy between the U.S. and the African states.

The Geneva-based World Trade Organisation (WTO) is also hosting a three-day meeting of southern African Governments from next Monday in Harare, Zimbabwe, to resolve the GM controversy. According to WTO officials, GM food was unlikely to pose a threat to humans. The WTO is of the opinion that it is up to the African Governments to decide on the import of the foodgrains.

American officials also feel that the African Government's rejection of GM food would cost thousands of lives.

They said the current "misinformation" about the safety of agricultural biotechnology was hampering food distribution to the starving masses in southern Africa. According to the U.S. State Department, GM food is "both safe and wholesome and can make the difference between life and death for millions of southern Africa's poorest people."

24 AUG 2002

# Coast Guard to acquire pollution control vessels

By R.K. Radhakrishnan  
**ON BOARD CGS SARANG, AUG. 22.** Coast Guard is negotiating with shipbuilders for construction of three specialised pollution control vessels, its Director-General, O. P. Bansal, said today.

These would be ready for deployment by the end of the Plan period. One vessel would be deployed on the eastern seaboard; another in the west and the third on the Andaman islands. Once this process was complete, India would join the elite few with exclusive ships to fight pollution. A fourth ship would be added during the next Plan period. While their primary role would be pollution control, the ships would also be equipped to carry out search and rescue and patrolling.

Vice Admiral Bansal, who was here to check out the force's pollution fighting capabilities, said the technology and equipment with Coast Guard were about a decade old. "We have to update this in view of our larger respon-

sibilities," he told presspersons on board CGS Sarang. Pollution response was "important but a slightly unglamorous" operation for Coast Guard.

Every year, Coast Guard handled five or six cases of pollution, with the monsoon season accounting for the bulk of the problem.

Coast Guard has an exclusive phone number (1718) for people to call and report sea pollution. It is uniform throughout the country and the phone is located in Coast Guard stations, and district and regional headquarters.

Towards meeting the objectives of the International Convention on Oil Pollution Preparedness, Response and Cooperation, and the National Oil Spill Disaster Contingency Plan (NOS-DCP), Coast Guard has activated two pollution response centres with advanced tier-1 capabilities on the west coast at Vadinar and Kochi and one on the east coast in Visakhapatnam.



**A pollution response exercise underway aboard Coast Guard vessel CGS Sarang on Thursday.** — Photo: R. Raghu

## Coastal security meet

Tomorrow Admiral Bansal would chair a coastal security conference here. Attended by the Oil and Natural Gas Corpo-

ration, the Indian Oil Corporation, the Navy and the Indian Air Force, the meet would assess security threats and counter measures for vital installations such as Bombay High and Godavari oil platforms, and also nuclear and space establishments.

Asked whether there was an increase in narco-trafficking following peace initiatives in Sri Lanka, Admiral Bansal said Coast Guard had not apprehended any one with drugs. But this did not mean that no trafficking was taking place. With the increased equipment, Coast Guard would step up vigil.

The force enjoyed good relationship with the Sri Lankan Navy, which was cooperating in sending back quickly Indian fishermen who strayed into the island waters. "There has not been any shooting incident for a while," Admiral Bansal said. While Coast Guard provided protection to fishermen in Indian waters, more often than not they crossed over to Sri Lankan waters, hoping for better catch.

# Earth Summit crucial for business

**Vanessa Houlder &  
Alan Beattie**  
LONDON, 19 AUGUST

It is billed as one of the largest summits ever held. By the start of the World Summit for Sustainable Development a week from today, tens of thousands of delegates will have gathered in Johannesburg with the avowed goal of eradicating poverty and stopping environmental destruction.

How much attention should businesses pay to this sprawling, grandly titled conference? At first sight, not a lot. There are no treaties on the drawing board; there will be no new rules or regulations for the private sector. Indeed, the failure to agree a final agenda for the summit means that few binding decisions of any kind are likely to be made.

Deadlock over environmental treaties means that the summit has been broadened to include development and poverty alleviation. But there is scarcely any more harmony in these areas between the main rich countries, following a bitter dis-

pute between the US and Europe over funding for the World Bank and continued questions about the US's commitment to multilateral initiatives. It is almost certain to be a bad-tempered affair, with a cacophony of competing voices and conflicting goals.

Yet businesses cannot afford to ignore this summit. It crystallises trends that are shaping the relationship between lawmakers and the private sector. Both governments and anti-globalisation campaigners believe for different reasons that business holds the key to sustainable development. The dispute over whether business is a positive or negative influence is set to pervade the summit's debates.

Many campaigning organisations now recognise that foreign direct investment can be a force for good. But a recent conference on private sector involvement at the World Bank still revealed deep concerns. Development campaigners suspect that the bank's new focus on improving the climate for business investment is merely a

national companies to play a leading role at the summit. "Business is going to come in big numbers," says Bjorn Stigson, president of the World Business Council for Sustainable Development, a Geneva-based group representing 160 multinationals.

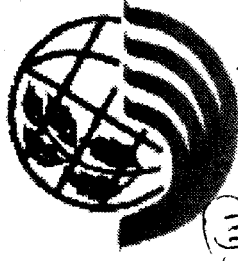
"There is a growing understanding that you have to address the environment and sustainable development. You cannot leave these issues unattended."

The increasing role for business partly stems from an awareness that the lofty rhetoric needs to give way to action. There are now hundreds of declarations, agreements, guidelines and legally binding treaties on alleviating poverty and environmental damage. But few have been adequately implemented.

There is a growing belief that this implementation gap can only be narrowed by harnessing the experience of business and other groups, such as conservation and aid charities.

"The most creative agents of change may well be partnerships," says Kofi Annan, UN secretary-general.

*(Financial Times)*



## World Summit in Africa

**Johannesburg 2002**

**World Summit on  
Sustainable Development**

code for reducing labour and environmental protection.

David Ellerman, an adviser to the bank, says it has too often taken a one-sided view of investment. "One person's stability is another person's rigidity," he wrote in a study of the subject. "The Bank tends to ignore trade-offs and implicitly identify with one group, usually external or foreign investors, and then count an improvement in the investment climate for that group as being an improvement per se."

Critics accuse the World Bank of providing "corporate welfare" for northern hemi-

sphere businesses. The Institute for Policy Studies, the leftwing Washington think-tank, seized on the collapse of Enron to show how the activities of the disgraced energy trader had been financed by the bank and by governments' export credit guarantee agencies. "Enron would not have scaled such grand global heights, nor fallen so dramatically, without its close financial relationships with government agencies," said Jim Vallette and Daphne Wysham, authors of a report on the corporation.

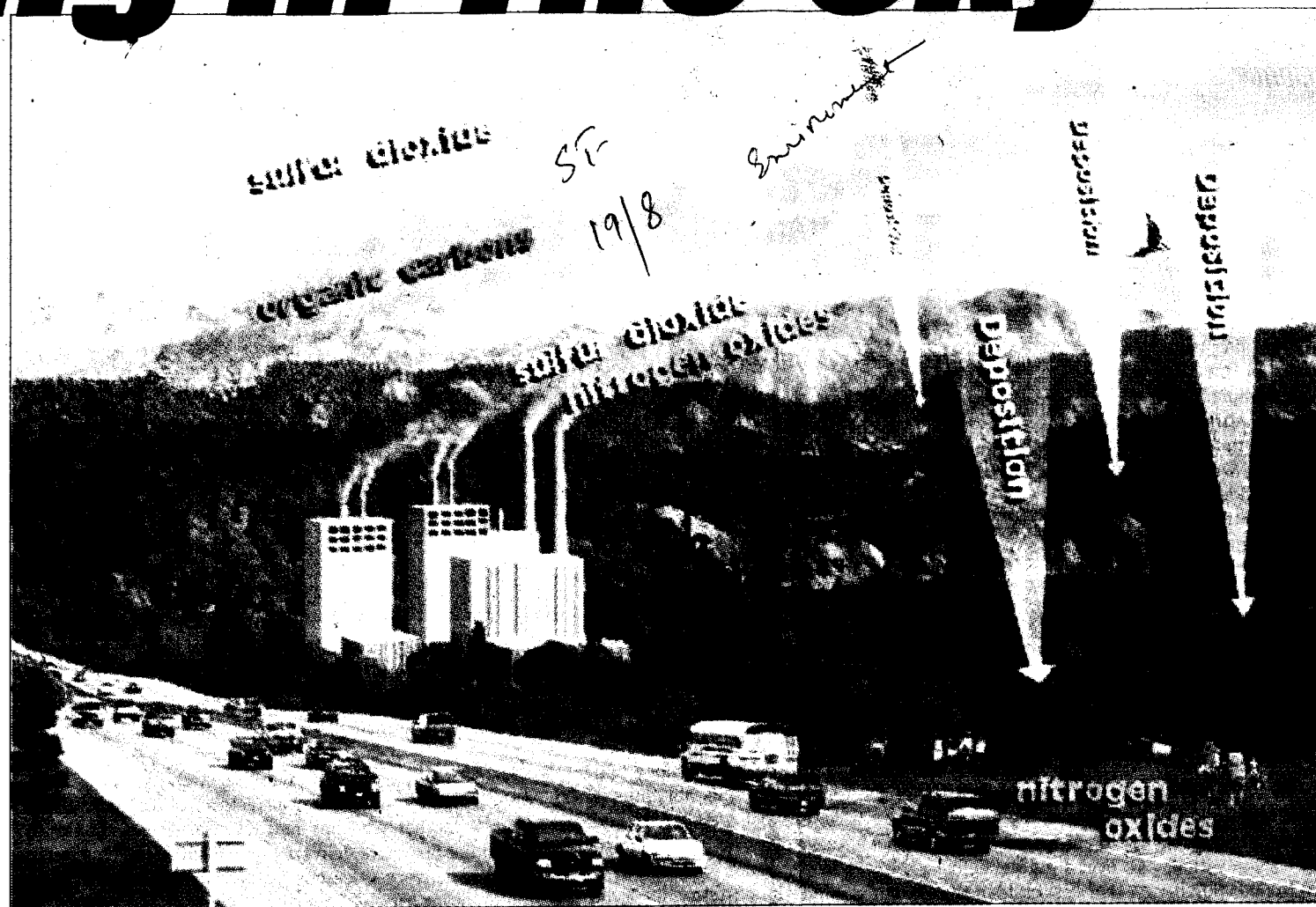
The recognition that business is in the spotlight is forcing inter-

20 AUG 2002



# Writing In The Sky

The most pernicious world environment issue since El Nino happened in the 1980s, an Asian Brown Cloud about the size of the USA is cutting down direct sunlight by 10 to 15 per cent and there are indications that it will reduce precipitation by 20 to 40 per cent, cutting rainfall substantially over India, Pakistan, western China and the western central Asian neighbourhood. Stanley Theodore reports



GLOBAL warming, shrinking glaciers, holes in the ozone layer, rising sea levels and many related catastrophes were thought to be happening somewhere out there. There has always been a disconnected and detached manner in which India, especially, has reacted and related to an environmental crisis. This despite the breathtakingly beautiful Taj Mahal visibly losing its glow at home. Now, finally and emphatically, the Asian Brown Cloud has emphasised a scenario of impending doom. As *The Guardian* reported, "... if anyone thought the weather was increasingly unpredictable and extreme, they may have seen nothing yet."

This Asian Brown Cloud is reckoned to be the most pernicious world environment issue since El Nino happened in the 1980s. In a span of days there was unanimity among scientists that Asian pollution was unprecedented and was bound to deteriorate as population and industrialisation increase in the world's two most populous countries — China and India. A United Nations Environment Programme press release posted on the Internet says, "The concern is that the regional and global impacts of the haze are set to intensify over the next 30 years as the population of the Asian region rises to an estimated five billion people."

Since the UNEP put out its report last Monday, many wonder if this catastrophe will overtake El Nino in terms of dread, death and destruction. The impressive growth of economies in South Asia is expected to take a severe beating, since rainfall and sunlight will be cut down. More terribly, the situation has convinced scientists that more lives have been lost prematurely than anyone cares to imagine. And that the pollution will gain in intensity over the next few decades to kill hundreds of thousands more.

Paul Crutzen, who won the 1995 Nobel Prize for Science for his work on the ozone layer, was involved with the report. He said two million people in India were dying each year from respiratory diseases caused by atmospheric pollution. "If the present trends continue, then we have a very serious problem," he said.

The news comes against the backdrop of the first half of 2002

being the warmest in the northern hemisphere in recorded history, Britain having the wettest summer ever and the Pacific gearing up for the return of El Nino.

The biggest study of the phenomenon involving 200 scientists and extensive data discovered that the cloud hovering over South Asia is three kilometres thick. The haze, at the moment, seems spread over — from Afghanistan to Sri Lanka. The grimy cocktail of fly ash, sulphates, nitrates, black carbon, acids, aerosols, soot and other pollutants has a total spread of 10 million square kilometres or about the size of the USA. The phenomenon has also been described as "a dynamic soup of pollutants" which is the result of forest fires, burning of agricultural wastes and fossil fuels, pollutant industries and power stations, vehicular emissions and even from *chullahs* using wood, coal or cow dung.

The cloud is cutting down direct sunlight by 10 to 15 per cent, and the study of global models indicates that it will reduce precipitation by 20 to 40 per cent, reducing rainfall substantially over India, Pakistan, western China and the western central Asian neighbourhood. Further, its heat absorbing properties are estimated to be warming the atmosphere's lower parts considerably. Also this may cause acid rain with enough potential to damage crops and trees and dump ash on leaves which will further aggravate the already known impact of reduced sunlight.

The UNEP report said, "One should note recent conditions; there have been two consecutive droughts in 1999 and 2000 in Pakistan and the north-western parts of India, with increased flooding in the high rainfall areas of Bangladesh, Nepal and the north-eastern states of India. For Bangladesh, there have been severe floods at intervals of seven to 10 years, the more recent floods occurring in 1988 and 1998. During the 1998 flood, as much as two-thirds of the land area was inundated and nearly 1.6 million hectares of cropland were damaged."

The cloud was first identified in 1980s by US pilots working at the Diego Garcia Air Force base in the Indian Ocean. Later, many pilots and astronauts noticed the muck. Over the years, its presence was confirmed by satellites and research ships found it spreading from as far as China in the north to the Arabian Sea in the west. Then in 1995, the United Nations commissioned a \$40

million research study — Indian Ocean Experiment (Inoex) — networking research resources over several countries, which used data from ground stations, balloons, aircraft, two ships, satellites and computer models.

The manner in which the media reacted to last Monday's report was as if something had happened in the skies last night. Because nothing could be farther from the truth. It's been almost two decades since an oddity of this nature has been reported over South Asian skies.

Three years back, in June 1999, the BBC wrote, "Scientists from the Scripps Institution of Oceanography in San Diego, which

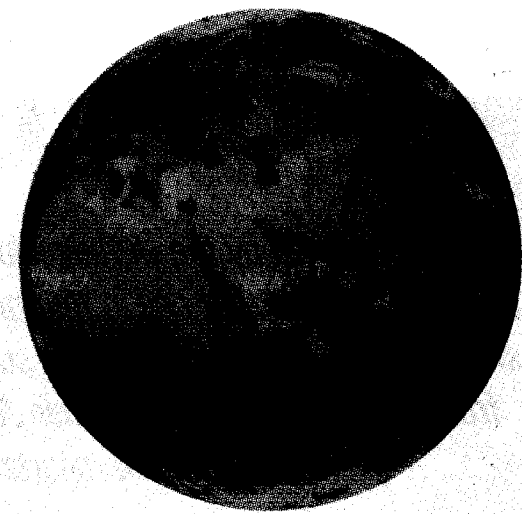
## THE GOOD

- Two per cent of forests have been certified for sustainable logging; Nature reserves and parks are expanding and amount to five per cent of land in Europe and 11 per cent in North America;
- Renewable energy sources have increased their share of the global energy supply to 4.5 per cent from 3.2 per cent;
- Urban air pollution is being brought under control in middle- and high-income countries as living standards rise;
- Access to safe drinking water has been cut by 50 per cent per child deaths due to diarrheal diseases — 1.7 million children in 1999, down from 3.3 million in 1990.

## THE BAD

- 40 per cent of the world's population faces water shortages; one billion people still lack safe drinking water. By 2025, half the world will face water shortages;
- Global sea levels are rising;
- Many plant and animal species are at risk of extinction;
- 2.4 per cent of the world's forests were destroyed in the 1990s;
- Every year more than three million people die from the effects of air pollution.

— From *Global Challenge, Global Opportunity*, released by the UN



## View From Space

A CHILLING account of the earth changing for the worse has come from space itself. American astronaut Frank Culbertson, in command of the space station Alpha, was quoted by the BBC as telling Radio 4 Today that the earth was becoming less blue and more blurred. He said his view in August 2001 had changed markedly since his first space shuttle mission in 1991 and later in 1993. "It's a cause for concern. I have seen changes in what comes out of some of the rivers, in land usage. We see areas of the world that are being burned to clear land, so we are losing lots of trees. There is smoke and dust in wider spread areas than we had seen before, particularly as areas like Africa dry up in certain regions." Culbertson was especially shocked by the night vision of the planet. "It's quite amazing to see how many people actually live down there and how much of an effect they are having on the environment and the land we live on."

coordinated the project, say the pollution is unprecedented in the region's history, and will get worse as the population increases. Tiny particles in the cloud reflect the sun's rays, cutting its heat by up to 10 per cent. In the ocean, less sunlight could threaten the survival of plants and plankton — key organisms in the world's food chain. Reduced sunlight also means that less water evaporates from the ocean — leading to lower rainfall and increasing the risk of drought. Scientists now want to discover how permanent the cloud is, and whether it is growing."

Meanwhile, the phenomenon is causing other countries concern over the past few days, especially as it appears to be global rather than local. The main reason for this is its mobility. One, it can travel half way round the world in about a week. Two, during the winter months, the cloud blows out from Asia over the ocean and when the monsoon arrives it reverses direction to move back over land. For example, in a country like Britain this means the weather would be even more severe and unpredictable.

There is more bad news. Scientists have also identified similar clouds, though less murky, over Africa, Latin America and the Mediterranean. In the immediate future their impact in tandem with El Nino, though less severe than its debut, is expected to create havoc. Australia has already been named the first victim as its drought worsens. The Asian Brown Cloud has forced scientists to warn of more flash floods, droughts, sudden heat waves, unexplained dry spells in some parts and unexplained wet spells in other parts.

The UNEP report said, "It is now undisputed that air pollutants and their chemical products can be transported over many thousands of kilometres. We urgently need data on the sources of the pollution, especially for China and India since they are contributing the bulk of the emissions."

But conservationists strike an optimistic note. Being a man-made problem, the situation can be remedied. As UNEP head Klaus Toepfer said, "To do so needs better burning technologies and we need to have cleaner traffic and sustainable energy." Patient and tireless efforts need to begin to overcome the danger. And hopefully the first steps will be taken when the Earth Summit opens in Johannesburg on 26 August.

Handwritten notes: "H.D. 10" and a signature.

## THE CLOUD OVER ASIA

Handwritten checkmark and date "1978".

THE PRELIMINARY FINDINGS of the United Nations-sponsored study of the Asian haze — easily the most extensive inquiry conducted into this phenomenon — are truly alarming. A report based on the five-year research study, which was overseen by the U.N. Environment Programme and which included contributions from more than 200 scientists, warns that a thick and toxic blanket of pollution hangs over much of South Asia. It holds the "Asian Brown Cloud" responsible for a virtual inventory of problems in the region — among them drought, floods, sunlight reduction, acid rain and mass-scale respiratory diseases. Moreover, it claims that the cloud (a noxious mixture of ash, soot, aerosols and other particles), is slowly spreading across the whole Asian continent and could have an impact on the climate all around the world.

Over the past few years, the extent of the smog — particularly over the Indian Ocean — has startled scientists. What the recent report suggests is that the haze, which fluctuates and reaches its peak in the month of January, is even bigger and much more dangerous than believed before. The study also suggests that dirty or polluting industries (which are often singled out as the chief environmental culprits) are not the sole causes for the haze. Rather, the haze is equally a result of low-tech pollution — forest fires, clearing vegetation by burning and the use of cooking fuels such as cowdung and kerosene. The link between forest fires/vegetation clearing and the haze came to the world's attention in a dramatic manner a few years ago, when clouds of acrid dust and smoke covered Malaysia, Singapore and parts of Thailand and the Philippines. The smog was traced to the timber and plantation companies of Indonesia, which cleared land by burning in order to expand plantations of timber, rubber, palm oil and other cash crops. But the Asian Brown Cloud is not a result of

slash and burn methods alone and it is the two countries which have large populations (China and India) which are responsible for the bulk of the emissions.

To gauge the accurate environmental impact of a contaminated blanket of the thickness and spread of the Asian Brown Cloud would require much more study. But scientists associated with the research project suggest that the consequences are already extremely serious. They include mass-scale respiratory deaths (which already number a staggering two million annually in India alone, according to one estimate) and the drastically altered rainfall patterns over South Asia over the past few years (which have been responsible for the floods in Bangladesh and Nepal and the drought in Pakistan and northwestern India). The impact of the Asian Brown Cloud on other parts of the world is not clear and the impact of it on global warming is something that requires to be studied further.

In a way, the only silver lining in this noxious cloud of pollution is that it is largely manmade — at least 80 per cent of it stems from one activity of man or another, according to scientists. This provides the hope that it can be undone by the adoption of a number of environment-friendly measures. These would include steps to prevent the occurrence and spread of forest fires, steps to prevent land being cleared by burning and by switching to cleaner and more efficient sources of energy. The Asian Brown Cloud is partly a result of the momentum of development. The problem will not vanish overnight but it is one — as other countries have shown on the air pollution front — that can be tackled. It is not an easy task to strike a balance between development and the environment. However, at the same time, it is imperative that the demands of the former keep pace with the requirements of the latter.

THE HINDU

17 AUG 2002

# Asia offers summit huge cloud with a silver lining

BRONWEN MADDOX,  
THE TIMES LONDON

THE environmentalists call it a nightmare. They must be joking: it's a dream come true.

The big brown cloud of smog over Asia which a United Nations team has announced could be a threat to the monsoon has come just in time for the sprawling Johannesburg summit on the environment in ten days time.

The summit lacks an agenda, the names of the delegation from the United States, or anything approaching good humour or consensus. But at least it has this: a fabulously photogenic symbol of the enemy, backed by UN warnings of potential food shortages for nearly two thirds of the world's population.

Nor is it the only meteorological phenomenon invoked in support of the summiters' unclear ends. The Prague floods, Australian droughts, all have been cited as evidence that battle must be waged.

Of course, no one is denying that the cloud of brown smog over China and India so colourfully shown on satellite photographs exists. It has been there for years and is easily visible at street level, not just from orbit. But its existence has been given sudden prominence by the report from the UN Environment Programme (UNEP).

The questions the UNEP team set itself about pollution and climate change are good ones. The report is straightforward in acknowledging the limitations of its modelling. It is uncontroversial in its observation of the cause of the smog: "forest fires, the burning of agricultural wastes, dramatic increases in the burning of fossil fuels in vehicles, industries and power stations and emissions from millions of inefficient cookers burning wood, cow dung and other bio fuels", according to Klaus Toepfer, executive director.

The mechanism by which this "greenhouse effect" would act in

might disrupt weather — in particular the monsoon — is also plausible and clearly described. The team of scientists has observed a cooling of the Earth's surface in the affected areas, and because less sun is getting through, but a warming of the "lower atmosphere" above the surface.

But then the politics of pollution take over. The news release prepared by UNEP, which appears to have inspired much of this week's world comment, is not as scrupulous as the report itself in noting the shortcomings of the study, and makes dubious assertions that the study itself does not maintain.

For a start, it does not mention, as the report itself makes clear, that the study did not take account of greenhouse gases also emitted by the burning. So there was no attempt to take account of the effect on global warming. In fact, the study notes that the "greenhouse effect" would act in

the opposite direction as the "smog effect" on surface temperature and on rainfall; it suggests, as it happens, that they would just about cancel each other out.

**It is quite clear what the scientists behind the report want; indeed they have said so. They want money to be able to research their hypotheses.**

The news release does also not mention that the study concentrates only on the "dry season" from December to April, whereas a full assessment of climate change would need a year-round study.

The release is also cavalier in discerning "trends" and attributing causality. It suggests

that both the 1988 and 1998 floods in Bangladesh are due to the smog, but does not explain why this should be so when the pollution was much less severe in the 1980s.

Similarly, it asserts that "results from seven cities in India... estimate that some kinds of air pollution were annually responsible for 24,000 (deaths) in the early 1990s. By the mid-1990s they resulted in an estimated 37,000 premature fatalities."

But this glides over the steady rise in the cities' population in that decade, implying that all the increase is due to greater intensity of pollution, whereas some will be due simply to the greater numbers affected.

As the scientists make clear in the full report, the hypothesis of how the smog might affect rainfall patterns has yet to be developed with much complex modelling at a regional and local level. Even then, establishing a causal link or any predicative

ability will be hard.

It is quite clear what the scientists behind the report want; indeed they have said so. They want money to be able to research their hypotheses. It is also quite clear what the politicians want: loud alarm bells to summon supporters to their cause.

Toepfer, in his former role as German environment minister, was no slouch at drumming up support at home and across Europe. He is quite explicit in his intention to use the brown cloud as a Johannesburg symbol.

"We stand on the eve of the World Summit on Sustainable Development... The huge pollution problems emerging in Asia encapsulate the threats and challenges that the summit needs to urgently address."

In the fashionable way, he casts the imperatives in the language of economics. Pollution must be curbed because it could choke off Asian growth, he argues. True, about a phenomenon visible for

quantify.

But this argument, and all the warnings on climate change, are as yet too sweeping in their claims. From the point of view of people living under the brown cloud, the most immediate reason to try to clean it up is the minute-to-minute effect on health, through respiratory illness. It is highly unpleasant, and kills some people, whether it shifts rainfall patterns in a decade's time is not trivial, but is bound to be secondary.

The UNEP report is an intelligent and well-designed study which asks the right questions, and indicates how, with funding and much more time, it might arrive at a few answers.

But it has been used spuriously by politicians heading for one of the largest summits the world has seen, desperately seeking a purpose and filling that vacuum with as yet unproven claims about a phenomenon visible for

# Indo-Pak conflict takes its toll on Siachen

By Rashme Sehgal  
TIMES NEWS NETWORK

**Siachen:** The world's coldest and highest battlefield could soon qualify as one of the world's biggest dumps. Siachen, which means "place of roses", is scattered with used artillery shells and ammunition. "There is little we can do. With temperatures touching nearly minus 60 degrees Celsius during winter, nothing disintegrates," says a senior Army officer stationed here.

Army sources reveal that during 1998 alone, the Indian side was bombarded with 43,000 artillery shells and 2,30,000 rounds of small arms fire from the Pakistani side. The Indian Army bombarded the Pakistani deployments in equal measure. Post-Kargil, the conflict intensified and a 1,000-strong infantry battalion is currently stationed on the northern, central and southern parts of the glacier. Officers say fire is exchanged almost on a daily basis.

However, it is not just the ammunition waste that is worrying environmental-

ists. Prof Syed Iqbal Hasnain of the School of Environmental Sciences, Jawaharlal Nehru University in New Delhi, warns that Siachen could end up becoming "one big garbage dump like the other Himalayan peaks, for example the Mt Everest". Army officers claim they are using incinerators run on kerosene to destroy their waste, but they admit that a lot of the stuff cannot be disposed of. "Unlike the Everest which is as littered with garbage as the Siachen, we are making an effort to keep this place clean," says Brigadier S.K. Singh of the 102 Infantry Brigade.

Major H.P.S. Ahluwalia, Everest climber, environmentalist and author of several books on Ladakh, points out that this is the only glacier in the world where two armies have been fighting for the last three decades. "What governments on both sides seem to forget is that this 76-km-long river of ice feeds is what feeds the river Nubra which in turn flows into the Indus. Surely it is not in the interest of either nation to have their waters polluted right at the source."

# Greenback

17/8 India and Kyoto protocol

India took much longer than it should have to ratify the Kyoto protocol on climate change. The cabinet's clearing the treaty early this month comes half a decade after the 1997 negotiations in Japan and only two months before an October 2002 New Delhi conference on global climate. Obviously, India could not have hosted the UN meet without having accepted Kyoto. But if diplomatic niceties are all that is bothering government, it will miss a chance to do the Kyoto protocol and India a good turn. India, a bit player in most global fora, is a major factor in the politics of global environment policy. The solid material basis for this is that given Kyoto's 55/55 rule for global validity — at least 55 countries contributing not less than 55 per cent of greenhouse gases — India's ratification brings the treaty very close to enforceability. The US under George Bush can act irresponsibly and stay out but should Russia sign Kyoto now, the treaty will come in force.

If it can do its homework properly, deploy the same kind of skilled teams that has won us tough fights in trade talks and get major developing countries to go along, India stands a fair chance of extracting a major commitment from industrialised countries. Not only should high population countries like India, as Kyoto recognises, be allowed leeways in terms of scaling back emissions, they should also be recompensed for functioning as the disposal unit of the West's industrial byproducts. Industrial emissions would have been a whole lot worse, and global warming a great deal more hot to handle, had the natural expanse of industrially underdeveloped countries not acted as pollutant absorbers. This makes logical sense, and is easily demonstrated empirically. But those were never enough reason for anyone, including nations, to part with their money. Even the green-friendly Europeans may balk at the thought of paying up. But India should put up a good fight.

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MONDAY, AUGUST 12, 2002

17/8

## SHARING DISTRESS

*Environment*  
*47-10*

THE RECOMMENDATION OF the Cauvery Monitoring Committee that Karnataka release water to Tamil Nadu on a 'pro rata' basis against the lower riparian State's entitlement under the Tribunal's 1991 interim order makes eminent sense as a general principle for 'distress sharing'. In practical terms, however, it is only what the Cauvery River Authority (headed by the Prime Minister) is going to decide on the vexatious issue that will be of immediate interest to Tamil Nadu which is confronted with a crisis situation on the farm front for want of water in the Mettur reservoir. Like several other States that have been hit hard by an especially bad south-west monsoon, Karnataka too is finding itself in a predicament, what with its storages in the Cauvery basin touching precariously low levels, and the looming threat of a drought has inevitably placed the State under tremendous pressure for water conservation. At the core of the problem is, as it has always been whenever the monsoon played truant, one of reconciling the legitimate concerns and striking a balance between the basic requirements of the two sides in a manner that would optimise the use of scarce water overall. It is precisely here that an approach of give-and-take is called for.

Admittedly, there has been a significant shortfall in the realisation of water at Mettur over the past few months. The cumulative deficit since June, according to Tamil Nadu is about 60 tmcft, but Karnataka has its own way of calculating the shortfall. That the two States should be perpetually wrangling over the quantum of water 'released' and 'realised' at their respective ends — this at least in part is due to Karnataka's insistence on Billigundulu (as opposed to Mettur) as the reference point — is in itself a poor reflection on their attitude. Pitted against Tamil Nadu's

anxiety to get assured supplies within a time-frame as ordained by the Tribunal is Karnataka's palpable wariness vis-a-vis any suggestion that may ultimately require its adhering to what it considered an "unacceptably rigid" schedule, which in turn has to do with that State's basic objections to the Tribunal's order itself. In the immediate context, however, the main endeavour ought to be the formulation of a water sharing arrangement based on judiciously prioritised requirements as warranted by the salutary objective of maximising the benefits in terms of food production and employment for farmhands. Of particular relevance here is the importance of facilitating Tamil Nadu's major paddy (samba) crop. And the CRA, due to meet soon, has its task cut out.

Going beyond the current concerns, it has to be said the Authority, created in 1998, has not chosen to address itself with any seriousness to the task of finding a mutually acceptable formula for 'distress sharing'. If the institution's effectiveness has not really been tested so far, it is because on the few occasions the contentious issue showed signs of hotting up the monsoon revived bringing copious rain to fill the reservoirs. It is anybody's guess whether such a fortuitous denouement is in store this year also. In any event, now that the Monitoring Committee has come out specifically in favour of 'pro rata' sharing, it is time that the CRA worked diligently for a consensus on that principle. More basically, it does little credit to those who constitute the CRA — the Prime Minister and the Chief Ministers of the four riparian States — that the Supreme Court should be asked to intervene by way of a 'direction' that the Authority play its assigned role as the mechanism to oversee the enforcement of the Tribunal's interim award. The Authority needs serious and all round political support for it to be effective.

10-11  
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## Release water to T.N. on pro-rata basis, panel tells Karnataka

By Gargi Parsai

**NEW DELHI, AUG. 9.** The emergency meeting of the Cauvery Monitoring Committee on sharing of Cauvery waters today recommended that "Karnataka may release water to Tamil Nadu in accordance with the Cauvery Water Disputes Tribunal award of April 3, 1992 on pro-rata basis keeping in view the distress situation".

The award calls for proportionate sharing of distress between the riparian States which include Tamil Nadu, Karnataka, Pondicherry and Kerala. This means that if the water level in Karnataka reservoirs is low-- as the State maintained in the meeting-- then it should release proportionately lower levels of waters to Tamil Nadu. As per the interim award of the tribunal, in a normal year Karnataka should release 205 tmc of water to Tamil Nadu.

The meeting was convened on the direction of the Supreme Court in response to an application by Tamil Nadu seeking directions to Karnataka to implement the interim award of the tribunal. If the Tamil Nadu's grievance was not redressed, then the Prime Minister, Atal Behari Vajpayee, would soon convene a meeting of the Cauvery River Authority (CRA) with the Chief Ministers of all the riparian States.

After the meeting, the Karnataka Chief Secretary, A. Ravindran said, "Taking into account the distress situation on both sides, whatever release is possible will be consid-

ered." However he was quick to add that no specific quantity was decided. He also made the point that the Monitoring Committee does not take decisions on its own. Its decisions are only recommendatory.

The Tamil Nadu Chief Secretary, Sugavaneswar, declined to make any comment. But the Tamil Nadu Government sources expressed disappointment at the outcome of the meeting saying Karnataka was not being fair to Tamil Nadu.

It is learnt that the Tamil Nadu side told the meeting that the State faced a shortfall of 58.85 tmcft in stipulated releases from June to August. Instead of the stipulated 70.02 tmcft, it had only received 11.17 tmcft. The meeting chaired by the Water Resources Secretary, A.K. Goswami, was attended by the Chief Secretaries of Tamil Nadu and Karnataka, the Chief Secretary of Pondicherry, T.T. Thomas and the Chief Engineer of Kerala, T.K. Sasi.

Describing the talks as "cordial" Mr. Goswami said the committee reviewed the inflows in Karnataka reservoirs and Mettur reservoir in Tamil Nadu. "It was noted that this year has been particularly dry year when the monsoon has been sluggish all over India. The States agreed to cooperate to share the distress caused due to sluggish monsoon."

Mr Goswami said the situation would be reviewed every month. The recommendations of the Committee would be sent to the CRA "within 24 hours".

# Disaster centre move may be spiked

**Aloke Tikku in New Delhi**

Aug. 9. — The Centre may reject a proposal to create a National Centre for Calamity Management. There was a National Centre for Disaster Management to evaluate damages due to calamities and recommend sanction of Central aid and the creation of a separate body for the purpose would be futile, officials said.

The 11th Finance Commission had suggested the creation of the NCCM. It was to take over the responsibility of assessing damage due to calamities, evaluate the capacity of the state governments to provide succour to the victims and recommend additional Central assistance for the states.

Central teams, specially cre-

ated for the purpose, carry out the task of assessing the extent of damage and their reports are put before the inter-ministerial group.

This year, the government has also constituted a task force headed by the Deputy Prime Minister in view of the drought in parts of the country.

The home ministry funds the National Centre for Disaster Management which operates out of the Delhi office of the Indian Institute of Public Administration.

This centre is headed by a bureaucrat, Mr Anil Sinha, who was earlier responsible for overlooking the functions of the national disaster management division in the agriculture ministry.

Officials said disaster mitigation efforts have to be within the

government system, outsiders — even if they are bureaucrats with experience in related fields — would not have access to all the information that comes to the government. "Neither would they be able to stay in touch with developments in their fields," an official said.

"Creating a separate super-structure would no doubt look good on the government but it would, in due course just end up as another layer in the decision-making process," he said.

It is being suggested that if the political leadership is nevertheless keen to create a separate body, it could well enlarge the scope of the existing National Centre for Disaster Management to incorporate the proposed mandate of the NCCM.

But instead of officers posted

full-time in the centre, officials said it could have bureaucrats from various ministries who come into the picture as and when there is a calamity.

This system may have worked better than the existing ones do, but at least one would have saved the time and energy that creating another institutional mechanism would cost, he said.

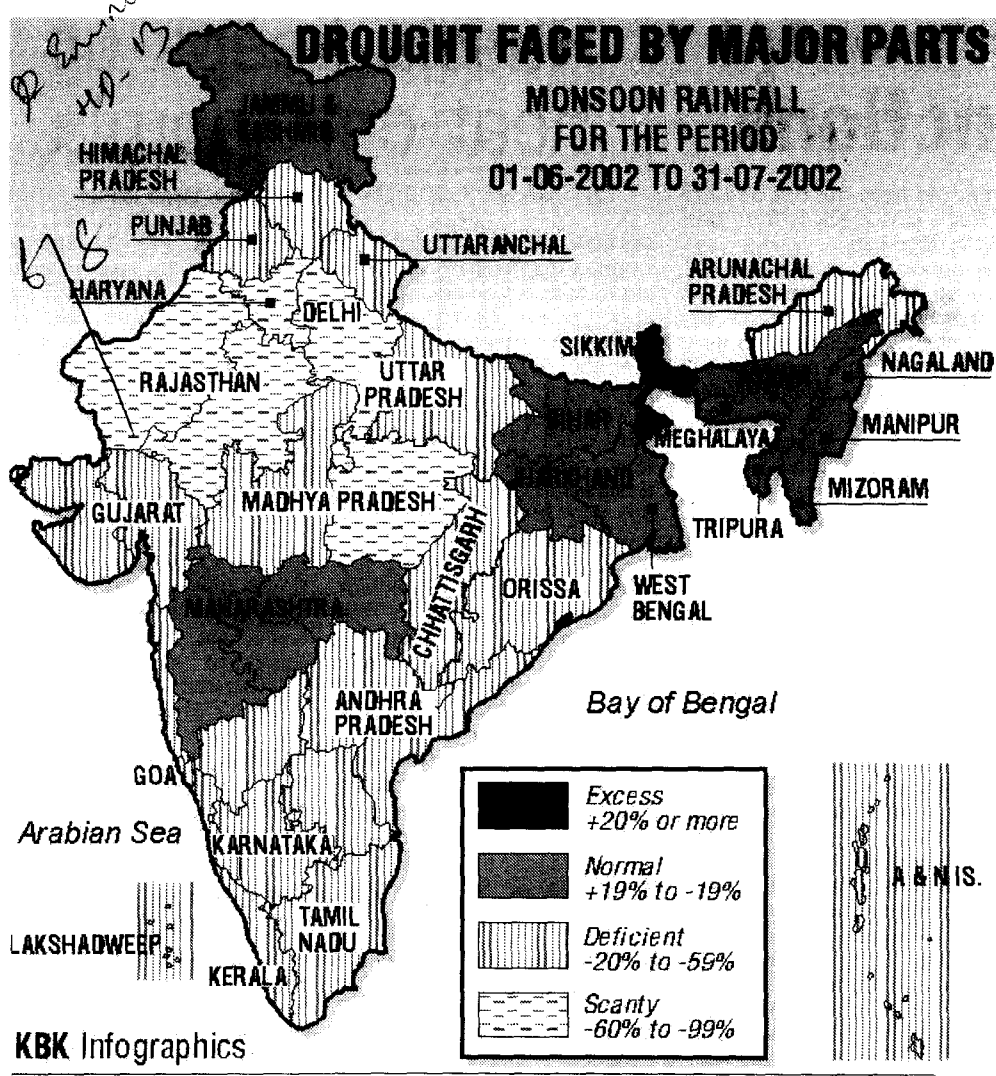
"But it would not be any worse than the existing system which is a distinct possibility if a centre is only devoted to deal with monitoring damages in disasters."

He said: "Suppose there is an earthquake or any other disaster in a state. Who does the chief minister or the chief secretary speak to for assistance — the political leadership at the Centre, Central bureaucrats or the disaster centre?"

*Srinivasa S-6 108*

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9 AUG 2002

THE HINDU

# Cong CMs cry foul over drought aid

TIMES NEWS NETWORK

**New Delhi:** Faced with the growing demand for financial assistance from the dozen-odd drought-hit states, the Prime Minister's Office (PMO) on Sunday announced an additional Rs 714.20 crore to them under the Calamity Relief Fund (CRF). However, the chief ministers of Congress-ruled states alleged step-motherly treatment from the Centre and demanded nearly Rs 12,000 crore as immediate relief.

A statement issued by the PMO said that while Rs 483.56 crore had been released as a first instalment in May, the second instalment of Rs 714.20 crore, which would



“not be due in the normal course”, had also been released.

To press their demand for more Central aid, the chief ministers of five Congress-ruled states—Madhya Pradesh, Rajasthan, Chhattisgarh, Maharashtra and Karnataka—held a meeting with party president Sonia Gandhi, who will lead their delegation to a meeting with Prime Minister Atal Behari Vajpayee on Monday.

The amount offered by the Centre seems too small when compared to the demands put forth by the affected states. For instance, Chhattisgarh

has sought Rs 2,180 crore from the Centre while Rajasthan has demanded Rs 6,115 crore.

Maharashtra chief minister Vilasrao Deshmukh said, “Four central teams have visited Maharashtra this year, but we have not received any assistance.” The state has sought Rs 1,000 crore in central assistance.

“Certainly, this is not enough,” Karnataka chief minister S.M. Krishna told reporters, while addressing a joint press conference along with the other party CMs.

Ambika Soni, Ms Gandhi's political secretary, said: “It is a very serious situation,” adding that the meeting with the PM was aimed at putting forth the views and demands of the Congress with regard to the drought.

Asked if the Centre's attitude towards the drought-affected states ruled by the BJP allies was different, she said it was a little different where Andhra Pradesh and Haryana were concerned.

The PMO statement also outlined some of the decisions taken so far by the Centre to tackle the prolonged dry spell in several parts of the country. With availability of drinking water expected to pose a major problem if the situation does not change, the PMO said Rs 538 crore had been released to the states under the Accelerated Rural Water Supply Programme but pointed out that “state governments have to provide matching contributions”.

With farm workers faced with the prospect of unemployment, the PMO statement said that the Union rural development ministry had already released the first instalment of the Sampoor-na Gramin Rozgar Yojana—it is a new avatar of the food-for-work programme—to the states.

5 AUG 2002

# Rs 714-cr additional drought aid

Stateaman News Service & PTI

NEW DELHI, Aug. 4. — The Prime Minister today announced an additional aid of Rs 714 crore for 12 drought-hit states, but the Congress criticised the Centre for its "step-motherly" attitude in granting aid to the party-ruled states.

A PMO release said: "An amount of Rs 714.20 crore from the Calamity Relief Fund would be released to the 12 states." This was in addition to Rs 483.56 crore already given to these states.

The Centre will take necessary steps to provide quick relief during August-September since the full impact of the monsoon deficiency would be known by 15 August, the release said. The Centre also cleared Rs 538 crore for the accelerated rural water supply programme. The states would have to make matching grants.

The relief measures were discussed by a task force, appointed by Mr Atal Behari Vajpayee and headed by Mr LK Advani, at a meeting on 1 August.

After a meeting of Congress chief ministers with Mrs Sonia Gandhi here, the party said the Central aid of Rs 714 crore was inadequate. Mrs Sonia Gandhi would lead a delegation of the Congress chief ministers and meet Mr Vajpayee tomorrow to register their protest.

The Karnataka chief minister, Mr SM Krishna, said the drought-hit states had asked for Rs 12,000 crore, but the Centre only released Rs 483.50 crore.

Mr Vilasrao Deshmukh said: "Four Central teams visited Maharashtra last year, but the state did not receive any help. We (the Congress team) would request the Centre to consider our demands sympathetically."

Asked about the Centre's "step-motherly" treatment, Mrs Ambika Soni, senior Congress leader, said Andhra

Pradesh and Haryana, ruled by BJP's allies, received more help.

The chief ministers who met Mrs Gandhi included Mr Krishna, Mr Deshmukh, Mr Ashok Gehlot (Rajasthan), Mr Digvijay Singh (Madhya Pradesh), Mr Ajit Jogi (Chattisgarh) and Mrs Sheila Dikshit (Delhi). The Punjab chief minister was not present.

While Mr Krishna wanted the Prime Minister to ask his Cabinet colleagues to visit the drought-hit states and make a "realistic assessment", Mr Gehlot wanted Mr Vajpayee to visit some of the states himself. Rajasthan has asked for Rs 6,115 crore; Chattisgarh Rs 2,180 crore; Maharashtra Rs 2,100 crore; MP Rs 698 crore and Delhi Rs 30 crore.

The BJP announced that the party general secretary, Mr Rajnath Singh, would head a committee, comprising Mr Kailash Joshi and Mr Keshubhai Patel, to assess the drought situation.

Photograph on page 6

1 5 AUG 2002

THE STATESMAN

# Ministry consults experts on tackling drought

By Our Special Correspondent

**NEW DELHI, AUG. 2.** The Union Health Ministry today held consultations with experts from other Ministries and Departments to prepare a set of guidelines to help the States tackle the looming threat of epidemics in the wake of the drought due to monsoon failure.

The health experts are particularly wary of the possibilities of the outbreak of Hepatitis and measles, as large-scale migration of people is expected from villages to towns and cities in

search of work, leading to further overcrowding of the already congested slums. There are also fears of epidemics of water-borne diseases like diarrhoea and cholera and vector-borne diseases like malaria and dengue.

A senior Health Ministry official said the guidelines would be ready by Monday and circulated immediately to all the States. It would carry detailed instructions on how to chlorinate water sources and would provide a list of essential drugs to be stocked by the States to

meet contingencies. Today's meeting was attended by, among others, experts from the Indian Meteorological Department, the Indian Red Cross Society, the Water Resources Ministry and the Department of Drinking Water, apart from the Indian Council for Medical Research and the National Institute of Communicable Diseases.

In a parallel development, the Voluntary Health Association of India and the Voluntary Action Network, India, which together have a network of

about 7,000 NGOs spread across the country, have urged that food-for-work programmes be begun in the drought-hit areas immediately to provide the basic minimum needs to the affected families so that they would not be compelled to migrate to other places in search of livelihood. The two organisations have proposed to hold a meeting of representatives of voluntary agencies here on August 16 to chalk out a detailed plan of action so that the NGO sector responded to the "grim situation" unitedly.

THURSDAY, AUGUST 1, 2002

118 **TACKLING THE DROUGHT** *Emmanuel*  
*10-10*

THE COUNTRY ENTERS the last month of the 2002 monsoon with an average rainfall shortage so far of 24 per cent. It is possible that a new momentum of the monsoon — which is not yet visible — will narrow the gap as did happen in 1992. But there is the more likely possibility that as in 1972 and 1987, two years of extreme drought which by the end of July saw a deficiency in average rainfall of more than 25 per cent, 2002 too will end with drought stalking large parts of the country. It is not unusual that even as the monsoon has been more absent than present over the country, a couple of States — Assam and Bihar — are witnessing floods. The larger picture is without doubt one of a monsoon failure. It is now clear that the kharif crop of pulses, oilseeds and coarse grain such as bajra will be adversely affected, though as of now the paddy crop (because of its cultivation in irrigated tracts) appears to be on a relatively safer ground.

Given the seriousness of the situation, last week's meeting of Ministers from 11 drought-affected States has been followed up by the Prime Minister, Atal Behari Vajpayee, constituting a task force of Union Ministers, headed by the Deputy Prime Minister, L. K. Advani, to deal with the drought. Intervention at such a high political level will certainly give a certain urgency to administrative action to deal with the drought. While coordination between the Centre and the States is of critical importance, the real task is on the ground, where success or failure will depend on the abilities of the district administration and the panchayats. There is no cause for panic at this point, because Governments have traditionally been able to deal somewhat satisfactorily with the fallout of droughts. When a major natural disaster strikes, a loosening of the purse strings is called for, although the severity of the situation does not mean that guidelines for relief expenditure should also be relaxed. A drought is when the administration at each level makes large financial demands on the tier above,

requests that are not always connected to the true scale of the natural disaster. It is also a time when an open chequebook policy makes corruption and embezzlement as much of a norm as genuine relief expenditure for provision of employment, drinking water and fodder and compensation for crop losses. The demands for Central assistance are already mounting. Last week, the requests for aid totalled Rs. 3,000 crores. This week, just one State, Rajasthan, has made a claim for Rs. 6,075 crores of Central funds, though it must be noted that this State, which traditionally suffers from moisture stress, has been hit especially hard this year. Some of these demands may not be exaggerated although it has now become part of Centre-State relations for the States to draw up a huge financial wish list because they know that the Centre will grant only a fraction of what they ask for. The formation of the Calamity Relief Fund and the National Fund for Calamity Relief has not made a material difference to the process. Strangely, a couple of States affected by two different kinds of national calamities, Bihar and Orissa, are yet to draw even their entitlements under the CRF. Politicisation of relief is another uncomfortable fact of disaster management. There have already been accusations that the Government of Uttar Pradesh has been ignoring districts which are the strongholds of the Opposition. And on a different level, allegation of mismanagement of the food-for-work programme is the centrepiece of a political tussle in Andhra Pradesh.

Yet, it must be said that slow as the Centre and the States initially were to realising the possible gravity of the situation, they have begun moving with considerable urgency in identifying points of action and drawing up relief plans. The State Governments in Andhra Pradesh, Chhattisgarh, Rajasthan and Tamil Nadu have already set the administrative machinery into motion, while where the situation is still not clear — in Punjab for example — the Government is closely monitoring the progress (or lack) of the monsoon.

1 AUG 2002

THE HINDU

# 12 states seek Rs 5000-cr drought relief

TIMES NEWS NETWORK

**New Delhi:** The Union ministry of agriculture, monitoring the drought-like conditions in 12 states, quite expectedly says that the situation will worsen if it doesn't rain in the next five to ten days. Right now, the Centre seems content taking stock of the situation while it waits for states to assess the damage to their crops and accordingly declare areas drought-affected.

Going by the Centre's own assessment, the overall situation for now is grim. While the Union ministry of agriculture hopes that some rainfall in the coming days may help save some crops, for now it says there has been an impact on the coverage of rainfed crops—mainly coarse cereals and to some extent pulses and oilseeds.

Sowing of paddy has been affected to a lesser extent because of the availability of irrigation facilities, but if the dry spell continues, the ministry says this may have an impact on its productivity. The sowing of maize has been affected in Rajasthan, Madhya Pradesh and Uttar Pradesh.

In the case of bajra, it is certain the crop has been affected.

Of the 524 districts monitored for rainfall by the Indian Meteorological Department (IMD), 355 districts—nearly 68 per cent—have had deficient or scanty rainfall. The states most adversely affected are UP, MP, Himachal Pradesh, Rajasthan, Punjab, Haryana and Delhi.

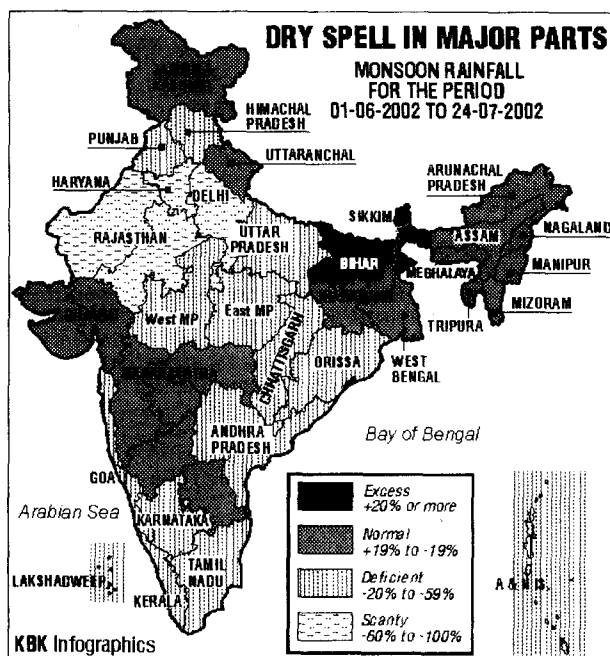
As for the availability of

water in 70 important reservoirs, the Centre says the scanty rainfall has started showing its impact. The water level in these 70 reservoirs is about 18 per cent of the full reservoir level (FRL). Compared to the water levels in these reservoirs last year, the present level is just 46 per cent.

So far, only three states—Uttar Pradesh, Karnataka and Chhattisgarh—have declared drought. While Chhattisgarh has declared drought in all its 12 districts, UP has so far done the same in 42 districts and Karnataka in 119 talukas.

However, while most of the states affected by the prolonged dry spell have sought financial assistance from the Centre, only two—Karnataka and Andhra Pradesh—had formally written to the Centre till Monday. "The assistance for them will now be worked out," said Hemendra Kumar, special secretary in the Union ministry of agriculture, while briefing presspersons on Monday.

According to Mr Kumar, the 12 affected states have put forth a demand for financial help which amounts to Rs 5,000 crore. Funds, he said, were available from the calamity relief fund (CRF), under which a provision of Rs 2,000 crore was made in the Central budget each year with the centre-state ratio being 75:25. Till July 25, 15 states had availed of the money made available in the first instalment of the CRF. The second instalment, if need be, can be released earlier than it is due, says the Centre.



1 AUG 2002

## Advani to head task force on drought

By Our Special Correspondent

NEW DELHI, JULY 30. The Centre has decided to constitute a Special Task Force (STF) to manage the drought conditions in several parts of the country with emphasis on four-points, including water and asset creation.

The Finance Minister, Jaswant Singh, said in the Rajya Sabha that the Prime Minister, Atal Behari Vajpayee, had constituted the STF under the Deputy Prime Minister, L. K. Advani, so that drought management could be done in a coordinated manner.

Responding to concern over drought conditions expressed by the TDP's Alladi Rajkumar and floods by the Leader of the Opposition, Manmohan Singh, the Finance Minister said a four-point criteria had been placed before the task force which included the Ministers of Agriculture, Rural Development, Food and Civil Supplies and Finance.

The criteria included working on water, employment, nutri-

tion and asset creation and not just famine relief. He said the stress was on asset creation.

The Government had begun drawing contingency plans after early signs of drought. He said with each day passing without rain, the problem had affected several States, including Punjab, Haryana and Rajasthan. Jaswant Singh said he had already held discussions with the Chief Ministers of Andhra Pradesh and Karnataka on this 'serious issue'.

Referring to floods, especially Assam's problems, he said the Centre was alert to the situation and it would address the problem under the calamity relief fund. On carrying out relief work in Assam due to financial crisis, Jaswant Singh said that while the Centre was aware of the economic conditions, it could not alter the situation overnight. He said Bihar and parts of Uttar Pradesh were experiencing floods since there was excess flow of water from Nepal, which had received unprecedented rainfall, the maximum in the last 30 years.

# SC wants Cauvery monitoring panel to meet on Aug. 12

By Our Legal Correspondent

**NEW DELHI, JULY 29.** The Supreme Court today directed the Cauvery Monitoring Committee (CMC) to meet on August 12 to consider the Tamil Nadu Government's plea for the release of Cauvery water by Karnataka, and make recommendations, if any, within a week thereafter to the Cauvery River Authority (CRA).

A three-Judge Bench, comprising the Chief Justice, B. N. Kirpal, Justice K. G. Balakrishnan and Justice Arijit Pasayat, passed this interim order on an application from Tamil Nadu for a direction to Karnataka to release Cauvery water for June and July as per the award of the Cauvery Tribunal.

Making it clear that the representatives of Karnataka and Tamil Nadu should participate in the CMC meeting, the Bench asked the CMC to give its recommendations to the CRA, headed by the Prime Minister, Atal Behari Vajpayee, with the Chief Ministers of the four riparian States as members.

The Bench also requested the CRA to meet as soon as possible thereafter to consider the recommendations of the CMC and directed that the case be listed for September 2 for further hearing. Senior counsel for Tamil Nadu, A. K. Ganguly, submitted that Karnataka was filling up all its reservoirs and releasing water to Tamil Nadu only if there was additional water in the river, and that it had

not complied with the interim award of the Cauvery Tribunal.

Senior counsel, K. K. Venugopal, said that as against Tamil Nadu's share of 52 tmc ft water for June and July, Karnataka had released only seven tmc ft. As a result, the Cauvery delta had become a desert, posing a serious threat to the "kuruvai" crop. He urged the court to direct Karnataka to release some quantity of water to Tamil Nadu so that though late, at least now, the State could begin its "kuruvai" cultivation.

Senior counsel for Karnataka, Fali Nariman, contended that the grievances should be aired at the appropriate forum, as there was a scheme, and an authority to monitor the implementation of the scheme was also in place. When the State had no water even for its farmers, how could it release water to Tamil Nadu, he asked.

Appearing for the Centre, the Solicitor-General, Harish Salve, suggested that a meeting of the CMC be held with the participation of the representatives of the two States. The recommendation of the committee could then be considered by the CRA.

## Karnataka denies allegations

In its counter-affidavit, Karnataka denied Tamil Nadu's allegation that it was deliberately not complying with the interim orders of the Cauvery Tribunal. It said that the CRA had functioned effectively from 1998-99 to 2001-2002 but its functioning

had become impossible during the current season, as the Tamil Nadu Government had reportedly decided to boycott it.

The assertion of Tamil Nadu that there was a shortfall of 43 tmc ft of water was based on computations at the Mettur reservoir, where there was no direct measurement/gauging of inflow as there was in the Central Water Commission station at Biligundlu, it said.

From Biligundlu, Karnataka had released 214.9 tmc ft water during the water year ending May 31, 2002. Contending that Tamil Nadu's assessment was "misleading," the affidavit sought the dismissal of its application.

## Not for confrontation, says Krishna

Our Bangalore Special Correspondent reports:

Reacting to the Supreme Court's direction, the Karnataka Chief Minister, S.M. Krishna, said: "Karnataka has always been cooperating with the Centre and the Government of Tamil Nadu on the Cauvery issue. We never wanted confrontation. All these issues will have to be settled amicably through talks and discussions."

The State Minister for Water Resources, H. K. Patil, said that Karnataka had always cooperated with the CMC and the CRA. The State would inform the authorities concerned about the difficult situation caused by scanty rainfall in the catchment areas of the Cauvery.

THE HINDU

30 JUL 2002



# Floods worsen in Bihar, Assam

Press Trust of India

NEW DELHI, July 28. — The flood situation in Bihar and Assam worsened today with most rivers in spate as the toll in the two states rose to 102.

Six more died due to floods in Madhubani district in Bihar raising the state toll to 82. The Adhwara and its tributaries, after breaching the Maharajee embankment at a various places, submerged the entire Benipatti sub-division. Traffic between Darbhanga-Madhubani and Patna has been suspended as roads remained submerged by the swirling waters of river.

The state has decided to request the Centre for more money and Army deployment to help the state provide relief to marooned people. Mrs Rabri Devi held an all-party meeting of legislators from the flood-affected districts and directed MLAs to camp in the respective areas and monitor the distribution of relief material.

In Assam, the situation aggravated in most of the 16 affected districts with water level of the Brahmaputra and its tributaries flowing above the danger mark. The toll in the state rose to 20 with three deaths reported from Nalbari and Barpeta districts while a boy drowned near Jakhlabandha.

A barber was reported drowned at Hajo near Guwahati and four more bodies were found in Lakhimpur and Nagaon.

## Encephalitis kills 64 in Assam

At least 40 children and 24 adults have died of encephalitis in the northern districts of Assam in the past one month. So far 185 persons suffering from the disease have been admitted in Assam Medical College, the AMC principal, Dr Nandeeta Choudhury, said.

The patients were from the districts of Dibrugarh, Tinsukia, Sibsagar, Jorhat, Golaghat, Lakhimpur and Dhemaaji, reports PTI from Guwahati.

# Drought hurdle to feathered honeymoon

Vijay Thakur in Jaipur

July 27. — The drought has found its first "victim" in Rajasthan: nearly 10,000 birds of 17 different species that make the unfailing seasonal flight to Asia's biggest bird park in Bharatpur for monsoonal breeding are not to be seen this year. Only a measly 300 birds of two species — the lowest count in recent memory — have arrived at the Kevla Dev Birds National Park, commonly known as a heaven on earth for "honeymooning" feathered creatures.

If the dry spell continues for another month, the fate of the eggs of these 10,000-odd birds will be at risk: "Either the birds will not lay their eggs at the park or will have to perforce abandon them and return to their native lands because of the non-availability of water," the assistant conservator, Mr Raj K Singh, said.

The birds generally arrive in Bharatpur in June, and lay their eggs from the second week of July. But not a single case of egg-laying has been recorded this year. The number of birds at Bharatpur is at an all-time alarming low.

"The Birds National Park went dry in February as we received only half the required water last year. We have demanded 350 mcf (metre-cubit feet) of water from neighbouring sources for the summer," said Rajasthan's chief conservator of forests (Wildlife), Mr Arun Sen. "Four tubewells are pumping water round-the-clock, but these cannot meet even 5 per cent of the needs of Kev-

la Dev Birds Park. Right now there is no hope of water from other points because there is hardly any in the dams in neighbouring districts."

During a good season, the average number of eggs are as high as 10,000.

The number of eggs depends greatly on the availability of water, for more water ensures more fish and other aquatic species for food for the birds.

This attracts more birds and results in good breeding, explains Mr Raj Singh.

Birds are intuitively tuned to nature, and once it starts raining they flock to Bharatpur, Asia's biggest wetland. Breeding and nestling was affected last

year also, when despite normal rains there was not much water in the park. "This year it is worse, the birds are not even congregating."

**Blackbuck deaths in Bhavnagar**  
A probe into the death of more than 150 blackbucks — an endangered species — in June at Velavadar, near Bhavnagar National Park, has pinned the blame on flash floods. Gujarat forests minister Mr Dalray Desai had ordered the probe, to be conducted by a senior bureaucrat, reports PTI from Surat. about 100 carcasses have been recovered till date.

The animals had strayed out of the park after water released from the Male-shri and Kalubhar dams had deluged the neighbourhood. They were then trapped in a low-lying belt outside the park and drowned. About 1,500 blackbucks are safe in higher areas inside the park.



# Drought: Don't press the panic button yet, say experts

By Sujata Dutta Sachdeva  
TIMES NEWS NETWORK

**New Delhi:** Less than 60 per cent rainfall all over India; 320 districts identified as drought-prone; thirty-one districts in Uttar Pradesh and 150 talukas in Karnataka declared drought affected; the Madhya Pradesh revenue department has drawn up a list of 33 districts facing drought. Is it time to hit the panic button?

Not yet, say economists. Even if the rains fail completely, we needn't worry too much—the nation will not go hungry, nor will the economy fare too badly, says Professor Abhijit Sen, former agricultural pricing commissioner. "Unlike 1987, this year we have enough foodgrain stock. After last year's bumper agricultural production (it grew by 7.4 per cent) we have a buffer stock of more than 60 million tonnes. Even an eight to 10 million loss in foodgrain production will not have a major impact. The supply side will remain almost intact," he says.

Moreover, the Indian economy is no longer at the mercy of the monsoon. According to Shashankh Bhide, chief economist at the National Council of Applied Economic Research (NCAER), "The share of agriculture in GDP has been coming down steadily over the years while that of the service sector is increasing. Besides, for the economy what matters most is the investment climate rather than agricultural output. One bad monsoon will not really disrupt it."

Also, the Centre has almost Rs 16,000 crore in its kitty to take care of the situation. Big money, big gains, some loss... *The Times of India* looks at the politics of drought:

**Who declares a drought?** The Centre has no role to play in this. The onus of declaring a district drought affected lies completely on the state. The district collector makes an assessment and if more than 50 per cent crop is found damaged, it's declared drought-affected. The report is then sent to the state's revenue department.

**What happens after drought is declared?** It's fund collection time. After identifying the districts, the state sends a report to the Centre, seeking funds. According to Hamendra Kumar, special secretary, Ministry of Agriculture, "Based on the state report, we send a Central team or task force comprising representatives from various ministries to take stock. Depending on the need, we provide them with requisite funds."

Since the agricultural sector is the worst affected, most relief work cen-



## Who wants what

- **Andhra Pradesh**  
Damage: rainfall less than 49%  
Demand: Rs 350 crore; 10 lakh tonne foodgrains
- **Chhattisgarh**  
Damage: all 16 districts  
Demand: interest waiver on Rs 90 crore given to farmers last year
- **Haryana**  
Damage: rainfall less than 75%  
Demand: Rs 12 crore
- **Himachal Pradesh**  
Damage: 40% less rainfall  
Demand: Rs 20 crore
- **Maharashtra**  
Damage: Dry spell over 15 days delays sowing  
Demand: Rs 200 crore
- **Orissa**  
Damage: 28 districts affected  
Demand: Rs 500 crore and 3 lakh tonne foodgrains
- **Rajasthan**  
Damage: All districts affected.  
Demand: Rs 600 crore.
- **Tamil Nadu**  
Demand: Rs 16 crore to coconut growers; Rs 36.8 crore for paddy farmers

tres around it. Mr Kumar adds, "There are 23 items (the list includes all natural calamities), for which money can sanctioned." After receiving the funds, final distribution of relief is done by the district collector.

**Where do the funds come from?** The Centre has reserve funds for natural calamities under two heads. The Calamity Relief Fund (CRF) and National Calamity Contingency Fund. According to Anil Sharma, principal economist, NCAER, "The total size of CRF for the year 2000-2005 is Rs 11,000 crore and the corpus for NCCF is Rs 500 crore. In addition, there are resources allocated under regular food for work programme.

## Once drought is declared..

- Revenue collection for the region is suspended.
- Interest on loans is waived.
- Loan recovery is either stalled or staggered for a certain period.
- Food-for-work programmes are started.
- Cash relief is distributed to all farmers.
- Assistance is given for crop damage, damage to animal husbandry, fodder etc.

Funds therefore are not a problem at all." In NCCF the Centre contributes 75 per cent and the state's share is 25 per cent.

**Who monitors the fund?** Although, the Centre provides the money, it does not monitor how or who actually spends the fund. It is totally dependent on the state's feedback. And who keeps tabs? No one really. "The money is given in instalments. The states do tell us how they have spent it but we do not have any Central monitoring team to check if it has really been spent there," says Mr Kumar.

Perhaps, this is the reason why MLAs and MPs vie with each other to declare their district drought affected. This year too, MLAs close to the ruling coalition in UP succeeded in declaring their districts drought affected. And so did the Union agriculture minister whose home base—Baghpat—is among the 31 drought affected districts. Mismanagement is a possibility, says Professor Sen. "In Orissa after the cyclone, media reports showed the funds given for relief work were not utilised where they were supposed to. People were still looking for help six months after the cyclone," he adds.

**Who bears the brunt?** "Farmers and the rural economy are the worst affected but cities suffer too," says Professor Sen. While prices of cereals, oil, potato, onion and suchlike may not rise much, poultry products, milk, green vegetables etc, will be affected. Consumers in Delhi and Chennai where rains have been scanty will feel the pinch more. Mumbai and Kolkata will fare better."

Adds Bhide, "Low agricultural output will indirectly affect some segments of the industry. Inflation rates may go up marginally and so will government expenditure because of drought relief and subsidies. Since rural purchasing power will be low it will have some affect on the overall economy. But nothing big."

## DEMAND FOR CENTRALISED MANAGEMENT REJECTED

# Centre pledges more funds for drought-hit States

By Gargi Parsai

NEW DELHI, JULY 26. The Centre today pledged additional funds for relief to the States hit by calamities but rejected the Opposition demand in the Lok Sabha to centralise the management of drought and flood in the country, saying it was the responsibility of the States.

"We cannot take away the rights of the States and monitor what they are doing. What we can do is involve elected members of Parliament and MLAs to monitor how well the States spend the Central assistance for drought and flood relief," the Union Minister for Agriculture, Ajit Singh, said in reply to a two-day debate in the Lok Sabha on drought and floods.

He said eight eastern States were reeling under floods, while the rest of the country was suffering from "an alarming situation" of the most widespread drought in 11 years due to delayed monsoon in northwest and central India. Consumers would not suffer as there were enough foodstocks, but farmers and farm labour, who lose their crop, will. The Government has taken a decision to postpone farm loan recovery in the affected States, he added.

The Centre will release funds from the National Calamities Contingency Fund (NCCF) to needy States who exhaust their annual share under the Calamity Relief Fund (CRF).

Mr. Singh said he had written to the Union Finance Minister, Jaswant Singh, to-

day to be ready to immediately release the second instalment of the CRF to States who complete administrative procedures such as giving utilisation certificate for the first instalment released before May. Normally, the second instalment is released in November.

(Intervening in the discussion to deny the Opposition charge of discrimination, the Minister of State for Home, I.D. Swami, said a high-powered committee for disaster management had been formed under the Deputy Prime Minister, L.K. Advani, to decide on disbursal of funds for relief from the NCCF.

The Ministers for Agriculture and Finance and the Deputy Chairman of Planning Commission are the members. The committee will be assisted by an inter-ministerial group chaired by the Agriculture Secretary. The group is guided by the recommendations of Central teams which conduct spot assessment of damage in the States.

Mr. Swami said the 11th Finance Commission had set aside Rs. 11,000 crores for calamity relief through CRF and NCCF. The CRF is shared in the ratio of 75:25 per cent between the Centre and the States.

This year, about 10 States have so far not given utilisation certificate of the first instalment from CRF. He said the NCCF is managed by the high-powered committee as it is a corpus made from cess collected from tax payers.)

Mr. Singh said that although bajra, oil-

seeds and some pulses had been hit by the prolonged dry spell, rainfall in the affected regions in the next 8 to 10 days might salvage the situation.

States would have to do their own surveys and declare districts as drought affected. Preliminary assessment showed western Uttar Pradesh, Bundelkhand, Haryana, Delhi, Rajasthan, Karnataka, Tamil Nadu, Orissa as most hit. There was some dry spell in parts of Gujarat, Bihar Arunachal Pradesh, Nagaland, Kerala but it had not affected agriculture.

Besides other reliefs, the Centre would consider bearing 25 per cent of the cash component to be borne by States under the food-for-work programme.

The programme has 50 per cent cash component split equally between the Centre and the States and 50 per cent food-grains for providing work to farm labour and small farmers who may lose their crop.

Mr. Singh assured members that the Government would consider waiving at least one instalment of interest on debt, besides other relief measures such as asking NABARD and cooperatives to postpone loan recovery. States should do likewise with cooperatives, he said.

Earlier, intervening in the discussion, the Union Water resources Minister said the Centre was all for linking rivers and distribution of surplus waters to deficit States provided the States were agreeable and cooperative.

Emi Namma  
HD-11  
26/7

# Opposition raps Govt. for failure to tackle drought

**NEW DELHI, JULY 25.** Voicing serious concern over emerging drought-like situation due to scanty monsoon rainfall, Opposition members in the Lok Sabha today attacked the Government for failure to take adequate steps to face the challenge and mitigate sufferings of the people.

They asked the Government to list out the measures adopted so far to provide additional foodgrains, fodder and essential commodities to the States to tide over the crisis.

Initiating a special discussion on flood and drought in various parts of the country under Rule 193 which does not entail voting, Ajay Singh Chautala (INLD) regretted the failure of successive governments in formulating a sound water management policy saying certain irrigation projects envisaged in the First Five Year Plan were being included in the Tenth Plan.

"The water management problem which leads to floods and drought is man-made as it has never been properly looked into," he said, observing the current drought situation was leading to migration from affected regions.

Mr. Chautala demanded im-

mediate action saying delayed measures would add to the woes of the farmers whose crops have dried up. He also pleaded for steps to provide drinking water.

The Congress member, Mani Shankar Aiyer, said, "this Government is unable to do what should be done. We have no hope that the Government will be able to face this challenge."

Shivraj Singh Chouhan, BJP, demanded a long-term comprehensive plan to deal with drought and floods. He said the

Meteorological Department's forecast that monsoon would hit northern parts on June 20 and later first week of this month proved wrong causing huge losses to farmers who had sowed seeds in anticipation of rains.

The former Prime Minister, H.D. Deve Gowda, accused the Centre of "step-motherly" treatment towards Karnataka in extending financial assistance to deal with natural calamities. He demanded the Centre consider a one-time waiver of dues owed by

farmers or at least writing off of the interest component of loans taken by them.

Mr. Gowda sought resurrection of a revised scheme for linking major rivers in the country and ensuring that states having surplus water could share with those facing deficit.

Like he has done for construction of national highways, the Prime Minister should earmark about Rs.60,000 crores for schemes to ensure adequate water supply to all States with contribution from them, he suggested. Mulayam Singh Yadav (SP) said Government should waive loans of farmers and if this was not possible at least half of the loan and interest should be waived. He said Government could not shirk its responsibility in providing succour to farmers in their hour of crisis. Subodh Roy, CPI(M), said the Centre should provide assistance to drought-hit States on a war footing.

Ram Sanjeevan (BSP) demanded a change in law whereby farmers could be offered benefits like waiver of taxes, loans and interests after 50 per cent of crops were damaged instead of the existing 75 per cent. — PTI

## BJP MP says he'll ask people to loot godowns

**NEW DELHI, JULY 25.** A BJP MP created a stir in the Lok Sabha tonight when he said that he would ask the "poverty-stricken and drought-hit" people to loot godowns if the Vajpayee Government failed to provide them with foodgrains.

"Though I am in the ruling party, I will go to the extent of asking these poor people to loot the godowns if the Government did not do anything for them," Ramanand Singh, BJP MP from Satna in Madhya Pradesh, said during a debate on the drought situation. The MP, who has a socialist background, said he was definitely in the BJP but his socialist instincts had not died.

He said Pandit Jawaharlal Nehru had also asked the farmers of Bengal in 1942 why they had not looted godowns even after being badly hit by one of the worst famines. — PTI

26 JUL 2002

# Many States seek drought relief

By Gargi Parsai

*Emirama  
HD-12*

**NEW DELHI, JULY 24.** Tamil Nadu and Karnataka brought to the fore their traditional dispute over sharing Cauvery water at a meeting here to discuss the drought situation in 12 States, when the Tamil Nadu Agriculture Minister, R. Jeevanandam, began his address by saying that "non-release of Cauvery water in the delta region had affected sowing in 83936 hectares of paddy."

The Karnataka Agriculture Minister, V.S. Koujalgi, interrupted saying that his State was facing stress due to deficient rainfall.

The Union Agriculture Minister, Ajit Singh, who was in the chair quickly intervened to assure the Karnataka Minister that his Tamil Nadu counterpart was "not blaming his State, but was just stating a fact."

Mr. Jeevanandam said the loss of acreage in Thanjavur, Tiruvarur and Nagapattinam had resulted in a loss of 5.04 tonnes of yield at Rs. 266.69 crores. In the non-delta region of Madurai, the State had lost 6,000 hectares acreage and 36,000 yield because of non-release from the Vaigai reservoir. In addition, 6.8 lakh coconut trees were affected in Coimbatore district.

The Karnataka Minister said that due to extreme stress the State was 10 lakh hectares short in kharif acreage. Forty-three per cent of the State was suffering from acute moisture stress and the situation was likely to worsen. He sought an assistance of Rs. 553 crores and 3 lakh tonnes of foodgrains for food-for-work. The State has declared 150 taluks drought-affected.

Uttar Pradesh said that of the 152 lakh hectares under kharif 120.97 lakh hectares were affected. It sought a contingency plan for rabi as the soil was devoid of moisture. The State has already de-

clared 26 districts drought-hit.

Maharashtra complained that the General Insurance Company was on the verge of rejected claims amounting to Rs. 40 crores of non-loanee farmers because of the cut-off date, July 31.

Haryana had lost 50 per cent acreage of bajra, 25 per cent maize and may lose some paddy if it did not rain in the next 10 days, as the standing crop was withering.

For Punjab, it was unfortunate that it was in queue seeking relief from the Centre despite 96 per cent of the crop under assured irrigation. There was heavy load on power as 47 per cent tubewells were working at less than 75 per cent efficiency. The State demanded Rs. 100 crores for immediate relief and said Crop Insurance had not found favour with the State as the premium was high.

In Andhra Pradesh, only 22 lakh hectares had been covered this year as against 34 lakh hectares last year. The paddy sown earlier was withering due to moisture stress. Relief would not help recover losses, only crop insurance could.

In the worst-hit Rajasthan, as against 129 lakh hectares that was to be sown in kharif, only 46.05 lakh hectares could be planted due to extreme moisture stress. Only 37 per cent of bajra could be sown and that too would be totally damaged if there was no rainfall next week.

Madhya Pradesh demanded Rs. 626 crores and 2.5 lakh tonnes of foodgrains to mitigate the plight of farmers, while Chhattisgarh said all the 16 districts had been affected. Himachal Pradesh sought Rs. 20 crores assistance.

It was said that States which had not opted for crop insurance could not join the scheme now. These States were Rajasthan, Punjab and Haryana.

# Centre announces steps to tackle drought situation

110/1 By Gargi Parsai 9-25/78 Environment

**NEW DELHI, JULY 24.** The Centre today declared its preparedness to face, what was described by the Agriculture Minister, Ajit Singh, as the "most widespread drought in 10 years or even longer". Preliminary assessment showed that 320 of 524 districts monitored by the Agriculture Ministry had insufficient rainfall and there was no hope of substantial rains in northwest and central India till the end of the month. Kharif paddy, bajra and soyabean were the worst hit and Rajasthan is the most affected State in terms of area.

After a four hour-long meeting today with 12 States where kharif crop is under stress due to insufficient rainfall, Mr. Singh said the need of the hour was to provide farmers with alternative seeds. For relief, the guidelines of the Calamity Relief Fund (CRF) would be amended to include all categories of farmers rather than only the small and marginal farmers with two hectares. The agricultural input subsidy would also be made available to all farmers.

He said the NABARD and other cooperative banks would be asked to postpone recovery of dues and interest from stressed farmers. The Crop Insurance Scheme would cover non-loanee farmers too but the extension of the cut-off date (July 31) for their claims would be decided on a case-by-case basis. He impressed upon sugar growing States, particularly his home State of Uttar Pradesh,



**The Union Minister of Agriculture, Ajit Singh, and the Minister of State, Hukumdeo Narayan Singh (right), at the meeting of the State Agriculture and Relief Ministers in New Delhi on Wednesday. — Photo: Rajeev Bhatt**

Karnataka and Maharashtra, to quickly pay sugarcane arrears to farmers which total Rs. 1000 crores. The States which attended the meeting included Tamil Nadu, Karnataka, Andhra Pradesh, Rajasthan, Punjab, Haryana, Uttar Pradesh, Madhya Pradesh, Chattisgarh, Himachal Pradesh and Orissa.

The Minister said the immediate requirement was to provide farmers alternative seeds to cover unsown area. As a one-time gesture, States would be allowed to release even "truthfully labelled seeds" for quick reach. "At this point of time, farmers need rain, water, power, seeds and fertilizer," Mr. Singh said.

During the meeting, the affected States made an initial demand of 41 lakh tonnes of

foodgrain under the food-for-work programme.

The meeting said special attention was required to ensure smooth functioning of the public distribution system. It was also decided that States would assess the extent of additional employment generation required and mobilise resources to meet the cash component for the scheme. The need to keep vigil on the prices of commodities was also underscored.

Earlier States expressed apprehension about the rabi crop if monsoon rains did not occur in August and September. While agreeing with them, Mr. Singh said, "assured irrigation was not a replacement for monsoon. Monsoon rains are required to fill up rivers, reservoirs and raise ground water level."

# Drought 'worse than feared'

*Business*  
**Statesman News Service**

NEW DELHI, July 24. — The government today came close to conceding that the drought conditions were more serious than anticipated. The Union agriculture minister said the country was facing the most widespread drought in over a decade.

Mr Ajit Singh met ministers and officials of 12 states — Uttar Pradesh, Rajasthan, Haryana, Himachal Pradesh, Madhya Pradesh, Chhattisgarh, Orissa, Punjab, Maharashtra, Andhra Pradesh, Karnataka and Tamil Nadu — hit by the dry spell. He said UP, Haryana, Rajasthan and Punjab were the worst hit.

With the monsoons concentrated at the foothills of the Himalayas, Mr Singh said the meteorological department did not expect the clouds to move towards the plains in the next few days.

The minister said about 320 of 524 districts had been hit. "If there is rain... in the next five or 10 days, there may be some recovery but it will not better the lot of farmers."

Mr Singh said though production of foodgrain, oilseeds, pulses and cereals was likely to be hit,

*501 25/7*  
consumers were unlikely to feel the impact. The country had over 60 million tonnes of foodgrain and enough foreign exchange to import oilseeds, pulses and cereals to tide over any shortfall.

The states had come for the meeting armed with suggestions for farmers and a wish-list which, more often than not, had requests for Central assistance. Orissa wanted Rs 500 crore, Karnataka demanded Rs 553 crore and Andhra Pradesh, Rs 100 crore.

But Mr Singh indicated it was too early to talk about cash assistance and asked the states to do their homework. Except for a few such as UP and Karnataka, most states have not conducted surveys at the ground level to identify drought-hit areas.

It was a point the minister made clear early in the day, saying the meeting was targeted at gathering information and working out ways of dealing with any eventuality. He later announced that assistance under the Calamity Relief Fund, normally available to farmers having at least two hectares of land, would be provided to all farmers in drought-hit areas. The 31 July deadline for making claims under the Crop Insurance Scheme would be extended on a case-by-case basis, he said.



# Drought-hit States seek more relief

By Gargi Parsai

**NEW DELHI, JULY 23.** Four States — Rajasthan, Himachal Pradesh, Haryana and Punjab — where delayed monsoon has hit the kharif crop, have sought increased allocation of foodgrains in the Targeted Public Distribution System.

These States have sought a raise in the monthly allocation of foodgrains from 35 kg to 50 kg for the Below Poverty Line family. They have also asked the Centre for more relief under the Food-for-Work programme and the Special Allocation Scheme under the 'Sampoorn Gramen Rozgar Yojna'.

Both the schemes were implemented free of cost last year in seven drought-hit States, even for the Above Poverty Line populations at a cost of Rs. 34 lakhs to the exchequer.

The India Meteorological Department today predicted that rainfall activity would be "subdued" in the next two days in the northwest and central India, which meant no rainfall in Punjab, Haryana, parts of Rajasthan, Uttar Pradesh, Madhya Pradesh and Chattisgarh.

A preliminary assessment of the monsoon activity showed that rainfall had been scanty or deficient in about 50 districts in Uttar Pradesh, 21 districts in Haryana, Chattisgarh and Delhi, 31 districts in Rajasthan, 40 dis-

tricts in Madhya Pradesh and 12 in Himachal Pradesh.

The Centre will assess the damage in the 11 States that have been invited for a meeting convened by the Agriculture Ministry here tomorrow.

Even though the most threatened States have been asked to prepare a contingency plan for alternative crop and also an action plan for relief measures, the meeting would enable the Government to make an assessment of the requirement for foodgrains, fodder and alternative seeds in these States.

The Ministry, which is the nodal agency for managing drought situations, will make it official on July 31.

Till then, they hope rainfall activity would increase and salvage the situation in at least Haryana where basmati rice can be sown till August 15.

Punjab and Haryana may have lost one lakh tonne of acreage under non-basmati rice but will deplete ground water level due to over-drawal. Short duration paddy can be sown in Tamil Nadu, Haryana and Orissa.

Only 74 lakh tonnes of coarse cereals have been sown so far as against the 126-lakh hectares last year.

The total kharif oilseeds area planted so far is 45 lakh tonnes as compared to 90 lakh tonnes last year.

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## Centre calls national meet on drought

TIMES NEWS NETWORK

New Delhi: The Centre has called a meeting of the agriculture and relief ministers of ten states here on Wednesday to take stock of the situation arising out of the lack or scarcity of rainfall in their regions. The meeting will be chaired by Union agriculture minister Ajit Singh.

A senior agriculture ministry official said on Monday, "The meeting will discuss what has been done, what needs to be done and what kind of assistance the states require from the Centre." The official said a clearer picture of the conditions prevailing in these states was expected to emerge after the meeting. The meeting is being attended by ministers from UP, Punjab, Haryana, Rajasthan, MP, Himachal Pradesh, Maharashtra, Andhra Pradesh, Tamil Nadu, and Chhatisgarh.

# Drought looms large over northwest

By Gargi Parsai

*23/7*

**NEW DELHI, JULY 22.** The National Democratic Alliance Government is faced with one its toughest challenges yet — the drought situation in the crucial north-western agricultural States of Punjab, Haryana, Rajasthan, western Uttar Pradesh and parts of Madhya Pradesh, Chhattisgarh and Himachal Pradesh where the kharif crop has failed partially or totally due to the lack of monsoon rains. Of these, Rajasthan, Madhya Pradesh, Chhattisgarh and Himachal Pradesh go to the polls next year.

A meeting today of the Crop and Weather Watch Group in the Union Agriculture Ministry noted with dismay the Indian Meteorological Department

*Eminent news*

forecast of no rainfall in the north-western part of the country for another week. The Ministry was keeping its fingers crossed for a last spell of rain this month to salvage the situation somewhat.

Now all hope of sowing the traditional kharif crop — paddy, coarse cereals, edible oils and pulses — is dashed with this latest weather forecast. In Madhya Pradesh, soyabean sowing is 25 lakh tonnes short of last year.

Rainfall is said to be about 25 per cent deficient this season and the water level in reservoirs is 48 per cent of last year and about 55 per cent of the last 10 years' average.

What is worrying is that the low moisture in the soil and inadequate water level in reservoirs will stretch the crisis

*HD-1*

situation into the rabi (wheat) season, sowing for which begins in October.

True, the granaries are overflowing with foodstocks at 648 lakh tonnes, about 405 lakh tonnes in excess of the normal on July 1, but a failed kharif crop will affect the next crop as well and an alarming situation may develop next year. Besides, drinking water shortage may also occur.

Though the Ministry is still reluctant to officially declare it a drought, it has devised an Action Plan for providing relief to the affected States through supply of drinking water and fodder and payment of compensation to farmers. Its contingency plan for sowing alternative crops is still in place.

**Orissa's distress: Page 8**

**THE HINDI**

**23 JUL 2002**

# Drought stares country in face

**New Delhi:** For the first time in 15 years, a nationwide drought is threatening the country, with crops being damaged on a large scale in many places, despite indications that the monsoon may have revived over the past few days.

While droughts have ravaged parts of the country in the past few years, this time at least 12 states may be affected. Officials said even the grain bowl of Punjab and Haryana would be hit.

They pointed out that the adverse effects were already being felt with a spurt in commodity prices and a fall in the share prices of companies. The rural consumer base and even economic growth are likely to be hit as agriculture has 25 per cent share in gross domestic product.

"The impact will not be restricted to the current kharif crop and will spill over to the rabi season in December. Cattle will also be hit because of fodder shortage and electricity will have to be diverted to rural areas with increased pressure on irrigation," J.S. Samra, deputy director-general, Indian Council of

Agriculture Research, told presspersons.

In Maharashtra, the state's agriculture minister Rohidas Patil said that although 72 per cent sowing had been completed, the lull in the rainfall in July could lead to a loss of 40 per cent of the kharif crop.

The situation is serious in Rajasthan, where the entire state, except for Sriganganagar and Hanumangarh districts, is reeling under a severe drought for the fourth consecutive year.

In Madhya Pradesh, where 21 of the 45 districts have been severely affected and 17 have received only moderate rainfall, the fate of the soyabean crop hangs in the balance. Madhya Pradesh produces more than 80 per cent of the country's soyabean.

In Punjab, where there are irrigation canals, the area under paddy cultivation is expected to be 24.87 lakhs hectares, slightly over last year's 23.96 lakhs hectares but some of the crop has been damaged because of poor rainfall. The overall yield will decline to 48 kg a hectare

from last year's 52 kg per hectare, officials said.

An offshoot of the drought is little availability of drinking water in several states with supply being restricted to once in two days in Bhopal, including at the chief minister's residence.

In Andhra Pradesh, the prolonged dry spell has affected the power sector. Chief minister N. Chandrababu Naidu admitted in the assembly recently that the state had been reeling under a power crisis since July.

Even Kerala, from where the monsoon begins, has shown a sharp 35 per cent deficiency in rainfall but the crop loss is yet to be assessed.

Union minister of state for agriculture Hukumdeo Narayan Yadav said time-bound crops like bajra, jowar, guar, groundnut, soyabean had been affected and the small-marginal farmers were the worst-hit.

He said in view of the gravity of the situation, a meeting with state relief commissioners had been called next week to assess the damage and, if need be, implement a contingency plan drafted recently. PTI

# T.N. farmers move SC for Cauvery water release

By J. Venkatesan

**NEW DELHI, JULY 19.** A writ petition on behalf of 20 lakh Cauvery delta farmers and agricultural labourers was today filed in the Supreme Court to direct Karnataka to release water to Tamil Nadu as per the interim orders of the Cauvery Tribunal to save the 'kuruvai' crop.

It comes up for hearing on July 22 along with the suit filed by the Tamil Nadu Government in September last.

It is likely that the comprehensive suit filed by Tamil Nadu this month will also be tagged on with the earlier suit and indications are that one suit will be withdrawn.

In its petition, the 'Tamil Nadu Neerpaasana Velaiporulgal Vivasayigal Nala Urimai Padhugappu Sangam', submitted that it represented the ryots of the Cauvery delta, who were suffering year after year due to the refusal of the Karnataka Government to implement the tribunal's orders.

The 'sangam' said as the interim orders of the tribunal had been continuously flouted by Karnataka, it had affected the very existence and livelihood of the ryots of the delta apart from depriving them of their fundamental rights.

The petitioner submitted that the lower riparian rights of the delta farmers to use Cauvery water for the existing ayacuts of 28 lakh acres had been recognised from time immemorial.

In spite of the interim orders of the tribunal, the ryots were not getting water for irrigation during the crucial months from June to October and their operations suffered due to the conduct of the Karnataka Government. The petitioner further said that Karnataka had been ignoring the directions of the Cauvery River Authority from time to time. The steps taken by Tamil Nadu to ensure the release of water by Karnataka had also proved ineffective. If the present situation continued, there might not be any 'kuruvai' cultivation in the State, besides delay in 'samba' cultivation affecting the lives of 12 lakh landless agricultural labourers and eight lakhs farmers. Hence the present writ petition.

The petitioner sought a direction to Karnataka to give effect and comply with all the interim orders of the Tribunal; to direct the CRA to exercise its statutory power to give effect to the implementation of the interim order and a direction to the Tamil Nadu Government to give relief to the ryots by securing water from Karnataka.

20 JUL 2002

THE HINDU

# 15 UP districts drought-hit

HT Correspondent  
Lucknow, July 19

THE UP Government on Thursday declared 15 districts as drought affected. This announcement was made after a meeting of the State Cabinet chaired by Chief Minister Mayawati.

The authorities of the affected districts have been directed to suspend revenue recovery and begin relief work. Collection of bank loan, land and irrigation cess, however, will not be stopped.

Chief Secretary D.S. Bagga said those districts where at least 50 per cent of the crop had been damaged due to the de-

layed monsoon had been declared drought affected. The government will keep a close watch on other districts.

He said while a monitoring cell had been established in the Revenue Department, a control room had also been set up in his office to monitor the situation.

Bagga said only five districts — Maharajganj, Kushinagar, Deoria, Balrampur and Chandauli — had normal rainfall. While the entire Bundelkhand has been declared drought-affected, eastern UP has been left out as DMs in Poorvanchal do not visualise water scarcity.

## Donkey marriage

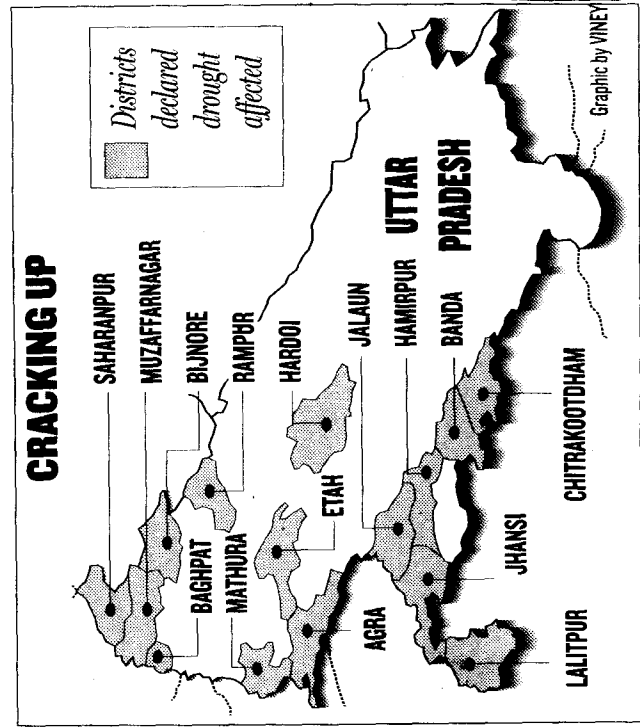
For the parched villagers of

Chinniyampalayam in Erode, pleasing the rain god is of utmost importance. And how? By organising a donkey marriage, adds PTI from Coimbatore.

So last Sunday, womenfolk went from door to door collecting food articles, including 'ganji' (gruel). They then assembled near a Ganesha temple where they partook the 'ganji' after offering prayers to the rain god. The prayers went on for four consecutive nights.

On Thursday, the fifth night, the villagers selected the jack ass and the jenny ass and dressed them up in the finest attire and brought to the temple.

The marriage was over, but still there is no trace of rain.



20 JUL 1979

# Problems too many for Tehri Dam to weather

S.M.A. KAZMI  
TEHRI, JULY 14

**T**HE word delay has become synonymous with the controversial Tehri Hydro-electric project on river Bhagirathi in Garhwal which started more than two decade ago. And with the project cost escalating to over Rs 6,000 crore, there is still no scope of power generation from the project for another two years as it runs into fresh problems.

Two of the vexed issues likely to delay the project are the indecision of both the Centre and the state government on the closure of two tunnels and rehabilitation of the oustees.

However, corporation GM (Project) I.D. Parbhakar claimed: "The first turbine of 250 MW generation capacity would be in place in March,

2003, as per schedule and subsequently all the four turbines would be ready by August the same year."

But even if all the machinery are in place, there's no denying the absence of adequate water. "We need at least a ten-month period, including one rainy season, for proper storage of water to run the turbines for power generation," he said.

The Centre as well as the state have yet to decide about the closure of the two remaining tunnels — T-1 and T-2. Earlier, the T-3 and T-4 tunnels were closed in December, 2001, leading to submergence of a mini reservoir surrounding old Tehri town.

The closure of tunnels is directly linked with the other issue — that of rehabilitation of the oustees who are staying on in the town despite gradual rising of the



The highest dam in Asia (240 meters) from sea level under construction on river Bhagirathi in Tehri Garhwal district of Uttarakhand. Express photo by Vinod Runkh.

oustees have been provided land and houses in New Tehri, Rishikesh and Haridwar, they said.

Officials said the Centre recently gave a final package of another Rs 140 crore to settle the final claims of rehabilitation. "We have already rejected the new package," said Shivanand Pandey, a leader of the agitating oustees.

"This is the best rehabilitation package ever given in the country," said Vishwa Bandhu Gupta, Additional General Manager, PR. Project officials also hope that all the hurdles related to rehabilitation would be sorted out by October, 2003, paving the way for closure of the tunnels. Even going by the claims of the project officials, power generation could only be possible latest by the end of year 2004.

major portion of the town," Parbhakar said.

Project officials said there are 55 such families still in the town. Already, a sum of more than Rs 1,000 crore has been spent on the rehabilitation

water level due to the rains. A part of the town has already submerged. The water has touched 640 meters above sea level. "It is expected to rise 20 meters more in the rains drowning a

package for more than 10,000 families to be affected by the dam and the reservoir. There were 5,300 families in old Tehri town and nearly 5,000 families in rural areas. Besides cash compensation,

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# Cauvery dispute

CRA Confrontation no solution 9/7 ✓  
B. Minerva

It is unfortunate that Tamil Nadu Chief Minister Jayalalitha has chosen the confrontationist path rather than conciliation to resolve the water famine that has affected paddy cultivators in the Cauvery delta of the state. Her decision to boycott the Cauvery River Authority with the Prime Minister as chairman and meetings of the monitoring committee headed by the secretary for water resources and approach the Supreme Court amounts to rejection of the formula evolved by the Union government in consultation with the governments of Tamil Nadu and Karnataka. It was at the instance of the Supreme Court that the formula was evolved in the first place. Simply because Jayalalitha was not in power when the CRA was set up, she cannot disregard it. SM Krishna too was not the Chief Minister of Karnataka at the time of the setting up of the CRA in 1998. But that did not stand in the way of his honouring it. Inter-state relationship could not be built by reneging agreements entered into by previous governments. By accusing Krishna of lying on the storage position in the Karnataka reservoirs, Jayalalitha has not enhanced Tamil Nadu's bargaining position one bit.

Although the south-west monsoon set in on time, rainfall has been scanty in the catchment areas of the Cauvery basin so far. In the interim award of the Cauvery Water Dispute Tribunal, there is provision to share even in periods of distress. Jayalalitha could have approached the Prime Minister to convene a meeting of the CRA and a way could have been found to secure Tamil Nadu's legitimate share of the Cauvery water and the farmers need not have left their fertile fields fallow during the "kuruvai" (short duration) crop season. More than the farmers, nearly a million agricultural workers have been rendered jobless as the government could not keep the 12 June date for the release of water from the Mettur reservoir. By the time the Supreme Court gives a ruling on the petition yet to be filed by the Jayalalitha government, kuruvai season 2002 would be over and the farmers would be ready for samba cultivation, which is a rain-fed crop. By refusing to approach the Prime Minister or her Karnataka counterpart, Jayalalitha might have created an impression of being an almighty Chief Minister who has certainly not served the cause of the Tamil Nadu farmer.

9 11 2002

THE STATESMAN



Switzerland  
HD-12

# Japan firm on nuclear shipment

6/7 ✓

**TOKYO, JULY 5.** The Japanese Government and energy industry officials on Friday strongly denied criticism that a shipment of radioactive fuel bound for Britain was vulnerable to terrorist attack and could be used for making nuclear weapons.

The shipment of 255 kg of rejected reactor fuel, a mixture of plutonium and uranium known as MOX, left the Japanese port of Takahama on its two-month journey on Thursday.

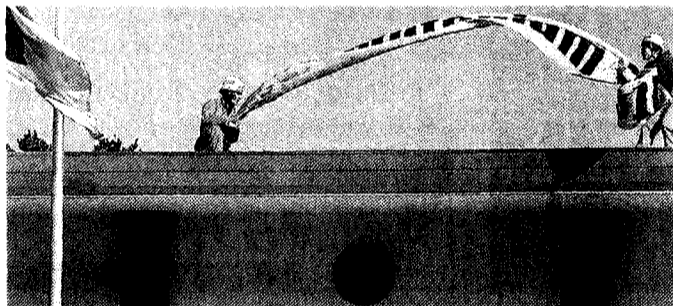
The radioactive material was being taken back to its maker in Britain on the Pacific Pintail, a cargo ship armed with deck-mounted machine guns. Security details, such as the route of the ship and another armed companion, have not been made public.

"We have done everything necessary to secure the shipment, and we are confident about it," said Tetsuya Kitajima, a spokesman for Kansai Electric Power Co.

That did not stop protesters from demanding the shipment be halted. A small group of demonstrators rallied at the port from which the ship departed on Thursday. On Friday, two Greenpeace protesters scaled the roof of the Japanese embassy in Canberra, Australia, and unfurled a banner criticising the shipment.

Opponents said not enough was done to ensure the safety of the cargo, and urged Japan to provide military escorts. They say the shipments are an attractive target for terrorists.

"This type of shipment is totally unacceptable to the world at large and the international community," the Irish Environment Minister, Martin Cullen, said. "The shipment of such materials through the Irish Sea represents an unacceptable risk to the environment of Ireland and the health and economic well-being of its population," he said. — AP



**Greenpeace activists unfurl a banner after climbing onto the roof of the Japanese Embassy in Canberra, Australia, on Friday. The banner reads "fuelling plutonium terror". — AP**

6 JUL 2002

# PM asks Karnataka to give water to T.N.

By Gargi Parsai

**NEW DELHI, JUNE 26.** The Prime Minister, Atal Behari Vajpayee, today asked Karnataka to release 3 tmc ft of Cauvery water to Tamil Nadu for it to tide over the problem of water shortage to the summer "kuruvai" crop in the Thanjavur delta region.

Mr. Vajpayee, who is also Chairman, Cauvery Water Authority, rang up the Karnataka Chief Minister, S.M. Krishna, and urged him to release the water to its neighbouring State as a "goodwill gesture," sources said. The Tamil Nadu Government had sought the Prime Minister's intervention in the matter.

According to Tamil Nadu, as against a total of 205 tmc ft that it must receive from Karnataka in a water year (June to May) — as per the interim award of the Cauvery Water Dispute Tribunal — it received only 162.75 tmc ft water till May 31 at its Mettur reservoir. In June, as against 10.16 tmc ft, it received only 1.56 tmc ft. It is now pressing the Centre to prevail upon Karnataka to make good the shortfall.

However, Karnataka has ex-

pressed its "inability" to release water to Tamil Nadu as the storage level in its own reservoirs was low. The other party States in the dispute are Pondicherry and Kerala.

On Monday, Mr. Vajpayee sought from the Water Resources Ministry records of the storage positions and the rainfall pattern in both the States in the last 10 years. According to sources here, the active storage, over and above the minimum required, in all the four Karnataka reservoirs — Krishnasagar,

Harangi, Hemavati and Kabini — is 5.22 tmc ft, while the storage in Mettur reservoir is 9.79 tmc ft, including the minimum storage level required.

The interim award calls for making good a shortfall in releases in the following month. However, in its last few meetings, the Cauvery River Monitoring Committee, comprising the Water Resources Secretary and the Chief Secretaries of the riparian States, attempted to evolve a formula for sharing Cauvery waters during a "dis-

stress year." But subsequently, the main parties said the tribunal was working out a formula for distress and since the matter was sub judice before the tribunal, the Monitoring Committee should await the final award.

The Cauvery River Authority was constituted on the orders of the Supreme Court, as a mechanism for ensuring the implementation of the interim award of the tribunal. The Monitoring Committee of officials was set up to assist the Authority. The Tamil Nadu Chief Minister, Jayalalithaa, has sought more teeth to the CRA for the implementation of the interim award.

## 'Not enough'

Our Chennai Special Correspondent writes:

Tamil Nadu has said that 3 tmc ft of water is not sufficient. The State Public Works Minister, O. Paneerselvam, urged Mr. Vajpayee to impress upon Karnataka to release adequate water for "kuruvai" cultivation in the Cauvery delta. The storage in Mettur was now only 9.798 tmc ft. After deducting the dead storage amount, only 4.798 tmc ft was available for irrigation. He said in a statement.

## Krishna's response after studying water levels

By Our Special Correspondent

**BANGALORE, JUNE 26.** Karnataka says it will respond to the Prime Minister, Atal Behari Vajpayee's request to release Cauvery water to Tamil Nadu after studying the levels in the reservoirs in the State. The Chief Minister, S.M. Krishna, has not committed himself to releasing water. Sources said he told the Prime Minister that he did not know about the water levels in the reservoirs. Once it was ascertained, he would respond to the request.

The Prime Minister did not indicate any particular quantum of water to be released to Tamil Nadu but only wanted the release of a "quantity sufficient" to alleviate the difficulties of Tamil Nadu farmers.

THE HINDU

27 JUN 2002

## CAUVERY DISPUTE

# Krishna will not release water for TN

HT Correspondent & PTI  
Bangalore, June 22

KARNATAKA IS not in a position to release water to Tamil Nadu from the Cauvery because poor rain in the State this year has pushed down the water level in the Krishna Rajasagar reservoir.

Chief Minister SM Krishna said this in response to a memorandum submitted by a 21-member PMK delegation from Tamil Nadu today. PMK State unit president G K Mani led the team.

Krishna said the storage level in the reservoir stood at 73 ft and was insufficient to meet the water requirements of farmers of Mysore and Mandya districts.

Both Karnataka and Tamil Nadu, he said, should abide by decisions of the Cauvery River Authority. The remark contains an indirect reference to Tamil Nadu's decision to boycott the river authority.

The Chief Minister declined to react to the Tamil Nadu Government's recent decision to approach the Supreme Court to pray for a direction to the Centre to frame a new scheme and to seek a direction to the Karnataka Government to honour the interim order.

"Till I get authentic reports on the Tamil Nadu Cabinet's decision, I can't react," he said. The irrigation department secretary has been directed to seek details from the Tamil Nadu Government, he added.

Krishna said that Karnataka could not release wa-

ter to Tamil Nadu after June 16 because it had no water in the reservoirs. He said the monsoon so far had not been "encouraging" in the State and farmers were grappling with the situation.

When asked whether he would hold talks with his Tamil Nadu counterpart, Jayalalithaa, Krishna said he had no such plans. The Tamil Nadu Cabinet yesterday had decided to boycott the Cauvery River Authority meeting and file a fresh suit in the Supreme Court for framing of a new scheme on the water-sharing.

The Karnataka Rajya Raitha Sabha has set June 25 deadline for the State Government to release water to farmers in Mandya and Mysore, failing which, it has threatened to launch an agitation.

Meanwhile, the Jayalalithaa Government's has decision to file a fresh suit in the Supreme Court on the Cauvery waters issue has evoked mixed reactions from various parties in the State.

While the Dravida Kazhagam general secretary K Veeramani welcomed the decision as "indispensable", the Tamil Nadu Nationalist Congress president G P Sarathy and party general secretary K Sakthivel have urged the Jayalalithaa Government to convene an all-party meeting at the earliest to discuss the issue.

The Tamil Nadu Vivasayaigal Sangham leader V Duraimanickam in a statement said the Government's decision to file a fresh suit was not a solution.

# Will the voice of the displaced be heard?

By Gargi Parsai

119-10  
NEW DELHI, JUNE 15. The Man river (a tributary of Narmada) dam issue in Madhya Pradesh is more complex than the Sardar Sarovar dam controversy. There is no Supreme Court order here on a rehabilitation package. Only, the voice of the displaced people that must be heard. That the media-savvy Chief Minister of Madhya Pradesh, Digvijay Singh, chose to ignore for 23 days the condition of the four fasting activists and responded to Justice Krishna Iyer and noted author, Arundhati Roy, is his prerogative.

In his response, the Chief Minister has enumerated the figures of a handful of people who accepted some compensation in 1991, to claim that the rehabilitation of those displaced by the Man dam was generous and would not be reviewed. It is possible that Mr. Singh is testing the patience of those on fast. What must be clarified here is that the cash compensation offered then was paltry, which some were quick in accepting, and some say intimidated into accepting.

The Narmada Bachao Andolan (NBA) is not in the picture here, struggling as it is elsewhere for the rights of 40,000 families to be displaced in Gujarat, Madhya Pradesh and Maharashtra by the Sardar Sarovar dam.

16/6  
In a way, the rehabilitation and resettlement package carved out through the struggle of the NBA — in the absence of a National Rehabilitation and Resettlement Policy — has become the benchmark for all irrigation projects which take away people's land, livelihood and rights.

Mr. Singh has a real problem in that he has to measure up to the Sardar Sarovar dam package for people ousted by the 29 medium and minor dams to be built on the Narmada over the

## NEWS ANALYSIS

years. He has categorically stated in the Supreme Court that he has no land to rehabilitate so many thousands who will be displaced by these irrigation and power projects.

In the case of the Man dam, the State Government claims that it had offered the oustees land for land or cash for land and some people initially accepted cash for land. Cash can never be a compensation for land. Cash compensation usually deprives women and children.

It took an Arundhati Roy — who visited the Man site twice with filmmaker Jharna Zaveri — to attract the attention of Mr. Singh to the problems of the fasting members of the NBA. In her reply to Mr. Singh's letter to her, Ms. Roy quoted Man-affected people as having told her that

many of them were made to feel that they could either take cash or get nothing at all. "Many said they took cash because they were threatened with legal action and forced eviction."

"The stark fact is that displaced people cannot buy land with the special rehabilitation grant given by the Government because land is too expensive. It is the Government's responsibility to make up the difference between the value of land to be purchased and the cash that was illegally (in violation of the State's rehabilitation policy) distributed," she has pointed out.

An independent inquiry into the Man dam issue has pointed out in its findings that the families of 17 villages to be submerged by the Man dam were under immediate threat of losing their livelihood unless alternative land for cultivation and housing plots were provided before submergence.

Surely a progressive Chief Minister like Mr. Singh can direct his officials to take another look at the rehabilitation issue before the monsoon sets in.

Claims and counter-claims can be transparently reviewed through an independent committee set up by the State Government with participation from both sides. And, oustees/activists should call off their fast unto death on this assurance from the Chief Minister, rather than die an unsung death.

16 JUN 1991

THE HINDU

## Global warming is man-made, admits U.S.

WASHINGTON, JUNE 4. The Bush administration has admitted for the first time that man-made global warming will inflict serious, permanent changes on the American environment.

However, the new report, issued by the Environmental Protection Agency and indicating a major shift of policy, concludes that the changes are inevitable, and does not recommend altering the administration's current policy on greenhouse gases. Instead, the report says that, if America's economic growth is to be protected, the country will just have to adapt to a climate that is between five and nine degrees Fahrenheit warmer.

The report, filed to the United Nations under the terms of a 1992 treaty, breaks new ground for an administration that previously suggested that "more research" was needed to prove a link between climate change and soaring fossil fuel use — a stance similar to that of U.S. energy companies and car manufacturers.

In a rare defeat for industry lobbyists, the administration appears to have accepted the scientific case for global warming, adopting whole sections of a recent study on climate change by the National Academy of Sciences, which stated that warming was a serious problem. The report, U.S. Climate Action Report 2002, says for the first time that human actions are mostly to blame for global warming. It gives warning that rising temperatures are "very likely" to disrupt America's snow-fed water supplies, flood coastal areas, increase air pollution, exacerbate insect-borne diseases and cause forests in the south-eastern U.S. to fragment.

"A few ecosystems, such as alpine meadows in the Rocky Mountains and some barrier islands, are likely to disappear entirely in some areas," the report says. However, crops and forests will grow more strongly. The report will increase international pressure on the President, George W Bush from allies in Europe and Canada, which were furious when he withdrew from the Kyoto Protocol, declaring the global warming pact "dead".

In February, Mr. Bush unveiled plans to focus on reducing only the "intensity" of U.S. greenhouse gas emissions. This approach involves reducing the ratio of emissions relative to the size of the U.S. economy — an approach that still allows overall gas emissions to grow sharply. Environmental groups expressed anger that the new report continued to place economic prosperity ahead of the environment. — ©Telegraph Group Limited, London, 2002

### Japan ratifies Kyoto Protocol

Amit Baruah reports from Singapore:

Japan today ratified the Kyoto Protocol, under which industrialised nations are expected to cut down greenhouse gas emissions from 1990 levels by a minimum average of 5.2 per cent between 2008 and 2012.

Japan, however, has pledged to cut its emissions by six per cent. In a statement following the ratification announcement, the Japanese Prime Minister, Junichiro Koizumi, said: "The Kyoto Protocol marks a significant step to strengthen an international framework to deal with climate changes. Japan hopes other states will ratify it quickly so that the pact takes effect soon.

"Japan will do its utmost so that a rule can be created that all nations, including the United States and developing ones can join," Mr. Koizumi said in reference to the U.S. withdrawal from the Protocol. About Tokyo's decision to ratify the Protocol, the Prime Minister said, "It will not be easy to meet the targets in the treaty. It will require a joint effort by government, corporations and individuals."

05 JUL 2002

THE HINDU

# To breathe a cleaner air

**T**he civil aviation sector has three main functional divisions — regulatory, infrastructural and operational. On the operational side, Indian Airlines, Alliance Air (subsidiary of Indian Airlines), private scheduled airlines and air taxis provide domestic air services and Air India provides international air services. Pawan Hans renamed Pawan Hans Helicopters Limited provides helicopters services to Oil and Natural Gas Commission in its offshore operations and to inaccessible areas or difficult terrains. Indian Airlines operations also extend to the neighbouring countries, southeast Asia and west Asia. India has been a member of the International Civil Aviation Organization and is also on its council...

The government has ended the monopoly of Indian Airlines and Air India on the scheduled operations by repealing the Air Corporation Act, 1953. There are at present three private scheduled airlines operating on the domestic network rendering the passengers a wider choice of flights. Apart from this 37 air taxi operators are providing non-scheduled air services. A new policy on domestic air transport service was approved in April 1997 according to which barriers to entry and exit from this sector have been removed; choice of aircraft type and size has been left to the operator; entry of only serious entrepreneurs has been ensured; and equity from foreign airlines... in this sector has been prohibited. The existing policy on air taxi services providing for a route dispersal plan to ensure operation of a minimum number of services in the northeastern region, Andaman and Nicobar Islands, Lakshadweep and Jammu and Kashmir has been retained.

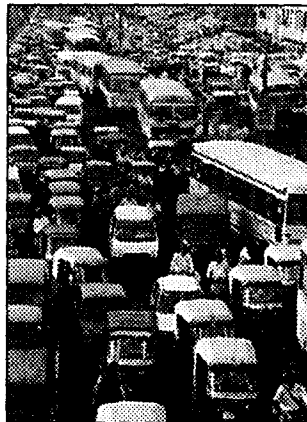
The Airports Authority of India manages 92 civil airports including five international airports, 28 civil enclaves at defence airfields...

To reduce emissions from vehicles and to increase the engine efficiency, a number of steps have been taken in India. Apart from introduction of unleaded gasoline, the sulphur content of gasoline has been reduced from 0.2 per cent to 0.1 per cent wt in the

Extracts from  
Agenda 21, based on  
information provided  
by the government of  
India to the United  
Nations commission  
on sustainable development, April 2001

entire country with effect from 1.4.2000. About 0.05 per cent wt sulphur gasoline is being supplied in the national capital region in Delhi with effect from 1.4.2000 and other metros with effect from 1.10.2000.

Benzene content limit in gasoline has been introduced from 1.4.2000 as 3 per cent maximum in metros and 5 per cent maximum in the rest of the country. The same is further reduced to 1 per



Cutting down on the poison

cent maximum in Mumbai and NCT, Delhi with effect from 1.10.2000 and 1.11.2000 respectively...

To reduce the emission of sulphur dioxide from diesel vehicle, sulphur content of high speed diesel has been reduced from 1 per cent wt to less than 0.5 per cent wt from 1.4.1996 in four metros and Taj trapezium zone. Sulphur content in HSD was further reduced in the Taj trapezium and Delhi to 0.25 per cent wt with effect from 1.9.1996 and 15.8.1997 respectively and the same is implemented in all four metros that is Delhi, Calcutta, Mumbai and Chennai from 1.4.1998. With effect from 1.1.2000, 0.25 per cent wt "S" HSD is being supplied in entire country. Further

"S" content is reduced to 0.05 per cent wt in Delhi & Mumbai with effect from 1.4.2000 and 1.10.2000 respectively and Calcutta and Chennai with effect from 1.1.2001.

In addition to the sulphur content, other important parameters of HSD like Cetane number and distillation specifications have also been improved with effect from 1.4.2000. Apart from the above, there is proposal to reduce sulphur content of both gasoline and HSD to 50 ppm in future.

In order to encourage use of eco-friendly alternate fuel, a programme has been launched for the use of ethanol blended gasoline. For this purpose two pilot plant projects, one each at Maharashtra and Uttar Pradesh have been taken up. Lead-free petrol has been inducted all over the country.

About 65 to 70 per cent of the air pollution in metropolitan cities (Delhi, Mumbai, Chennai and Calcutta) are attributed to vehicular emissions. The vehicular exhaust emissions include particulate matter, carbon monoxide, oxides of nitrogen, and sulphur dioxide. In accordance with the "White Paper on Pollution in Delhi with an Action Plan" two wheelers account for about two-thirds of the total vehicular population in Delhi. Because of inherent drawbacks in the design of two-stroke engines, two-wheelers emit about 20-40 per cent of the fuel unburnt/partially burnt.

Mass emission standards known as India 2000 norms akin to Euro-I norms are effective for all categories of vehicles manufactured with effect from 1.4.2000 in the entire country. Further, Bharat Stage-II emission standards akin to Euro II norms are effective from 1.4.2000 for four wheeled private (non-commercial) vehicles in Delhi and the same is effective in Mumbai from 1.1.2001 and in Chennai and Calcutta from 1.7.2001 in accordance with the requisite notifications issued by the ministry of surface transport. According to the ambient air quality data, there is an improvement in the air quality during the current year as compared to previous years in Delhi.

TO BE CONCLUDED

# Nature is not for polluting

T-13  
4/6

Environment

India's is an integrated approach that seeks to improve all modes [of transport] — land, sea and air. The surface transport sector requires most attention. Financial resources, terrain, climate and population pressure are some of the constraints. These issues are beginning to get addressed with the economy registering a healthy growth. Emissions can be reduced through the supply of fuel of appropriate specifications, use of appropriate technology in vehicular engines and better inspection and maintenance of on-road vehicles. As regards technology, it is available in the country and can be introduced in a phased manner corresponding to the availability of appropriate quality of fuel. As regards inspection/maintenance, in case of commercial vehicles, annual fitness tests are mandatory after the first two years. For non-commercial vehicles, the period is 15 years. The norms of fitness are being progressively tightened. However, due to a stay order granted by the Calcutta high court, the involvement of private sector in inspection of vehicles is not allowed. The ministry of environment and forests and the Central pollution control board have appealed to the Supreme Court for a vacation of the stay. Involvement of the private sector for inspection and maintenance is essential to improve the ambient air quality by a reduction of emissions from on-road vehicles.

Transport and traffic systems that are not managed well put people's health at risk. Accidents, holdups and polluting vehicles cause problems that affect society.

Capacity-building, education, training and awareness-raising:

There are several efforts being made by governments at all levels to increase public awareness. Public awareness drives on environmental issues are being taken up on a mass scale and have been included in school curricula. The issues which are included in the school curricula include topics like steps to increase forest cover, control soil erosion and reduce greenhouse gas emissions, and so on. Separately, major campaigns are launched by vari-

Extracts from  
Agenda 21, based on  
the information  
provided by the  
government of India  
to the United Nations  
commission on  
sustainable develop-  
ment, April 2001

ous schools on environmental issues whereby children try and educate the public on the need to improve the environment. State-controlled television and radio media very frequently feature programmes...on how to stop environmental degradation.

A number of seminars,



Faces of tomorrow

workshops and training programmes are organized by the government of India for creating awareness about renewable energy among different sections of society, including policy-makers, industries and users. These programmes are carried out by state governments, academic and research and development institutions, non-governmental organizations and industries.

There are no rules at the national level regarding non-motorized transport. However, local bodies may prescribe certain rules at their level. Government has incentives like seasonal tickets in public transport system. Car pools have been formed for senior government officers. The government has planned efficient mass rapid transport systems for all metros. In Delhi construction is already underway.

Awareness about road

safety is being generated using audio-visual media, news, programmes in schools, campaigns through NGOs as well as distribution of posters, pamphlets, games, and so on. In addition, refresher training in driving is being provided to drivers of heavy commercial vehicles through various NGOs...

Nature study field visits coupled with audio-visual presentations are part of the school curricula. Children are made to do projects that are designed to teach more about the environment and its relationship with other sectors. There are many issues on environmental protection in the school curricula. Various trainings programmes in the country and abroad for training of highway/traffic experts, technical staff are in operation...

The ministry of surface transport is maintaining the traffic census database for national highways. The traffic census is made manually by the respective state public work departments and hard copy of data are forwarded to this ministry. This data is then fed into computers and analysed. Railways maintain comprehensive data relating to all aspects of their working. This data is essential for management of traffic planning, forecasting and fixing targets.

Central pollution control board, a statutory body under the ministry of environment and forests, has established 290 ambient air quality monitoring stations covering major cities and urban centres in the country and the data obtained is so processed and evaluated as to recommend necessary mitigative and control measures.

Based on measurements of total suspended particulate matter, the air quality in 70 cities during 1997...the following categories could be made.

Twenty-nine cities are critically polluted (above 1.5 times the standard). Twenty-two cities are highly polluted (between 1 and 1.5 times the standard). Seventeen cities are moderately polluted (between 0.5 and 1 time the standard); and two cities with clean air (0.5 times the standard).

TO BE CONCLUDED

KYOTO PROTOCOL / U.S. URGED TO END OPPOSITION

# E.U. members ratify treaty

2/6  
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UNITED NATIONS, JUNE 1. In a boost to the global fight against climate change, all the 15 nations in the European Union have ratified the Kyoto Protocol and urged the United States to end its opposition to the treaty.

The E.U. has been at the forefront of the campaign to cut pollution that scientists say is warming the planet, and the simultaneous ratification by E.U. members represented a major step toward implementing the treaty.

The ceremony also highlighted the U.S. Government's isolation as the only announced opponent of the 1997 accord. One by one, envoys from the 15 E.U. members presented the documents of ratification from their Governments to the U.N. legal adviser, Hans Corell, at the U.N. headquarters.

The E.U. Environment Commissioner, Margot Wallstrom, who handed over a separate ratification from the organisation itself, hailed the "historic mo-

ment for global efforts to combat climate change" and pointedly singled out the U.S. as the only country to reject the treaty.

To take effect, the Kyoto accord must be ratified by 55 countries, but the ratifications must also include industrialised nations responsible for at least 55 per cent of the 1990 levels of greenhouse gases blamed for heating the atmosphere.

The E.U., whose members produced 24.2 per cent of emissions in 1990, represented the first major industrialised bloc to ratify the treaty. Before Friday, the vast majority of countries that had ratified were developing countries. Only the Czech Republic, Romania and Iceland, which together were responsible for less than 3 per cent of the 1990 emissions, had ratified among industrialised nations.

With the U.S., which was responsible for 36.1 per cent of greenhouse gas emissions in 1990, opting out of the treaty,

the E.U. said the support of Japan, which was responsible for 8.5 per cent, and Russia, which was responsible for 17.4 per cent, is crucial.

The E.U. boosted the number of ratifications to about 70, topping the minimum needed, and pushed the treaty about halfway to the goal of 55 per cent of the greenhouse gas pollution levels for it to take effect.

The Kyoto Protocol was signed by the administration of the former U.S. President, Bill Clinton, but never ratified by the Senate.

The President, George W. Bush, backed out of it last year, saying it would cost the U.S. economy \$400 billion and 4.9 million jobs.

"The European Union urges the United States to reconsider its position and to return to and participate in the global framework for addressing climate change that this protocol provides," Ms. Wallstrom said. — AP



# Narmada: SC seeks affidavits on relief

By Our Legal Correspondent

*Sumit 40-0*

**NEW DELHI, MAY 30.** The Supreme Court today directed Maharashtra, Gujarat, Madhya Pradesh and the Grievance Redressal Authority (GRA) to file their affidavits on the steps taken to rehabilitate the affected families in view of the recent decision of the Narmada Control Authority (NCA) to raise the height of the dam from 90 to 95 metres.

A vacation bench of the court, comprising justices Santosh Hegde and S.N. Variava, gave the direction on a resumed hearing of a petition from the Narmada Bachao Andolan (NBA) contending that the NCA gave its clearance without ar-

ranging for rehabilitation and providing relief to the project-affected families. Land and houses would be submerged when the height of the dam was increased.

Earlier, pleading for an interim stay of the decision to raise the height of the dam, Shanti Bhushan, senior counsel for the NBA, contended that about 500 affected families had not been rehabilitated.

The Solicitor-General, Harish Salve, said NCA gave its clearance to raise the dam's height to 95 metres after obtaining the necessary clearance in accordance with the apex court's directive.

The bench fixed June 3 for further hearing in the matter.

THE HINDU

31 MAY 2002

# On the road to zero pollution

**T**he following are the strategic objectives of the civil aviation policy of India:

The objectives of this policy are the creation and continued facilitation of a competitive and service-oriented civil aviation environment in which: i) The interests of the users of civil aviation are the guiding force behind all decisions, systems and arrangements; ii) Safe, efficient, reliable and widespread air transport services are provided at reasonable prices; iii) There exists a well-defined regulatory framework catering to changing needs and circumstances; iv) All players and stakeholders are assured level playing field; v) Private participation is encouraged and opportunities created for investors to realize adequate returns on investments; vi) Rapid upgradation of airport infrastructure with priority to the busiest airports and those handling international flights; vii) Recognizing that transportation of air cargo is vital to the economic growth of the country, creation and development of specific infrastructure for air transportation of cargo and express cargo is encouraged, viii) Airline operations and acquisition of aircraft conferred "infrastructure" status for overall growth of the civil aviation sector; ix) Domestic and international aviation in the country are encouraged to grow at par with the world aviation industry; x) Inter-linkages with other modes of transport are encouraged; xi) Trade, tourism and overall economic activity and growth are encouraged; xii) International cooperation in aviation in tune with international trends and best practices, consistent with airspace sovereignty, is promoted; xiii) Indigenous development of aircraft, components and aviation products is en-

Extracts from Agenda 21, based on information provided by the government of India to the United Nations commission on sustainable development, April 2001

couraged, xiv) Security of civil aviation operations is ensured through appropriate systems, policies and practices, and xv) Effective systems are put in place for timely crisis and disaster management, including investigation



A safer ride

of incidents/accidents...

India is a democratic country and the elected representatives are invariably connected with the decision-making process. Their participation at the national level is through parliamentary proceedings, meeting of various committees of Parliament as well as individual initiatives. States and local governments have corresponding arrangements. The inputs of various organized bodies/associations are also considered during policy formulation. Parliamentary committees like the standing and railway convention committees hold regular meetings with the rail-

way administration regarding overall functioning of the railways. Representations, and suggestions from various quarters such as the passenger amenities committee, zonal rail users committee and trade associations like the Confederation of Indian Industry, Associated Chambers of Commerce and Federation of Indian Chambers of Commerce and Industries are also considered.

In urban areas, lack of adequate mass transport, complete absence of demand management and policy distortions in the area of fuel pricing and bank finance have resulted in an explosion of personalized transport comprising mainly scooters and cars. This has contributed to high levels of pollution and alarming rates of accidents. On the other side, many villages lack reliable all-weather connection with nearby markets and towns. Certain environment-friendly and socially cost-effective means of transport like coastal shipping, inland water transport and non-mechanized transport, human or animal-powered, have remained undeveloped.

Planning for, and execution of railway projects is done in an integrated and need-based manner keeping a national perspective in view. Geographical boundaries are not a criterion for determining projects. The Union government and many state governments have approved private sector participation for construction, maintenance and operation of highways on a built-operate-transfer basis. A number of projects are under implementation.

The government is encouraging and framing laws ...for promotion of private sector participation in various areas of transport including roads and civil aviation.

TO BE CONCLUDED

# The Monsanto amendment

When combined with the ecological risks of genetically engineered seed like Bt cotton, patents on seeds create a context of total control over the seed sector, and hence over our food and agricultural security, argues Vandana Shiva

INDIA has amended its Patent Act for the second time since TRIPS came into force. The first amendment was to introduce exclusive marketing rights and mail box arrangement to implement Act 70.8 and 70.9 of TRIPS. But why has the second amendment of the Indian Patent Act been rushed through in spite of the double national emergency—the Gujarat genocide, and the spread of terrorism, and an impending war?

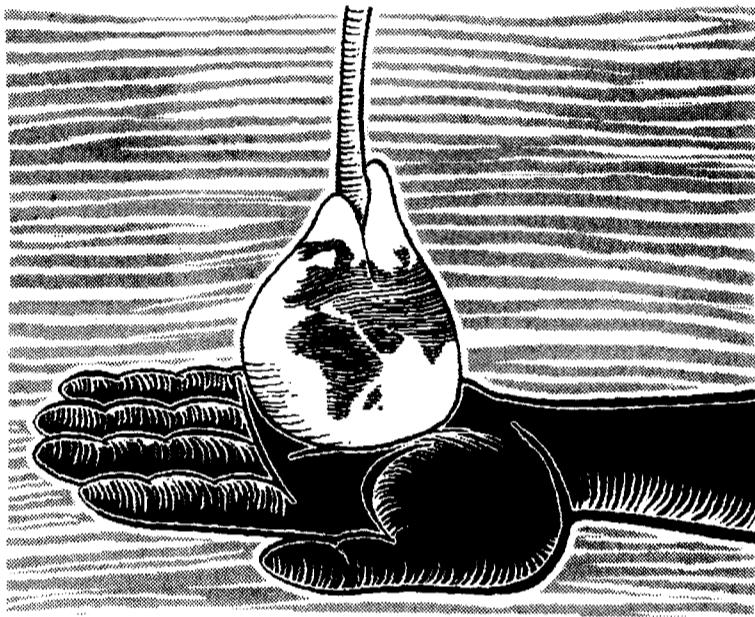
The issue is clearly not product patents in medicine, since these will not be granted until 2005. The major change in the patent regime achieved through the second amendment is in the area of seeds and plants, especially genetically engineered seeds.

Methods of agriculture and plants were excluded from patentability in the Indian Patent Act to ensure that seed was held as a common property resource in the public domain and farmers' inalienable right to save, exchange and improve seed was not violated. There are two amendments in the definition of what is not an invention that have opened the flood gates of patenting of genetically engineered seed.

First, in Section 3(i) "plants" have been omitted. According to Section 3(i), the following is not an invention: Any process for the medical, surgical, creative, prophylactic or other treatment of human beings or any process for a similar treatment of animals or plants or render them free of disease or to increase their economic value or that of their products.

The omission of "plants" from this section implies that a method or process modification of a plant can now be counted as an invention and hence be patented. Thus the method of producing Bt cotton by introducing genes of *Bacillus thuringiensis* in cotton to produce toxins to kill the bollworm can now be covered by patents. In other words, Monsanto can now have Bt cotton patents in India. The amendment of 3(i) is clearly a Monsanto Amendment.

The second amendment has also added a new section (3j). This is also a Monsan-



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to amendment since it allows production or propagation of genetically engineered plants to be counted as an invention, and hence patentable. The section 3(j) excludes as inventions "plants and animals... including seeds, varieties and species and essentially biological processes for production or propagation of plants and animals". The emergence of new biotechnologies is often used to define production of plants and animals through genetic engineering as not being essentially biological. Without a clear definition that all modifications of plants and animals, are essentially biological, 3(j) allows patents on GMOs and hence opens the flood gate for patenting transgenic plants.

It is not surprising that the Monsanto amendments have been made in India's patent laws according to TRIPS. After all Monsanto had a hand in drafting the TRIPS agreement. After the Agreement came into force in 1995 many Third World countries made recommendations for changes in Article 27.3 (b) to prevent

biopiracy. India in its discussion paper submitted to the TRIPS Council stated:

Patenting of life forms may have at least two dimensions. Firstly, there is the ethical question of the extent of private ownership that could be extended to life forms. The second dimension relates to the use of IPRs' concept as understood in the industrialised world and its appropriateness in the face of the larger dimension of rights on knowledge, their ownership, use, transfer and dissemination. Informal system, e.g. the *shrutis* in the Indian tradition and grandmother's potions all over the world get scant recognition. To create systems that fail to address this issue can have severe adverse consequences on mankind, even leading to extinction.

The introduction of 3(j), contradicts the governments position in WTO. This amendment was necessary for Monsanto because without patents it cannot harvest super profits from its Bt cotton. To prevent competitors from selling seeds and to prevent farmers from saving seeds, Monsan-

to has now turned to the patent laws to get monopoly rights. The Monsanto amendments of India's patent laws are a logical consequence of the clearance for the commercial planting of GMOs in Indian agriculture. Corporations like Monsanto genetically manipulate seeds to get control over the seed sector, not to help farmers. Patents on seeds are a necessary aspect of corporate deployment of GM seeds and crops. When combined with the ecological risks of genetically engineered seed like Bt cotton, patents on seeds create a context of total control over the seed sector, and hence over our food and agricultural security.

This second amendment of the patent laws has jeopardised our seed and food security and hence our national security in three ways. Firstly, it allows patents on seeds and plants through 3(i) and 3(j). Patents are monopolies and exclusive rights which will prevent farmers from saving seeds and seed companies from producing seeds. Patents on seeds transform seed saving into an "intellectual property crime". Secondly, since genetic pollution is inevitable, Monsanto will use the patents + pollution to claim ownership of crops on farmers fields where the Bt gene reached through wind or pollinators. This has been established as precedence in the case of a Canadian farmer, Percy Schmeiser whose canola field was contaminated by Monsanto's Round up Ready Canola, but instead of Monsanto paying Percy on the basis of the polluter principle, Monsanto demanded \$200,000 fine for "theft" of Monsanto's "intellectual property". Will Indian farmers be blamed for theft when Monsanto's GM cotton contaminates their crops? Or will the government wake up and enforce strict monitoring and liability?

Finally, the emergence of resistance in pests like Bollworm and creation of super pests is another inevitable consequence of Bt cotton. As super pests spread, farmers will be forced to turn to Monsanto for seed supply and hence will be trapped in Monsanto's patent monopoly.

## U.N. reports eco-problems

**NEW YORK, MAY 23.** Expansion of cities, destruction of forests, erosion of fields and rising demand for water are likely to threaten human and ecological health in many countries for at least a generation, according to a new U.N. report on environmental trends.

The world has seen significant environmental progress in recent years, says the report, which was released on Wednesday by the U.N. Environment Program (UNEP). Population growth is slowing, for example, and food production is largely keeping pace with it.

But the report warns of severe water shortages in West Asia over the next generation, and it says the growth of agriculture is damaging landscapes, depleting aquifers, raising the level of salt in the soil and reducing habitat for wildlife.

It also includes some bleak findings, cast in a manner that is rarely seen in U.N. reports — with no path leading to a good result. Even under scenarios in which environmental protection becomes a high priority, it says, most regions of the world will still see their biological diversity and coastal ecosystems badly damaged by 2032.

The report says an important cause is the accelerating growth of vast, poor and largely unplanned cities in developing countries, most of them near coastlines. Increased sewage, storm runoff and conversion of land around such cities

will inevitably produce more human disease and kill more marine life, it says.

Such environmental damage often ends up hampering economic growth, the report says, noting that damage to farmland in India is cutting agricultural productivity there by about \$2.4 billions a year. The analysis, the third in a series begun in 1997, involved more than 1,000 scientists and a host of international research centres. It was issued as 140 countries prepared for talks starting on Friday in Bali to finish planning for the World Summit on Sustainable Development, a meeting of world leaders in Johannesburg in late August focused on meshing economic growth and environmental protection. That meeting is widely viewed as a 10-year check-up to see how the world has fared since the U.N. Earth Summit in Rio de Janeiro in 1992.

"Without the environment, there can never be the kind of development needed to secure a fair deal for this or future generations," said the executive director of UNEP, Klaus Toepfer.

Already, the report says, five billion acres of soil, more than the area of the U.S. and Canada combined, is degraded by human activity, with a sixth of that "strongly or extremely degraded". More than 80 per cent of the damage has come through water and wind erosion.— *New York Times*

THE HINDU

24 MAY 2002

# Paving the way towards a better future

In August 2000, use of environment-friendly fuel like compressed natural gas, LPG, fuel cell etc for automotive purposes has been legislated. Relevant rules are under formulation in respect of LPG. In case of CNG, there are existing guidelines.

In addition, ministry of petroleum as well as department of explosives are also amending their respective regulation in this regard.

Decision-making: strategies, policies and plans — a task force has been set up in the planning commission for the development of an integrated transport policy. The policy would focus on the integrated development of the transport sector; interconnectivity of various modes of transport, financing plans of all modes of transport and other issues.

To address the diverse issues facing the transport sector the need for a comprehensive policy package has been recognized. The government has drawn a plan to strengthen the Indian railway system in its reach and capacity so that it effectively links distant parts of the country, helps develop the economic potential of the remote areas and carries the bulk of the nation's long or medium haul traffic. Similarly, the road network is being expanded and strengthened to improve accessibility of the hinterland, especially the rural areas and to facilitate the integration of the isolated parts of the country.

The length and breadth and the quality of the highways have improved greatly as part of a national grid to provide for speedy, efficient and economical carriage of goods and people.

The government is making efforts to regulate road transport for better energy efficiency and pollution control, and to make the mass transport network viable through a rational tariff policy and a refurbishment of the fleet. The capacity of the ports in terms of their berths and cargo handling equipment is being improved to cater to the growing requirements of the overseas trade. The shipping industry needs to be enabled to carry higher shares of the sea-borne trade in indigenous bottoms. The civil aviation sector is being expanded to increase its car-

Extracts from  
Agenda 21, based on  
information provided  
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on sustainable devel-  
opment, April 2001

rying capacity for passengers and cargo, improve the ground-handling facilities and provide connectivity to areas like the Northeast.

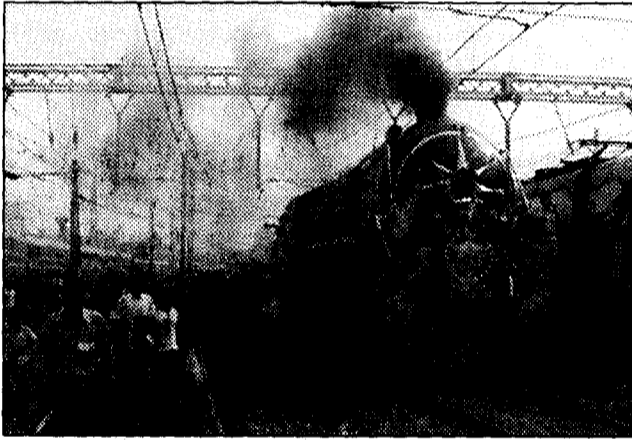
Conditions need to be created to ensure full utilization of the capacities created in the public sector with large investments made in the past.

In the metropolitan areas,

A task force on infrastructure was constituted under the chairmanship of the deputy chairman, planning commission comprising both government and industry representatives with the aim of attracting investment to specific projects of national and regional importance, and ensuring their timely completion.

Initially, the task force will deal with the following projects focusing on innovative methods for financing them. Six lane expressway of 7,000 km length, having north-south and east-west corridors, four-laning of national highways, and five international airports.

The terms of reference of the task force include: determining the routes for expressways and national highways,



Highway to prosperity

on the one hand, the provision of mass public transport is being increased through a mix of environment-friendly modes — specially designed buses, light rail and metro and on the other, demand management is being ensured through price-based as well as non-price-based measures so as to minimize the dependence on personalized transport.

Similarly, non-mechanized transport should be accorded its rightful niche in a well-conceived transport network. To bring about this sea change in the transport scene, many policy initiatives will be needed, each backed by adequate investment and complemented by suitable policy changes in other sectors. A task force on infrastructure has been constituted with the aim of attracting investments to specific projects.

and establishing technical parameters thereof; identifying and recommending locations for the airports; establishing benchmarks and criteria for the airports; recommending financing options for expressways, highways and airports; recommending criteria for competitive bidding and selection of contractors; recommending measures as are necessary for timely completion of projects including governmental clearances; and overseeing and monitoring timely implementation of the projects. The task force will also formulate an integrated national transport policy to strengthen the transport infrastructure in the country. It would also recommend steps that can significantly improve and foster reforms in those key segments of the economy.

TO BE CONCLUDED

# 'Nod for raising dam height illegal'

By Our Special Correspondent

NEW DELHI, MAY 18. The Narmada Bachao Andolan (NBA) has accused the Centre of resorting to yet another "Save Narendra Modi" exercise by giving permission to the Gujarat Government to raise the height of the Narmada dam to 95 metres when people displaced at the height of 90 metres have not been rehabilitated in Madhya Pradesh, Maharashtra and Gujarat.

The NBA today said that it would resist the decision and intensify its struggle against submergence and forceable displacement as the monsoon approaches.

Describing the permission given as a violation of the human rights of tribals and villagers, the NBA said, "If the Gujarat carnage was the most visible and brutal aspect of violence, the forceable displacement with the threat of submergence is a form of slow but sure genocide of vulnerable communities in India." The Andolan accused the Narmada Control Authority (which cleared raising the dam height) of violating the provisions of the Narmada Water Disputes Tribunal Award with regard to rehabilitation and resettlement. "The monitoring agency itself is indulging in illegal acts. This is another blow to the insitutional and legal structures and human rights."

According to the NBA, which has conducted detailed surveys on the ground, more than 3,500 families below 90 metres are to be settled as per the award. In Madhya Pradesh's Kukshi and Alirajpur tehsils about 2,000 families are on the roads, while in Maharashtra nearly 1,100 families are to be rehabilitated at the present height of 90 metres.

Raising the height without first resettling the displaced families is a gross violation of the award and the Supreme Court order. There are nearly 8,000 officially acclaimed families below 95 metres and more than 10,000 below 100 metres which face submergence without rehabilitation.

The decision of the NCA comes in the wake of a written assurance by the Maharashtra Government to NBA activists that it will not allow construction on the dam beyond 90 metres without the completion of the survey by the task force of the number of oustees and the status of rehabilitation in the State. This was done when the NBA pointed out the ground realities to the Maharashtra Chief Minister, Vilasrao Deshmukh, at a meeting on May 8.

THE HINDU

19 MAY 2000

## Fuel Prospects 13/5

The ongoing CNG controversy has taken a new turn. The so-called clean fuel introduced in Delhi as a test case was generally hailed by the environment lobby even though supplies often caused serious problems for commuters and transporters. With the Supreme Court riding shotgun, the use of CNG for public vehicles was pushed through in Delhi preparatory to similar measures being undertaken in other Indian cities. However, a further twist has been added by Indraprastha Gas Limited, a government-owned enterprise, which is the sole supplier of compressed natural gas, unilaterally raising its price from Rs 13.11 to Rs 16.83 for the transport sector even as the rate for industry has remained untouched at Rs 5.75 a kilo. The Supreme Court has once again intervened, asking why this invidious discrepancy exists, which hits commuters and, indeed, all sections of the general public who will bear the brunt of the all-round increase in prices from commodities to transport. The Court has not only termed the recent price hike as "unwarranted, unjustified and unreasonable" but observed that "when it (price increase) is mala fide, there is no option before the court" other than to probe the matter of policy. Bazaar gossip and industry rumour has it that powerful lobbies are at play here to scuttle alternatives to diesel and petro products. While this remains in the realm of conjecture, there is no denying the fact that both for environmental and economic reasons we need urgently to find alternative sources of energy that are clean, cheap and reliable. We have to see what is available since we are deficient in oil and gas. The supply is restricted not just by nature; human inefficiency further cuts down whatever little we have.

Such poverty of policy, compounded by failure to harness and optimise utilisation of available resources, becomes more stark when seen against the fact that our neighbour, Bangladesh, is literally floating on gas. Unfortunately, it lacks the technology and expertise to tap the vast reserves of natural gas, the discovery of which holds the promise of transforming that country from a basket case to a booming economy in South Asia. Like in India, in Bangladesh too politics takes precedence over economic needs and domestic political rivalries have prevented any purposeful efforts towards tapping the abundance of gas that can rapidly generate immense wealth. Apart from politics at home, anti-Indian prejudices too have held Bangladesh back from getting its hands on the asset and putting it to use. Simple economic logic would dictate that Bangladesh should hasten to exploit the available gas and export it to nearby destinations in India where there is tremendous demand for the fuel. The United States has been putting pressure on Dhaka that the best place to sell the gas is India and that US companies would execute the contracts from drilling and extraction to building pipelines for delivery. With the recent change in government there is expectation that the earlier stand — of Dhaka being opposed to giving the gas to India even if it meant not exploiting the potential in its own national interest — would be reversed. The positive signals emanating from the new government in Dhaka should be seized upon by Washington and New Delhi to help Bangladesh oil the wheels of its economic development, and in the process, bring the fuel where it is very much needed.

THE TIMES OF INDIA

13 MAY 2002

Amendment  
49-10

## A WELCOME STEP

9/5

INDIA'S BATTLE AGAINST non-biodegradable wastes has now taken a different turn with Tamil Nadu joining a list of select States that have taken steps to put an end to the widespread havoc caused by non-recyclable plastics. The proposed Bill to ban non-reusable plastics is important in that it comes as an effort at the State level, in contrast to the approaches taken at the municipal levels in various parts of India. It is, however, important to recognise that there are bound to be difficulties in administering the law, especially when it comes to interpreting the technical details. Given the ease with which the law is flouted, the difficulties in implementing the law should be considered and a suitable mechanism evolved to ensure that the ultimate end of the legislation is served. As checking the possibilities of misinterpretation of the law is as important as putting one in place, the Government will do well to come out with a popular version of the Bill that will aim at explaining to the people the purposes behind the law. In what is bound to be a long march towards ending the menace of throwaway plastics, several challenges are to be overcome: misinterpretations that should be corrected, fears to be allayed and most important, minds to be won over.

To start with, possible misinterpretations on the sweep of the ban should be cleared with a comprehensive statement and the fears of enforcement should be dispelled by spelling out the personnel to be involved in its enforcement and the extent of powers they would wield. Such an exercise should also help in preparing the mind of the user of such products on the harm they cause to the environment as well as to individual health. A detailed overview of the present situation and the likely consequences of an unfettered continuation of the use of the throwaways should precede firm legislative action. With studies pointing

to the rise of plastics in the composition of India's municipal wastes, there should be no time lost in taking concerted action to ensure that non-reusable plastics do not enter the eco-system. With the country not yet ready for the rather expensive option of biodegradable plastics the present task should aim at putting an end to this toxic product at both the consumer and the producer end. An important part of the popular debate should be the distinction between the benefits of plastics and the harmful consequences of the rampant spread of non-recyclable plastics. Plastics are an integral part of today's civilisation. Their longevity, which is a boon for industrial applications, however, is the bane of the environment.

The Tamil Nadu Government has reasoned that the non-reusable plastics cause significant environment risk and health hazards. The problem, however, should not be seen as either an urban-centric or a middle-class-centric issue. The rise of plastics into every form of packaging has also meant the decline of several traditional modes. For the efforts to be successful it is important that the Government encourages affordable small-scale alternatives and ensures that such options are easily available. As there are suitable alternatives for the products listed, the proposed Bill should be seen as an opportunity to mark the revival of alternative occupations. The most difficult battle in this war against the throwaway plastic is winning the mind of the consumer. Experience at the local government level, especially in tourist areas, has shown that once an official rule is in place, the popular critical mass in support of such an effort swells. The larger aim of the policy makers should be to convince the consumer that serious, long-term harm is done by non-reusable plastics compared to the minor, short-term conveniences they provide.

THE HINDU

9 MAY 2002



## Glacial Red Alert

A recent UN Environment Programme (UNEP) report based on a study in Bhutan and Nepal has reported rising water levels in at least 44 glacial lakes as increasing temperatures accelerated the melting of glaciers and surrounding snowfields. Large-scale loss of property and business is feared; the UNEP warns that inhabitants of endangered valleys will need to be re-located to safer places. Our own Himalayan glaciers are faced with similar meltdowns and the government is reportedly setting up a national centre to study the problem in partnership with the DRDO. The implications of this are wide: Flooded valleys, acute shortage of clean drinking water, threat from water-borne diseases, adverse effect of silt on hydro-power plants located upstream and re-location of troops stationed in glacial areas. News from the Antarctic is that while a large part of the icy continent is cooling, other parts are getting warmer. The ozone hole over the South Pole is growing wider, exposing us to harmful ultra-violet radiation while greenhouse gases (GHGs) continue to corrode the atmosphere. Yet, sceptics abound. They seem to echo US president Bush's opinion that there's no cause for alarm and that economic achievements need not be sacrificed for what they believe are natural, very long-term cyclic changes. Climate experts point out that there is definitive evidence that human excesses are indeed aggravating global temperatures. "If you put a frog in a pan of boiling water, it will jump out. If you put the frog in a pan of cold water which is then slowly put to heat, it may get accustomed to the rising temperatures and gradually lose its reactive functions and die. Hence the message is unmistakable, warn analysts.

Worldwide, studies have found evidence of receding glaciers. The Geological Survey of India's study of Himalayan glaciers shows that the retreat has been accelerating at a higher rate over the past 10 years. Global temperatures have risen by 0.6 degree centigrade in the last century and they are expected to rise by 1.1 degree C in the next 25 years. Global warming has to be dealt with on several fronts, foremost being reducing fossil-fuel use, cutting down on poisonous emissions, finding alternative sources of renewable energy, developing cleaner technology, reforestation and co-opting the services of huge multinationals across the world to clean the air and promote public health. Good disaster management, on the other hand, has to deal with both preventive steps and anticipatory relief and rehabilitation measures. These would entail long-term damage control in reducing GHG emissions and creating public awareness while dealing with the problems of providing potable water and medical services. Since the meltdown is global, the effort to deal with it has also got to be global. This means synergising data and analyses and charting out plans of action for international cooperation and compliance. Here, the importance of establishing linkages between information and communications technologies cannot be understated. Even the UNEP study of the glaciers and the ensuing predictions were made possible largely through collating data from satellites, mapping techniques and computer analysis. The upcoming Rio+Ten summit provides the ideal forum to voice these concerns and initiate joint global action in this respect.

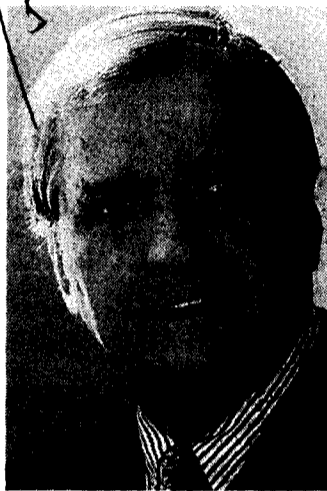
# 'Climate change, a serious threat to developing nations'

By Gargi Parsai

NEW DELHI, MAY 3. India was well positioned to underline the need and the responsibility of developed countries to the problem of climate change affecting agriculture production in developing countries," the Executive Director of the United Nations Environment programme, Klaus Toepfer, said in an exclusive interview with *The Hindu* on the sidelines of the ongoing three-day South Asia Expert Workshop on "Adaptation to Climate Change for Agricultural Productivity" organised by the Ministry of Agriculture.

Dr. Toepfer said that India hosting the Eighth Conference of Parties (COP8) of the United Nations Framework Convention on Climate Change in October this year showed the country's political commitment to the issue. Global warming due to emissions from developed countries is likely to bring significant stress on soil, water and crop productivity in developing countries, and there are expectations of North-South and South-South cooperation on the issue.

Climate change represents a serious threat to every part of the globe, especially to the developing countries facing the challenges of ensuring food and nutritional security to their growing populations. Studies have pointed to up to 30 per cent decrease in farm output by 2050 due to 1.4 to 5.8 degrees Cen-



Klaus Toepfer

tigrade warming in climate.

Research by the International Rice Research Institute (IRRI) in Manila has indicated that every one degree Centigrade rise in temperature will result in a 10 per cent fall in the yield of rice.

In the Kyoto protocol, six gases were identified whose cumulative emissions are leading to climate change. Of these, carbon dioxide is a major source.

However, Dr. Toepfer is positive about the response to the consequences of the prognosis of climate change. He said: "I am optimistic because all over the world, for the first time, we have all the resources to make sustainable development a reality. We have a huge increase in human capital — and it is an im-

portant resource along with knowledge and science. And we are much better equipped today to use this technical knowledge in line with environment. We have more than ever a chance to make this globalisation to work for the poor. We have dedicated people in finding solutions, not merely political solutions."

Can anything work without political solutions? "Indeed I believe if we are only going for deregulation and liberalisation and for forces of markets, we need governments dedicated to the welfare of citizens. We have to combine the stimulating forces of markets and the social responsibility of governments and the environment precaution which is not directly linked with markets. We also need multilateral cooperation, and solidarity in solving those problems particularly which are stimulated by the so-called developed countries. We have a situation of regionalising the advantages and globalising the disadvantages with regard to climate change."

According to Dr. Toepfer, "what we are doing is giving an early warning about climate change to scientists and politicians so that they can concentrate their investment, their thinking and their human capital to come to better solutions. What will the Indian farmer do, for instance, when emissions from the developed country changes the weather conditions and destroys his chance to produce as he has

been doing since ages. And I think it is beneficial for India to handle a global problem on a global scale and not give the responsibility for doing so to others."

"We are not making disaster prognosis on our own. It has scientific base. It is not merely a prognosis because climate change is already taking place. So, we have to ask: can we make better solution for fixing carbon? What we call carbon sequestration. So, if we can change land use for more productivity, it is integrating more carbon...it can give poor people more income. Why not those (developing countries) fixing carbon through agroforestry, for instance, be paid for this by the developed countries. This is called Clean Development Mechanism. The technique is clear. It needs to be implemented."

Dr. Toepfer said at the political level India was helpful to bringing the next Climate Change Conference to Delhi. According to him, India, more than others, could do a lot with regard to Adaptation Strategy to climate change. "We have a country with more than 70 per cent people dependent on agriculture, where we have 25 per cent of GDP coming from agriculture, where social structures are dominating still, so such a country is the most important to take the lead in Adaptation and Impact topics, and this is not an expectation, to some degree, it is a reality."

## Funding sought to combat global warming

By Our Special Correspondent

NEW DELHI, MAY 3. The South Asia Workshop here on "Adaptation to Climate Change for Agriculture Productivity" has called for international funding support for developing countries to go in for adaptation strategies to mitigate the effect of global warming.

The three-day workshop, which concluded here today, sought public research on adaptation at both international and national levels. The workshop was organised jointly by the Ministry of Agriculture and the United Nations Environment Programme.

The workshop emphasised the need for implementing an action-based approach to adaptation for climate change. The recommendations said, "in order to mainstream adaptation in policy and action, there is an urgent requirement for development of a model framework/guidelines on adaptation, based on experience of the countries already engaged in this process."

Most of the countries were already on the path of adaptation. The proposed frame-

work/guidelines would need to be based on the best practices and socio-economic considerations. The major components of such an approach should be a cafeteria of programmes and projects that different governments could adopt suiting to their local situations, the workshop noted.

It should provide momentum to measures already being taken by different governments with additionalities to combat climate change. Such framework/guidelines should provide for incentive structure for those promoting adaptation like Clean Development Mechanism. It should have a component of capacity building programmes for different governments/agencies involved in the process. It should provide for a convergence building mechanism with networking of international, regional and national institutions.

The framework/guidelines should have space for documentation of best practices and monitoring and evaluation of adaptation process. The workshop noted that since no single discipline can address the entire

gamut of issues related to adaptation to climate change, this had to be on holistic farming systems approach, not single crop or single discipline based. In his concluding remarks, former Minister and member Planning Commission, Som Pal, said the success of the mitigating effects of climate change would be to embark upon setting up institutional framework and evolve guidelines and funding pattern which could be the clearing house of information.

He said the all the conditions set at the World Trade Organisation (WTO) at Marakesh had not been fulfilled resulting in unfair, inequitable regime against developing countries. Developed countries had gone on increasing subsidies to their farming community thereby making exports of agricultural products from developing countries difficult.

The Minister of State for Agriculture, Hukukdeo Narayan Yadav, said India had the tradition of maintaining a balance in nature and returning to it whatever was utilised. The world should learn from this.

# 'Global warming will hit rice, wheat yields'

By Gargi Parsai

**NEW DELHI, MAY 1.** Responding to findings that global warming will have an impact on Indian agriculture resulting in up to 30 per cent drop in crop production by 2050, the Government today said that adaptation strategies and resource-conserving technologies were being evolved for sustainable farm development and improved productivity through low cost mechanism. Current climate models predict a global warming of about 1.4 to 5.8 degree centigrade over the present century. This was likely to have an impact on rice and wheat yields.

Inaugurating the South Asia Expert Workshop on 'Adaptation to Climate Change for Agricultural Productivity', the Agriculture Minister, Ajit

Singh, said projections of reduced crop yields were of grave concern, taking also into consideration the growing food demand on account of urbanisation and industrialisation. "An important priority, therefore, is to ensure that developing countries gain access to technological advances and develop a more informed choice of policies and practices."

He said the Climate Conference, which is to be held in New Delhi later this year, must address the linkages with sustainable development and the increasing risks of the adverse impacts of global warming. "South Asia, with its large population, low incomes, fragile ecosystems and dependence on agriculture and allied activities is particularly vulnerable to climate change and its adverse socio-

economic effects. One-fifth of the world's population, much of it among the poorest, lives in this region. It is estimated that the impacts of climate change in the future would be borne disproportionately by the poor."

"In any global debate on environment, poverty eradication and food security had to be a central issue. In tropical Asia, countries are socio-economically dependent on natural resources such as water, forests, grassland, rangeland and fisheries, which are currently under tremendous stress. Agricultural productivity is greatly affected by rapidly shrinking per capita land, increased soil degradation, reduced availability of water coupled with surface and ground water contamination, increasing deforestation and desertification."

He said there was no room for complacency despite a record foodgrains production of over 211 million tonnes as the rain-fed areas in the country still suffered from low yields and instability of production.

The Executive Director of the United Nations Environment Programme (UNEP), Klaus Toepfer, pointed out that the developing countries would bear the brunt of climate change and its negative impacts. The consequences could be wide-ranging affecting crop yields, soil fertility and agricultural zones. Plant species and metabolic pathways were among the important determinants of how crops would respond. Studies indicate that heat stress and temperature-driven inhibition of flowering cause significant decline in production for main crops i.e. rice and wheat.

The region's water resources may be influenced by temperature change, precipitation and tropical cyclones. Climate change shall have impact on hydrology exacerbating water stress, and increased run-off may result in water-logging and salinity. "But instead of despairing, countries must strategise and adapt their policies to mitigate the effect of climate change," he said.

The Chairman of the Intergovernmental Panel on Climate Change (IPCC) and the Director-General of Tata Energy Research Institute, R.K. Pachauri, said in any case, India should go in for 'No-regrets' policy options to face the impact of climate change on agriculture. These should include breeding of new crop varieties and species that are heat and salt-tolerant and low-water crops.

# Sequencing the rice genome

By N. Gopal Raj

WHEN THE journal *Science* recently published the genome sequence of two rice varieties, it created a considerable stir. It was "the first of the sequencing projects to yield tangible results for humankind from the standpoints of food security and combating malnutrition", remarked the Directors-General of two leading international crop research centres, the International Rice Research Institute (IRRI) in the Philippines and the International Maize and Wheat Improvement Centre (better known by the acronym CIMMYT) in Mexico.

Rice is the first crop plant to have its genetic code laid bare. Sequencing deciphers the ordering of four chemicals termed 'bases' which make up the genetic code. With the full genome sequence in hand, scientists can discover all the genes in rice and, more importantly, how those genes function. Such insights will, hopefully, point the way to novel solutions for the intractable problems which currently limit yield increases in rice and other cereals.

In order to feed a growing global population such yield increases are badly needed in all cereals, including rice. It is estimated that the world's cereal yield has to increase by 80 per cent during the next 20 years. In Asia, where rice is a staple for most people, rice yields have to rise by 60 per cent by the end of the decade.

Rice has the advantage that it has the smallest genome of all cereals. Its genome is about 430 million bases in size, compared to three billion for maize and 16 billion for wheat. So it would be quicker and cheaper to sequence the rice genome. "Having a completely sequenced genome is like having a dictionary with all the necessary words, but without meanings assigned to those words," says Hei Leung of the IRRI. Scientists had to find out the meaning of those words (the genes) and then compose essays by developing new rice varieties. The race now is not just to locate genes, but also to identify their function.

One approach for discovering the

function of genes is to create "deletion mutants", rice plants which have specific genes deleted, and see how they differ from the normal rice types. The IRRI is expected to have about 40,000 deletion mutants by the middle of this year. Institutions in the U.S., Japan, Korea, Australia and Europe too are working with rice mutants. One of the IRRI's principal goals was to bring different institutions together to share the mutant stocks as a foundation for large-scale discovery

be decreasing rice yields by about 15 per cent in Asia, twice the effect created by biotic stresses such as disease and pest attacks. Scientists also want to understand the plant's natural resistance mechanisms to biotic stresses.

Mechanisms which make plants naturally resistant to biotic and abiotic stresses may not be simple phenomena. On the contrary, different chemical pathways with a large number of genes, some of which work by

those traits to be introduced into another rice variety.

Besides, there were many reports in the scientific literature of plant resistance having been improved even with the introduction of a single gene, adds Dr. Grover. His own group had separately introduced two genes for flood tolerance into rice plants. 'Pyramiding' both genes in the same plant might further increase their capacity to withstand flooding.

Internationally, an important thrust area will be raising the efficiency of rice's photosynthesis, the process by which plants capture the sun's energy, using sunlight to convert carbon dioxide and water into food material. Rice uses the slower and more inefficient C3 photosynthetic route. If the process can be changed to the more efficient C4 process found in maize and sorghum, rice yields could rise dramatically. But as the C4 process bifurcates photosynthesis into two separate pathways operating in different types of cells, introducing the process into rice is not likely to be easy.

With the publication of the rice genome sequence, all these activities in the functional genomics of rice are likely to receive a considerable boost. The IRRI, in collaboration with its partners in the national agricultural systems, is preparing to take advantage of this "treasure trove", according to its Director-General, Ronald Cantrell. It has already started an international functional genomics working group, bringing together various research institutions. In India, the Union Government's Department of Biotechnology is understood to have called a meeting in May to discuss the opportunities which have opened up with the sequencing of the rice genome.

However, as a perspective article published in the rice genome issue of *Science* pointed out, while the new knowledge derived from genomics research would make an important contribution, achieving food security would also require solutions to a multitude of social and economic issues

*Such insights will, hopefully, point the way to novel solutions for the intractable problems which currently limit yield increases in rice and other cereals.*

of gene function, Dr. Leung told *The Hindu*.

With the genome sequence in hand, scientists are now better placed to study the genetic variations in rice and find out why some varieties perform better under adverse conditions. The IRRI's rice germplasm collection has more than one lakh accessions. India is blessed with an enormous genetic diversity in rice. The Central Rice Research Institute at Cuttack counts some 42,000 varieties in its germplasm collection.

For the gene hunters, such genetic diversity is an invaluable resource. Some Indian research groups are already studying Indian rice types to find agronomically useful genes which could be suitably manipulated. The Bangalore-based biotechnology company, Avestha Gengraine Technologies, is, for instance, looking at the chemical pathway and the genes involved in giving Basmati rice its unique aroma.

An important aim of such genomics research is making plants hardier. Raising rice and cereal production will require varieties, which can give high yields even in sub-optimal conditions. They'll need to cope with drought, flood, salinity and nutrient-poor soils. Such abiotic stresses could

regulating other genes, are likely to be involved. If just one gene governed drought tolerance, "we'd have done it by now", points out Dr. Leung.

Drought tolerance is really an assembly of traits, involving many genes working in half-a-dozen chemical pathways, remarks Arjula Reddy of the Department of Life Sciences, University of Hyderabad. His group has isolated several genes regulating these pathways. Again, some 2,000 genes could be involved in rice's defence mechanisms against disease.

When individual genes increased a plant's resistance to a stress factor by only a small amount, a block of genes would have to be moved in order to provide sufficient resistance to a new variety, argues Prof. Reddy. Under such circumstances, the genetic sequence information could be used to create molecular markers for use in a conventional breeding programme. The markers allowed breeders to identify early on whether the progeny had received the desired genes.

Moving a block of genes by crossing two parental strains carried the risk of the progeny inheriting undesirable traits too, points out Anil Grover of the University of Delhi, South Campus. If suitable genes could be identified, the transgenic approach allowed just

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THE HINDU

# Ajit seeks bar on genetic food import

FROM JAYANTARAOY (V) CHOWDHURY

New Delhi, April 20: Alarmed at the surreptitious dumping of genetically modified food in the country, agriculture minister Ajit Singh has written a letter to Prime Minister Atal Bihari Vajpayee, asking him to take immediate steps to check this as it could turn out to be a major health hazard.

The agriculture minister's letter, D.O No 566/AM/2002, to Vajpayee says: "As you are aware, several concerns related to health safety of genetically modified crops and food products derived from them have been raised ... We are importing huge quantities of soya

oil from countries like Argentina, Brazil and USA. The use of transgenic soybean varieties is widespread in these countries. There is a strong likelihood that soya oil being imported from these countries has been extracted from transgenic varieties."

Singh's letter comes in the wake of genetically modified cotton being allowed to be cultivated in the country, a step which many environmentalists and volunteer groups have opposed, saying that it would affect Indian agriculture.

The government had overruled their objections, stating that the cottonseeds would not be going into the food chain and would merely yield insect-resist-

ant crops.

Singh said that as there were no laws requiring importers to declare whether the product they were bringing in was derived from transgenic varieties, genetically modified food was being imported without any risk-evaluation of what harm it could pose to health, to the food chain or to the environment at large.

Scientists have long been warning that the potential health effects of genetically modified food should be rigorously investigated before allowing them into the diet of the poor, children, pregnant or breastfeeding women, the elderly and those with chronic diseases as they were the most vulnerable to

changes in food.

The Royal Society in a report earlier this year had warned that the health of poor people in developing countries in whose diet a certain food product predominated, or formed a basic constituent, could be affected badly by any nutritional deficiency in the transgenic food sold to them.

The British report, which is being viewed with grave concern in Europe, also said that genetically modified food might contain unknown toxins, anti-nutrients, or allergens, which could cause new diseases to emerge.

The Society has consequently advocated that genetically modified food should not

be accepted in the UK or the rest of Europe, where rigorous testing should apply.

It had also raised concerns that infants eating babyfood were particularly vulnerable, as they had a very narrow diet. In case there were any nutritional deficiencies in the food, their health could suffer.

Singh's letter which, sources said, has been written keeping in view the alarming report by the highly respected British body, has sought stricter rules forcing importers to declare whether their commodity is genetically modified and prescribed that such food should be subjected to intense tests by the Genetical Engineering Approval Committee.

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THE TELEGRAPH

# Supreme Court adjourns hearing of T.N. suit in Cauvery case

By Our Legal Correspondent

*Sumitran*  
*H.D. - 13*  
*15/4*

**NEW DELHI, APRIL 15.** The Supreme Court today adjourned by two weeks further hearing in the suit filed by the Tamil Nadu Government (in September last) for a direction to Karnataka to comply with the interim orders of the Cauvery Tribunal and also an interim direction to release one tmc ft of water daily to Tamil Nadu.

A three-Judge Bench comprising the Chief Justice S.P. Bharucha, Justice Shivaraj V. Patil and Justice H.K. Sema adjourned the hearing on the request for counsel for Tamil Nadu, which is yet to file its reply to

the response filed by Karnataka and the Centre seeking dismissal of the suit.

In its reply, Karnataka submitted that Tamil Nadu had sufficient storage at Mettur to meet its commitments, although it had illegally increased kuruvai rice cultivation from 1.27 lakh acres in 1991 to 3.2 lakh acres this year. Also, the reservoir had the benefit of 256 tmc ft of water during the current year which was more than what was stipulated by the Tribunal even in a normal year.

The Centre submitted that the Cauvery River Authority (CRA) under the chairmanship of the Prime Minister Atal Behari Vaj-

payee met on October 10, 2001 and took note of the drought conditions in both Karnataka and Tamil Nadu.

The Authority decided to work out an acceptable formula for sharing the distress and requested the States to put forward their specific suggestions for consideration.

The Centre sought dismissal of the suit with a direction to Tamil Nadu to cooperate with the CRA in formulating the 'distress sharing formula' for adoption by the Monitoring Committee and the CRA in the implementation of the Tribunal's interim and clarificatory orders.

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# Maps of rice genome sequences reveal a wealth of data

By **Vithal C. Nadkarni**  
Times News Network

MUMBAI: The blueprints of the two genomic sequences of the rice plant unveiled last week in *Science* magazine are already providing unprecedented insights to scientists.

The first is that a rice plant probably carries more genes than a human being does. Whereas estimates of the number of genes in the human genome lie between 30,000 and 40,000, *indica* rice contains between 45,000 and 56,000 genes and *japonica* rice could have as many of 63,000 genes.

So, while Shinto belief says that the Emperor of Japan embodies Ninigo-no-mikoto, the god of the ripened rice plant, he obviously has fewer genes than the cereal he represents.

In terms of overall size, however, the emperor's genome with its three billion base pairs spread over 23 chromosomes towers over that of the rice genome with an estimated 430 million base pairs knit into 12

chromosomes representing 50,000 to 56,000 genes.

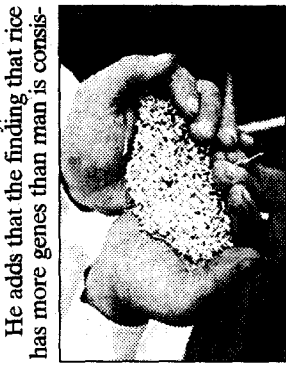
Also, the apparent dearth of genes in the human genome seems to belie its hidden complexity. Experts say the multitude of genes in the rice genome can be explained by the tendency of plants to rely on gene duplication for protein diversity.

In contrast, protein diversity in humans, exploits a process known as 'alternative splicing'.

"Think of alternative splicing as a Swiss Army knife," says Gane Ka-Shu Wong, a biotechnologist from the University of Washington's Genome Center and lead author of the paper in *Science*. "It lets you do different things with the same gene. On the other hand, rice does not like Swiss Army knives, so it has more genes, even if it may not do as many things with these genes as humans do with theirs."

The number of genes possessed by a species is a not an accurate indicator of a species' complexity. "(However), there's something in

human nature that apparently requires that, to view ourselves as a superior species, we must have the highest gene number," comments Dr Jeffrey Bennetzen, a corn expert from Purdue University, in *Science*. He adds that the finding that rice has more genes than man is consis-



tent with the overall pattern of scientific discovery since Nicolaus Copernicus. The view of the Polish scientist that the earth is not the centre of the universe was only the first in a series of revelations about the natural world that have dented human hubris at being the paragons of 'divine' creation.

A direct comparison between the human and rice genome also seems

to have uncovered a fundamental genetic barrier. Experts say although humans have eaten plants for millions of years, there is no evidence to show that dietary DNA can be taken up into the DNA of humans. "So, a crop gene produced by biotechnology is unlikely to be acquired by livestock or humans," says Steven Briggs, a scientist from the Swiss-based agrochemical firm Syngenta, which produced the other blueprint of a variety of rice known as Nippon-bare.

"The rice genome is full of surprises and possibilities," Dr Briggs told BBC Online. "We still do not know what 20 per cent of the genes shared with other plants and some are unique."

"But the biggest surprise," he added, "is that the overall gene architecture and sequence is nearly identical to that of other cereals."

This is what makes rice the 'Rosetta stone of cereals', although its genome is more compact and was easier to decode.

## 01-10 Chinese Tried Rice <sup>winning</sup>

China pipped her neighbours to the post this week by becoming the first Asian country to decipher the rice genome, a project it embarked upon barely three months ago. This is in keeping with China's vigorous pursuit of biotechnology. It was China, again, which cottoned on quickly to the wisdom of adopting large-scale cultivation of genetically engineered Bt cotton, and it has reaped rich dividends on that score, bringing in the much-needed economic benefits for its marginalised farmers. Two factors motivated China to go ahead with Bt cotton: To address the problem of hunger and to reduce the use of pesticide, according to Chinese scientists. India's cautious approach to Bt cotton was not wholly unjustified, faced as it was with destructive demonstrations from fervent anti-GM activists. The Genetic Engineering Approval Committee's recent green signal to introducing Bt cotton in India has, however, not come a day too late. The suicide deaths of scores of cotton farmers both in Andhra Pradesh and Punjab still haunt public memory. They had ended their lives simply because they could not muster the resources or find new and effective ways of saving their cotton crop from pests. Surely, there is a lesson to be learnt from this episode. If only we had handled the Bt cotton issue with greater care and expediency, the poor farmers might not have been driven to suicide.

By deciphering the rice genome independently and in such a short period, China has demonstrated that not only does it take biotechnology very seriously, it also intends to be at the forefront of this sunshine industry. The rice variety it has sequenced is *indica*, which is something of a staple, both in China and India. Though our efforts to introduce GM crops got mired in controversy over its safety, there was no such consideration in the way of going ahead with laboratory research in sequencing crop genomes or conducting controlled field trials. The expertise India has acquired in the field of Information Technology (IT) is a great advantage, for, research in biotechnology areas depends a lot on number crunching, something that's right up our street. With one-third of the world's population dependent on rice for more than half of its calorie intake, getting to know more about what constitutes the rice genome is clearly of great advantage, especially to help breed new varieties with better nutrients and growing qualities. At the same time that the Chinese team made public its rice genome sequence, Sygenta, a Swiss company, published its own version of the genome, but of a different variety. The Japanese, too, have been working on a similar project, studying the *japonica* rice variety, whose results are expected to be ready by the end of the year. This is going to be a very elaborate and accurate sequencing effort, claim the Japanese scientists, who feel the Chinese rice genome can barely qualify as anything but a first draft. And yet, it is often the first draft that ultimately produces the final script. The Chinese effort is doubtless a major start to understanding a promising new field that is growing in importance — in terms of enhancing the quality and quantity of food and making that vital difference between life and death for some while providing a wider choice to others.

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# 'The regulation of biotechnologies' has to move beyond ministries'

C S Prakash, a plant biotechnologist at Tuskegee University, Alabama and advisor to the Department of Biotechnology here, is upbeat about the approval of Bt cotton and its potential benefits to farmers. But Prakash cautions that it's now up to the state to ensure that less commercially viable but nutritionally important crops also reap the benefits of biotechnology. Prakash, who was in India for a series of lectures at IITs and agricultural universities, spoke to SONU JAIN.

Genetic Engineering Approval Committee (GEAC) has got bogged down by non-scientific issues like assessing the economic viability of Bt cotton for farmers.

What kind of a regulatory process would you envisage?

A REGULATORY mechanism will evolve with time and experience. The framework is like salt: too much and too little of it is equally bad. Regulatory agencies are not the correct fora for discussing social and ethical concerns, important as they are. These things have to move beyond politics and ministries, much like the Food and Drug Administration in the United States which has worked more effectively than the system in Europe. In the US, they are appointed by the president and are more interested in risk functions of a product, not so much the



Prakash, advisor to the government process.

Will biotechnology revolutionise Indian agriculture?

NO, it is part of a larger evolution process since biotechnology too has its limitations. The fact is, it is not be-

**'We have to ensure that foot-dragging of the type we saw with Bt cotton is not repeated. Regulatory frameworks are like salt: too much, too little is equally bad'**

usher in a strong accountability system for research institutes and agricultural universities to ensure viable competition to the private sector, something that will provide solutions to a smaller farmer.

Why is biotechnology mainly for commercial crops?

THIS has to do with block-buster production and high development costs. Just one attempt to satisfy a regulatory body for one particular gene alone costs Rs two crore. Only big players can enter this market.

What if the refuge system stipulated by the GEAC — where each field has to have 20% non Bt seeds — is not implemented by farmers?

I AM not unduly worried about the non-compliance of the refuge guidelines. In India, there is no continuous monoculture like in the

West. Even in the densest of cotton growing areas, vegetables are grown alongside. Therefore, less than 100 per cent compliance is not a big deal. It's only a few years down the line when the proportion of Bt cotton increases that this problem will emerge. By then, we should have different varieties of GM crops which will help tackle the pest resistance problem.

There was recently a theory that Bt is not meant for areas with a hot climate.

HOT areas like Mississippi and Alabama in the US have been growing it successfully for years. This criticism is unfounded.

Why can't organic farming be considered before going in for genetically modified crops?

ORGANIC farming is at best a boutique, a niche market that's not for everyone. It is based more on beliefs than on science.

In any case, the list of permitted substance than can be used contain harmful substances: boulder mixture, for example, has copper sulphate. There is not a single study which shows that organic crops are nutritionally better. In fact, the yield

is 30-40 per cent less.

Since the system of Intellectual Property Rights has not yet caught seriously caught India's imagination, will there be a problem with genetically modified crops?

INTELLECTUAL property rights are an issue for hybrid varieties which have either been conventionally engineered or genetically engineered. That is because the beneficial traits such as an improved yield diminishes from the second generation onwards. A stronger IPR system will act as an incentive for biotech companies to develop pure line (non-hybrid varieties). Monsanto introduced pure line seeds in China and could attract 90 per cent of Bt farmers because of their superior quality.

Don't you think these seeds will help marginal farmers who will have to buy them every season?

BUYING seeds every season will ensure uniform characteristics. It will be more viable, more disease resistant and pathogen free. These are traits which the farmers are looking for. The cost benefits in terms of saving labour and the money spent on pesticides as well as improved productivity will make them economically viable.

# China emerges leader in genome sequencing

By N. Gopal Raj

THIRUVANANTHAPURAM, APRIL 7. With the recent announcement in the journal *Science* that the genome of a rice variety has been sequenced, the Beijing Genomics Institute (BGI) has emerged as one of the leading centres in the world for genome sequencing. *Science*, which profiled BGI in its rice genome issue, admirably called it a "sequencing superpower."

The backing which the BGI received is symbolic of China's vision for using biotechnology. The country has announced plans to raise its plant biotechnology research by 400 per cent before 2005. It would then account for nearly one-third of the world's public plant biotechnology spending.

By contrast, India's real investments in modern plant biotechnology would not be more than 10 per cent of the Chinese investment, according to G. Padmanabhan, former director, Indian Institute of Science, writing in *Current Science*.

At the initiative of a group of overseas Chinese scientists, the BGI started as a private, non-profit research organisation in 1999. It bought its first batch of sequencing machine on an instalment basis and trained its staff on the genome of a bacterium found in hot springs.

Subsequently, along with two Chinese National Human Genome Centers at Beijing and Shanghai, the BGI was part of the Chinese group which participated in the international human genome sequencing consortium. Although China sequenced only one per cent of the human genome, it was the only developing country which contributed to the international effort.

China has not only sequenced the genomes of two varieties of rice on its own, but is also contributing to the international rice genome project for producing a high-quality, complete sequence. While India's contribution to the international project is part of one chromosome, covering 2.5 million bases (four different bases form the genetic code for all life), China is sequencing a whole chromosome more than 26 million bases long.

There are only a handful of high-throughput automated sequencing machines in India. The BGI alone has 92 of the latest machines. The sequencing information from these machines is processed and assembled by four of the fastest supercomputers made in China itself. India has no comparable capability.

The BGI is working with the Danish to sequence the pig genome. The Chinese are also sequencing two other varieties of rice as the genomes of corn and the chicken. All these are staples of the Chinese diet. It would take an investment of Rs. 1,000 crores if India wants to sequence a rice genome variety like Basmati on its own, Akhilesh Tyagi, coordinator of the Indian initiative on rice genome sequencing, told *The Hindu*.

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THE HINDU

# Diesel buses in Delhi to pay fine from today: SC

By J. Venkatesan

**NEW DELHI, APRIL 5.** The Supreme Court today rejected the Centre's request for extension of the January 31 deadline to run diesel buses in the capital and said this plea clearly, is to frustrate the orders passed by this court with regard to conversion of commercial vehicles to the CNG fuel mode" made in the interest of the health of the citizens.

A three-Judge Bench, however, made it clear that till all the diesel buses were replaced the bus owners who continued to ply diesel buses (based on executive directions and contrary to the court orders) shall pay a fine of Rs. 500 per bus a day for 30 days from tomorrow and Rs. 1,000 a bus a day 30 days thereafter.

The Bench, comprising Justice B.N. Kirpal, Justice V.N. Khare and Ashok Bhan, pointed out that it had been extending the time for conversion of commercial vehicles to the CNG fuel mode" so that disruption in bus services did not take place and unnecessary hardship was not caused to commuters.

The court said that time was first extended till September 30, 2001 and then till January 31, 2002. It is during January 2001 to February 2002 that action has been taken by the Union of India, which leaves us with no doubt that its intention, clearly, is to frustrate the orders passed by this court".

Observing that the Centre's response was baffling, the Bench said that the manner in which it has sought to achieve this object is to try and discredit CNG as the proper fuel and, secondly, to represent to this court that CNG is in short supply and, thirdly, delay the setting up of adequate dispensing stations".

The Bench said that it was as a result of various orders passed by the court that the air pollution level in Delhi had been stabilised.

In 2000, the annual average level of 'respirable particulate matter' (RSPM) declined to 186 microgram/cum from 222 microgram/cum. This is no small achievement as the city continues to add over 2 lakh vehicles each year and its total vehicular

fleet is larger than of Kolkata, Mumbai and Chennai put together".

The Bench said: But even with these efforts, its RSPM pollution remains roughly three times above the national standard for annual average concentration of RSPM mandated under the Prevention of Air Pollution Act, 1981".

Referring to the Centre's contention that no other city in the world had introduced CNG buses on such a large scale as had been directed by the court, the Bench quoted figures to show how the United States, China and South Korea had introduced CNG buses to clean up the air.

Referring to the Centre's contention that CNG was in short supply and could not meet the Delhi's requirements, the Bench said that as per the available information there seems to be no apparent shortage of gas. Major investment has already been sanctioned for expansion of infrastructure to supply natural gas as well as regassified liquefied natural gas (LNG) to northern India".

# Potatoes to cigarettes, it's all in the genes

Aloke Tikku in New Delhi  
SFA 6/4

April 5. - Bt Cotton was just the beginning. Your lunch and dinner, cooked in rapeseed or mustard oil, is next. Not to forget the after-meals cigarette many smokers can't do without.

Right from the staple diet of rice and wheat to vegetables like potatoes, tomatoes, brinjal, cauliflower and cabbage - and the chillies that go into the vegetables - will all have had their genes tinkered with. Provided, of-course, it is proved that they will have no harmful effects on the consumer or the bio-diversity.

Genetically-modified (GM) food in India is at various stages of testing across the country to prove just this. Scientists at the Indian Agricultural Research Institute have seen the completion of the first season trial of the "Indian rice" they had genetically modified. Field tests for GM brinjal,

tomato and cabbage, too, are on. GM rapeseed and mustard oil, though, will take some more time.

Comparatively a latecomer, Jawaharlal Nehru University has so far put all its eggs in one basket. Quite like Shimla's Central Potato Research Institute. The one containing transgenic potato. And they obviously are not the only ones. The queue of companies and research institutes waiting for a nod from the department of biotechnology for introducing genetically-modified food include Bangalore's Indo-American Hybrid Seeds and Rallis India Limited, Delhi-based Proagro PGS (India) Limited, Shillong's sub-station of Indian Agricultural Research Institute, Bose Institute of Kolkata and the Central Research Institute at Rajamundry which wants clearance for GM tobacco.

But the tests will take their time. Officials at the department of biotechnology say it may not be before 2005 than India will have its first home-grown

variety of GM food. The first off the block may be Proagro PGS' mustard or IARI's Indian rice. Sounds like a long time? Not if you were to compare it with the six years that it took Bt Cotton to get the final nod. The company had first got permission to import the seed from the USA for tests in 1995.

"Biotechnology's potential to enhance agricultural productivity has been accepted globally even though it may involve some risk and uncertainty," an official in the department of biotechnology said. The risk-potential, he added, could result from the introduction of a new unrelated DNA sequence into a recipient organism, which in turn may have some unexpected effects on the cellular processes of the recipient organism. The introduction of genes causing antibiotic resistance as selection markers too may pose serious implications for public health, especially in case of genetically modified plants that are directly used as food.

# Draft genome sequences of two rice varieties ready

By N.Gopal Raj

THIRUVANANTHAPURAM, APRIL 4. Two groups of researchers — one Chinese and the other from a U.S. company — have prepared drafts of the genome sequences of two rice varieties. Their findings are being published in the journal, Science, which comes out tomorrow.

Knowledge of the rice genome sequence would not only help develop more nutritious and hardier strains of rice, but also identify the genes of major food crops such as maize, wheat, barley, sorghum and sugarcane.

With these objectives, an international consortium, which India subsequently joined, began sequencing the rice genome in 1998. The 11-member consortium has opted for a slower and more expensive approach to sequencing, which will provide the most precise and complete sequence. The consortium is expected to come out with its first draft by the end of this year.

The Chinese research group opted to sequence the genome of an indica variety. The indica strains of rice are commonly grown in China and India. The group from the U.S. company, Syngenta, sequenced a japonica strain, as will the international consortium.

The Chinese draft sequence contains 466 million base pairs (four base pairs make up the genetic code of all living things). They estimate that the genome contains 45,000 to 56,000 genes. The Syngenta group puts the japonica genome at 420 million base pairs in size, containing 32,000 to 50,000 genes.

Both the groups have established that 80 per cent of the genes found in the genome of the *Arabidopsis thaliana*, a plant widely used in laboratory studies, were present in the rice genome too. They also discovered that nearly half their predicted rice genes had no equivalents in *Arabidopsis*.

"The new genetic knowledge and tools derived from these sequences will help scientists address intractable problems that limit crop productivity in the developing world," say Ronald Cantrell, Director-General of the International Rice Research Institute and Prof. Timothy Reeves, head of the International Maize and Wheat Improvement Centre.

The rice genome sequencing carried out by the Chinese group is a testament to the capability established in that country and symbolic of the importance given by China to modern biotechnology.

If India wants to undertake the sequencing of the entire genome of a rice strain, say the basmati, it will cost about Rs. 1,000 crores, says Akhilesh Tyagi, coordinator for the Indian rice genome sequencing initiative.

5 APR 2001

THE HINDU

# Genetic code of rice to be published

THIRUVANANTHAPURAM, APRIL 1. Next week, the journal *Science* will publish the full genetic code of rice, the first crop plant the genome of which has been sequenced.

Rice is the largest food source for the poor and feeds half the world's population. When an international collaboration was launched four years ago to lay bare rice's genetic code, it pointed out that the demands for more and better rice were set to grow, though there would be less land, water and labour to produce it. With better understanding of rice's genes, modern biotechnology hopes to meet the challenge.

But it is not the international consortium's genome sequence that would be published in next week's issue of *Science*. Rather, the journal will carry a paper from scientists of the Swiss-based agrochemical company, Syngenta.

Once again, *Science* has come under fire for not ensuring that a private

company placed its genome information in a public database as a condition for publishing its paper. Last year, when *Science* published the human genome sequence carried out by Celera, the company was allowed to give researchers restricted access to the genome data from its website.

In the case of human genome sequence and even more so in the case of rice genome, the public benefit was greater than the cost associated with having the data in a private site rather than a public database, says Donald Kennedy, *Science's* Editor-in-Chief.

The journal also points out that all researchers — whether academic or commercial — will be allowed to access freely Syngenta's rice genome data to verify, replicate or challenge the findings published in *Science*. Academic researchers will be able to download freely up to 100 kilobytes of sequence data a week. They will be free to publish their findings and apply for patents.

Syngenta is not the first company to prepare a draft of rice genome. Monsanto completed its draft in the early 2000 and then decided to share its sequence data with the 11-member International Rice Genome Sequencing Project of which India is a part.

Writings in the scientific press suggest that Syngenta's draft will be more accurate than that of Monsanto.

The international consortium is committed to achieving a highly-accurate and complete rice genome sequence.

The sequences of three chromosomes (Nos. 1, 4 and 10) are said to be "essentially complete". It is believed that the entire genome sequence will be available by 2004.

India has been allotted the work of sequencing a part of chromosome 11.

The task is being carried out at the University of Delhi's South Campus and the National Research Centre for Plant Biotechnology, also in Delhi.

APR 2002

THE HINDU

# Farmers fume over Bt riders

DARSHAN DESAI  
VADODARALAT (GANDHINAGAR  
DIST), MARCH 30

FIVE months ago, the Genetic Engineering Approval Committee (GEAC) of the Union Environment Ministry told the Gujarat government to destroy cotton on 10,898 acres of its land as the farmers had used genetically modified seed, also known as Bt cotton. Last week, the GEAC finally declared Bt cotton fit for use, leaving farmers who had seen their fields set afire fuming.

Worse, the farmers have been told Mahyco (Maharashtra Hybrid Seeds Corporation) will be the sole distributor of the cotton, which promises to yield Rs 10,000 more per hectare than the traditional varieties. The time their crop was destroyed the Gujarat farmers had used the Navbharat 151 variety of Bt Cotton seed, produced by Ahmedabad's Navbharat Seeds. The reason the GEAC struck down was the latter apparently sold the seeds without its approval.

The more difficult condition is setting up of a 'refuge belt': 20 per cent of every field will have to compulsorily be planted with non-Bt varieties, and in case of small fields (one-acre farms), at least five rows of non-Bt cotton have to be planted along the periphery of the field.

Karamsinh Patel in Vado-



daralat is not amused. "I have questions," he says. "The government says only Mahyco can produce the seed. Why?" he says. His son Dhansukh argues: "We may buy the seed from anyone. And why should we take anybody's permission to use the seed? This is ridiculous."

The Navbharat 151 seeds had been in use for nearly three years in various parts of the state before the GEAC woke up from its slumber, after complaints from Mahyco. Bt cotton is immune to attacks from the bollworm pest, which destroys the cotton yield.

The farmers say they will

buy the GM seed when the next season sets in in June. "I will use it for I have to spend almost nothing on insecticides and chemical fertilisers. My only worry is the price, for we have heard the GM seed now will be expensive by three times," says Karamsinhbhai.

Kantibhai Patel of Balwa Unawa adds the demand for cotton has fallen in the recent months.

About the conditions imposed by the GEAC, Dhansukhbhai asserts: "If the government is going to harass us again, with all kinds of babus asking all kind of questions, then I am not interested in Bt cotton."

## Maharashtra growers say forget genes, just modify procurement

VIVEK DESHPANDE  
NAGPUR, MARCH 30

AS THEIR counterparts elsewhere discuss genetically modified crop and its fallouts, the cotton farmers in Vidarbha and most of Maharashtra would be grateful if the Government could organise for them something much simpler: payments on time, punctual procurement and fair grading at purchase centres.

Unlike other states, Bt cotton isn't likely to bring that extra cheer to the state farmer, no matter whether the Monopoly Cotton Procurement Scheme (MCPS) remains or not. If the scheme continues, the government would find it more difficult to pay for the extra yield that the variety promises. And if the scheme goes, the low market price will prevent the gains from going up.

Ask him about Bt cotton, and Gajanan Bansule from Deoli Peth in Nagpur district brushes you aside with: "Why should we increase production when we aren't being paid on time for what we are producing now? Today the best variety is trashed as *fadar* and *kawdi* (low grades) under government instructions and we are paid peanuts (between Rs 670 and Rs 1,050 per quintal). Do you expect us to multiply losses by increasing production? No way. I may replace cotton with something else next year." Most others at the procurement centre in Butibori near here agree with Bansule. Dnyaneshwar Marwatkar of Bahulgaon village says: "All new varieties, like Bunny 145 and Tulsii, have failed within two-three years of their inception. I have heard about Bt cotton. Let me see how it fares."

Laxminarayan Pathak, a progressive farmer from Seloo in Wardha district, isn't enthused either, despite Mahyco growing Bt cotton on half-acre trial plot in his field. "The yield there was four quintals sans bollworm, while the non-Bt variety gave me three quintals despite suffering a virulent pest attack," he argues. Pathak reveals: "The bollworm attack this year was so strong that the Mahyco people themselves sprayed four rounds."

# Cottoning on

An excellent government decision

The environment ministry's clearance for Bt cotton should hopefully be a precursor to an enlightened government policy on genetically modified (GM) crops and food. The basic elements of such a policy are to be found in the ministry's decision itself: receptivity to the potential of new technology — Bt cotton is genetically modified to kill pests like bollworm — after extensive field trials and abundant caution. The last is important not only logically — every new technology needs close monitoring — but also politically. Anti-biotech groups can and do mobilise user groups like farmers and the disruptive influence can be considerable. As it was in the case of Bt cotton in India; activists burned down field trial venues in Karnataka and Andhra Pradesh. Farmers need to be well informed and be assured that some of the more fanciful predictions — multinational agribusiness companies will hijack Indian farming — are more suitable for making city seminars interesting than describing rural reality. This, the genetic engineering approval committee has done by attaching a number of conditions to its approval for Bt cotton farming. Once the Maharashtra Hybrid Company (Mahyco) starts marketing Bt cotton from 1 April — other companies can seek permission, too — and, therefore, mark the official beginning of commercial biotech farming in India, the government should gear up for many more applications, and many more controversies.

None will be sharper than GM food. GM food excites imagination more than GM cash crops like Bt cotton. European governments, especially, seem to have taken an overly rigid stand on the issue which may not be unrelated to their desire to have a bargaining counter with the United States, which is far more liberal on GM products. India should follow the American model — don't demonise GM food simply because nature has been "tinkered" with, consider every commercially viable proposal and then subject them to rigorous tests. In fact, the unofficial approval barometer that works for drugs — the US Food and Drug Administration's okay for a new drug carries a lot of weight in India — can be borrowed for GM food and crops as well. Flexibility is particularly important for India because it is among the few developing countries with an excellent talent pool for biotechnology research. Many experts predict the prospects in commercial biotech to eventually outshine the success in software. For this to happen, the government must replicate its Bt decision more than a few times.

THE STATESMAN

5 J MAR 2002



# Global warming hits species all over world, says study

By Ed Cropley

LONDON: From dying coral reefs to later autumns and endangered male painted turtles, global warming has started to affect plant and animal life across the planet, according to scientists. The world's mean temperature increased by around 0.6 degrees Celsius in the 20th century — most of the rise came in the last 30 years — and its impact is already being felt by flora and fauna from the equator to the poles.

Some species are doomed as they battle ever-rising temperatures in an increasingly crowded planet that offers fewer escape routes, according to scientists writing in the journal *Nature*.

"Temperature has increased by no more than 0.6 degrees and already the signs are very obvious," said geobotanist Gian-Reto

Walther from the University of Hanover in Germany, who collated the research from across the branches of the natural sciences.

The study's conclusions highlight the seriousness of global climate change by showing parallel trends in plants, birds, animals and fish.

"This is a major concern," Mr Walther said adding that the extinction of some species was inevitable.

"The big difference between now and previous periods of climate change, like the Ice Age, is that seven billion people live on Earth now and many migration corridors for species are blocked," Mr Walther said.

One of the most dramatic barometers of climate change has been the world's coral reefs, which have been devastated by 'coral bleaching' — a direct result of warmer ocean water.

In the worst case of mass bleaching, in 1998, an estimated 16 per cent of the world's reef-building coral died, *Nature* said.

Meanwhile in Europe, trees are starting to show their autumn color between 0.3 and 1.6 days later per decade, while some migrating birds are changing their travel plans.

Mr Walther welcomed governments' gradual waking-up to the problems of climate change, widely recognised as the result of so-called greenhouse gases such as carbon dioxide, but said nobody had a clue where it would all end.

"It is good they are now talking about measures to try and keep at a certain level of emissions. Maybe this can slow the warming process, but so far there is no measurement of how it is slowing," Mr Walther said.

Britain's Meteorological Office predicts global temperatures will rise between 1.4 degrees Celsius and nearly six degrees over the next century, depending on the success of greenhouse gas policies.

Even at the lower end of these estimates, the outlook is bleak for the male painted turtle.

"In painted turtles, offspring sex ratio is highly correlated with mean July temperature, and the production of male offspring would be potentially compromised even by modest (two to four degrees) temperature increases," *Nature* said. (Reuters)

# Genetic cotton sale allowed with fences

FROM RAJA GHOSHAL  
AND G.S. MUDUR

New Delhi, March 26: The government has allowed for the first time the commercial sale of genetically modified hybrid cotton varieties to farmers in India, but tagged its consent with a set of conditions that officials say will address environmental concerns.

Bt cotton fields, for instance, will have to be "fenced" on all sides by at least five rows of natural, non-transgenic cotton. Farmers will also have to earmark at least 20 per cent of their fields to non-Bt crops.

Bt stands for an insecticide naturally produced by the soil bacteria *Bacillus thuringiensis*. The Bt cotton has been engineered with genes from the bacteria to make it resist bollworms, a major pest that can cause up to 50

per cent of loss to cotton crops.

The approval was granted by an inter-ministerial committee — called the Genetic Engineering Approval Committee — to a proposal submitted by Mahyco (Maharashtra Hybrids Seeds & Co) for permission to release in the environment, the Bt genetically modified hybrid cotton varieties developed by them.

Monsanto of the US has a 26 per cent stake in Mahyco. "We have cleared three of the four hybrid cotton varieties for which the company had sought approval, the approval for one variety has been deferred on account of insufficient data," said A.M. Gokhale, chairman of the 21-member committee.

Gokhale said that after cotton, the next thing on the cards is the application for the genetically modified mustard made by Aventis which is now in the ini-

tial trial stages.

He said the restrictions on the use of Bt cotton were being placed to ensure that pollen is not carried away and that over a period of time, insects do not develop 100 per cent resistance. "This will minimise the risks of the bollworm becoming resistant," said an official. "It will also minimise the chance of pollen being carried across from Bt to non-Bt zones by nectar-seeking insects."

Representatives from the ministry of health, Indian Council of Medical Research and the Council for Scientific and Industrial Research were not present at today's meeting.

The approval for the commercial exploitation of Bt cotton seeds has been granted for a period of three years from April 2002 to March 2005. This means the approval is for three planting

seasons. The Bt cotton seeds are non-terminal in nature.

The company selling the seeds will have to monitor the quantity of seeds it is selling and to whom. It will also have to submit annual reports on the resistance that the insects develop over a period of time to this genetically modified seed where the plant itself produces proteins that ward off insects.

The company will have the responsibility of educating farmers on this variety of cotton. The effect of pollen carried away from this plant is under study. Labelling of seeds mentioning that they are genetically modified is also mandatory.

Biotechnology analysts estimate that Bt cotton will be planted on at least 150,000 acres of land in the country this year. This figure is expected to rise to 5 million acres next year. India

currently has around 22 million acres under cotton cultivation. Bt cotton has been on field trial in India since 1996.

The first trials were on tiny patches of land, just 5 metres by 5 metres, and isolated from other plants by a 50-metre distance. Between 1998-2000, field trials were held at 40 locations, and last year's large scale field trials involved planting Bt cotton over 200 acres of land.

In June 2000, the regulatory authority had put a block on the commercial use of Bt cotton on the grounds that complete test results were not available to ascertain the suitability of the product from environment and ecological considerations.

Last year, there were cases of illegal unapproved cultivation of Bt cotton crops in Gujarat. Various lobbies of farmers have been clamouring for the approval of

Bt cotton seeds.

Environmentalists have long opposed the hurried introduction of transgenic crops, warning that the long-term consequences on the environment and human health are unknown.

One concern has been the possible transfer of antibiotic resistance from Bt cotton to microorganisms in the environment which might, in turn, pass them on to other microbes that cause disease in humans.

The process of creating Bt cotton also involves inserting antibiotic-resistant genes into the cotton plants. However, proponents argue that the antibiotics are streptomycin and kanamycin, developed decades ago and classified as first-generation antibiotics. "Should antibiotic-resistant emerge, we have several new generation antibiotics that work better," said a scientist.

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# Bt cotton, a boon to Indian farmers?

By N. Gopal Raj

**THIRUVANANTHAPURAM, MARCH 27.** With the Union Government's Genetic Engineering Approval Committee (GEAC) having given its permission to the Maharashtra Hybrid Seeds Company (Mahyco) to launch three of its genetically-modified cotton varieties, cotton farmers here are likely to follow their Chinese counterparts in accepting the new technology.

As it is, the farmers have not waited for the governmental seal of approval. It came to light last year that a Gujarat-based company, Navbharat Seeds, had been marketing genetically modified cotton seeds without such clearance. The Government estimates that nearly 11,000 acres in Gujarat were planted with this cotton.

The three Mahyco GM cotton varieties, as well as the variety marketed by Navbharat Seeds, carry a gene taken from the soil bacterium, *Bacillus thuringiensis* (Bt). The artificially introduced gene allows these "Bt cotton" varieties to resist certain insect pests. Such insect pests could be halving cotton yields. Controlling these pests requires Rs. 1,600 crores-worth of toxic chemical pesticides in India each year. Although cotton acreage is only five per cent of the total cropped area, the crop accounts for more than half the chemical pesticides used in the country.

Worse, the pests are becoming resistant to these sprays. A Haryana agricultural official recent-

ly complained that American bollworm infestation led to half the cotton crop in the State being lost last year, despite 15 rounds of pesticide spraying.

Able to produce their own toxin, the Bt cotton varieties need much fewer sprays. According to a senior scientist involved in monitoring the field trials, Mahyco's Bt cotton varieties needed on an average only 2 to 3 pesticide sprays, compared to 10 to 15 sprays for non-Bt varieties. As each spraying cost about Rs. 300 a hectare, it meant a big saving

## NEWS ANALYSIS

for the farmer.

Mahyco field trials in 1998 and 1999 suggested an increase in productivity of 23 per cent to 88 per cent with Bt cotton, according to a scientist at the Department of Biotechnology.

In China, where Bt cotton was introduced in 1997, the area under the genetically modified cotton had reached 700,000 hectares by 2000 when it accounted for one-fifth of the country's cotton acreage. China is the world's largest producer of cotton. Although India is the third largest producer, its production is almost half that of China.

Chinese Bt cotton farmers reduced pesticide use by an average of 13 sprayings a hectare for a season, a saving of \$762 a hectare for a season, said an article in a recent issue of the journal *Science*. Taking into account also the cost of labour for the spraying, the Bt cotton farmers had 28

per cent less production costs. With fewer chemical sprays, the farmers enjoyed better health as well. Each year in China the demand for Bt cotton seed greatly outstrips supply, according to another article by Chinese scientists in the journal *Current Science*.

While the Indian farmers may be no less keen on Bt cotton, there is the danger that a rapid build up of pest resistance could also follow. This happened when chemicals called 'pyrethroids' were first introduced in India in the early Eighties, giving outstanding results against the insect pests of cotton. But by the latter half of the decade, its reduced efficacy for pest control was already being noted.

The GEAC has attempted to minimise the development of such resistance by laying down conditions for refugia. A certain amount of each farmer's field would have to be planted with non Bt cotton varieties in order to provide a refuge for pests susceptible to the Bt toxin. The total elimination of the susceptible pests would mean that only strains resistant to Bt toxin would survive to multiply and, in course of time, become the dominant form.

While the other countries too insist on refugia, the enforceability of the conditions laid down by the GEAC for this purpose is doubtful. With the small holdings common in India, farmers may not comply. In any case, it would be impossible to distinguish Bt cotton from the non Bt varieties without laboratory tests.

## After 4-year wait, govt chooses Bt

attached with riders, though, which GEAC Chairman A.M. Gokhale said was necessary to protect the interests of farmers. Accordingly:

■ Mahyco has to report back to the GEAC on the amount of seeds produced and the total amount sold to farmers.

■ It must carry out susceptibility studies all over the country to ascertain to what extent the pests (bollworm) develop resistance to the Bt plant.

■ The company will have to set up a 'refuge belt' where non-Bt varieties will have to compulsorily be planted in 20% of every field. On one-acre farms, there will have to be at least five rows of non-Bt cotton planted along the periphery of the field. "This will prevent the pollen from travelling from one Bt field to another by providing a physical barrier. It will also ensure that all the pests don't develop resistance to Bt varieties," Gokhale told *The Indian Express*. This refuge sys-

tem was widely enforced in the United States after the bollworm started developing resistance to the Bt variety.

■ Mahyco must also educate farmers about this variety.

■ It must also carry out pollen transfer studies.

■ Every seed packet sold is to be labelled with a detailed instruction manual.

■ Traditional hybrid seeds are to be deposited at seed banks.

■ Labelling would be needed only for oil cakes made out of cotton seed and not for oil and lint, since they do not contain Bt protein. "Our only concern was the export market. But Europe is fussy only about edible products and doesn't require labels for cotton," said Gokhale.

"These measures are in the interest of farmers. They have to be told that this entire decision will become meaningless if these steps are not taken," he added. But the GEAC still hasn't devised a monitoring system to en-

sure that its conditions are enforced. The committee is considering involving the gram panchayats and the state government in monitoring.

The Bt trials first began in 1998. Approval was held back last year on the ground that the sample size for trials was inadequate. This year, the trials were conducted on 500 hectares under the direct supervision of Indian Council for Agricultural Research (ICAR). "No adverse effect to the environment was reported and the benefits were substantially higher," said Gokhale. Farmers could earn Rs 10,000 more per hectare than what they could by growing traditional varieties," he added.

Apart from officials from the Department of Biotechnology and ministries of environment, health, commerce, external affairs, agriculture and drug control, this year's special invitees at the meeting included representatives from a Nagpur-based cotton institute.

INDIAN EXPRESS

27 MAR 2002

# Kyoto: Ratify or scuttle?

*Environmentalists have for long been warning us of global warming because of the release of greenhouse gases from fossil fuel use. The Kyoto Protocol intends to reduce these emissions. But is the 'science' valid? What about costs and benefits? We put the questions to an expert panel:*

**Barun S Mitra**  
 Founder,  
 Liberty Institute

THE interests of US and India coincide on the question of calling the global warming bluff and rejecting the Kyoto Protocol. First, the science of global warming is suspect. Ten years since the UN Framework Convention on Climate Change was established in 1992, scientists at IPCC have only been able to warn of a range of warming scenarios from an increase in temperature of 1.4C to 5.8C in the next one hundred years. With that range, the power of predictability of their models are clearly very limited. These climate models also show that the impact of Kyoto will be marginal.

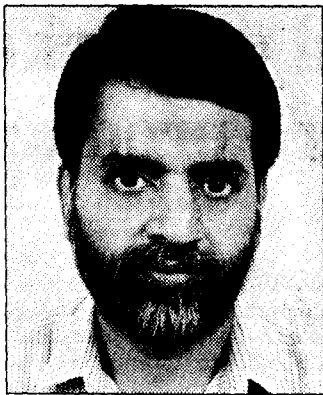
Estimates of economic costs of warming too are unclear. Total cost has been estimated to be USD 5 trillion. On the other hand the cost of implementing Kyoto just for the US alone has been put at over USD 300 billion. Compare this to the cost of providing clean drinking water and sanitation to entire world at USD 200 billion. And the latter could save 2 million lives each year now, and prevent another half a billion falling ill. Check out Bjorn Lomborg's widely reviewed book *The Skeptical Environmentalist*.

Another way of getting a perspective on the future warming would be to compare real experiences from the past. The proponents of global warming stress the possible revival of many diseases such as malaria. However, a study published in *Nature* last month, found no evidence that the emergence of malaria in parts of Africa in the past decade or so had any relationship with warming. Indeed, if one were to look back one hundred years, when the average temperature is estimated to have been about 1 degree C lower than at present, malaria, cholera, plague and many other epidemics periodically swept through most parts of the world. Humans died like flies in a cooler world where flies, mosquitoes, and germs ruled supreme.

Clearly, the Kyoto Protocol, and the global warming agenda that is behind it, hides a lot more than what it actually says. If Kyoto were about improving

economic and energy efficiencies, there would be no need for such a protocol. The best way to improve efficiency is to unleash a competitive market place where efficiency gains are a necessary condition for survival. Kyoto speaks of emission trading and market based instruments, but on the other hand undermines the market by promoting the global environment facility and the clean development mechanism. Both these schemes have opened the way for transferring favours to the chosen few at the cost of others.

Consider air pollution in India. We seem hardly concerned that the most significant health hazard is indoor air pollution caused primarily by the domestic *chullah* in an unventilated environment, and dust. However our focus is on vehicular emission in a country that has the lowest vehicular density in the world! Government regulations and taxation policies have ensured that



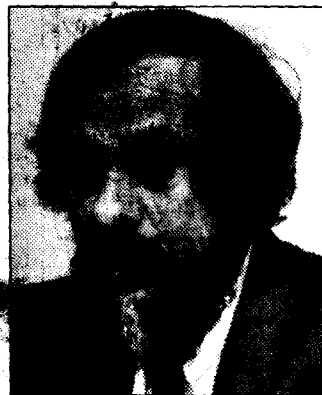
20-year-old vehicles with 50-year-old technologies continue to chug along, and yet import of new and second cars of newer models and cleaner emissions are made prohibitively expensive.

Contrast this with the US experience. Even with its relatively more market friendly environment, in the past thirty years alone, the US GDP has increased over 150 per cent, energy consumption by about 45 per cent, vehicle miles travelled increased by 140 per cent, population by 35 per cent, yet the emission of six most common pollutants have fallen by almost 30 per cent. There is every reason to believe that a freer market would have ensured even more dramatic improvements.

Embracing the forces of the market, rather than the Kyoto Protocol, would induce efficiency gains, and lower energy intensity of the economy even while increasing consumption, thereby making the possibility of man-made global warming even more remote than it already is. And the resultant economic development will increasingly insulate man from vagaries of nature. Apparently, mother nature is disinclined to favour those of her children who seek to reduce consumption. Clearly she does not want her bounty to be left unused as the Greens would have us believe.

**Dr R K Pachauri**  
 Vice Chairman,  
 IPCC

CLIMATE change represents a serious threat to every part of the globe, and it would be ridiculous to believe that this is just another issue being pushed by the West down the throats of the developing world. If this was not the case then we would have had a very different Framework Convention on Climate Change which was agreed to at the Rio Summit of 1992. In fact, the very first draft of this Convention was tabled by the Indian delegation. The draft, of course, underwent several changes on the basis of discussions and negotiations between the parties involved. The Convention was based, therefore, not only on substantive inputs provided India but also by several other developing countries. Similarly, the Kyoto Protocol,



which gives practical form to the Framework Convention was arrived at on the basis of intensive, and at times acrimonious, discussions. The fact that the world has still not ratified the Protocol clearly indicates that it is not the product of any conspiracy hatched by the rich nations against the poor. India as a major developing country must support the Kyoto Protocol by arranging to ratify it as early as possible. This becomes even more important for symbolic and practical reasons because India would be hosting the eighth Conference of the Parties to the Convention in October-November this year.

The growing concern about climate change is based on very convincing scientific analysis. Mention must be made in this context of the outstanding work of the Inter-governmental Panel on Climate Change (IPCC), a body established in 1988 jointly by the World Meteorological Organisation (WMO) and the United Nations Environment Programme (UNEP). The IPCC, which functions with a very lean Secretariat based in Geneva, has been able to mobilise the world's leading scientists and experts drawn from all over to come up with a series of three successive assessment reports on the whole range of questions related to climate change, as well

as a set of special reports on very specialised subjects in this field. The work of the IPCC, which forms the basis of our current knowledge on the prospects of climate change, its likely impacts, and methods to mitigate it, has been widely acclaimed as rigorous, objective and policy relevant (but not policy prescriptive). It is, therefore, devoid of politics and subjective bias, which is assured by a painstaking review process in which all member nations participate, the largest number of which come from the developing nations.

There are no doubt uncertainties in the prediction of future climatic changes by virtue of the very complexity of the system that we are dealing with. But, these uncertainties are narrowing as more and more research is undertaken on various aspects of climate change. However, there are some areas on which further work is required urgently, such as on the impacts of climate change in different

parts of the world. On current evidence, the impacts on countries of the tropics would be far worse than on countries in the temperate zones. For this reason alone much greater research in this field should be carried out by Indian scientists, a matter that government in this country should facilitate and fund to a greater degree.

There are six gases identified in the Kyoto Protocol, the cumulative emissions of which have led to the threat of climate change. Of these, CO<sub>2</sub> is the largest, the major source of which is the combustion of fossil fuels. Mitigation of emissions of CO<sub>2</sub> would require not only increased efficiency in the use of fossil fuels but a major shift to low carbon or non-carbon fuels such as solar, wind and sustainable use of biomass. Certainly, such a shift can occur if in the price of energy the externality of global environmental effects is internalised. Free market solutions will not work, and regulatory systems such as embodied in the Kyoto Protocol are inescapable. This may not be the most perfect solution, but in the immediate future it is the only answer, given the difficult journey it has undergone to reach a stage of likely ratification. India must, therefore, ratify the Protocol urgently, as a major developing country.

# New bearings on life and vegetation

Based on the recommendations of the task forces, the department has supported research in the following areas: a) development of stress resistant plant species; b) transgenic crop plants for higher yields, pest management, reduction in toxin contents in some crop varieties, and so on; c) development of biological pesticides using biotechnological tools to bring down the pollution load of chemical pesticides; d) development of more efficient bio-fertilizers which will be economical compared to chemical fertilizers, and ultimately bring down pollution load of chemical fertilizers; e) development of new immuno-diagnostic tools for detection of communicable diseases and certain physiological states, such as early detection of pregnancy; f) development of new/recombinant vaccines for the control of different diseases; g) development of new strains for improved production of antibiotics using/strengthening the existing infrastructure; h) development of highly efficient strains for the treatment of waste waters and conversion of wastes and agro-residues into useful chemicals for industrial applications; i) development of ELISA, phase conjugate reflectivity techniques and DNA probes for the detection of enteric pathogens in drinking water so as to avoid epidemic outbreaks by quick corrective measures to be taken immediately after identification of the enteric pathogens; j) development of cleaner technologies using biotechnological tools; k) development of biosensors for the detection of xenobiotics in the environment; l) conservation of endangered/threatened plant species; m) establishment of gene banks in different parts of the country; n) development of high-yielding

Extracts from Agenda 21, based on information provided by the government of India to the United Nations commission on sustainable development, April 2001

technology packages for aquaculture including feed development, breeding and seed production, and bioactive compounds for health, development of spawning agents, and so on; and, o) development of embryo trans-



Home-bred

fer techniques, animal feed for high-milching cattle and development of vaccines and diagnostics for different diseases in the area of animal biotechnology.

The purpose of gene banks is for the preparation of an inventory of important species, preservation of genetic resources, and to optimize their uses. There is also a provision for networking of gene banks on a regional or inter-regional basis. Under this programme, banks have been established at the National Bureau of Plant Genetic Resources, the Indian Agricultural Research Institute,

New Delhi, the Central Institute of Medicinal and Aromatic plants, Lucknow, and the Tropical Botanical Garden and Research Institute, Thiruvananthapuram. In collaboration with the ministry of environment and forests, the department has taken the lead responsibility for the following: a) access to and transfer of technology to identify the institutions and develop measures for receiving such technologies and utilizing them; b) priority access to biotechnology results and benefits on mutually agreed terms; and c) advanced informed agreements on the safe transfer of genetically modified organisms beyond the national jurisdiction. The recombinant DNA technology heralded new opportunities for beneficial applications in agriculture, animal and human health, industry, and environment.

It has also given rise to concern over possible unknown hazards from bridging the natural species barrier and the uncertain effects of new organisms on environmental and public health. In order to have effective and safe release programmes, it is necessary to have biosafety and regulatory arrangements in biotechnology. Realizing the immediate needs for these arrangements, the department of biotechnology has prepared the rDNA safety guidelines and regulations. These guidelines cover the areas of research involving GMOs/ living modified organisms; genetic transformation of plants and animals; rDNA technology in vaccines and bioactive molecule development; and large scale production and deliberate/accidental release of organisms, plants, animals, and products derived from rDNA technologies.

CONCLUDED

# Antarctic chunk meltdown sets off alarm bells

John Vidal  
London, March 20

AN AREA of ice the size of Wales thought to weigh almost 500 million billion tonnes has broken off the Antarctic continent and shattered into thousands of icebergs in one of the most dramatic examples yet of the effects of climate change.

Scientists from the British Antarctic Survey said yesterday the speed of the complete disintegration of the 200-metre thick, 3,250-square kilometre Larsen B iceshelf was "staggering".

They had predicted the collapse of the continent's northernmost iceshelf four years ago following evidence of the retreat of many

glaciers on the Antarctic Peninsula, but the final break up of the whole shelf took just 31 days and has shocked glaciologists with its scale and speed. The shattered ice has formed a plume of thousands of icebergs, adrift in the Weddell Sea, east of the peninsula.

"We knew what was left of the Larsen B iceshelf would collapse eventually, but this is staggering," said Dr David Vaughan, a glaciologist at the BAS in Cambridge. "It's just broken apart. It fell over like a wall and has broken as if into hundreds of thousands of bricks." The collapse is believed to have dumped more ice into the Southern Ocean than all of the previous half century's icebergs combined.

The US Ice Centre added to concerns over global warming by reporting on Monday that a monster iceberg broke off in the past weeks from the Thwaites ice tongue into the southern Amundsen Sea. Iceberg B22 is more than 64 kilometres wide and 85 kilometres long, and covers an area of about 5,500 square kilometres.

Ice shelves are floating plates up to 800 metres thick attached to the bedrock of continents. Glaciologists do not fully understand why the Antarctica peninsula has warmed almost 2.5 C in just 50 years, a rate at least five times that of warming elsewhere. Temperatures in the region are believed to be the warmest now for more than

1,800 years. However, temperatures in the bulk of Antarctica are not consistently warming and in some places may be actually decreasing.

British and US scientists using satellite pictures, together with evidence collected by Greenpeace, discovered that the ice shelves on either side of the 1,300 kilometre (800 mile) peninsula were in full retreat in 1999.

Until the last month, it is thought some 7,700 sq km of coastal ice shelves had disintegrated since 1945 with several major collapses. Two smaller ice shelves, called the Larsen A and the Prince Gustav disintegrated in 1995 after years of shrinking. A

smaller ice shelf, the Wordie, disappeared in the late 1980s. Two other ice shelves, the Wilkins and the George VI, are also thought to be on the point of collapse.

But nothing, says the British Antarctic Survey, compares with the final collapse of the Larsen B. "It could well be regional amplification of global warming," Dr Vaughan said.

The real worry is what may happen to the much larger areas of ice which are grounded on land. If temperatures across Antarctica continue to rise the whole West Antarctic Ice Sheet could eventually collapse leading to a rise in sea levels of 5 metres to 6 metres.

The Guardian

# Upgrade and lead a better life

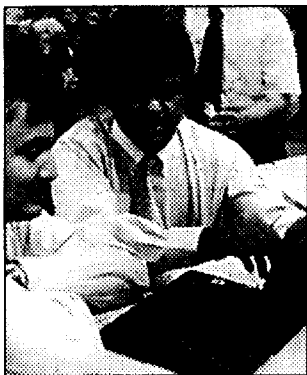
**T**he facilitating role of the government has been increasing through, for example, the identification of and support for the development of environmentally sound technologies such as chlorofluorocarbon alternatives, clean coal technologies, energy efficient technologies, and others. In this field, a number of research and development projects have been identified for support. The ninth five year plan projections have stressed the initiation of measures for reducing the energy intensity in different sectors through changes in technology and industrial processes. A critical mass of research and development capacity is crucial for effective dissemination of environmentally sound technologies and their generation locally. Areas which need attention are access to information on state of art technologies, a framework for dissemination of information, development of guidelines for the transfer of technologies, and training of personnel.

Technology upgrading requires that Indian enterprises of all types have information on relevant technologies in international markets and within the country. Indian technology policies are undergoing significant changes, and have improved in recent years. They are not, however, ideal. A coherent technology strategy in India must address a number of interconnected elements in the incentive regime, and the relevant markets and institutions. Technology development generally requires the setting up of clusters of industries that can share information and skills, as in science parks or dedicated industrial estates. Some such facilities exist in India, but their efficacy and

Extracts from Agenda 21, based on information provided by the government of India to the United Nations commission on sustainable development, April 2001

functioning need to be strengthened.

...To strengthen the technological capabilities of Indian industries, both for meeting national needs and for



The techno-savvy

global competitiveness, a number of new initiatives have been launched. A technology development board was established in 1996 with a mandate to facilitate development of new technologies, and the assimilation and adaptation of imported technologies by providing catalytic support to enable industries and research and development institutions to work in partnership with each other. Matching grants to R&D institutions showing commercial earnings through technology services were also introduced in 1996 and will be continued and broadened. Al-

ready, a long-term perspective called technology vision for India 2020 has been prepared.

...In India, there is considerable technological activity in a wide spectrum of firms. What is most impressive is the number of small and medium sized enterprises that are investing in new technology-based ventures, and often striking out in world market as exporters. However, the rest of the industrial sector still needs to invest in technology upgrading. The experience of many developing and industrialized countries suggests that a rapid acceleration of industrial technology development calls for a deliberate "strategy", in the sense that it requires the government to coordinate and guide an essentially market-driven process.

Technology development calls for both general and specific forms of human capital, and emerging technologies are highly skill intensive in both technical and managerial terms. While India is endowed with large amounts of high-level human capital, investments in the creation of new skills (as measured by enrolment levels in technical subjects at all levels) are low. In addition, large segments of industry invest very little in training. The small and medium enterprise sector suffers from very low levels of skill, while industrial training institutes are often unresponsive to their needs. R&D has been rising, but the overall level is still low and over three-quarters of the research effort originates from the public sector. The government is undertaking an analysis of current technological trends in industry in order to formulate appropriate policies to encourage R&D.

TO BE CONCLUDED



# Money to get development going

The implementation of sustainable development programmes as detailed in Agenda 21, requires large amounts of investment. The United Nations Conference on Environment and Development Secretariat estimated that the implementation of all activities under Agenda 21 during 1993-2000 would require additional resources of US \$ 125 billion a year. This is in addition to the US \$ 500 billion a year from governments and the private sector in developing countries to put the countries on a sustainable development path. The figure was arrived at by estimating the cost of addressing sector and resource-specific environment and development problems.

At the national level, the other apparent funding mechanism is budgetary support by developing countries for environment protection programmes. However, public expenditure has its limitations. Developing countries, with their limited domestic savings, rely on external finances to supplement their resources and overcome budgetary constraints. With the far from favourable trends in external financing, the ability of developing countries to undertake large-scale public expenditure in this field is doubtful. Debt servicing commitments further aggravate the situation. Besides, many developing countries are undertaking economic policy reforms and are faced with even more stringent budgetary constraints. At best, only a modest reallocation of resources is feasible.

...India has always emphasized the importance of public investment for sustainable development by providing fiscal concessions and incentives. Since energy-efficient technologies and non-conven-

Extracts from Agenda 21, based on information provided by the government of India to the United Nations commission on sustainable development, April 2001

tional energy technologies directly improve the protection level of the atmosphere, several tax concessions, 100 per cent depreciation allowance, and investment subsidies have been made widely avail-



Subsidies in place

able. Investments under the national river action plan on control of river pollution arising from both municipal and non-municipal waste also produce a major impact on marine and ocean-based resources since they control land-based sources of marine pollution in India. However, additional resources need to be made available through external sources for implementing various programmes and activities listed in Agenda 21.

The goal of Agenda 21 was in part to raise additional external funds for sustainable development activities by increasing bilateral and multi-

lateral official development assistance to 0.7 per cent of the gross national product from donor countries. The fact remains that many of the developing countries are experiencing a net outflow of resources. The average ODA in the post-Rio de Janeiro period, 1993-95, has been lower than in 1990-92. In fact, ODA at an average of 0.29 per cent of the GNP in the 1993-95 period has been the lowest in decades. The global environment facility is the only new funding mechanism made available to meet the additional needs identified in Agenda 21. The amount of about US \$ 2 billion from the GEF, besides the Montreal protocol multilateral fund to tackle ozone depletion, is almost negligible and has fallen short of even the most conservative estimates of the requirements.

While outlining the estimates of financing needs, Agenda 21 fails to identify the mechanisms to ensure their delivery. Discussions at the earlier meetings of the commission on sustainable development, and in the finance working group, have developed a very useful framework for identifying new and innovative sources of funding, including a sectoral approach to mobilizing funds from within the economy and from external sources. Several of the alternatives highlight the important links between the creation of incentives for the reduction of pollution and wasteful consumption in the North and potential financing for sustainable development in the South. More research work on the formulation of such policy options needs to be undertaken to consolidate the progress achieved and to address the unresolved issues.

TO BE CONCLUDED

18 MAR 2002

# For a breath of fresh air

Priority work under the committee and the United Nations Conference on Trade and Development should include elaborate studies for better understanding of the relationship between trade and environment, particularly for sustainable development in developing countries. India realizes the vital need for international cooperation — bilateral, multilateral and regional initiatives — in implementing Agenda 21.

India is committed to developing and strengthening the process of international cooperation, which would cover not only cooperation among governments and international agencies, but also among the private sector, civil society and voluntary organizations. The international community should develop the appropriate open, equitable, rule-based, cooperative, non-discriminatory and mutually beneficial economic environment...taking into account the special needs of developing countries, in line with the concept of common but differentiated responsibility affirmed in Agenda 21.

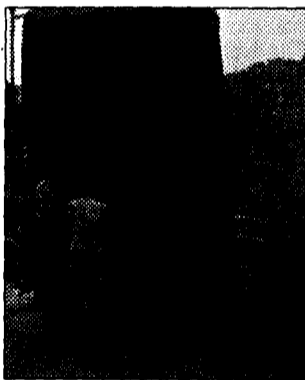
Thus, the international community should aim to attain the target of 0.7 per cent of gross national product for Official Development Assistance from developed countries. There is also an urgent need for new and additional financial resources on a predictable and assured basis from the international community for developing countries. These resources should be available commensurate with the needs and priorities of developing countries and without any conditions....

The responsible government bodies dealing with aspects of sustainable consumption and production patterns include — the agricultural products export development authority, the Indian Institute of Plantation Management, the Central Pollution Control Board, Bureau of Indian Standards and National Productivity Council, the state environment protec-

Extracts from Agenda 21, based on information provided by the government of India to the United Nations commission on sustainable development, April 2001

tion councils, and the National Consumer Council...Legislation which seeks to promote sustainable consumption and production include the Environment Protection Act, 1986, and the Forest Conservation Act, 1980.

Show cause notices under section 5 of the Environment



City of fog

Protection Act have been issued to all defaulting units. In addition, national ambient air quality standards and noise standards have been notified. Industries have been directed to install necessary pollution control equipment within a stipulated time frame. More stringent norms for vehicular emissions have been notified under the Central motor vehicles rules...The supply of unleaded petrol in the four metros of Mumbai, Calcutta, Delhi, Chennai was introduced in April 1, 1995, in four wheel vehicles fitted with catalytic converters. The use of unleaded petrol will be gradually extended to other cities in the country. For enhanced energy and material efficiency,

waste reduction, recycling, public transport and quality of life, norms have been laid down by the Indian government. Industry has adopted Environment Management Systems voluntarily to attain more sustainable production.

The national strategy and policies that address the concerns of this area include — National Conservation Strategy, Environment Action Programme, Statement of Abatement of Pollution Control and National Forest Policy.

The issues such strategies and policies address are increasing energy and material efficiency in production processes, reducing waste from production, promoting recycling, promoting the use of renewable sources of energy, using environmentally sound technologies for sustainable production, reducing wasteful consumption and increasing awareness of sustainable consumption.

The ongoing initiatives of the government to improve the environment include preventive as well as promotive measures. Fiscal incentives are given to encourage the installation of pollution abatement equipment in the form of customs waivers and soft loans. Industries are encouraged and fiscal incentives support the installation of equipment for pollution control; punitive measures including legal action are taken against defaulting units.

To achieve the goal of pollution abatement, emission and effluent standards for air, water and noise have been notified. Regular monitoring is carried out and enforcement efforts have been intensified. A majority of units have installed pollution control equipment. According to data collected by the Central Pollution Control Board on September 30, 1996, out of 1,551 units from 17 categories of highly polluting industries, 1,259 units have facilities to comply with environmental standards...and 180 did not have adequate facilities.

TO BE CONCLUDED

## Green Greenbacks MB

The World Summit on Sustainable Development (Rio + Ten) scheduled to take place at Johannesburg later this year is bound to generate more than its fair share of fireworks. Environmentally-aware countries and individuals are already up in arms over US president George Bush's statements on global warming. Mr Bush's recently unveiled alternative plan to Kyoto suggests that good economics excludes environment. Dismissing the Kyoto Protocol (KP) as something that's "totally flawed" and as an "unsound international treaty", Mr Bush's alternative focuses almost entirely on providing tax credits and incentives to encourage farmers and businesses voluntarily to reduce polluting emissions. His main objection to the KP is that it wants developed countries to reduce emissions — largely produced by burning of fossil fuels and polluting industries — down to minus five per cent of 1990 levels but does not apply this condition to developing countries. He wants both developed and developing countries to be subject to the cap. Second, Mr Bush refuses to compromise the rate of economic growth in the US for a green agenda which would create additional capital costs. Cost-cutting would entail a rise in unemployment figures which, he says, "would be disastrous for the American economy". Mr Bush's new stance has come at a time when other developed countries, particularly EU countries, are making a conscious effort to cut down domestic emissions by as much as 50 per cent. Their logic is that by doing this now, even if at a certain cost, it will establish the trend for the future, promoting less polluting technology and a green consciousness that is so vital for sustainable development. In fact, the UK and Germany are being held up as pathbreakers in adopting environment-friendly industrial policies.

Even assuming Mr Bush is really worried about unemployment and economic growth per se and not about losing the support of the oil lobby, he needs to familiarise himself with some green facts: Going green does not necessarily mean giving up on greed — the two 'g's can in fact be complementary. Even as the US administration is back-tracking on the Kyoto Protocol, private US-based companies like Shell and Lafarge are making sincere efforts aggressively to adopt self-regulatory mechanisms to curb harmful emissions. By going in for proactive measures, they argue, the company eventually becomes cost-efficient and also gets an image make-over, earning praise from its clients and consumers as a socially responsible organisation. Out of the 178-odd participating countries, hardly 85 have so far signed the Kyoto Protocol that was drawn up in 1997. Till today, barely 25 have gone ahead and ratified it. The Protocol can be enforced only if at least 55 countries ratify it. If self-interest is the key word, going green certainly makes good business sense. Bush and Co favour big businesses and are beholden to the oil lobby. However, if the big players can be convinced that going green actually means more greenbacks in the long run, half the battle would be won. In India, official policy on polluting industries is more punitive than proactive; even the apex court has advocated shifting polluting industries out of urban areas to the suburbs rather than forcing companies to clean up their polluting process.

THE TIMES OF INDIA

12 MAR 2002

11-11

# Towards a sustainable policy

18/3

At the local and provincial levels, the responsible authorities are the regional offices of the Bureau of Indian Standards, State Pollution Control Boards, and State Consumer Councils. The view of major groups and the public in general are solicited. Standards and criteria are evolved and finalized only after circulating them for public comments and views. Government programmes, in partnership with industries, consumer associations and others, to promote sustainable consumption and production patterns include: The Eco-mark Scheme, Green Rating, ISO 14001 Certificate.

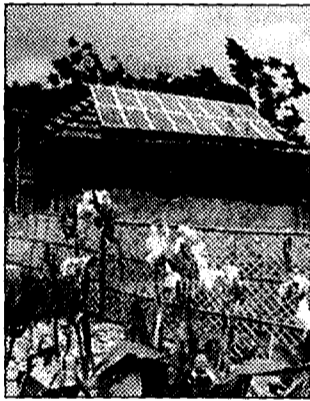
Twenty-four critically polluted areas in the country have been identified and action plans have been drawn up to improve the quality of the environment in these areas (1997)...

The major programmes for new and renewable sources of energy which were developed and enlarged during the Seventh Five Year Plan included national projects on bio-gas development, improved *chulhas*, solar, thermal energy utilization, solar photo voltaics, wind energy, and conversion of bio-mass into energy, energy plantations, and bio-mass gasifiers.

The process of development is sharply raising the consumption of household energy. It is imperative to support the development of non-conventional or renewable sources of energy to sustain the development process. Sun, wind, water, and bio-mass are renewable, perenni-

Extracts from Agenda 21, based on information provided by the government of India to the United Nations commission on sustainable development, April 2001

al, dependable, and widely available sources of energy. The generation and utilization of energy from renewable sources have tremendous potential. According to



Reusing resources

available statistical data..., India accumulates 300 million tonnes of agro residues every year, of which only a small quantity is used as direct fuel. The potential of bio-mass energy is placed at 17,000 MW and of solar energy at SX101: KWHours/year. Using a conservative assessment, wind power potential

in the country is around 20,000 MW and mini hydro-energy 5,000 MW. The total wave power potential from ocean energy along India's 1,600 km coastline is 40,000 MW. Patterns of consumption by the very poor, even when unsustainable in the short term, must be regarded primarily as survival consumption. Overuse of agricultural land, over-grazing of pasture land, and the depletion of forests for fuel wood are all manifestations of a survival economy. To speak of such consumption as being unsustainable, and hence requiring change, without addressing the human condition that leads to such consumption, is not only unethical but also impractical.

The efficient usage of energy, water and other materials by industries and by households, is gaining recognition, acceptance and picking up progressively. Recycling and reuse has long been an established tradition in Indian society... An extensive and effective collection and recycling system for wastes such as glass, tin scrap iron, brass, rubber, paper, and plastics thrives in the non-formal sector. Consumers are increasingly aware of the health effects of residual pesticides and fertilizers. Textile, leather, and other industries are switching to cleaner technologies. In addition, the use of both recharging and reuse are having significant impacts in changing unsustainable consumption and production patterns.

TO BE CONCLUDED

THE TELEGRAPH

13 MAR 2002

# To make the earth a better home

Programmes have been carried out to nurture technical experts and professionals in international relations through the United Nations Conference on Trade and Development. The areas of project formulations, project management and implementation require strengthening. Technical experts, managers and administrators are coordinating their efforts to ensure cooperation is relevant and practical...

India increasingly recognizes the critical role of technology. It has a strong base in technology and research and development institutions. As regards Environmentally Sound Technology, India still needs technical and financial assistance. These issues are the current priorities in the programmes/policies being implemented in achieving sustainable development. Public investment for sustainable development through fiscal incentives and concessions has always been emphasized. Since energy-efficient technologies and non-conventional energy technologies protect the atmosphere, several tax concessions, 100 per cent depreciation allowance and investment subsidies have been made available.

The promotion of ESTs through international cooperation is mainly in the form of foreign direct investment joint venture. However, ESTs...are not being transferred to developing countries on fair and favourable terms and conditions...

The goal of Agenda 21 was in part to raise additional external funds for sustainable development activities by increasing bilateral and multilateral Official Development Assistance to 0.7 per cent of the gross national product of donor countries. Many developing countries experience a net outflow of resources. The average ODA in the post-Rio 1993-95 period has been lower than in 1990-92, both in absolute terms and as percentage of GNP. In fact, ODA at an average of 0.29 per cent of GNP in the 1993-95 period has been the lowest in decades.

We have to find adequate financing for environmental measures either from our own budgetary resources or by generating funds from the private sector. Domestic resources will continue to be an important source for financing sustainable development

Extracts from Agenda 21, based on information provided by the government of India to the United Nations commission on sustainable development, April 2001

and countries need to develop an enabling environment to encourage the mobilization of additional financial resources. Key elements include a sound macroeconomic framework, a dynamic private sector, governance and participatory mechanisms. Special attention is being given to fiscal and budgetary policies, tax collection and transparency.

The following sources are being tapped for financial as-



Beached whale

stance...Bilateral sources other than ODA, private (FDI, joint ventures, and so on) and multilateral sources.

The ministry of environment and forests functions as a nodal agency for the United Nations Environment Programme, South Asia Cooperation Environment Programme, International Centre for Integrated Mountain and Development, International Union for Conservation of Nature and Natural Resources and various international and regional bodies and multilateral institutions.

India is a signatory to the following important international treaties/agreements in the field of environment: (i) International Convention for the Regulation of Whaling; (ii) International Plant

Protection Convention; (iii) The Antarctic Treaty; (iv) Convention on Wetlands of International Importance (v) Convention on International Trade in Endangered Species of Wild Flora and Fauna; (vi) Protocol of 1978 relating to the International Convention for the Prevention of Pollution from Ships; (vii) Vienna Convention for the Protection of the Ozone Layer; (viii) Convention on Migratory Species; (ix) Basel Convention on Trans-boundary Movement of Hazardous Substances; (x) Framework Convention on Climate Change; (xi) Convention on conservation of bio-diversity; (xii) Montreal Protocol on the Substances that Deplete the Ozone Layer and; (xiii) International Convention for Combating Desertification.

The ministry and its agencies cooperate with various countries such as Sweden, Netherlands, Norway, Denmark, Australia, United Kingdom, United States of America, Canada, Japan, Germany among others, bilaterally, and with several UN and multilateral agencies such as the UN Development Programme, World Bank, Asian Development Bank, Overseas Economic Cooperation Fund (Japan) and ODA (UK) for various environmental and forestry projects. Sustainable development is an important consideration in bilateral trade agreements that India has signed...India has been the spokesman of G-77 and China on Climate Change and has played a major role in UNEP..

India is among the countries which are at the vanguard of environmental protection. India has environmental standards for products and processes, environmental impact assessment and has introduced environmental audit as well as an eco-labelling scheme. India believes that environmentally harmful processes should be stopped and that over-exploitation of non-renewable resources should be controlled. However, the specific production process to be used would depend upon the absorptive capacities and development priorities of the country concerned and hence, no global harmonized standard for production process can be developed.

TO BE CONCLUDED

# To be or not to be in jail for three months

OUR BUREAU

New Delhi, March 6: Writer-activist Arundhati Roy has left it until tomorrow to decide if prison will be her home for three months, but her utterances before entering Tihar jail today suggested she has already made the choice.

The Supreme Court today awarded a day's token imprisonment to the Booker prize winner and environmental activist for contempt of court. It also fined her Rs 2,000.

"In case of default in the payment of fine, the respondent (Roy) shall undergo simple imprisonment for three months," a division bench of Justices G.B. Pattanaik and R.P. Sethi said in a 75-page judgment.

Before walking up the steps of the Supreme Court to receive the judgment this morning, Arundhati (Reuters picture above) penned a note to the "citizens" of India.

"I stand by what I said. And I am ready to suffer the consequences," she said.

"The message is clear. Any citizen who dares to criticise the court does so at his or her own peril — the judgment only confirms what I said in my affidavit.

It is a sad realisation," the note read. It was not a note written by someone who was ready to kneel after refusing to sit.

She had come prepared for the court's decision. "I have my backpack," Arundhati said calmly as she was escorted out of the court.

If she does decide to pay the penalty and avoid imprisonment, it will be because of pressure from fellow activists of the Narmada Bachao Andolan (NBA), who want her to be free to promote the cause. The NBA is a protest movement against the Sardar Sarovar dam.

"She will decide tomorrow whether to pay the fine," her counsel Prashant Bhushan said.

The judges took a lenient view of the fact that Arundhati was a woman — the generosity is unlikely to be accepted well by the author — while awarding the token punishment.

As soon as the judgment was pronounced, Delhi police took

Arundhati to Tihar jail, made famous by Masood Azhar, Omar Sheikh and Charles Sobhraj.

Outside, fellow activists courted arrest, the media zoomed in and NBA leader Medha Patkar said it was up to Arundhati to decide whether or not to pay the fine.

Arundhati, Bhushan and Medha had shouted slogans allegedly denigrating the dignity of the judiciary when they staged a sit-in in front of the Supreme Court to protest the verdict allowing construction of the Sardar Sarovar dam.

When the court issued notices, Patkar and Bhushan filed affidavits refuting the allegation and were let off.

But Arundhati's affidavit, written in her own hand, was found objectionable under the provisions of the Contempt of Courts Act. Arguing her own case, Arundhati even dared that "if the law is so", she would jolly well go to jail.

In its judgment today, the Supreme Court said "as the respondent has not shown any repentance or regret or remorse, no lenient view should be taken in the matter".

## QUOTE

I stand by what I said

ARUNDHATI ROY

CONTINUED ON PAGE 7 ►

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THE TELEGRAPH

27 MAR 2002

## Arundhati Roy released

**NEW DELHI, MARCH 7.** Booker prize winner and Narmada Bachao Andolan activist, Arundhati Roy, was released today from the Tihar Jail after serving the sentence of one-day imprisonment imposed on her by the Supreme Court finding her guilty of contempt of court. *10-1-02*

Ms. Roy was released after she paid the fine of Rs. 2,000 imposed on her. She said she was considering challenging the verdict as she found it "violative of the principles of natural justice".

"By tomorrow we will decide to file a writ petition on the issue," the author's lawyer, Prashant Bhushan, said at a press conference. *emin*

One of the judges on the Bench that pronounced the verdict against Ms. Roy yesterday also happened to be on the Bench that had entertained the petition seeking initiation of contempt proceedings against Ms. Roy and others for shouting slogans in front of the apex court against the verdict on the Sardar Sarovar project.

Ms. Roy had earlier prayed that the judge, G.B. Pattanaik, recuse himself from the proceedings, since she did not expect an unbiased verdict. "Since the said judge did not recuse himself from the proceedings, it amounted to violation of principles of natural justice," she said.

— PTI

THE HINDU

8 MAR 2002

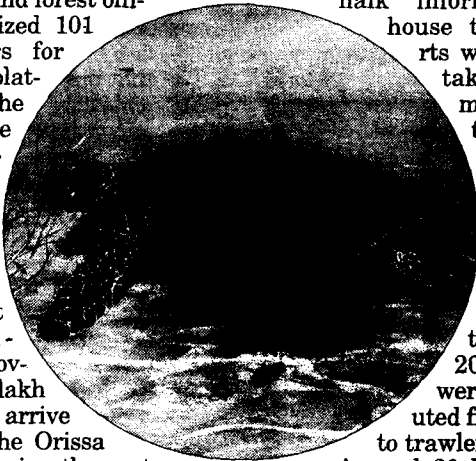
# 10,000 Olive <sup>Smironment</sup>Ridleys' dead in one yr

STATESMAN NEWS SERVICE

BHUBANESWAR, March 9. — The state government today admitted that endangered Olive Ridley sea turtles were being caught and killed by fishing trawlers near Gahirmatha, but added that steps were being taken to introduce turtle excluder devices (TEDs) in trawlers.

As members urged better enforcement of turtle conservation measures in the Assembly today, the finance minister, Mr Ramakrushna Patnaik, said over 10,000 sea turtles were found dead during the year 2001-02. A couple of years ago the casualty was around 6,000.

The minister said coast guard and forest officers seized 101 trawlers for law violation in the year. He asserted that the mortality rate was not alarming as over 10 lakh turtles arrive along the Orissa coast during the nesting season and noted that the casualty figure worked out to



10/3  
51-7  
a mere one per cent. Mr Patnaik informed the house that efforts were being taken to minimise the casualty further by making the installation of TEDs mandatory and 200 TEDs were distributed free of cost to trawler owners.

Around 20 kms from Bhitarkanika, the Devi and Rushikulya river mouth

area has been notified as a prohibitory zone and fishing activities are not allowed. This is an Olive Ridley nesting zone and forest and coast guards patrol the areas. An assistant conservator of forest has been appointed as the nodal officer to coordinate the patrolling activity. The nesting sites are guarded and temporary camps set up during the nesting season. Vigil is maintained against predators. Enumeration of the turtles are also undertaken.

Mr Patnaik said steps were taken to relocate the nesting spots to tackle the problem of overcrowding and damage to the turtles' eggs.

THE STATESMAN

10 MARCH 2002



# N Korea sets terms for US

Seoul, March 5

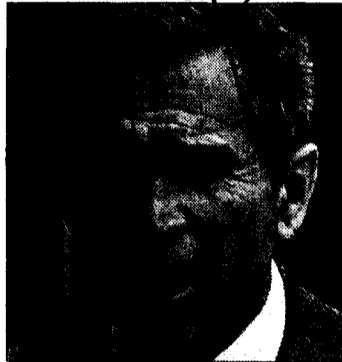
COMMUNIST NORTH Korea said on Tuesday it would respond to US calls for dialogue only after the Bush administration recognised its political system and returned to policies of the Clinton Government.

In its clearest statement yet in a month of attacks on the United States after President Bush said it was part of an "axis of evil," North Korea dismissed US calls for talks as "camouflaged big stick logic and Trojan horse tactics."

"The DPRK's stand on dialogue is to get its political system recognised by the US, not to allow itself to be disarmed or abandon its system," said State-run news agency KCNA.

DPRK is the acronym of North Korea's official name, the Democratic People's Republic of Korea. In a visit to South Korea last month, Bush followed his comments calling North Korea, Iran and Iraq an "axis of evil" with blunt criticism of the North's political system.

He condemned its leadership for repressing and starving its



GEORGE BUSH

citizens. KCNA said the remarks "caused the DPRK to lose any confidence in the US and any justification to negotiate with the Bush administration."

"This position is neither a 'brinkmanship' claimed by the US side nor a 'prelude' to dialogue," KCNA said, referring to predictions by some Western analysts that tough North Korean rhetoric might presage a willingness to talk.

The KCNA statement reiterated a demand that Bush embrace the policies toward Pyongyang of Bill Clinton. "The DPRK's po-

sition is to resume the dialogue for the improved bilateral relations on the basis of the Bush administration's respect for the agreement reached between the DPRK and the preceding US administration," it said.

Clinton negotiated a suspension of the North's nuclear weapons programme in 1994 and in late 2000 came close to reaching a deal to halt a North Korean ballistic missile program seen as threatening Japan and parts of the United States.

Bush criticised the Clinton approach to North Korea, saying it postponed security problems without resolving them and rewarded dangerous North Korean behaviour.

Last year Bush sought to add conventional weapons and troops deployed near the North's border with South Korea to the diplomatic agenda of nuclear weapons and missiles.

The Bush approach alarmed North Korea, where communist rule is underpinned by its million-strong military in an official doctrine known as "army-first politics."

Reuters

6 MAR 2002

# Time runs out for tanneries

FROM R. VENKATARAMAN

New Delhi, Feb. 21: The city's leather trade today received a severe blow with the Supreme Court refusing to extend the February 28 deadline for tanneries to shift to the new 500-acre industrial facility at Bantala.

As a result, 532 tanneries in the city face closure. This would affect some seven lakh people in the leather trade.

A division bench of Justice M.B. Shah and Justice B.N. Agarwal said "all of you have to be closed down", when various counsel for the Calcutta Leather Manufacturers Association, Ambedkat Tanneries Association and others pleaded for extension of the deadline.

The state government has said that an industrial plot with modern effluent treatment plants had already been readied for these tanneries.

However, the leather industry and tannery owners told the

apex court that though they were ready to relocate, the state government had not provided any infrastructure facilities in the new facility.

The tanneries are currently situated in the eastern fringes of the city at Tiljala, Tangra, Top-sia and Pagla Danga.

On a public interest litigation filed by Magsaysay Award-winning lawyer M.C. Mehta, a division bench of Justice Kuldeep Singh and Justice S. Saghir Ahmed had issued directions to the Bengal government in 1996 to shift the tanneries to the new leather complex or to close them down.

Today, counsel Somnath Mukherjee, appearing for the Ambedkat Tanneries Association, told the court that the state government's statement that a 500-acre industrial plot was developed was a farce as it had yet to ready infrastructure facilities.

Appearing for Calcutta Leather Manufacturer's Associati-

on, counsel Deba Prasada Mukherjee said the tanneries should be given time to shift.

He said it was a "human problem" because if the tanneries closed down some seven lakh people would lose their livelihoods. "In Indian conditions, such developments do take time and one should not be technical and ultra-legal in approaching such problems," Mukherjee said.

However, the Supreme Court was not willing to make concessions. It has fixed February 27 for further hearings. In 1997, the apex court had ruled that "no tannery should be allowed to function in the current location after September 30, 1997".

The judges had then directed the police to ensure that the tanneries refusing to shift were closed down and also spelt out the procedure for relocation of tanneries. Police were also asked to snap electricity and water supplies.

The state government was ordered to set up a nodal agency on or before January 31, 1997, with representations from all the departments concerned to facilitate shifting.

The tanneries were asked to deposit 25 per cent of the cost of land they would occupy in various sizes in the new industrial area on or before February 28, 1997.

Mukherjee told the court today that over 231 units had already paid the money, but the state government did not develop an inch of the land.

On August 16, 2001, the present bench said in a proceeding order: "We are prima facie satisfied that there has been no effort on the part of the West Bengal government to comply with the directions given by this court. Despite our finding, we restrain ourselves and refrain from issuing contempt notice to the minister and the joint secretary at this stage."

THE TELEGRAPH

22 FEB 2002

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**CLIMATE TREATY / ALLIES DISMAYED BY 'NEW PATH'**

# Bush plans alternative to Kyoto

WASHINGTON, FEB. 15. The U.S. President, George Bush announced a "new environmental path for America" on Thursday, his alternative to the Kyoto protocol he summarily rejected last year, to the dismay and anger of European nations and other allies.

Mr. Bush outlined a voluntary scheme for reducing the rate of growth in America's greenhouse gas emissions that "will benefit the entire world". His proposals, which involved encouraging American companies to comply with regulations to slow the increase in pollution of the skies, were condemned by his critics. Environmentalists in Britain said the Bush plan would mean a rise in emissions over the next decade, instead of the cut required by the Kyoto treaty.

The plan is aimed at cutting greenhouse gas "intensity" — emissions per unit of gross domestic product — by 18 per cent over 10 years. But the Bush administration's forecast rate of growth in GDP over the next decade is 38 per cent, meaning that emissions will rise by 14 per cent. The treaty signed by Mr. Bush's father in 1992, the Climate Change Convention, to which America remains a party, requires signatories to put in place policies and measures with the aim of returning to their 1990 levels of greenhouse gas emissions.



Covered in a cloud of smoke, a Greenpeace protester wearing a cut-out mask of the U.S. President, George Bush, holds a frying pan with a world globe inside during a protest in front of the U.S. consulate in Sao Paulo, Brazil, in this April 2001 file photo.

John Lanchbery, head of climate change policy at Britain's Royal Society for the Protection of Birds, said: "This is not an alternative to Kyoto but a travesty of it. It is aptly named the 'global warming plan' because that is precisely what it will lead to." But the European Union gave a cautious welcome. "It is positive that the U.S. administration is realising that there needs to be something done about climate change, but we feel that the multilateral approach is the best way to face

up to this tremendous challenge."

The 1997 Kyoto protocol, which Britain and 178 other countries have signed, but not ratified, calls for countries to return to 1990 levels by 2010. The protocol was endorsed by Bill Clinton when he was President, but not ratified by the Senate. The Bush White House rejected it on two grounds, both linked to American jobs. First, the administration objected that the protocol did not apply to such major polluting nations as Chi-

na and India and would give them an unfair competitive advantage. Second, Mr. Bush expressed scepticism about the science that linked greenhouse gases to climate change and refused to risk thousands of American jobs by imposing restrictions costing companies hundreds of millions of pounds.

Mr. Bush favours tax credits to companies cutting pollution levels, but opposes the compulsion of Kyoto. In his speech in Washington, he said: "This new approach will harness the power of markets, the creativity of entrepreneurs, and draw on the best scientific research." He would cut emissions of three of the worst air pollutants — sulphur dioxide, nitrogen oxide, and mercury — by setting emission target limits and assigning permits for each tonne of pollution. Firms could trade in the permits in what an administration official called a "cap and trade system".

But carbon dioxide, considered by many scientists to be the worst offender in global warming, is not included. The White House said such a system would encourage businesses to begin cutting their emissions well before the target dates were imposed and allow them to use the resulting reductions in later years or trade them to other businesses. — ©Telegraph Group Limited, London, 2002

16 FEB 2002

# '1892 Cauvery agreement was preceded by mutual consent'

By Our Legal Correspondent

NEW DELHI, JAN. 30. The 1892 agreement between the erstwhile Mysore and Madras Governments to share the Cauvery river water was preceded by a good deal of mutual consideration of each other's interest, said senior counsel for Tamil Nadu A. K. Ganguly before the Cauvery Tribunal.

Continuing his arguments, Mr. Ganguly, traced the correspondence between the State of Mysore and Madras for nearly two years culminating in the agreement to the satisfaction of both the States.

The counsel submitted before the Tribunal headed by Justice N.P. Singh that a conference was held in May 1890 between officials of Mysore and Madras to consider the pending irrigation disputes between the two States.

He pointed out that the meeting recognised the need for an agreement which would

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on the one hand allow Mysore reasonable freedom in dealing with its irrigation works and also give Madras practical security against injury to its interests.

At this juncture senior counsel for Karnataka, F.S. Nariman, intervened to say that princely State could have been pressured by the Government of India to come to an agreement.

Mr. Ganguly countered this and said the initiative for a mutual settlement came only from Mysore.

The counsel said in June 1891, Mysore forwarded a set of rules to Madras defining the limit within which no new irrigation works were to be constructed by Mysore across the 15 main rivers without previous reference to Madras.

Some minor changes in the rules suggested by Madras were accepted by Mysore which later resulted in the 1892 agreement

Environement  
which vested prescriptive rights to Madras in sharing the waters of Cauvery, the counsel added.

Even as arguments began on Tuesday on a cordial atmosphere, Tamil Nadu brought to the notice of the Tribunal that the possibility of constructing hydro-electric projects in the reach below Sivasamudram and above Mettur, utilising the available fall (two in Karnataka — Sivasamudram Seasonal Power Scheme and Mekedatu HEP; two in Tamil Nadu — Rasimanal and Hogenekkal) was under consideration by the National Hydroelectric Power Corporation and both States had agreed for the same as a package.

The schemes were expected to generate more than 1,000 MW of power and field investigation was being taken up by the NHPC.

Further arguments will continue on Thursday.

THE HINDU

31 JAN 2002

## Coastal zone regulations to be amended

By J. Venkatesan

*Environment*  
*pp. 10*

**NEW DELHI, JAN. 23.** The Centre has taken a major policy decision to relax the restrictions in construction activities in the coastal zone areas and has called for suggestions from the public and environmentalists for amending the coastal regulation zone (CRZ) notification.

The Union Ministry of Environment and Forests (UMEF) has issued a draft amendment notification to permit infrastructural facilities and dwelling units for local inhabitants of the coastal zone areas considering the difficulties being faced by them.

The amendment notification has also taken into consideration the deliberations the Ministry had with the Ministries concerned and the State Governments. The UMEF is of the opinion that the CRZ notification requires amendment to permit housing schemes of the urban development authorities which had been

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approved prior to February 19, 1991, (when the restrictions were imposed) facilities and activities, including setting up of non-polluting industries in the field of Information Technology and other service industries in the special economic zones and salt harvesting by solar evaporation of sea water in the CRZ notification of 1991. The proposed amendment details the norms for development of construction activities in different categories of CRZ areas. Guidelines for the development of tourist resorts and hotels in the designated areas of CRZ have also been notified.

Objections and suggestions from the public on the draft notification, which is available from the UMEF, CGO complex, Lodhi Road, New Delhi-110003 and which can also be seen on the website: [www.envfor.nic.in](http://www.envfor.nic.in), can be sent in writing for the consideration of the Government within 60 days. Based on the feedback, a final notification would be issued.

THE HINDU

24 JAN 2002

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## India and U.S. sign MoU on environment

Times News Network

NEW DELHI: For the first time, India and the U.S. have signed a memorandum of understanding in the field of environment. This area of "intensified cooperation", said U.S. ambassador Robert Blackwill, was codified during Prime Minister Vajpayee's visit to the U.S. in November. So far, the two sides have just issued two joint statements, one on an intent to cooperate in 1995 and the second, in 2000, for cooperation in energy and environment. This is the first "formal umbrella" MoU.

The MoU was signed on Thursday by Union environment minister T.R. Baalu and U.S. Environment Protection Agency administrator Christine Todd Whitman, with Mr Blackwill and officials from both sides present. It seeks to provide a framework for policy and technical cooperation in what is being viewed as a long-term partnership.

It marks a change from the opposing camps India and the U.S. usually find themselves in on such issues internationally. The areas identified in the MoU cover the whole range: Environmental governance, air and water quality management, management of toxic chemicals and hazardous waste. Projects may relate to areas such as environmental health, particularly children's health, pollution prevention and control, management systems, monitoring and assessment, risk management, public access to environmental information and participation in decision-making, education, strengthening of legal regimes and compliance. The scope of work may also extend to implementation of international environmental agreements as well as the environment dimension of trade and investment liberalisation.

Ambassador Blackwill, looking ahead to a transformed relationship between the two countries, was clear that his government does not want to give the impression that their primary focus is the linkage with Pakistan.

Ms Whitman, whose packed schedule is going to take in the CII and FICCI as well, stated what is becoming clearer by the day, even to officials in India: The direct correlation between environment and the ability to grow economically, the impact of deterioration, particularly on children's health, and the implications for the future. "If you eliminate the problem in the first place, you would not then have to spend money to rectify it," said the U.S. EPA administrator who spoke, among other things, of trying out watershed-based initiatives in the U.S.

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THE TIMES OF INDIA

17 JAN 2001