



**United Nations  
Framework Convention  
on Climate Change**

**United Nations Climate  
Change Conference**

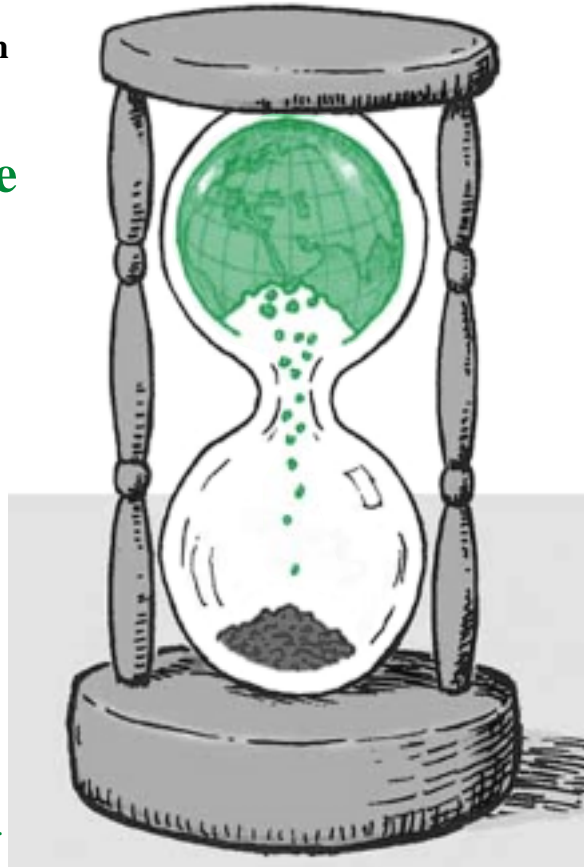
**Bali, 3 - 14 December 2007**

The Conference, hosted by the Government of Indonesia, brings together representatives of over 180 countries, together with observers from intergovernmental and nongovernmental organizations, and the media.

The two week period includes: the sessions of the Conference of the Parties to the UNFCCC (COP 13), its subsidiary bodies, as well as the Meeting of the Parties of the Kyoto Protocol.

A ministerial segment in the second week will conclude the Conference.

<http://unfccc.int/2960.php>



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## The Year of the IPCC

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*It's not just the Nobel Prize for Peace. That was icing on the cake.*

*Never before has a technical report made so many waves. Never before has a set of scientists' findings resulted in a torrent of reporting in popular media. Never before have findings such as these set the cat among the political pigeons.*

*Every 5 years or so, since the early '90s, the IPCC has been bringing out assessment reports on whether human induced global warming. In 2001, the Third Assessment Report (TAR) concluded that there was a 50% chance of contemporary accelerated warming being induced by human activity. The science is now almost unequivocal - The Fourth Assessment Report, 2007 (AR4) concludes that the probability is now 90%, and increasing*

*It is very timely. The ball is now in the court of the Governments of this world.*

## THE SCIENCE

### IPCC Reports

The main activity of the IPCC is to provide in regular intervals Assessment Reports of the state of knowledge on climate change. The latest one is "Climate Change 2007", the Fourth IPCC Assessment Report.

The IPCC produces also Special Reports; Methodology Reports; Technical Papers; and Supporting Material, often in response to requests from the Conference of the Parties to the UNFCCC, or from other environmental Conventions.

The preparation of all IPCC reports and publications follows strict procedures agreed by the Panel. The work is guided by the IPCC Chair and the Working Group and Task Force Co-chairs. Hundreds of experts from all over the world are contributing to the preparation of IPCC reports as authors, contributors and reviewers. The composition of author teams shall reflect a range of views, expertise and geographical representation. Review by governments and experts are essential elements of the preparation of IPCC reports. How the IPCC reports can be obtained

A number of IPCC reports are published commercially and can be obtained from the publishers or leading book shops. Some full



reports and the summaries of many reports are translated into the official UN languages. Most IPCC Reports published since 1997, including non-English versions, are available online on this website and on CD-ROMs. Translations into some non UN languages are also made available on this website.

Hard copies of the Summaries for Policymakers, Technical Summaries, Synthesis Reports and Technical Papers in English and in other UN languages, and CD-ROMs of the full reports, can

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be obtained free of charge from the IPCC Secretariat. A limited number of hard copies of the full reports are also available on request from the IPCC Secretariat for developing countries and countries with economies in transition. Methodology Reports and Supporting Material can be obtained from the IPCC Secretariat or a Technical Support Unit as indicated.

### **Assessment Reports**

In accordance with its mandate and as reaffirmed in various decisions by the Panel, the IPCC prepares at regular intervals comprehensive Assessment Reports of scientific, technical and socio-economic information relevant for the understanding of human induced climate change, potential impacts of climate change and options for mitigation and adaptation. Three Assessment Reports have been completed in 1990, 1995 and 2001. The **Fourth Assessment Report “Climate Change 2007”** is currently finalized. The first three volumes of it have been launched in the past months and the various contributions are posted here as soon as they become available. The fourth and last volume – the Synthesis report – was launched in November 2007.

Assessment Reports are normally published in several volumes, one for each of the Working Groups of the IPCC and, subject to the decision by the Panel, a Synthesis Report. Each of the Working Group volumes is composed of individual chapters, an optional technical summary and a Summary for Policymakers. Synthesis Reports synthesize materials contained within the Assessment Reports, eventually integrating them with information coming from the Special Reports as well. They are written in a non-technical style suitable for policymakers. They are composed of a longer report and a Summary for Policymakers.

### **Special Reports**

Special Reports have been prepared on topics such as aviation, regional impacts of climate change, technology transfer, emissions scenarios, land use, land use change and forestry, carbon dioxide capture and storage and on the relationship between safeguarding the ozone layer and the

global climate system. They are subject to the same writing, review and approval process as Assessment Reports.

### **The reports’ Summaries for Policymakers**

Each IPCC Assessment and Special Report has a Summary for Policymakers (SPM) which is widely distributed. The SPM text is subject to line by line discussions and approval at a Plenary Session. The SPM has to be consistent with the factual material contained in the full report. Lead Authors of the report participate in the Session to provide explanations and clarifications and assist to ensure that consistency between the Summary for Policymakers and the full report is achieved.

### **Methodology Reports**

Methodology Reports provide practical guidelines for the preparation of greenhouse gas inventories. They are aimed to meet the inventory reporting requirements of Parties to the UNFCCC. Recently the IPCC 2006 Guidelines for National Greenhouse Gas Inventories have been published.

### **Technical Papers**

Technical Papers are prepared on topics for which an objective international scientific/technical perspective is essential. They are based on material already in the IPCC Assessment Reports and Special Reports and their preparation follows accelerated procedures. Currently a **Technical Paper on Climate Change and Water** is planned for release in early 2008.

### **Supporting Material**

Workshops and Expert Meetings may be held to support the IPCC assessment process, to scope an IPCC Report or to advise the Panel e.g. on whether to prepare a Special Report. The IPCC may also co-sponsor workshops if its activity will be useful to the work of the IPCC.

Proceedings of IPCC workshops and expert meetings are normally published as IPCC supporting material. Supporting material is not subject to formal IPCC review processes. For some IPCC expert meetings or scoping meetings only summary reports are prepared, which can be found under meetings and documentation. ☺

<http://www.ipcc.ch/ipccreports/index.htm>

## Summary for Policymakers of the Synthesis Report of the IPCC Fourth Assessment Report

Draft Copy 16 November 2007

### Introduction

*This Synthesis Report is based on the assessment carried out by the three Working Groups of the IPCC. It provides an integrated view of climate change as the final part of the IPCC's Fourth Assessment Report. A complete elaboration of the topics covered in this summary can be found in this Synthesis Report and in the underlying reports of the three Working Groups.*

**Observed changes in climate and their effects:** declined in both hemispheres.

*Warming of the climate system is unequivocal, as is now evident from observations of increases in global average air and ocean temperatures, widespread melting of snow and ice, and rising global average sea level*

Eleven of the last twelve years (1995-2006) rank among the twelve warmest years in the instrumental record of global surface temperature (since 1850). The 100-year linear trend (1906-2005) of 0.74 [0.56 to 0.92]°C is larger than the corresponding trend of 0.6 [0.4 to 0.8]°C (1901-2000) given in the Third Assessment Report (TAR).

The temperature increase is widespread over the globe, and is greater at higher northern latitudes. Land regions have warmed faster than the oceans. Rising sea level is consistent with warming (Figure SPM.1). Global average sea level has risen since 1961 at an average rate of 1.8 [1.3 to 2.3] mm/yr and since 1993 at 3.1 [2.4 to 3.8] mm/yr, with contributions from thermal expansion, melting glaciers and ice caps, and the polar ice sheets.

Observed decreases in snow and ice extent are also consistent with warming. Satellite data since 1978 show that annual average Arctic sea ice extent has shrunk by 2.7% per decade, with larger decreases in summer of 7.4 [5.0 to 9.8]% per decade. Mountain glaciers and snow cover on average have

From 1900 to 2005, precipitation increased significantly in eastern parts of North and South America, northern Europe and northern and central Asia but declined in the Sahel, the Mediterranean, southern Africa and parts of southern Asia. Globally, the area affected by drought has likely<sup>2</sup> increased since the 1970s.

It is very likely that over the past 50 years: cold days, cold nights and frosts have become less frequent over most land areas, and hot days and hot nights have become more frequent. It is likely that: heat waves have become more frequent over most land areas, the frequency of heavy precipitation events has increased over most areas, and since 1975 the incidence of extreme high sea level<sup>3</sup> has increased worldwide.

There is observational evidence of an increase in intense tropical cyclone activity in the North Atlantic since about 1970, with limited evidence of increases elsewhere. There is no clear trend in the annual numbers of tropical cyclones. It is difficult to ascertain longer term trends in cyclone activity, particularly prior to 1970.

Average Northern Hemisphere temperatures during the second half of the 20th century were very likely higher than during any other 50-year period in the last 500 years and likely the highest in at least the past 1300 years.

***Advances since the TAR(Third Assessment Report – 2001) show that discernible human influences extend beyond average temperature to other aspects of climate.***

**Human influences have:**

- very likely contributed to sea level rise during the latter half of the 20th century
- likely contributed to changes in wind patterns, affecting extra-tropical storm tracks and temperature patterns.
- likely increased temperatures of extreme hot nights, cold nights and cold days
- more likely than not increased risk of heat waves, area affected by drought since the 1970s and frequency of heavy precipitation events.

**Table SPM.2. Examples of some projected regional impacts**

<p><b>Africa</b></p>	<ul style="list-style-type: none"> <li>● By 2020, between 75 and 250 million of people are projected to be exposed to increased water stress due to climate change;</li> <li>● By 2020, in some countries, yields from rain-fed agriculture could be reduced by up to 50%. Agricultural production, including access to food, in many African countries is projected to be severely compromised. This would further adversely affect food security and exacerbate malnutrition;</li> <li>● Towards the end of the 21st century, projected sea-level rise will affect low-lying coastal areas with large populations. The cost of adaptation could amount to at least 5-10% of Gross Domestic Product (GDP);</li> <li>● By 2080, an increase of 5-8% of arid and semi-arid land in Africa is projected under a range of climate scenarios.</li> </ul>
<p><b>Asia</b></p>	<ul style="list-style-type: none"> <li>● By the 2050s, freshwater availability in Central, South, East and South-East Asia, particularly in large river basins, is projected to decrease;</li> <li>● Coastal areas, especially heavily-populated megadelta regions in South, East and South-East Asia, will be at greatest risk due to increased flooding from the sea and, in some megadeltas, flooding from the rivers;</li> <li>● Climate change is projected to compound the pressures on natural resources and the environment, associated with rapid urbanization, industrialization and economic development;</li> <li>● Endemic morbidity and mortality due to diarrhoeal disease primarily associated with floods and droughts are expected to rise in East, South and South-East Asia due to projected changes in the hydrological cycle.</li> </ul>
<p><b>Australia and New Zealand</b></p>	<ul style="list-style-type: none"> <li>● By 2020, significant loss of biodiversity is projected to occur in some ecologically rich sites including the Great Barrier Reef and Queensland Wet Tropics;</li> <li>● By 2030, water security problems are projected to intensify in southern and eastern Australia and, in New Zealand, in Northland and some eastern regions;</li> <li>● By 2030, production from agriculture and forestry is projected to decline over much of southern and eastern Australia, and over parts of eastern New Zealand, due to increased drought and fire. However, in New Zealand, initial benefits are projected in some other regions.;</li> <li>● By 2050, ongoing coastal development and population growth in some areas of Australia and New Zealand are projected to exacerbate risks from sea level rise and increases in the severity and frequency of storms and coastal flooding.</li> </ul>
<p><b>Europe</b></p>	<ul style="list-style-type: none"> <li>● Climate change is expected to magnify regional differences in Europe's natural resources and assets. Negative impacts will include increased risk of inland flash floods, and more frequent coastal flooding and increased erosion (due to storminess and sea-level rise);</li> <li>● Mountainous areas will face glacier retreat, reduced snow cover and winter tourism, and extensive species losses (in some areas up to 60% under high emissions scenarios by 2080);</li> <li>● In Southern Europe, climate change is projected to worsen conditions (high temperatures and drought) in a region already vulnerable to climate variability, and to reduce water availability, hydropower potential,</li> </ul>

	<p>summer tourism and, in general, crop productivity;</p> <ul style="list-style-type: none"> <li>● Climate change is also projected to increase the health risks due to heat-waves, and the frequency of wildfires.</li> </ul>
<b>Latin America</b>	<ul style="list-style-type: none"> <li>● By mid century, increases in temperature and associated decreases in soil water are projected to lead to gradual replacement of tropical forest by savanna in eastern Amazonia. Semi-arid vegetation will tend to be replaced by arid-land vegetation.</li> <li>● There is a risk of significant biodiversity loss through species extinction in many areas of tropical Latin America;</li> <li>● Productivity of some important crops is projected to decrease and livestock productivity to decline, with adverse consequences for food security. In temperate zones soybean yields are projected to increase. Overall, the number of people at risk of hunger is projected to increase (IS; <i>medium confidence</i>).</li> <li>● Changes in precipitation patterns and the disappearance of glaciers are projected to significantly affect water availability for human consumption, agriculture and energy generation.</li> </ul>
<b>North America</b>	<ul style="list-style-type: none"> <li>● Warming in western mountains is projected to cause decreased snowpack, more winter flooding, and reduced summer flows, exacerbating competition for over-allocated water resources;</li> <li>● In the early decades of the century, moderate climate change is projected to increase aggregate yields of rain-fed agriculture by 5-20%, but with important variability among regions. Major challenges are projected for crops that are near the warm end of their suitable range or which depend on highly utilized water resources;</li> <li>● During the course of this century, cities that currently experience heatwaves are expected to be further challenged by an increased number, intensity and duration of heatwaves during the course of the century, with potential for adverse health impacts;</li> <li>● Coastal communities and habitats will be increasingly stressed by climate change impacts interacting with development and pollution.</li> </ul>
<b>Polar Regions</b>	<ul style="list-style-type: none"> <li>● The main projected biophysical effects are reductions in thickness and extent of glaciers and ice sheets and sea ice, and changes in natural ecosystems with detrimental effects on many organisms including migratory birds, mammals and higher predators;</li> <li>● For human communities in the Arctic, impacts, particularly those resulting from changing snow and ice conditions are projected to be mixed;</li> <li>● Detrimental impacts would include those on infrastructure and traditional indigenous ways of life;</li> <li>● In both polar regions, specific ecosystems and habitats are projected to be vulnerable, as climatic barriers to species invasions are lowered.</li> </ul>
<b>Small Islands</b>	<ul style="list-style-type: none"> <li>● Sea-level rise is expected to exacerbate inundation, storm surge, erosion and other coastal hazards, thus threatening vital infrastructure, settlements and facilities that support the livelihood of island communities;</li> <li>● Deterioration in coastal conditions, for example through erosion of beaches and coral bleaching is expected to affect local resources;</li> <li>● By mid-century, climate change is expected to reduce water resources in many small islands, e.g., in the Caribbean and Pacific, to the point where they become insufficient to meet demand during low-rainfall periods.</li> <li>● With higher temperatures, increased invasion by non-native species is expected to occur, particularly on mid- and high-latitude islands</li> </ul>



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Sector	Adaptation option/strategy	Underlying policy framework	Key constraints and opportunities to implementation (Normal font = constraints; italics = opportunities)
Water	Expanded rainwater harvesting; water storage and conservation techniques; water re-use; desalination; water-use and irrigation efficiency	National water policies and integrated water resources management; water-related hazards management	Financial, human resources and physical barriers; integrated water resources management; synergies with other sectors
Agriculture	Adjustment of planting dates and crop variety; crop relocation; improved land management, e.g. erosion control and soil protection through tree planting	R&D policies; institutional reform; land tenure and land reform; training; capacity building; crop insurance; financial incentives, e.g. subsidies and tax credits	Technological & financial constraints; access to new varieties; markets; longer growing season in higher latitudes; revenues from 'new' products
Infrastructure/settlement (including coastal zones)	Relocation; seawalls and storm surge barriers; dune reinforcement; land acquisition and creation of marshlands/wetlands as buffer against sea level rise and flooding; protection of existing natural barriers	Standards and regulations that integrate climate change considerations into design; land use policies; building codes; insurance	Financial and technological barriers; availability of relocation space; <i>integrated policies and managements; synergies with sustainable development goals</i>
Human health	Heat-health action plans; emergency medical services; improved climate-sensitive disease surveillance and control; safe water and improved sanitation	Public health policies that recognise climate risk; strengthened health services; regional and international cooperation	Limits to human tolerance (vulnerable groups); knowledge limitations; financial capacity; <i>upgraded health services; improved quality of life</i>
Tourism	Diversification of tourism attractions & revenues; shifting ski slopes to higher altitudes and glaciers; artificial snow-making	Integrated planning (e.g. carrying capacity; linkages with other sectors); financial incentives, e.g. subsidies and tax credits	<i>Appeal/marketing of new attractions; financial and logistical challenges; potential adverse impact on other sectors (e.g. artificial snow-making may increase energy use); revenues from 'new' attractions; involvement of wider group of stakeholders</i>
Transport	Realignment/relocation; design standards and planning for roads, rail, and other infrastructure to cope with warming and drainage	Integrating climate change considerations into national transport policy; investment in R&D for special situations, e.g. permafrost areas	Financial & technological barriers; availability of less vulnerable routes; <i>improved technologies and integration with key sectors (e.g. energy)</i>
Energy	Strengthening of overhead transmission and distribution infrastructure; underground cabling for utilities; energy efficiency; use of renewable sources; reduced dependence on single sources of energy	National energy policies, regulations, and fiscal and financial incentives to encourage use of alternative sources; incorporating climate change in design standards	Access to viable alternatives; financial and technological barriers; acceptance of new technologies; stimulation of new technologies; use of local resources



Sector	Key mitigation technologies and practices currently commercially available. Key mitigation technologies and practices projected to be commercialised before 2030 shown in italics.	Policies, measures and instruments shown to be environmentally effective	Key constraints or opportunities (Normal font = constraints; italics = opportunities)
<b>Energy Supply</b>	Improved supply and distribution efficiency; fuel switching from coal to gas; nuclear power; renewable heat and power (hydropower, solar, wind, geothermal and bioenergy); combined heat and power; early applications of Carbon Dioxide Capture and Storage (CCS) (e.g. storage of removed CO <sub>2</sub> from natural gas); <i>CCS for gas, biomass and coal-fired electricity generating facilities; advanced nuclear power; advanced renewable energy, including tidal and wave energy, concentrating solar, and solar photovoltaics</i>	Reduction of fossil fuel subsidies; Taxes or carbon charges on fossil fuels	Resistance by vested interests may make them difficult to implement
		Feed-in tariffs for renewable energy technologies; Renewable energy obligations; Producer subsidies	<i>May be appropriate to create markets for low emissions technologies</i>
<b>Transport</b>	More fuel efficient vehicles; hybrid vehicles; cleaner diesel vehicles; biofuels; modal shifts from road transport to rail and public transport systems; non-motorised transport (cycling, walking); land-use and transport planning*; <i>Second generation biofuels; higher efficiency aircraft; advanced electric and hybrid vehicles with more powerful and reliable batteries</i>	Mandatory fuel economy, biofuel blending and CO <sub>2</sub> standards for road transport	Partial coverage of vehicle fleet may limit effectiveness
		Taxes on vehicle purchase, registration, use and motor fuels, road and parking pricing	Effectiveness may drop with higher incomes
		Influence mobility needs through land use regulations, and infrastructure planning; Investment in attractive public transport facilities and non-motorised forms of transport	<i>Particularly appropriate for countries that are building up their transportation systems</i>
<b>Buildings</b>	Efficient lighting and daylighting; more efficient electrical appliances and heating and cooling devices; improved cook stoves, improved insulation; passive and active solar design for heating and cooling; alternative refrigeration fluids, recovery and recycling of fluorinated gases; <i>Integrated design of commercial buildings including technologies, such as intelligent meters that provide feedback and control; solar photovoltaics integrated in buildings</i>	Appliance standards and labelling	Periodic revision of standards needed
		Building codes and certification	<i>Attractive for new buildings.</i> Enforcement can be difficult
		Demand-side management programmes	Need for regulations so that utilities may profit
		Public sector leadership programmes, including procurement	<i>Government purchasing can expand demand for energy-efficient products</i>
		Incentives for energy service companies (ESCOs)	<i>Success factor: Access to third party financing</i>
<b>Industry</b>	More efficient end-use electrical equipment; heat and power recovery; material recycling and substitution; control of non-CO <sub>2</sub> gas emissions; and a wide array of process-specific technologies; <i>Advanced energy efficiency; CCS for cement, ammonia, and iron manufacture; inert electrodes for aluminium manufacture</i>	Provision of benchmark information; Performance standards; Subsidies, tax credits	<i>May be appropriate to stimulate technology uptake.</i> Stability of national policy important in view of international competitiveness
		Tradable permits	Predictable allocation mechanisms and stable price signals important for investments

Sector	Key mitigation technologies and practices currently commercially available. Key mitigation technologies and practices projected to be commercialised before 2030 shown in italics.	Policies, measures and instruments shown to be environmentally effective	Key constraints or opportunities (Normal font = constraints; italics = opportunities)
		Voluntary agreements	Success factors include: clear targets, a baseline scenario, third party involvement in design and review and formal provisions of monitoring, close cooperation between government and industry
<b>Agriculture</b>	Improved crop and grazing land management to increase soil carbon storage; restoration of cultivated peaty soils and degraded lands; improved rice cultivation techniques and livestock and manure management to reduce CH <sub>4</sub> emissions; improved nitrogen fertiliser application techniques to reduce N <sub>2</sub> O emissions; dedicated energy crops to replace fossil fuel use; improved energy efficiency; <i>Improvements of crop yields</i>	Financial incentives and regulations for improved land management, maintaining soil carbon content, efficient use of fertilisers and irrigation	<i>May encourage synergy with sustainable development and with reducing vulnerability to climate change, thereby overcoming barriers to implementation</i>
<b>Forestry forests</b>	Afforestation; reforestation; forest management; reduced deforestation; harvested wood product management; use of forestry products for bioenergy to replace fossil fuel use; <i>Tree species improvement to increase biomass productivity and carbon sequestration. Improved remote sensing technologies for analysis of vegetation/ soil carbon sequestration potential and mapping land use change</i>	Financial incentives (national and international) to increase forest area, to reduce deforestation, and to maintain and manage forests; Land-use regulation and enforcement	Constraints include lack of investment capital and land tenure issues. <i>Can help poverty alleviation.</i>
<b>Waste</b>	Landfill CH <sub>4</sub> recovery; waste incineration with energy recovery; composting of organic waste; controlled waste water treatment; recycling and waste minimisation; <i>biocovers and biofilters to optimise CH<sub>4</sub> oxidation</i>	Financial incentives for improved waste and wastewater management	May stimulate technology diffusion
		Renewable energy incentives or obligations	Local availability of low-cost fuel
		Waste management regulations	Most effectively applied at national level with enforcement strategies

<http://ipcc.cac.es/index.htm>



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## THE POLITICS

*As the pressure to tackle global warming increases there is a concerted but subtle endeavour, using the media, to undermine the basic stand of the UNFCCC. This stand was ratified in the Berlin Meeting of the Conference of Parties in 1993. It reiterated that the developed (richer, western) countries were primarily responsible for the GHG emissions which induced Global Warming resulting in Climate Change.*

*Targeting China and India, it selectively highlights growth of GHGs in these poorer countries, whose GHG emissions are increasing at a faster pace than expected, but well below the per capita emissions that are characteristic of the developed countries*

*So you see reports like the ones below, but comparatively very little on the USA in popular media. The USA is not only the biggest polluter by far, but is also refusing to agree to the dilute mandated emissions reduction it agreed to in the Kyoto Protocol, and which it has since rejected.*

*We therefore see mention that the US is refusing to accept mandated caps on its emissions, and in the same breath it is mentioned that India and China should also agree to such caps.*

### The future of the Earth depends on China

If you had said a decade ago that Al Gore would be organising the biggest rock concert in history, with two billion people watching and worrying about climate science, you would have been swiftly sectioned. But here we are: this weekend, the democratically elected 43rd President of the United States will be cheered on to the Live Earth stage by hundreds of millions of viewers eager to know more about how we are, together, drastically altering the physical and chemical composition of our atmosphere.

Watch out for the very first venue, because it is rapidly becoming the most important: Shanghai. This year, China overtook the United States as the biggest single emitter of greenhouse gases - way ahead of all the predictions. If current growth trends continue, China's emissions will exceed that of all industrialised countries combined by just 2030. But we have yet to redraw the map of green campaigning to catch up with this epochal shift. The transformation of China today is so vast that it will be recorded by history as the Third Industrial Revolution. The positive consequences are plain to see: over 100 million people have been lifted out of near-permanent hunger in the past decade alone. But this is at the cost of an ecocide that will soon see that hunger return in ever-more vicious form if we don't adapt, fast.

China's cities are now lost in a permanent haze of smog that can render skyscrapers invisible at 100 feet. If you live in Beijing and simply breathe the air, it has the same effect on your lungs as smoking 20 high-tar cigarettes a day. Five of the country's largest rivers are now so toxic that it is dangerous to even touch them. The Pearl River has been renamed "The Black Dragon" because it runs black with toxins.

The effect of global warming on China is vast. Half of China's population lives on the country's eastern seaboard - which will be drowned by just one metre of rising sea levels. The country's major rivers only flow because glaciers in the Himalayas catch snow in the winter and it melts off in the spring. But these glaciers are rapidly disappearing. How will the hundreds of millions of people dependent on this water - for growing their food, as well as for drinking and sanitation - survive?

The Climate Action Network ranks China 54th out of 56 countries for its response to global warming. Although the Chinese Communist dictatorship talks tough on global warming, the leeway given to green groups to make them act on their rhetoric is extremely limited. Only last year, an ordinary citizen called Tan Kai was tossed into prison for trying to set up a local environmental monitoring group called Green

Watch. But there are a few caveats here too. The average Chinese person still emits only a quarter of the greenhouse gases of the average American citizen, and half the gases of a European. They also point out that many of these Chinese emissions are, in fact, ours. We in Europe have mainly cut our greenhouse gas emissions not by cutting back our consumption but by transferring our

*Chris Madden*



polluting activities to Chinese factories. Your home is full of products made in these belching factories, and so is mine.

Across China, brave citizens are rising up to fight their government over the environment. So how do we side with these ordinary Chinese citizens who can foresee the looming disaster for their country and their planet? And - a logical next step - how do we lock China into a global agreement to reduce global warming emissions?

There is one simple concept that shows us the way forward, allowing the world's poor to develop without dooming us all. It is called Contraction and Convergence (C&C), and it was invented by the Global Commons Institute. The inventors of C&C point out that we already know that the level of greenhouse gases in the atmosphere needed to stay below a C2<sup>0</sup> rise, the point of no return. They call this amount of greenhouse gas emissions the world's "carbon budget".

The only fair way to divide out the world's carbon budget is to allocate an equal amount to each living human being. So under C&C, each country would be given a budget based on their population per head. There are then two stages. First, the rich countries would have to buy the right to their far higher emissions from the poor - in the process

compensating the poor for the warming we have already caused. Second, the poor countries would gradually increase their emissions while the rich whittled them down, until we eventually converged in the middle.

C&C is the only framework that could conceivably persuade the Chinese people to limit their emissions over time - and thereby save the world from runaway warming. But there is a complicating factor. Even if we persuade the Chinese people, can we persuade the Chinese Communist Party? The CCP is acutely aware that its power is dependent on providing breakneck economic growth, because this anaesthetises the population against its lack of political freedom by providing higher incomes. They will resist any limit, even further down the line. This is why, when China's greatest green writer, Tang Xiyang, was asked what the country's biggest environmental problem was, he said: "Democracy. If you don't have democracy, you can't have real environmental protection."

So we need a two-pronged approach to China's swelling emissions: offer the Chinese people a fair deal, and support the democracy activists inside the country so they can force the dictatorship to accept it. We could start by shaming and stopping

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the Western corporations - including Yahoo and Google - who collaborate with the Chinese dictatorship in erecting the Great Firewall of China that prevents ordinary Chinese citizens from clicking on green groups' sites. So, yes, it is

appropriate that Live Earth starts in Shanghai. The fight against global warming will flare or die in that smoggy, angry city, and hundreds like it. The future of Earth depends now on how well we woo them. ☹

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## Leveraging Climate Change Concerns

Globalisation and its attendant reliance on mobility — of goods and persons — have now become ineluctably entrenched and have created an interdependent world. We would need universal consensus to turn the tide. It would be extremely difficult, if not impossible or infeasible, to go back to a Gandhian vision of local self-sufficiency. Satellite television that bombards images of how the other half lives — and flaunts — has raised aspirations that are difficult to contain. We now live in a world that will have to sink or swim together. The billions of people, who live in the developing countries of Asia, Africa, and Latin America, are faced with the hapless dilemma of environment versus development. It is facile and perhaps irresponsible for us to argue that developing countries should be allowed to pollute until they reach a certain level of development. Instead, we need to find ways and means to ensure that developing countries move to a clean growth paradigm.

And this is where globalisation has set up roadblocks. Mitigating climate change and achieving stabilisation of greenhouse gas atmospheric concentrations — the objective of the United Nations Framework Convention on Climate Change (UNFCCC) — will require deep reductions in global energy-related carbon dioxide emissions. This is possible only if developing countries have unrestricted access to clean energy technologies. While, on the one hand, the forces of globalisation have dismantled trade barriers between nations, they have also erected new barriers in the form of intellectual property rights

and patents, which effectively block developing countries' access to clean energy technologies.

At present, developed countries do possess considerable clean energy technologies that are commercially viable. Germany, for instance, is the world leader in solar technologies. A handful of multinationals — Areva, Westinghouse, and GE — hold the key to contemporary nuclear reactor technologies. A Canadian company has commercialised a turbine that generates electricity from ocean currents — one of the largest untapped renewable energy resource in the world with an estimated potential of 450,000 megawatts. There are many such examples of other renewable energy resources as well.

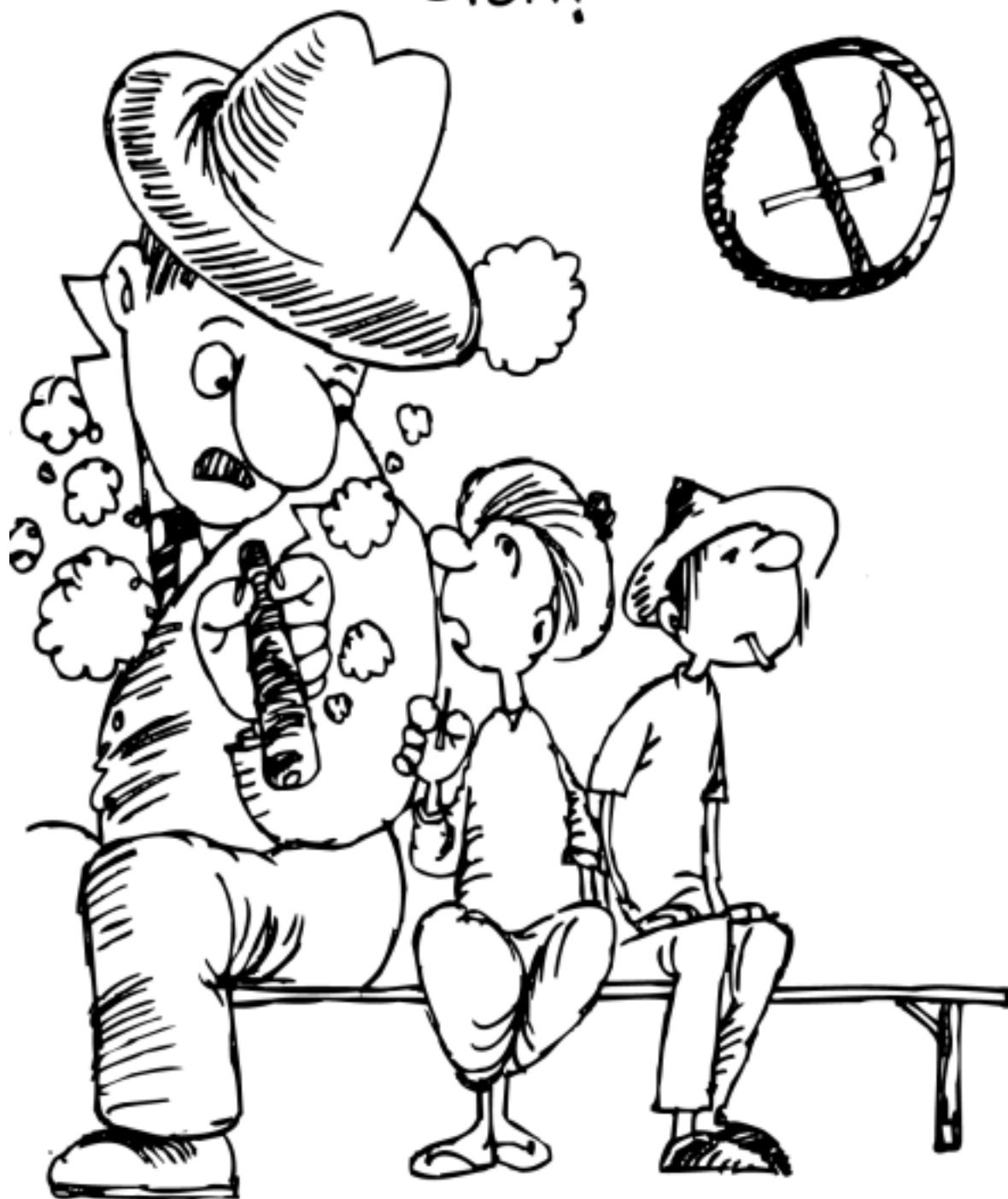
Of all clean energy technologies, those that burn coal in a clean manner are the ones most relevant to countries such as India and China both endowed with relatively abundant quantities of this fuel, which, unfortunately, has also the highest carbon content among fossil fuels. By increasing the efficiency of coal use and simultaneously sequestering carbon from coal, India and China can transit to a clean growth trajectory.

Even as our Prime Minister pushes for clean coal and nuclear energy to be labeled 'green' at the upcoming G8 summit in Germany, we, in partnership with other developing countries, need to lobby for exempting clean coal technologies from patent protection. The rich countries of the world owe it as much to themselves, as to us. Global warming, after all, is a great leveler. ☹

*Sudha Mahalingam, Senior Fellow at the Nehru Memorial Museum & Library, New Delhi*  
<http://www.thehindu.com/2007/06/05/stories/2007060503050800.htm>

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IDIOTS... CAN'T YOU  
SEE THE 'NO SMOKING'  
SIGN?



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## Global Warming in India - Softening up offensive

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Realising that Kyoto will end in a whimper lest the U.S. and the growing economies of China and India are brought on board to accept mandatory cuts, the chief proponents of Kyoto have begun a softening up offensive. First, the G8 club has been inviting Brazil, Russia, India, China, and Mexico to its summit meetings to evolve G8+5 strategies to mitigate global warming. Secondly, delegates from G8+5 and the U.S. Congress met on Capitol Hill in February 2007 to discuss future climate policy. According to *New Scientist*, they agreed to limit global carbon dioxide emissions to “somewhere between 450 and 550 parts per million compared to the present level of 379 parts per million,” in order to frame emission targets “according to historical responsibility and development needs,” establish a “carbon market, linking the European emissions trading scheme with others emerging across the globe” and give “a focus on research and development, energy efficiency, and means of adapting to the unavoidable effects of climate change.”

What is in store for India? What are the options available to it to limit its GHG emissions? Should India emphasise mitigation measures, or adaptation strategies, or both? And most important, how is it to guard the growth of the Indian economy from the adverse impact of GHG reductions — which boils down to less energy generation and consumption? Such questions will confront the expert advisory committee to be set up by the Government of India on global warming. The proposal to set up such a committee was announced by the Finance Minister in his budget speech.

Baseline information on India’s GHG emissions was gathered during an exercise undertaken in the mid-1990s to make an inventory of sources of emissions and their volumes, for submission to the Conference of Parties of the UNFCCC. India’s predominantly coal-based power industry, its oil-intensive transportation systems, large areas under paddy cultivation, and 440-million cattle

population are its principal sources. The implications of GHG reductions on energy generation and hence on the economy can be gauged from the report of the Integrated Energy Policy Committee released by the Planning Commission in December 2005. The report said: “To deliver a sustained growth of 8 per cent through 2031, India would, in the very least, need to grow its primary energy supply by three to four times and electricity supply by five to seven times of today’s consumption.”

Currently, coal accounts for over 50 per cent of the country’s commercial energy consumption and almost 60 per cent of its electricity generation. Even in the most optimistic scenario of maximising the development of all clean energy sources, coal will account for 42 per cent of the fuel-mix by 2031-32. Under the least optimistic projections, coal will account for 65 per cent. Carbon dioxide emissions will go up from the present one billion tonnes a year to 4.1 or 5.9 billion tonnes, depending on the fuel-mix option that may prevail then.

Can India afford binding commitments, then? The answer is an emphatic ‘no.’ What India can do in the interests of mitigating global warming and climate change and in the interests of its energy security is to manage its energy supply and demand based on economic pricing of energy, remove wasteful subsidies, reduce transmission and distribution losses, promote mass transit and freight movement by rail in preference to road, and promote energy conservation in buildings and energy efficiency in industry and agriculture. Vigorous promotion of renewable energy sources and nuclear energy — the latter somewhat looked down upon by some members of the EU — can lend greenness to the Indian energy scene. Adaptation to climate change is an equally worthwhile end to pursue and may make more sense than mitigation. India should do what it needs to do and not what others want it to do. ☺

*N.R.Krishnan, former Secretary, Ministry of Environment and Forests, Government of India.)*  
<http://www.thehindu.com/2007/04/13/stories/2007041302401100.htm>

I BELIEVE IT'S WORSE THAN  
MUST DO SOMETHING FAST



COOL DOWN... WE KNOW  
DISCUSSING ABOUT  
CATASTROPHE C



THAN WE THOUGHT... WE  
AST...NOW... OR ELSE...



W THAT. WE ARE ONLY  
WHETHER TO FACE  
OR DISASTER...

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## THE DILEMMAS

### When being green raises the heat

STANFORD, California: Carbon dioxide is heating up the Earth. Ice caps are melting, ocean levels are rising, hurricanes are intensifying, tropical diseases are spreading and the threat of droughts, floods and famines looms large. Can planting a tree help stop all this from happening?

While preserving and restoring forests is unquestionably good for the natural environment, new scientific studies are concluding that preservation and restoration of forests outside the tropics will do little or nothing to help slow climate change. And some projects intended to slow the heating of the planet may be accelerating it instead.

Trees don't just absorb carbon dioxide — they soak up the sun's heating rays, too. Forests tend to be darker than farms and pastures and therefore tend to absorb more sunlight. This has a warming influence that appears to cancel, on average, the cooling influence of the forest's carbon storage. This effect is most pronounced in snowy areas — snow on bare ground reflects far more sunlight back to space than does a snowed-in forest — so forests in areas with seasonal snow cover can be


strongly warming.

In contrast, tropical forests appear to be doubly valuable to the earth's climate system. Not only do they store copious amounts of carbon, the roots of tropical trees reach down deep, drawing up water that they evaporate through their leaves. In the atmosphere, this water may form clouds that reflect sunlight back to space, helping to cool the earth.

These findings have important policy implications. It has been suggested that agreements to limit climate change should consider carbon stored in forests. If so, they would need to consider the direct climate effects of forests so as to avoid perverse incentives to plant warming forests in places like the United States, Canada, Europe and the former Soviet Union. However, tropical forests, which are generally found in developing countries, may be due a double climate credit — one for their carbon storage and another for their cooling clouds.

The broadest goal is neither to slow the growth of carbon dioxide in the atmosphere nor to slow climate change, but rather to preserve the irreplaceable natural balance that sustains life as we know it on this planet.

But the notion that we can save the planet just by planting trees is a dangerous illusion. To preserve our environment, we must drastically reduce carbon dioxide emissions. A primary goal for the next half-century should be to transform our energy system to one based on clean, safe and environmentally acceptable energy sources like wind, solar and perhaps nuclear.

We must demand that our political leaders do more to revolutionize our energy system and preserve our environmental inheritance. And then we can plant a tree. 

*Ken Caldeira, scientist  
at the Carnegie Institution's department of global ecology.  
January 16, 2007, The International Herald Tribune  
<http://iht.com/articles/2007/01/16/opinion/edcald.php>*



To simplify the exemptions clauses, we've exempted everyone.

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## Subject: Carbon Credits through SRI

(System of Rice Intensification)

From: C. Udaya Shankar, Advisor, Centre for World Solidarity, Secunderabad, India.

To: [kics-agriculture@googlegroups.com](mailto:kics-agriculture@googlegroups.com)

Dear Friends this is in response to the subject note of Ms.Soumya Dutta, National Secretary, Bharat Jana Vigyan Jatha. She suggests the possibility of gaining carbon credits through SRI as it is able to give almost equal yields without keeping the fields under water. As methane is over 20 times as potent a GHG as CO<sub>2</sub>, the amount of GHG induced warming that rice producing third-world countries cause, will come down drastically, and the groups switching to this SRI method will get support under the Carbon Trading schemes also, thus reducing the pain of changeover from food crops to industrial plantations. India cannot afford the luxury of “set asides” for plantations as in Netherlands. Will the WORLD BANK and our Governments support SRI for carbon credits? With best wishes and regards,  
C. Udaya Shankar

From: “Himanshu Thakkar”

<[ht.sandrp@gmail.com](mailto:ht.sandrp@gmail.com)>

To: [cuday@hotmail.com](mailto:cuday@hotmail.com)

Dear Udaya Shankar,

Many thanks. This is something that I had not thought of. Nor had I read about it. I had not given any attention in the past to the claims about submerged paddy fields producing methane, for I thought this was part of the western strategy to hold developing countries responsible for global warming. So I cannot say anything about the credibility of those claims. However, I think we should use it to push SRI. Should SRI also be pushed in the name of earning CDM credits is something we need to think through in terms of the implications.

Best wishes,

Himanshu

From: “Himanshu Thakkar”

[ht.sandrp@gmail.com](mailto:ht.sandrp@gmail.com)

To: [kics-agriculture@googlegroups.com](mailto:kics-agriculture@googlegroups.com)

Subject: Global warming and SRI

Dear All,

Here is a response from Norman about the GHG gas emissions and SRI. As is evident, there are no straight answers as yet on this; we have to wait for more work before clear answers are available. But as Norman has said, where possible, we can push for an assessment of the impacts: Rice cultivation with or without SRI. Also, SRI is not universally applicable on all paddy lands. Hence, we need to tread carefully.

Himanshu

Email from Norman Uphoff

<[ntu1@cornell.edu](mailto:ntu1@cornell.edu)>

Dear Himanshu,

We have not seen or had the funding to do any systematic scientific evaluation of this issue, but from what is known in the literature, we can be quite sure that SRI methods will reduce methane emissions, possibly quite substantially. The reason we have not made more of this is that when rice is grown under aerobic conditions, there can be an increase in nitrous oxide (NO<sub>2</sub>), a greenhouse gas that is even more noxious than methane (almost as much more potent per molecule compared to methane as methane is more potent compared to CO<sub>2</sub>).

When SRI paddy is grown with organic means, not adding any inorganic N to paddy fields, there is good reason to expect that there will not be any flush of NO<sub>2</sub>, because there is not an abundance of free-floating N around for soil organisms to fix. So, I have seen no reason to be apprehensive that SRI would worsen the GHG situation. But neither have I been promoting SRI as a GHG reducer because there is a chance that the reduction of CH<sub>4</sub> could be offset by smaller amounts of NO<sub>2</sub>.

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What can be said with confidence is that SRI has the potential to make a substantial contribution to GHG reduction, and that this is reason why GEF and others should invest money in doing some conclusive scientific evaluations of SRI net impact on GHGs — how much less CH<sub>4</sub>? How much more NO<sub>2</sub> if any? If this is done, the SRI trials should be done with the involvement of persons who actually know how to practice SRI correctly, not some caricature of SRI as we see often in experiment station trials, like those that IRRI has done (where they got yields of 1.2 to 3 t/ha, only a half or a fifth of what others in the Philippines have gotten with SRI methods).

Friends of SRI should not be proposing that SRI is a solution for GHG emissions and should thus

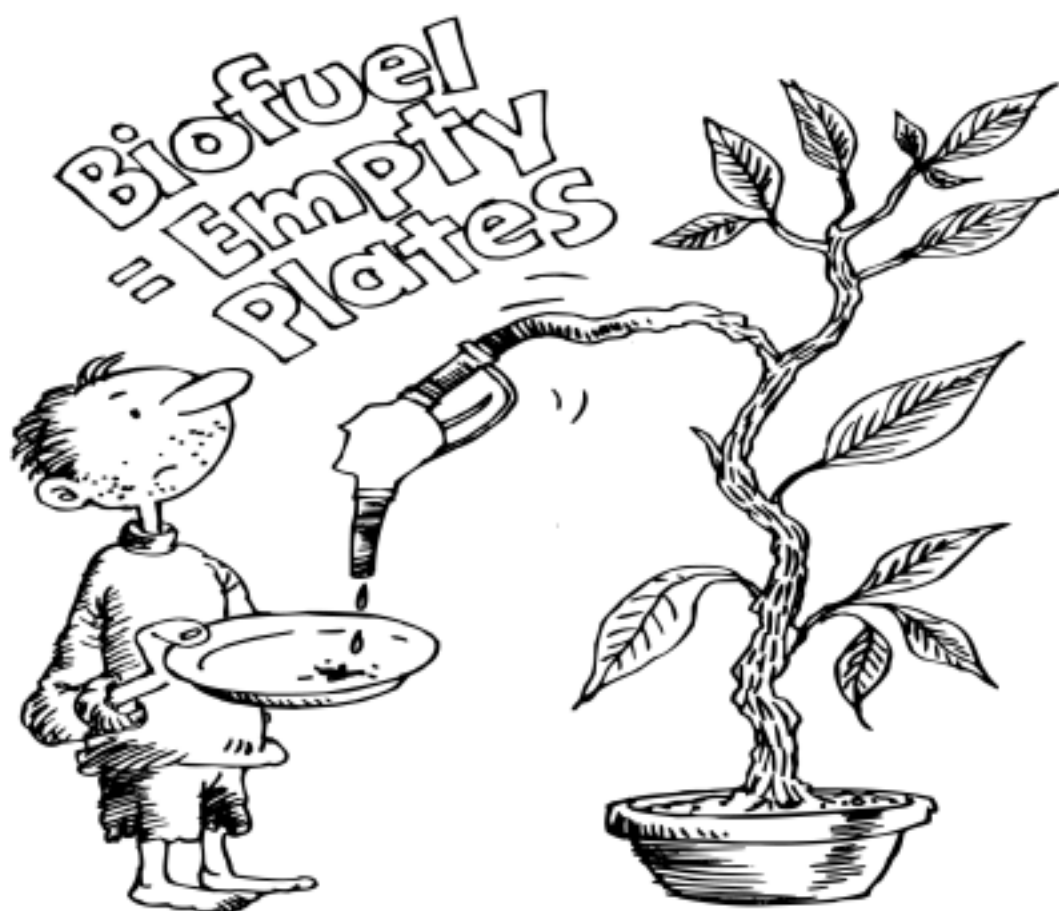
be promoted on a large scale for this reason (there are lots of other reasons for promoting it), but they should be asking funding agencies to give support to resolving this question as quickly as possible. I will attach a report on SRI by the National IPM program in Vietnam which has led to the Ministry of Agriculture and Rural Development there designating SRI as a ‘technology advance’ and beginning to fund SRI extension and research. The yield improvements are significant but not huge in the Vietnam trials, but the other benefits are more than sufficient justification for official approval. I think once they control water better, they will start to see the kind of yield gains we see in other countries.

With best regards, Norman



*Norman Uphoff is a professor of government and the former director of the Cornell International Institute for Food, Agriculture and Development. His current development interests have expanded beyond the social science domain to include agroecology and particularly the system of rice intensification (SRI). (NTU1@cornell.edu)*

*Himanshu Thakkar, is Coordinator of the South Asia Network on Dams, Rivers & People and Editor of Dams, Rivers & People South Asia Network on Dams, Rivers & People, Delhi, India. (ht.sandrp@gmail.com) emails : Knowledge in Civil Society (KICS) yahoo group*



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## India's dams largest methane emitters among the world's dams

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Latest scientific estimates by Ivan Lima and colleagues from Brazil's National Institute for Space Research (INPE), recently published in a peer-reviewed journal, show that large dams in India are responsible for about a fifth of the countries' total global warming impact. The estimates also reveal that Indian dams are the largest global warming contributors compared to all other nations.

This study estimates that total methane emissions from India's large dams could be 33.5 million tonnes (MT) per annum, including emissions from reservoirs (1.1 MT), spillways (13.2 MT) and turbines of hydropower dams (19.2 MT). Total generation of methane from India's reservoirs could be 45.8 MT. The difference between the figures of methane generation and emission is due to the oxidation of methane as it rises from the bottom of a reservoir to its surface.

The methane emission from India's dams is estimated at 27.86 % of the methane emission from all the large dams of the world, which is more than the share of any other country of the world. Brazil comes second with the emission of methane from Brazil's reservoirs being 21.8 MT per annum, which is 18.13% of the global figure.

These studies should further help shatter the myth that power from large hydropower projects is clean. Indian hydropower projects are already known for their serious social and environmental impacts on the communities and environment. The fact that these projects also emit global warming gases in such significant proportion should further destroy the myth.


The Indian government has been blind to this issue so far, even though it has been known for more than a decade now that reservoirs in tropical climate are significant source of global warming

gases. Neither Central Water Commission, nor Central Electricity Authority, both premier institutes of Government of India, have assessed the global warming impact of India's large dams and implications there of. **The minimum the government can do is:**

- 1 To urgently institute a credible independent scientific study of global warming impact of dams in India, in light of findings elsewhere. The study should include actual measurement of methane and other GHG emission from a sample of reservoirs.
- 1 While making this assessment, it should also be assess as to what extent methane emitted from reservoirs and hydropower projects can be recovered for beneficial use, in the process also reducing the global warming impact of the reservoirs.
- 1 While assessing power and water resources development options, the Green house gas emission potential of dams should be assessed, as part of the cost benefit analysis and as part of environment impact assessment.

The IPCC should initiate an independent study to assess the GHG potential of reservoirs in different parts of the world, including India. The IPCC should make reporting of emission of methane from large dams mandatory.

### For Further Information:

Ivan B.T. Lima et al. (2007) "Methane Emissions from Large Dams as Renewable Energy Resources: A Developing Nation Perspective, "Mitigation and Adaptation Strategies for Global Change, published on-line March 2007. <http://tinyurl.com/2bzawj> 

"FAQ: Greenhouse Gas Emissions from Dams." <http://www.irn.org/pdf/greenhouse/GlobalResGHGsFAQ.pdf>  
IRN web pages on reservoir emissions. <http://www.irn.org/programs/greenhouse/index.php?id=resemissions.html>  
[www.dams.org](http://www.dams.org) Himanshu Thakkar ([ht.sandrp@gmail.com](mailto:ht.sandrp@gmail.com))

South Asia Network on Dams, Rivers & People, New Delhi ([www.sandrp.in](http://www.sandrp.in)) Press Release - May 18, 2007

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## Why worry about nuclear waste now?

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With all things wizardly being topical, what better time to examine one of the practical skills that every self-respecting wizard should master: alchemy? The world's first successful alchemist was the New Zealand scientist and Nobel prize winner Ernest Rutherford. He realised that in the presence of the powerful radioactive rays, nitrogen, which makes up more than three-quarters of the air we breathe, turns into two other gases — hydrogen and oxygen. Today, changing one element into another through such nuclear reactions is routine. What is exciting, and yet not widely known, is that such subatomic alchemy might end up playing a vital part in the way we produce clean energy in the future.

A loose interpretation of the second law of thermodynamics is that “there is no such thing as a free lunch.” And so it is with electrical energy production. If you burn fossil fuels, you generate CO<sub>2</sub>; if you build dams, you destroy the ecology of entire valleys. Nuclear power is no exception. If you carry out controlled fission in a nuclear power station, you get long-lived radioactive waste, and that poses a long-term hazard to the environment unless it is dealt with properly. This has justifiably caused concern among many who would otherwise welcome nuclear power as a source of clean, carbon-free energy.

The favoured option is to store the treated and vitrified waste in deep geological repositories. Understandably, people don't want this in their backyard, not least because material such as plutonium remains radioactive for tens of thousands of years. In a democracy, in the throes of deciding its future energy policy, such concerns are a serious issue. I find this a very strange concern: here we are trying to figure out how to avert the disaster of climate change now, and yet the long-term problem of nuclear waste still worries us. Human civilisation started less than 10,000 years ago, so to worry whether we'll be technologically advanced enough to deal with this buried waste thousands of years in the future,

assuming we survive climate change, is utterly irrational. And, what if there was a way to incinerate the nuclear waste, destroying nearly all that plutonium and dramatically reducing the need for long-term storage?

One such strategy is known as accelerator-driven transmutation. The basic idea is to place the radioactive material in a machine and smash it up into much more stable products, with shorter half-lives using a beam of high-energy subatomic particles. The waste would still need to be stored, but would be much less hazardous. At the same time, the process of transmutation would eliminate other biologically toxic products that exist in “normal” nuclear waste. The real beauty of the process is that it could generate more energy than is pumped in. The heat generated by splitting the waste nuclei can be used to generate electricity, part of which is used to run the accelerator and the rest fed into the national grid. The failsafe mechanism is that when the beam is turned off, the reaction stops. This type of plant is known as an “energy amplifier” and the idea has been around since the 1990s.

So how feasible is this ability to transmute our nuclear waste? More important, why is no one talking about it? After all, the nuclear waste problem is seen as the major obstacle stopping many people from embracing nuclear power as one of the key ingredients in carbon-free energy generation. It is a source of deep concern that so many people still believe we can slash our reliance on coal and gas solely through renewable sources, such as wind and solar, along with energy conservation in buildings. These are all vital, but if we are going to avert the disasters of climate change while enjoying the standard of living that most in the west would be unwilling to give up, we are going to have to continue our reliance on nuclear energy. If transmutation could be made to work, it would go a long way towards helping the world come to terms with it. Beyond this timescale, we are now finally and genuinely

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optimistic that the ultimate energy source will come online: nuclear fusion. But that's another story.

France has a well-funded programme of research looking into transmutation. There are also initiatives in the U.S., Russia, Switzerland, Italy, and Japan, which the U.K. government continues to "monitor." The reason no one has perfected the technology yet is that while in theory it should work, we still do not know exactly what the final transmutation products will be, and in what proportions. The scientific community has to understand the science involved and the technology needed, its practicalities and potential impacts. This takes years. The U.S. and Europe have produced roadmaps of timescales of 20 to 35 years. Unfortunately, the nuclear industry does not see transmutation as economically viable and the onus is therefore on us to urge governments to act.

Many experts argue that while transmutation is a feasible future technology, there are several other options available too. The most widely touted is to use what is called a fast-breeder reactor that would re-use the nuclear fuel over and over again until all the plutonium is burned up. Another option many nations are looking into is to use thorium as the basic nuclear fuel. It is more abundant in nature than uranium, and much less radioactive material is produced compared with uranium fuel cycles. With all these possible options for coping with nuclear waste it is disappointing that what little public debate there has been in the U.K. seems to have been aimed at answering the question of "should we" rather than the technological question of "could we." The answer to the latter question is only likely to be found in a multidisciplinary effort involving scientists from a wide range of fields. ☺

*Guardian Newspapers Limited 2007*

*Jim Al-Khalili, professor of physics & professor of the public engagement in science at the University of Surrey. Recipient of the Royal Society Michael Faraday prize for science communication, 2007*

*The Hindu, 27/07/2007: <http://www.thehindu.com/2007/07/27/stories/2007072754101100.htm>*



**THE TREE OF LIFE**

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## THE PRACTICE

### Ten things to do

*Whilst this is an exhortation on personal practice to Americans, and Westerners, we in India from Shining India could very well practice most of these things. India's per capita emissions may be very low, but Shining India's per capita GHG emissions are way above the norm – and is part of the problem of Global Warming.*

#### Want to do something to help stop global warming?

#### Here are ten simple things you can do and how much carbon dioxide you'll save by doing them

*Change a light:* Replacing one regular light bulb with a compact fluorescent light bulb will save 150 pounds of CO<sub>2</sub> per year.

*Drive less:* Walk, bike, carpool or take mass transit more often. You'll save one pound of CO<sub>2</sub> for every mile you don't drive!

*Recycle more:* You can save 2500 pounds of CO<sub>2</sub> per year by recycling just half of your household waste.

*Check your tyres:* Keeping your tyres inflated properly can improve gas mileage by 3%. Every gallon of gasoline saved keeps 20 pounds of CO<sub>2</sub> out of the atmosphere!

*Use less hot water:* It takes a lot of energy to heat water. Use less hot water by installing a low flow shower head (350 pounds of CO<sub>2</sub> saved per year)

and washing your clothes in cold or warm water (500 pounds saved per year).

*Avoid products with lot of packaging:* You can save 1200 pounds of CO<sub>2</sub>, if you cut down your garbage by 10%.

*Adjust your thermostat:* Moving your thermostat just 2 degrees in winter and up 2 degrees in summer you could save about 2000 pounds of CO<sub>2</sub> a year by this simple adjustment.

*Plant a tree:* A single tree will absorb one tone of CO<sub>2</sub> over its life time.

*Turn off electronic devices:* Simply turning off your Television, DVD player, Stereo and Computer when you're not using them will save you thousands of pounds of CO<sub>2</sub> a year. ♻️

*Spread the word! Encourage your friends to buy an Inconvenient Truth available at [www.climatecrisis.net](http://www.climatecrisis.net)*

### India Announces New Climate Change Strategy

*India has been a late comer to doing something at the domestic level, though it has been a key player at the international level, to safeguard the rights of developing countries*

With growing international pressure to cut its overall greenhouse gas emissions, Indian Prime Minister Manmohan Singh announced on Friday that the government will take steps to developing a comprehensive national policy on climate change issues.

The declaration came after an inauguration meeting of Delhi's National Council on Climate Change. The government's aim is to lay the groundwork for a clear strategy in anticipation of

an important United Nations climate change meeting in Bali in December, but without setting any specific emissions targets. The goal of the December summit is to hammer out an agreement that will replace the Kyoto Protocol, which lapses in 2012.

A national afforestation plan for 15 million acres will also be launched on August 15th (though as The Hindu reported last week, the government plans could involve leasing areas for reforestation

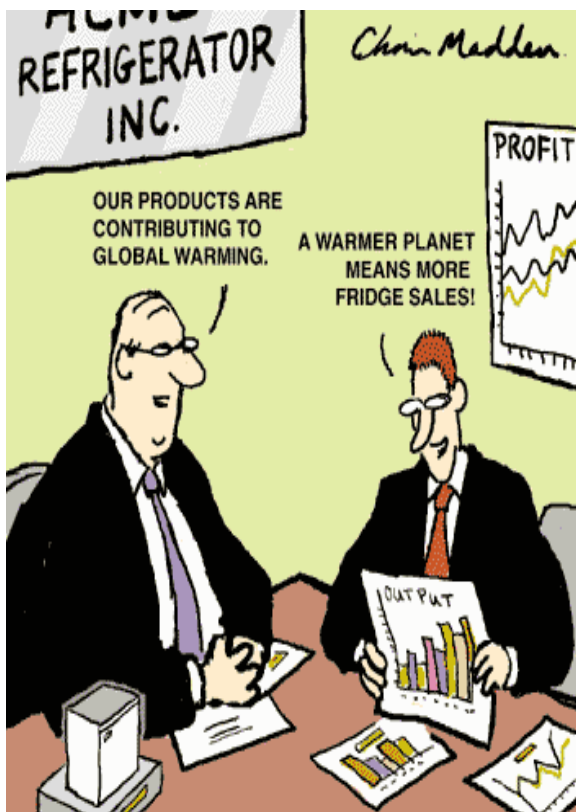


to private interests in order to meet a growing demand for paper products).

India's flourishing economy is growing at a rate of 8 to 9 percent per year and contributes 4 percent of global greenhouse gases an amount that is growing between 2 to 3 percent annually. As a developing nation, India is not required to reduce emissions under the Kyoto Protocol. The government says that with a booming economy and greenhouse gas emissions a fraction of those of industrialized countries, a reduction in energy use will unfairly and negatively impact growth.

Instead, the new Council will examine other renewable energy sources, along with alternative strategies to increase energy efficiency that will not impede growth. The council will also consider ways to stem the melting of the Himalayan glaciers, which are a source of many of India's rivers and are crucial for the nation's food and water security.

By Kimberley D. Mok, Auroville, India on 07.16.07  
[http://www.treehugger.com/files/2007/07/india\\_climate\\_change\\_plan.php](http://www.treehugger.com/files/2007/07/india_climate_change_plan.php)  
Expressindia.com



## India to chart strategy on climate change

By Nitin Sethi, Times News Network

India will prepare a national strategy on climate change before the next round of multilateral negotiations under the UN's convention on climate change is held in December. The PM's council on climate change will meet on July 13 to start work.

A senior government official told TOI, "The council's mandate is to suggest India's response to what recent studies show us and the national strategy required to deal with it internally."

The council has R K Pachauri, chairman of the UN's panel on climate change, Sunita Narain of the Centre for Science and Environment, and Prodipto Ghosh, till recently secretary in the environment and forests ministry, as experts from outside the government, while Ratan Tata represents the industry. Journalists Raj Chengappa and R Ramchandran are also on the PM's panel.

One area of concern which the council will have to tackle is the lack of data from India and South Asia finding its way into the UN reports on climate change. "We need to bolster our science research within India to have our own assessment and understand implications at a regional level," a senior official said.

While there is no timeframe set as yet for the council, it will be working in the backdrop of the conference of member-countries of the UN's Framework Convention on Climate Change in Bali in December.

July 10, 2007

Source: [http://timesofindia.indiatimes.com/India/India\\_to\\_chart\\_strategy\\_on\\_climate\\_change/articleshow/2189781.cms](http://timesofindia.indiatimes.com/India/India_to_chart_strategy_on_climate_change/articleshow/2189781.cms)

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## Truth about Kyoto: huge profits, little carbon saved

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In 2005, three journalists working for the environmental group the Centre for Science and Environment decided to investigate some of the Indian projects which were trying to break into the lucrative new business of carbon trading.

They started looking at four schemes in Andhra Pradesh which were trying to convert biomass - dead plants, animal dung - into fuel. They studied the formal reports which the schemes had commissioned from a UK company, Ernst and Young, to satisfy the demanding requirements of the UN's Clean Development Mechanism. And they noticed a very odd thing. Each of the four Ernst and Young reports had had to consult people near the proposed schemes to ensure that there was no risk to the local economy or environment. One report quoted three different community leaders, each expressing enthusiastic approval for the project and concluded: "Poor farmers are getting reasonable monetary gains for harvesting the available biomass and supplying it to project activity."

What was odd that with two of the other schemes, each many miles from the other, Ernst and Young quoted three sources who had the same job descriptions, the same opinions, summarized in precisely the same words which even included the same spelling mistakes.

The three journalists wrote up their conclusions in the group's magazine, *Down to Earth*, and made it clear that they were accusing Ernst and Young of simply cutting and pasting the same material into supposedly separate and independent reports. Ernst and Young said there was nothing wrong: the local people in all four places happened to have said very similar things in response to a standard set of questions. But the environmental journalists were concerned enough to write to the executive board of the Clean Development Mechanism, offering further information. The CDM board never even acknowledged their letter.

The CDM is one of two global markets which have been set up in the wake of the Kyoto climate

summit in 1997. Both finally started work in January 2005. Although both were launched with the claim that they would reduce greenhouse gases in the atmosphere, evidence collected by the Guardian suggests that thus far, both markets have earned fortunes for speculators and for some of the companies which produce most greenhouse gases and yet, through a combination of teething troubles and multiple forms of malpractice and possibly fraud, they have delivered little or no benefit for the environment.

While the CDM is run under the umbrella of the UN, the second market is overseen by the European commission. Before launching, it churned through a mass of figures and produced a maximum number of tonnes of carbon dioxide which could be produced by each nation in the scheme; each nation then handed its big corporations and organizations a set number of permits - EU allocations - defining the number of tonnes of carbon dioxide they could produce between January 2005 and December 2007. But they got their sums wrong.

The carbon market's leading analysts, Point Carbon, recently calculated that this scheme handed out 170m to many EUAs. In the early days, nobody realized quite how badly the commission had miscalculated, and so the price of the EUAs was quite high. But individual companies, particularly energy companies, rapidly saw they had millions of tonnes of EUAs that they didn't need, and so they sold their surplus, making huge profits.

And behind this profiteering, the environmental reality was that these major producers of carbon emissions were under no pressure from the scheme to cut emissions. At the other end of this EU market, smaller organizations like UK hospitals and 18 universities, who had been given far fewer EUAs, were forced to go out and buy them - while the price was still high.

While this EU market has failed to make any serious impact on climate change, the UN's Clean

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Development Mechanism has done little better. In contrast to the EU system, the CDM sets up projects which are supposed to reduce the quantity of greenhouse gases and then sells carbon credits which allow buyers to emit more gases.

Ten years after the idea was launched at Kyoto the CDM thus far has issued only 50m tonnes of certified emissions reductions to offset global warming: Britain produces more emissions than that in a single month.

There are doubts about the validity of some of these CERs, on two separate grounds. First, some of them appear to breach the CDM's requirements for sustainable development - 53% of the existing CERs come from just six monster projects, in India, China and South Korea, all of which engage in the most controversial form of carbon reduction. They manufacture refrigerant which produces as a side effect a gas called HFC-23. Although carbon dioxide is the most common greenhouse gas, HFC-23 is 11,700 times more likely than carbon dioxide to encourage global warming. Refrigerant companies find it relatively cheap to install an incinerator to burn the HFC-23 and, once that is converted into certified reductions of emission, each tonne saved can be sold as 11,700 carbon credits. These companies are now earning millions of Euros from these credits - more than from selling their refrigerant products.

The environmental problem is two-fold, first that HFC factories tend to pour out other pollutants which don't happen to be greenhouse gases but which are unpleasant or dangerous for local communities; and second, that the potential profits from burning HFC-23 are so great that companies are being encouraged to expand production of refrigerants so they can produce more HFC-23 to incinerate, thus increasing the net amount of pollution.

Secondly, there is evidence that a significant percentage of current and future CDM reductions, possibly as many as 20%, may have been wrongly checked. This affects not just the 50m tonnes of CERs which have been issued already, but a


massive quantity which is sitting in the pipeline as a result of hedge funds pouring an estimated 4,000m into high-profit carbon projects.

Within the world of carbon trading, there are numerous cases of projects which are widely regarded as breaking CDM rules. Yet, such schemes have been validated by specialist companies and accepted by the CDM board; and the companies running them have been allowed to earn large amounts of money by selling unjustified Certified Emissions Reductions.

There are generic problems with big hydro-power projects, where income from carbon credits amounts to such a tiny proportion of costs that it is hard to argue the projects would not have gone ahead without CDM finance. There are problems, too, with landfill projects which try to capture and harness another greenhouse gas, methane: it is tempting for projects to exaggerate the amount of methane which the landfill is leaking.

Until July 2006, the CDM executive board did not reject a single project. It was short of staff, short of experts and short of funds. So it relied on the specialist companies to get it right. Since those specialist companies are hired by the projects who stand to earn big profits if they are accepted, that is an inherently weak structure. More recently, the CDM board has found its feet and is using a new team of experts to check the work of the specialist companies. Now, they are spotting bogus projects which previously were slipping through. Since July last year, they have rejected 14 of them. Some of them were blatantly inappropriate, and yet specialist companies had validated them.

If a significant number of the 1,900m CDM credits waiting in the pipeline also prove to be bogus, the whole Kyoto project would start to backfire.

Defenders of the CDM argue that these are the early days of a complex mechanism which will run for a hundred years and leave these problems behind it. Against them, environmental groups argue that there never was a justification for attempting to tackle climate change by creating a carbon market. 

*Additional research by: Natasha Gilbert, Saturday June 2, 2007, The Guardian  
<http://environment.guardian.co.uk/climatechange/story/0,,2093815,00.html>*

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# THE HOPE

## Greenhouse Development Rights

GDRs is a “Climate protection framework designed to support an emergency climate stabilization program while, at the same time, preserving the right of all people to reach a dignified level of sustainable human development free of the privations of poverty.”

More specifically, the GDRs framework quantifies national *responsibility* and *capacity*, with the goal of providing a coherent, principle-based way to think about national obligations to pay for both mitigation and adaptation.

This paper argues that an **emergency climate program** is needed, that such a program is only possible if the international climate policy impasse is broken, and that this impasse arises from the inherent - but surmountable - conflict between the climate crisis and the development crisis. It argues that the best way to break this impasse is, perhaps counter-intuitively, by expanding the climate protection agenda to include the protection of **developmental equity**. To that end, the Greenhouse Development Rights framework is designed to hold global warming below 2°C while, with equal deliberateness, safeguarding the right of all people everywhere to reach a dignified level of sustainable human development. This standard of living, which we might say is that of a ‘global middle class,’ is higher than the global poverty line, but lower than the northern middle-class standard.

*To be explicit, we see this right to development, and the corresponding right to be exempt from global climate obligations, as belonging to poor people, not poor countries.* And, indeed, the GDRs framework proceeds transparently from this premise, first defining an emergency stabilization pathway, then quantifying national responsibility and capacity to act, and finally calculating national obligations to pay the costs of both an emergency mitigation program and strenuous adaptation efforts. Moreover, it does this for all countries, and in a manner that takes income disparities

within nations into explicit account. By so doing, it seeks to secure for the world’s poor the environmental space and resources needed for low-carbon development.

Given this goal, the *GDRs framework inevitably allocates to the wealthy and high-emitting, in both the North and the South, the costs of the necessary mitigation and adaptation, and does so no matter how large (or small) these costs turn out to be.* Such an approach may appear improbably ambitious, but we nevertheless see GDRs as being ‘realist,’ albeit in a new way.

Rather than treating short-term political constraints as immutable, we’ve sought to construct a transparent framework capable of catalyzing and then supporting an emergency climate program that could actually meet the long-term challenge before us.

At its heart, GDRs is a response to an unfortunate fact: given the extraordinarily rapid emissions reductions that are now necessary (and, to be complete, the state of today’s technology) *even equal per capita emissions rights wouldn’t give the South enough “developmental space”* to escape its historically subordinate role in the global economy. This is among the many grim truths of the climate crisis, but, as we’ve found ourselves saying with some regularity, “the math is implacable.” In a sense, what we’ve done in this paper is follow the implications of this implacability, as straightforwardly and as transparently as we were able.

### A little bit of history

The Greenhouse Development Rights framework is the culmination of many years of work. Some will have seen earlier versions of it, as the ideas were first presented at COP 10 in Buenos Aires in 2004, and a brief draft – [Greenhouse Development Rights: An approach to the global climate regime that takes climate protection seriously while also preserving the right to human development] – was circulated in November of

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2006. This paper, however, is different. It attempts to explain itself completely, and to make the GDRs framework concrete. To that end, it includes calculations of a “Responsibility and Capacity Indicator” for all countries, and then goes on to show that, for any given estimate of the total cost of an emergency mitigation and adaptation program, these RCIs can be used to estimate national obligations – bills,” actually.

### **An “open source” policy framework**

The Greenhouse Development Rights framework is based on a simple idea, that there are only a small number of *reasonable* ways in which the UNFCCC’s famous “common but differentiated responsibilities and respective capacities” can be quantified. We’ve proposed a specific method for making such a quantification, but we do not

presume to have the last word on the matter.

Accordingly, we’d like to see Greenhouse Development Rights develop into an *open source* policy framework. *That is, we want people who are sympathetic (or even unsympathetic) to our basic idea to be able to work with our analysis, our data, our assumptions, and our models, and to develop their own versions, variations and extensions of the GDRs approach.* Accordingly, we’ve put our database, along with some of the computer code used in our calculations, into a public repository at <http://gdrs.sourceforge.net>.

It needs more work, but the basics are already there, and we invite the nerds among you to visit, download the “GDRs Calculator,” and give us your feedback. We’ll take it seriously, because this is very much a work in progress. 

*Address correspondence to [GDRs@ecoequity.org](mailto:GDRs@ecoequity.org)  
<http://www.ecoequity.org/GDRs/>*

## **India sets terms for a cap on greenhouse gas emissions**

SINGAPORE: India has offered to place a “cap” on the “per-person greenhouse gas emissions” at a level equivalent to a “cap” that the developed countries would be willing to agree upon.

Conveying this to the leaders of the East Asia Summit (EAS) here on Wednesday, Prime Minister Manmohan Singh said his “first priority is India’s economic growth” and climate change issues would be looked at under that prism. India’s greenhouse gas emissions were now “much smaller” than those of the developed countries, especially when measured on a “per-person basis.”

India being “entitled” to the same standards as those that the developed bloc applied to itself, he would be prepared to match any commitments that might be made by the industrially advanced nations within the framework of economic growth.

Summing up India’s stance on these lines, EAS Chairman and Singapore Prime Minister Lee Hsien Loong said, at a post-summit press conference, that he did “not know whether that is the position which will be negotiated in an international agreement” on climate change.

China and India made “eloquent presentations” on why economic development was a priority for them, Mr. Lee pointed out. The leaders of the 16 EAS countries later signed a Declaration on Climate Change, Energy and the Environment. At the signing ceremony, Mr. Lee was flanked by Dr. Singh and Chinese Prime Minister Wen Jiabao, as if to convey the political symbolism of the relevance of these two countries to the global discourse on climate change.

Mr. Lee described the EAS document on this issue as “a declaration of intent, not a negotiated treaty.”

On the cross-linkages between economic development, energy security and climate change, Mr. Lee quoted Dr. Singh as having told his EAS colleagues that he had “no time to worry about global warming” after reading headlines suggesting that Venezuela would like crude oil prices to double from the current level of \$100 a barrel.

The issue of civilian nuclear energy was discussed during the in-camera EAS meeting, but the United States-India agreement on this issue did not figure,

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according to Union Commerce Minister Kamal Nath, who was with Dr. Singh during the deliberations.

The leaders of the EAS, a forum that links India

with China as also Japan among others, declared their intention to cooperate for “the development and use of civilian nuclear power.” This would apply to “those EAS participating countries which are interested.”

*P.S. Suryanarayana <http://www.thehindu.com/2007/11/22/stories/2007112256461600.htm> © Copyright 2000 - 2007 The Hindu*

## China set to exceed renewables target

Headlines in China tend to focus on how the country’s roaring economy is being fuelled by a lethal cocktail of coal, oil and nuclear power.

Chinese power plants emit the second-highest total amount of carbon dioxide (2.4 billion tonnes) into the atmosphere each year.

But China also has a fast-growing renewable energy sector and the country is likely to achieve – and may even exceed – its target to obtain 15 per cent of its energy from renewables by 2020, according to a report by the Worldwatch Institute, an independent research group that concentrates on environmental, social and economic trends.

If China’s commitment to diversifying its energy supply persists, renewable energy could provide more than 30 per cent of the nation’s energy by 2050.

“A combination of policy leadership and entrepreneurial savvy is leading to spectacular growth in renewable energy, increasing its share of the market for electricity, heating, and transport fuels,” said Eric Martinot, a Worldwatch senior fellow in Beijing. “China is poised to become a leader in renewables manufacturing, which will have global implications for the future of the technology.”

In both rural areas and in major cities, houses routinely have solar panels on the roof to heat water for washing, while wind farms are becoming a more common sight. This should eventually go some way to offsetting China’s reliance on coal, which provides 80 per cent of its power.

The Worldwatch report is a rare piece of good

news about China’s environment, which remains in dire shape – CO2 emissions are on the rise and are expected to exceed America’s total carbon dioxide emissions shortly, although Chinese per-capita emissions remain about one-sixth of those in the US.

Last year, \$35bn (£17bn) was invested in renewable energy worldwide, and China is expected to invest more than \$7bn in new renewables capacity in 2007. Wind and solar energy are expanding rapidly in China, with production of wind turbines and solar cells both doubling in 2006.

This means China is poised to pass world solar and wind manufacturing leaders in Europe, Japan, and North America in the next three years, and it already dominates the markets for solar hot water and small hydropower. Wind power is the fastest growing power-generation technology in China. By 2007, China was home to four major domestic manufacturers of wind turbines and another six foreign subsidiary manufacturers.

Solar power production capacity increased from 350 megawatts (MW) in 2005 to more than 1,000MW in 2006, with 1,500MW expected in 2007.

“China’s position provides a strong example for other developing countries, while helping to drive down renewable energy costs to become competitive with fossil fuels for all countries the world over,” said the report’s co-author Li Junfeng, vice-chairman of China’s Renewable Energy Society.

*Clifford Coonan in Beijing, 16 November 2007 <http://news.independent.co.uk/world/asia/article3166407.ece>  
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## Australia's new prime minister ready to sign Kyoto pact

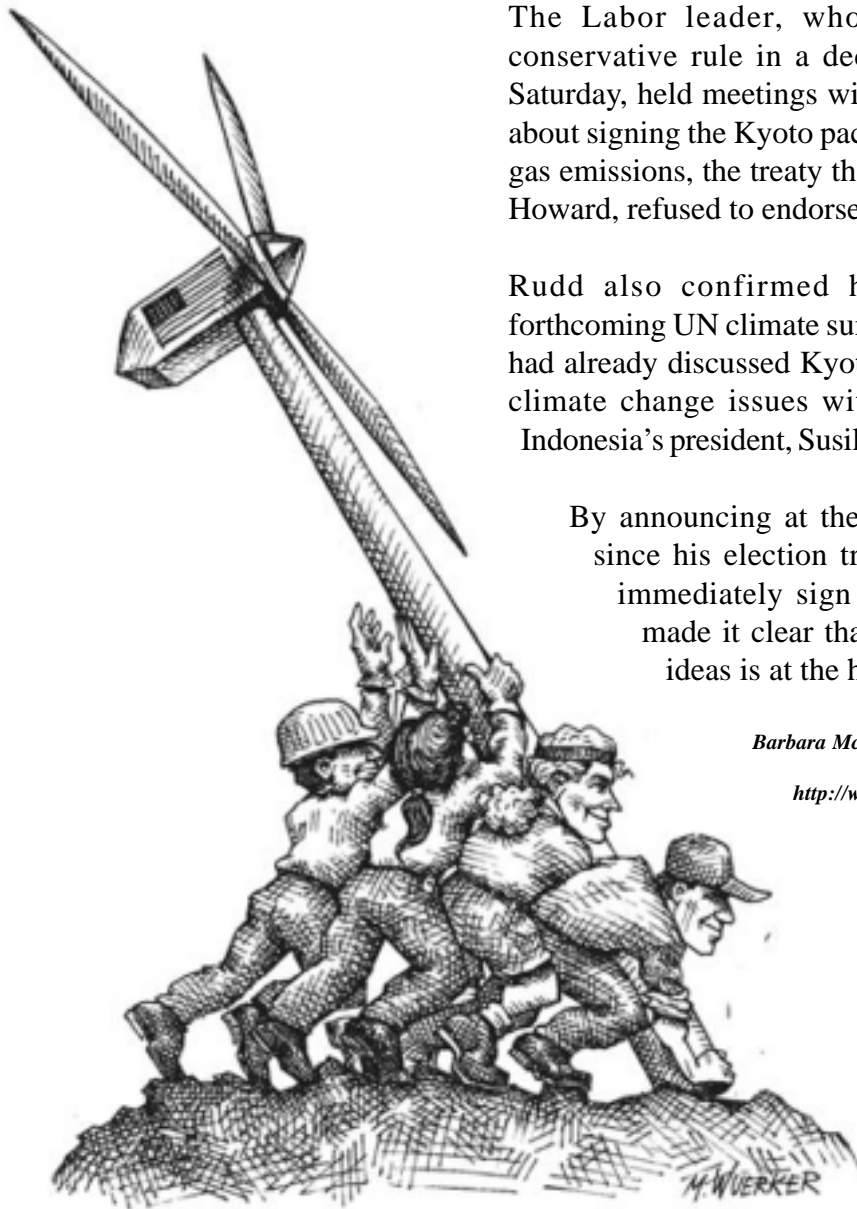
Australia's prime minister-elect, Kevin Rudd, moved swiftly yesterday on an election promise to make climate change a priority, marking a significant shift in his country's attitude towards fighting global warming.

The Labor leader, who ended 11 years of conservative rule in a decisive election win on Saturday, held meetings with government officials about signing the Kyoto pact on cutting greenhouse gas emissions, the treaty that his predecessor, John Howard, refused to endorse.

Rudd also confirmed he would attend the forthcoming UN climate summit in Bali and said he had already discussed Kyoto ratification and other climate change issues with Gordon Brown and Indonesia's president, Susilo Bambang Yudhoyono.

By announcing at the first news conference since his election triumph his intention to immediately sign the Kyoto pact, Rudd made it clear that a new man with new ideas is at the helm.

*Barbara McMahon in Sydney, The Guardian,  
Monday November 26, 2007  
[http://www.guardian.co.uk/international/  
story/0,,2216891,00.html](http://www.guardian.co.uk/international/story/0,,2216891,00.html)*



2025

2012 - 2025

*I am the mayfly metamorphosing  
on the surface of the river.  
And I am the bird  
that swoops down to swallow the mayfly.*

*I am the frog swimming happily  
in the clear water of a pond.  
And I am the grass-snake  
that silently feeds itself on the frog.*

*I am the child in Uganda, all skin and bones,  
my legs as thin as bamboo sticks.  
And I am the arms merchant,  
selling deadly weapons to Uganda.*

*I am the twelve-year-old girl,  
refugee on a small boat,  
who throws herself into the ocean  
after being raped by a sea pirate.  
And I am the pirate,  
my heart not yet capable  
of seeing and loving.*

*I am a member of the politburo,  
with plenty of power in my hands.  
And I am the man who has to pay  
his "debt of blood" to my people  
dying slowly in a forced-labor camp.*

*My joy is like Spring, so warm  
it makes flowers bloom all over the Earth.  
My pain is like a river of tears,  
so vast it fills the four oceans.*

*Please call me by my true names,  
so I can hear all my cries and my laughter at once,  
so I can see that my joy and pain are one.*

*Please call me by my true names,  
so I can wake up,  
and so the door of my heart  
can be left open,  
the door of compassion.*

*Thich Nhat Hanh, a Vietnamese Buddhist Monk  
received by e-mail*



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### **First meeting of the National Council on Climate Change**

NDIV Correspondent Friday, July 13, 2007  
(New Delhi) : Prime Minister Manmohan Singh  
chaired the first meeting of the National  
Council on Climate Change on Friday.

At the meeting, the PM decided that ''Green  
India'' - a major afforestation programme  
would convert six million hectares of  
degraded forestland into green areas. The  
campaign will be launched on August 15. He  
also called for a long-term strategy to deal  
with glacial melting of the Himalayas.

**Source:** [http://www.ndtv.com/convergence/ndtv/  
story.aspx?id=NEWEN20070018827&ch=7/13/  
2007%209:16:00%20PM](http://www.ndtv.com/convergence/ndtv/story.aspx?id=NEWEN20070018827&ch=7/13/2007%209:16:00%20PM)

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To: Sreekumar N, \*Prayas, Pune

Subject: Power policy 06/28/2007

Dear Friends,

Analysis of resource allocations reveals our R&D priorities and national efforts to reduce the costs of non-conventional power generation technologies.

One loves the idea of training the federations of SHGs on wind power generators and helping them to become wind power entrepreneurs in Mahabubnagar and Anantpur (Andhra Pradesh) and Ahmednagar and Nandurbar (Maharashtra) districts. They can sell power to their villages and also to the Grid. Today we are making them agents of companies such as Hindustan Lever Ltd./ Reliance/Indian Tobacco Company.

Instead of making electric cars, TATA is making small cars that run on Petrol or Diesel. It will enhance emission and worsen traffic jams and benefit only the banking sector besides the TATAs. There will be no space for parking vehicles.

PRAYAS should continue its efforts to educate the policy makers, bureaucrats and all others dealing with the power sector. Consumers need such agencies.

With best wishes and regards,  
Uday Shankar

Date: Fri, 29 Jun 2007  
From: "Sagar Dhara" <sagdhara@gmail.com>  
To: "shambu@ximb.ac.in"  
<shambu@ximb.ac.in>  
Subject: Re: Power policy note

Dear Shri Uday Shankar,

Your intent is very noble and in a direction that I agree and support. On people controlled micro-power generating units, we set out with the same idea about a decade back before retreating. The regulation conditions were a bit different then, but the reasons why we retreated then hold true

even today:

- 1) "Green" energies have low densities and therefore it is nearly impossible to compare them with fossil fuels. Even after 30 yrs of promotion of bio-gas plants and solar cookers [by the Indian government and NGOs], they still cater to a very miniscule percent of rural India's energy needs for cooking.
- 2) Managing technologies is not as easy or simple as you may believe it to be. For example even simple things like hand pumps installed under various schemes in rural areas remain broken and unused for lack of collective management efforts.
- 3) It is not accurate to say that green technologies are absolutely non-polluting. Land use changes, caused by the great amount of land that solar panels or wind farms gobble may cause CO2 emissions.
- 4) Reducing technology costs, (even non-conventional energy technologies) will not work as it will only increase the demand for power. Jevons' paradox and the Khazoom-Brooks postulate come into play the moment cost of goods/ services are brought down through increased technology efficiency or other means. Jevons had pointed out how technological efficiency gains—specifically the more "economical" use of coal in engines doing mechanical work—actually increased the overall consumption of coal, iron, and other resources, rather than "saving" them, as many claimed. A 70% reduction in coal consumption to make steel, actually increased steel consumption in Scotland by 10 fold between 1830-1863.
- 5) There is a general misnomer that electric cars are better. Electric cars ultimately use primary energy sources like coal, oil or gas being burnt at power plants. They are nearly three times as polluting as diesel cars, except that the points of pollution are the power plant, and

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the various production and transport points. The more energy you use to produce a good or service and the more energy conversion you do, the less efficient is the overall use of primary energy. The solution, in the era of peak oil, is not better public transport or no private transport, but less of fossil fuel-based prime movers which includes fuel cell vehicles.

I am completely with you on your sentiment to move towards a cleaner world that is more in control of people, and I appreciate you sharing your thoughts. My intention is to apprise you of the roadblocks you may encounter.

Best wishes,

Sagar

\*Prayas (a NGO based in Pune, India) works in areas such as health, energy, learning and parenthood. The Prayas energy group mainly concerns itself with theoretical, conceptual and policy issues in the energy and power sectors. It aims at developing credible, techno-economically viable, and socially desirable policy alternatives for the power sector.

Source:email list- knowledge in civil society, google group

### **The era of cheap food is coming to an end**

The immediate reason for this is that global commodity prices are rising. But what is pushing up global commodity prices? Some have pointed to several bad harvests and adverse weather. Others have blamed a spike in farmers' fuel prices as a result of instability in the Middle East. But it is also likely that a substantial global demand shift is beginning to affect prices. There is a higher demand for cereals from China and India. India has become a net importer of wheat for the first time since 1975. China is expected to become a net importer of maize by 2008.

Another factor is the increasing use of food crops as a source of energy. The use of maize and sugar cane for biofuels has pushed up prices. Some 16 per cent of the US grain harvest was used to produce bioethanol last year, following President Bush's pledge to expand the US's consumption

of biofuels fivefold. It could be just the beginning. If the fuel value of grain begins to exceed its food value, the market could move it into the energy economy. Thus, as the price of oil climbs, so will that of food. All good news for farmers and the food industry. But it is bad for those of us who shop for groceries. Rising global prices will hit poor countries hardest.

This does not discredit the investment by governments in biofuels as an alternative to highly polluting petroleum. But it suggests that the US has not adequately considered the economic or social implications of its rapid switch to maize as an energy source. And it is yet another example of the folly of agricultural subsidies. US grain producers are so pumped up by subsidies that America has become a leading exporter. The US ships more grain than Canada, Australia and Argentina combined. So what happens to this single producer has a profound effect on world prices. We are feeling the malign results.

Greater trade liberalisation should help to bring prices down in the long term. Another way to bring down food prices would be to bioengineer crops specifically to be used for fuel to minimise the effect on the food market. Some interesting work is being done in this area at the John Innes Centre at the University of East Anglia. But it will take time. And in the meantime there is no simple solution to the overall increase in demand for food in Asia. It is not an easy prognosis to swallow, but it seems we have little choice but to accept that the long era of cheap food is coming to an end.

23 June 2007 © 2007 Independent News and Media Limited  
[http://comment.independent.co.uk/leading\\_articles/article2697786.ece](http://comment.independent.co.uk/leading_articles/article2697786.ece)

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## The biofuel myths

The term “biofuels” suggests renewable abundance: clean, green, sustainable assurance about technology and progress. This pure image allows industry, politicians, the World Bank, the United Nations and even the International Panel on Climate Change to present fuels made from corn, sugarcane, soy and other crops as the next step in a smooth transition from peak oil to a yet-to-be-defined renewable fuel economy.

But in reality, biofuel draws its power from cornucopian myths and directs our attention away from economic interests that would benefit from the transition, while avoiding discussion of the growing North-South food and energy imbalance. They obscure the political-economic relationships between land, people, resources and food, and fail to help us understand the profound consequences of the industrial transformation of our food and fuel systems. “Agro-fuels” better describes the industrial interests behind the transformation, and is the term most widely used in the global South.

Over the past three years, venture capital investment in biofuels has increased by 800 percent. Private investment is swamping public research institutions. Behind the scenes, under the noses of most national antitrust laws, giant oil, grain, auto and genetic engineering corporations are forming partnerships, and they are consolidating the research, production, processing and distribution chains of food and fuel systems under one industrial roof.

Biofuel champions assure us that because fuel crops are renewable, they are environment-friendly, can reduce global warming and will foster rural development. But the tremendous market power of biofuel corporations, coupled with the poor political will of governments to regulate their activities, make this unlikely. We need a public enquiry into the myths.

*Biofuels are clean and green:* Because photosynthesis performed by fuel crops removes greenhouse gases from the atmosphere and can reduce fossil fuel consumption, we are told they

are green. But when the full lifecycle of biofuels is considered, from land clearing to consumption, the moderate emission savings are outweighed by far greater emissions from deforestation, burning, peat drainage, cultivation and soil-carbon losses.

Every ton of palm oil generates 33 tons of carbon dioxide emissions - 10 times more than petroleum. Tropical forests cleared for sugar cane ethanol emit 50 percent more greenhouse gases than the production and use of the same amount of gasoline.

*Biofuels will not result in deforestation:* Proponents of biofuels argue that fuel crops planted on ecologically degraded lands will improve rather than destroy the environment. Perhaps the government of Brazil had this in mind when it reclassified some 200 million hectares of dry-tropical forests, grassland and marshes as degraded and apt for cultivation.

In reality, these are the biodiverse ecosystems of the Atlantic Forest, the Cerrado and the Pantanal, occupied by indigenous people, subsistence farmers and extensive cattle ranches. The introduction of agrofuel plantations will push these communities to the agricultural frontier of the Amazon where the devastating patterns of deforestation are well known. Soybeans supply 40 percent of Brazil’s biofuels. NASA has correlated their market price with the destruction of the Amazon rainforest - currently at nearly 325,000 hectares a year.

*Biofuels will bring rural development:* In the tropics, 100 hectares dedicated to family farming generates 35 jobs. Oil-palm and sugarcane provide 10 jobs, eucalyptus two, and soybeans a scant half-job per 100 hectares, all poorly paid. Biofuels producers will be dependent on a cabal of companies for their seed, inputs, services, processing and sale. They are not likely to receive many benefits. Small holders will be forced out of the market and off the land.

*Biofuels will not cause hunger:* Hunger results not from scarcity, but poverty. The world’s poorest already spend 50 to 80 percent of household

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income on food. They suffer when high fuel prices push up food prices. Now, because food and fuel crops compete for land and resources, both increase the price of land and water.

Limits must be placed on the biofuels industry. The North cannot shift the burden of overconsumption to the South because the tropics have more sunlight, rain and arable land. If biofuels are to be forest- and food-friendly, the grain, cane and palm oil industries need to be regulated, and not piecemeal.

Strong, enforceable standards based on limiting land planted for biofuels are urgently needed, as are antitrust laws powerful enough to prevent the corporate concentration of market power in the industry. Sustainable benefits to the countryside will only accrue if biofuels are a complement to plans for sustainable rural development, not the centerpiece.

Eric Holt-Giménez, Tuesday, July 10, 2007, The International Herald Tribune

<http://iht.com/articles/2007/07/10/opinion/edholt.php>; [www.iht.com](http://www.iht.com)

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## Charity attacks rush for biofuels

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The charity - called Grain - says their research shows the rush for biofuels is causing much more environmental and social damage than previously realised. Biofuels from crops are being heavily promoted by the US and Europe as a welcome solution to climate change. In theory their emissions are much lower than from fossil fuels. But the report from the charity Grain amplifies recent warnings from the UN's Food and Agriculture Organization (FAO) that some biofuels produce hardly any carbon savings at all. The UN says basic food prices for poor countries are being pushed up by competition for land from biofuels. The Grain report says its research shows that governments and biofuel firms in developing countries are collaborating to push hundreds of thousands of indigenous people and peasant communities off their land.

Grain says: "The numbers involved are mind-boggling. The Indian government is talking of planting 14 million hectares of land with jatropha. "The Inter-American Development Bank says that Brazil has 120 million hectares that could be cultivated with agrofuel crops; and an agrofuel lobby is speaking of 379 million hectares being

available in 15 African countries. We are talking about expropriation on an unprecedented scale." It points out that one of the main causes of global warming is agro-industrial farming itself, thanks mainly to the use of chemical fertilisers which introduce Nitrous Oxide into the air.

The group says the media has been spun into using the attractive term biofuels - and wants them to be referred to as "agro-fuels" instead. The plant fuel industry accepts that there is a limit to the energy to be obtained from crops - but believes plant fuels can be produced sustainably on a large scale. The EU wants to see at least 10% of road fuel derived from plants by 2020. Oil firms believe this target is achievable using farm surpluses combined with fuel digested by bacteria from waste - so called second generation biofuels. But their economic calculations do not include competition for feedstock from power firms wanting biofuel for combined heat and power - which produces much more energy more economically than liquid fuel. The UK government's climate envoy John Ashton recently told BBC News: "The policy on biofuels is currently running ahead of the science."

*Roger Harrabin , BBC Environment Analyst, BBC News, [version International](#) 29 June, 2007*

*There is a need for spirituality in the environmentalist movement. Trying to persuade people to bolster biodiversity on the grounds of economic necessity is a hard argument to win when the forces working against biodiversity have very strong economic arguments regarding families, jobs and rural communities. As long as environmentalists continue to fight economists in purely economic terms, they are destined to lose.*

*Spirituality gives people the strength to sustain their action throughout their lives. To have a spiritual understanding of the morality underlying a cause will help it to be reconciled with other causes which share that morality. For example a common ground of “Do unto others as you would have them do unto you” (underlying Muslim, Judeo-Christian and Buddhist philosophy) is equally applicable to refugee incarceration, habitat destruction and compulsory overtime in the workplace. We, as environmentalists, should try to integrate environmental action with social action and vice versa.*

### **Division and unification**

*Often a group is so focused on their specific point of interest that they argue to the detriment of all others. An example of this clouding of issues can be seen in the activities of the Socialist Alternative (a political group). Every issue that the group discusses seems to turn around to the prospect of class warfare and a separation of the working and the capitalist classes. Apart from making for fairly monotonous meetings the forcing of the issue of class division is...well...divisive. Some social reformers view themselves as capitalists, and by demanding a class war the Socialist Alternative is isolating itself from a portion of their supporter base. The advantage of having sacred aspect to the environmental debate will (hopefully) have a unifying effect. Earthworker is a caucus of unionists and members of environmental organizations, which seeks to recognise the common needs of both the environmental and the union movements [www.earthworker.org.au]. It believes how can we treat the natural environment with any kind of respect while we cannot treat our fellow humans with respect?*

### **Evolution of Creation**

*One of the biggest dangers of conventional religions is that they often seek to show the world as a set creation that is subject to man's will rather than an ongoing creation of which man is a part. Although there are plenty of aspects of Judeo-Christian religion that expect the humane treatment of animals, the starting point is always that of a natural world or wilderness that must be feared and tamed. This is opposed to a nurturing environment that bore us and has the ability to cradle us within it. Aboriginal spirituality, Gaia and Paganism all have the belief that we are part of our environment rather than its master. Until we accept that the creation is an ongoing act, we have little hope of accepting the environment into our world.*

*One of the recurring themes in aboriginal art is the life-spiral. When a life is represented by a spiral, each loop will be related to the loop that went before it. An individual is as much an ongoing creation as the rest of the world, and the patterns are repeated. A few years ago there was a heated debate in Australia about private or state ownership of assets. It is an interesting note that the same issue was discussed in ancient China before Christ was born. The planet has rolled on but the human arguments remain*



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