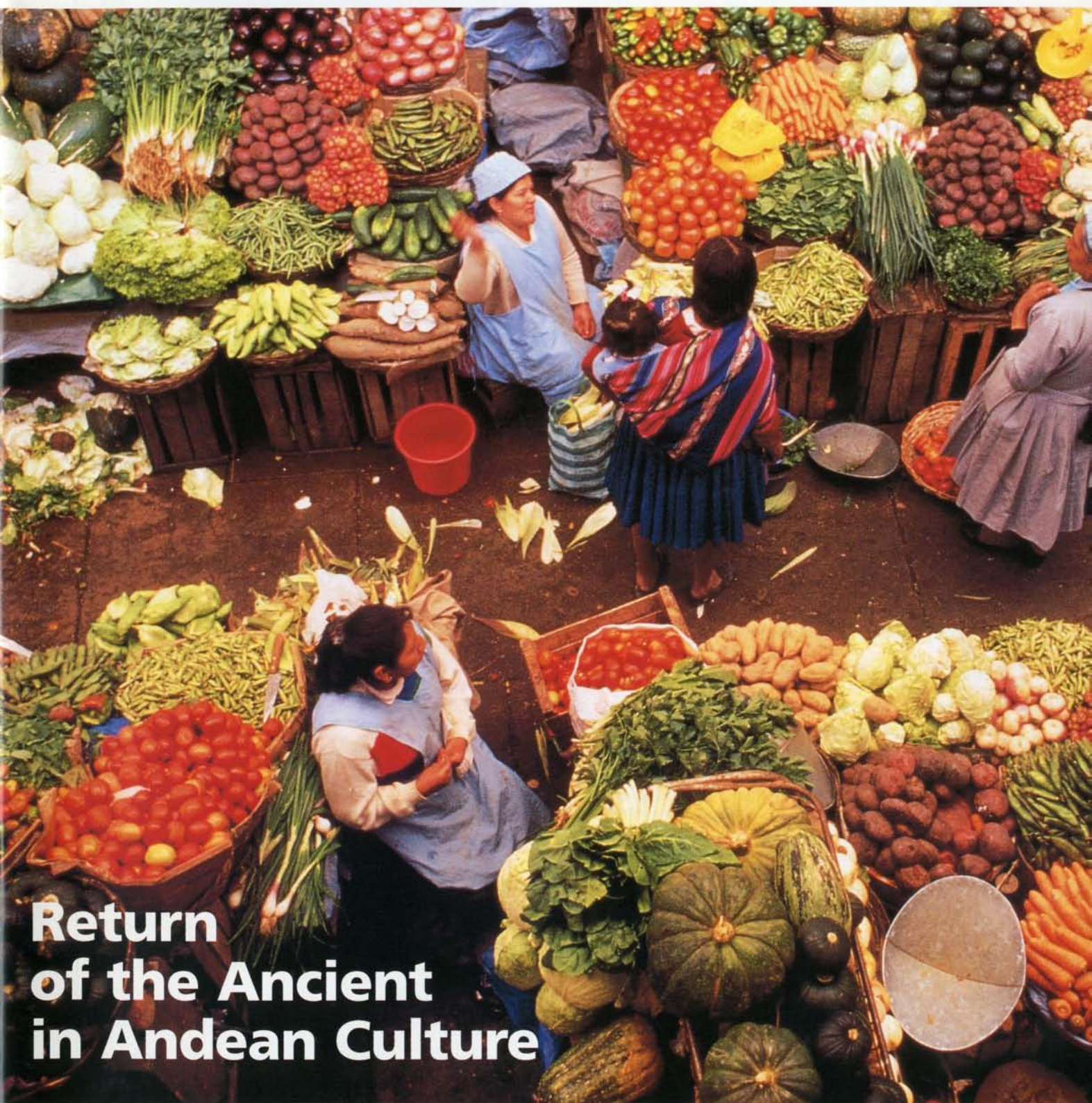


The Ecologist

Rethinking Basic Assumptions

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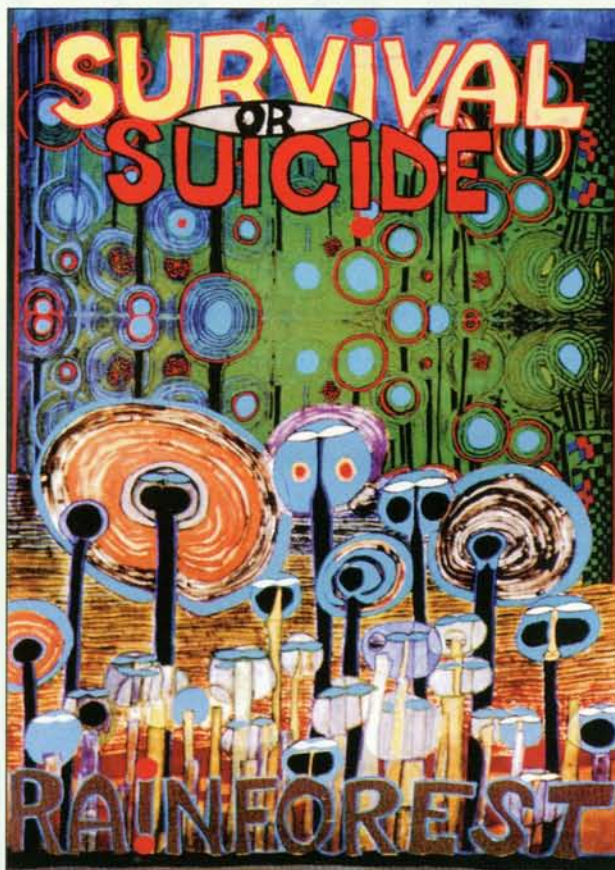
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EDITORIAL OFFICE,
AGRICULTURE HOUSE,
BATH ROAD,
STURMINSTER NEWTON,
DORSET DT10 1DU
TEL./FAX +44(0)1258-473476
E-MAIL ecologist@gn.apc.org

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The Cassini Gamble: Scientists Go For Broke

The first rule of gambling is “never bet more than you can afford to lose.” This precept is largely ignored in modern industrial societies, which repeatedly gamble on technologies that threaten not only human health, but the health of the biosphere on which all life depends.

An example is the use of chlorinated fluorocarbons for such ‘crucial’ needs as car air-conditioning systems, anti-perspirant sprays and styrofoam cups. This was clearly a losing wager, one that has cost the planet a significant portion of its protective ozone layer. Scores of other chemicals – from DDT to PCBs to thalidomide – have also proved to be bad bets; nonetheless, industry is still at the tables, gambling human and ecosystemic health on the 1,000 new chemicals they introduce to commercial markets each year. Meanwhile, government and corporate researchers are risking the biosphere’s entire bankroll

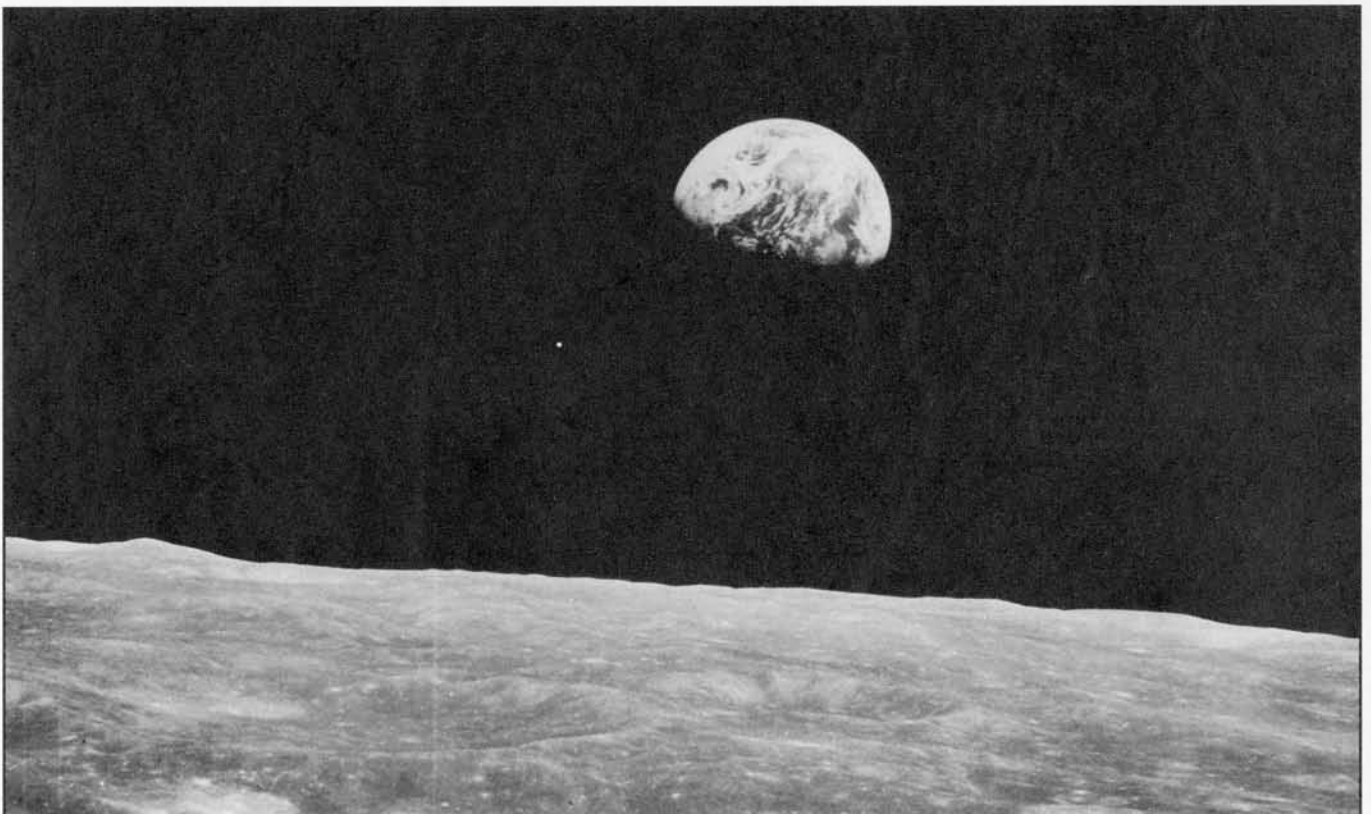
on genetic engineering, without having the foggiest idea what the odds are.

While this sort of gambling has long been a feature of technological and economic ‘progress’, it is difficult to imagine any single event that compares for sheer recklessness with NASA’s Cassini Project. This one spacecraft, launched on October 15, represents a throw of the dice which could cost millions of lives and render large portions of the planet uninhabitable.¹

As reported in *The Ecologist* (May/June 1997), the Cassini spacecraft is designed to travel to Saturn, where it will orbit the planet for four years collecting scientific data, particularly about the planet’s system of moons. The mainstream media have focussed on what we stand to gain from this \$3.4 billion extravaganza: not only will there be new information about the early years of the solar system but there is always the possibility that the holy grail of space

exploration – evidence of extra-terrestrial life – will be found. (An added bonus is that there will be lots more of those colourful computer-enhanced photographs so popular with web-surfers and weekly newsmagazines.) All this, of course, represents the ‘payoff’. To find out what we stand to *lose* took investigative journalist Karl Grossman several years battling with stonewalling bureaucracies in the US government.

As Grossman has detailed in his extensively-researched book, *The Wrong Stuff* (Common Courage Press, 1997), the electricity needed to power Cassini’s on-board systems during its journey will be provided by a radioisotope thermoelectric generator (RTG) fuelled by 72.3 pounds of plutonium-238, a form of plutonium 280 times more radioactive than the plutonium used in atomic weapons.² This is extremely deadly stuff: Dr. Helen Caldicott has pointed out that “one pound of plutonium-238, if uniformly



distributed, could hypothetically induce lung cancer in every person on Earth."³

Even putting plutonium atop a rocket is a gamble, one that NASA has lost several times already. In 1964, the US attempted to orbit a navigational satellite powered by a plutonium RTG. The mission failed, and the satellite disintegrated as it re-entered the atmosphere, vaporizing the RTG's 2.1 pounds of plutonium-238. Six years later, remnants of plutonium could be found on "all continents, and at all latitudes", according to documents unearthed by Grossman.⁴ This one event is the main source of plutonium-238 in the environment today, and may be a contributor to global lung cancer rates.⁵

A second accident with a plutonium-laden spacecraft occurred in 1968, when NASA launched a meteorological satellite with 4.2 pounds of plutonium-238 on board. A failure shortly after lift-off necessitated blowing up the spacecraft, at an altitude of 30 kilometres. According to NASA, all the plutonium in this mishap was retrieved from the crash site off the coast of California.⁶ This was not the case two years later, when the Apollo 13 mission to the Moon failed. The rescue of the mission's three astronauts provided a stirring conclusion to the popular *Apollo 13* movie. What the film neglected to mention, however, was that the spacecraft's 8.3 pounds of plutonium-238 ended up at the bottom of the Pacific Ocean. Since its exact location is unknown and the waters above it too deep, no attempt has been made to recover it.⁷

Four other US satellites containing plutonium are still in orbit. Assuming they avoid collisions with any of the space junk circling the planet, NASA predicts these satellites will remain in orbit for 500 to 1000 years before crashing to Earth.⁸

In all, the US space programme has a failure rate on missions with nuclear material of about 1 in 8, according to Grossman.⁹ These are not great odds, given the damage plutonium can cause, but NASA has continued to raise the stakes. In 1989, the Galileo space probe was launched on a multi-year mission to Jupiter, its electricity provided by almost 50 pounds of plutonium-238. The radioactivity of this amount of plutonium "exceeds the inventory of radioactivity in the Chernobyl reactor at the time of the accident by orders of

magnitude", according to a lawsuit filed in an unsuccessful attempt to halt the launch.¹⁰

The risks embedded in this huge amount of radioactive material were compounded by the method Galileo scientists employed to give the craft the velocity it needed to reach Jupiter: NASA used the Earth itself in two 'slingshot' manoeuvres, in which the spacecraft is accelerated by the Earth's gravity in a close 'flyby'. The first flyby was at an altitude of 600 miles, the sec-

It is difficult to imagine any single event that compares for sheer recklessness with NASA's Cassini Project. This one spacecraft represents a throw of the dice which could cost millions of lives and render large portions of the planet uninhabitable.

ond at just 185 miles. These distances leave little room for error: any number of malfunctions or human mistakes could have led to an inadvertent re-entry into the Earth's 75-mile-high atmosphere, which would have caused the disintegration of the spacecraft and the dispersion of its deadly plutonium.

Galileo, in fact, was plagued by a host of problems, from stuck antennae to mysterious computer shutdowns. Although the mainstream media reported Galileo's travails, the spacecraft was generally described as being on its way to Jupiter, when, in fact,

One defender of Cassini proudly claimed that scientists studying the atmosphere of Venus have been instrumental in "discovering" the greenhouse effect; the role of science in causing that effect in the first place, however, is conveniently overlooked.

many of its problems occurred on one of its flybys when it was hurtling towards Earth at thousands of miles per hour. Most such accounts also neglected to mention the word 'plutonium'.¹¹

Despite its problems the Galileo project did not end in disaster, and so the compulsive gamblers at NASA raised the stakes again. This time it's the just-launched Cassini, which will do an Earth flyby in August, 1999 in order to reach the speed necessary to reach Saturn.

Swinging past our planet at 42,300 miles per hour just 312 miles above the surface, it will be carrying almost 50 per cent more plutonium-238 than Galileo. In the event of 'inadvertent re-entry' during this flyby, "approximately 5 billion of the estimated 7 to 8 billion world population at the time... could receive 99 per cent or more of the radiation exposure," according to NASA documents cited by Grossman.¹²

The oddsmakers at NASA have used creative number-cooking to arrive at the conclusion that even if this worst-case scenario were to occur, it would result in "only" 2,300 "health effects" (i.e. cancer fatalities) in the 50 years following the accident. Other, independent, researchers have not been so sanguine. After reviewing NASA data, Dr. Ernest Sternglass, professor emeritus of radiological physics at the University of Pittsburgh

School of Medicine, estimated that the death toll could reach 30 to 40 million people.¹³ Other scientists have seconded Dr. Sternglass' opinion. One former NASA scientist claimed that a mishap involving Cassini on its flyby would be "the mother of all accidents".¹⁴

In any event, NASA claims that "there is less than a one-in-a-million chance that an accident could occur when Cassini flies by the Earth in 1999".¹⁵ But before placing your bet on NASA, consider that before the space shuttle Challenger exploded, NASA put the odds against such a disaster at a highly improbable 100,000 to 1. As with most technological gambles, only the catastrophe itself revealed what might go wrong, and NASA now claims that the odds against another space shuttle disaster like Challenger are actually 75 to 1.¹⁶

The Cassini project has been the object of heated protests, lawsuits, letter-writing campaigns and civil disobedience, despite a media

blackout that managed to keep the public largely in the dark about NASA's risk-taking. In fact, Karl Grossman's reporting on the use of nuclear power in space has repeatedly made Project Censored's list of 'best-censored' or most 'under-reported' stories over the past ten years.

Employing nuclear materials on spacecraft is clearly foolhardy. Why, then, is it being done? Grossman points to a number of reasons, including the

power of influence-wielding corporations like Lockheed Martin (manufacturer of the RTGs and the US government's largest military contractor), as well as the agendas of bureaucracies like the Department of Energy (which has taken on the role of promoting nuclear power). Grossman also makes a compelling case that these 'benign' uses of nukes are part of a concerted effort to gain public acceptance for the military's eventual use of nuclear weapons in space. He quotes General Joseph W. Ashy, commander-in-chief of the US Space Command, who says, "Some people don't want to hear this... but – absolutely – we're going to fight *in* space. We're going to fight *from* space and we're going to fight *into* space when

[orbital assets] become so precious that it's in our national interests."¹⁷

Grossman is no doubt correct on all these counts. But there are more fundamental reasons as well. There is the hubris of scientists generally, who presume the right to gamble with the future of the planet, and defend that right by appealing to the higher god of scientific progress. NASA Administrator Daniel Goldin, for example, admitted that the costs and risks of Cassini troubled him so much that he would cancel the programme "if it were not so important to planetary science".¹⁸

Also to blame is the highly compartmentalized thinking so central to reductionist science. As the focus of scientific inquiry narrows, the ability to see

the bigger picture, to take into account the debit as well as the credit side of the balance sheet, is diminished. One defender of Cassini proudly claimed that scientists studying the atmosphere of Venus have been instrumental in "discovering" the greenhouse effect; the role of science in *causing* that effect in the first place, however, is conveniently overlooked.¹⁹

Other defenders closely involved with the project recently justified the launch in a progressive US publication.²⁰ They concluded by saying, "Cassini presents the world with a chance to learn." Indeed it does – but first we need to re-write the curriculum.

Steven Gorelick

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Food Slander Laws in the US: The Criminalization of Dissent

Following the United States Department of Agriculture's August decision to close down a meat-packing plant in Nebraska because of burgers tainted with e-coli, editorials appeared in newspapers across the United States calling for significant changes in government oversight of the nation's meat production. But had the media, or food safety activists, so much as hinted that America's beef was not safe prior to the outbreak, they could have been sued under laws currently in the making in 13 states known as "Food Disparagement" laws.

In recent years, with the globalization and industrialization of food production and the emergence of the BSE and e-coli crises, the public has become even more concerned about food safety and other health-related agricultural issues. Recent polls in the US have found 80 per cent of all consumers expressing concern about issues such as pesticide and antibiotic residues,

genetic engineering, animal feeding practices and bacterial contamination. Hardly a month goes by without the media publicizing the latest food scare. Concern over food safety has now begun to affect the purchasing habits of American consumers, creating a demand for healthier food and a multi-billion dollar market for organic products. Consumer backlash to tainted

meat and produce has cost American agribusiness billions of dollars in lost sales and has hampered the introduction of new industrial food production technologies such as genetic engineering and food irradiation. Dissent and political activism around food politics have steadily increased over the last five years. Eating and the purchase of food have become a political act for millions

of Americans, and American agribusiness is, not surprisingly, alarmed.

Quietly but persistently, large agribusiness and biotechnology interests have begun their counter-attack. Among other efforts to marginalize dissent, they have pushed through anti-activist "Food Disparagement" laws in 13 US states, and are now targeting an additional 20 states. While it is likely, according to legal experts, that these anti-free speech "food slander" laws are a violation of the Constitution, they have already been successfully used to intimidate food safety advocates and the media.

"These food slander laws are designed to protect industry profits, by preventing journalists and activists from expressing opinions that might discourage consumers from buying particular foods," says John Stauber, director of the Center for Media and Democracy, which monitors the public relations industry.

The first food disparagement law was passed in Colorado in 1991. While nearly all the laws in the various states

differ slightly, they contain common elements. The laws allow the food industry, farmers and food manufacturers, to collect damages arising out of disparaging statements or the dissemination of false information on the safety of food products. Most of the laws leave open the possibility for punitive damages.

To make real the threats posed by these laws, the food industry decided

The burden of proof has shifted from the plaintiff, as it is in other US lawsuits, to the defendant.

last year to make an example of an American icon. In June 1996, a Texas cattleman filed suit against Oprah Winfrey, America's most popular talk show host, and her ex-cattle rancher now vegetarian activist guest, Howard Lyman, for comments regarding the safety of US beef in regard to "Mad Cow" disease. The Texas case was the first lawsuit filed under the food disparagement law.

During the nationally televised April 1996 programme, Lyman of the US Humane Society pointed out that "cow cannibalism" – the feeding of cows and other rendered animal protein to cattle – was common in the US, and that the practice is believed to have led to the recent outbreak of "Mad Cow" disease and CJD in the UK and Europe. Lyman said that he believed the threat for a US version of the "Mad Cow" crisis was very real. Winfrey's response, to thunderous applause from the studio audience, was, "It has just stopped me from eating another burger."

On the same day cattle prices plummeted, with a 10 per cent drop by the end of May. The beef industry pulled \$600,000 in advertising from Oprah Winfrey's show, and cancelled all scheduled advertising for the following year and the Texas cattle rancher Paul Engler filed suit under the state's food disparagement law, charging that the show's "carefully and maliciously edited statements were designed to hype ratings at the expense of the American cattle industry." Engler

In Educating the Public on the Dangers of Food Irradiation, Food and Water are Charged with Committing "Food Slander".

The Vermont-based organization Food & Water, heavily involved in its campaign to stop Hawaii from adopting irradiation to treat its exotic tropical fruits, has received a threatening letter from one of the food industry's top legal firms, Olsson, Frank and Weeda, warning them to "cease and desist" from their "irresponsible actions" of educating the public on the dangers of exposing the food supply to radioactive waste. What these hired legal thugs apparently found most appalling was that the non-profit organization had undertaken to go directly after corporations rather than waste their time lobbying the politicians and regulators whom the food industry has already conveniently bought.

Olsson, Frank and Weeda was hired for the job by the United Fresh Fruit and Vegetable Association (UFFVA), the nation's top lobbying association for the produce industry. UFFVA, a major supporter of food

irradiation, has become increasingly frustrated with Food & Water's continued successes, particularly in being able to influence many of its member corporations that show any interest in irradiation by pummeling them with thousands upon thousands of phone calls and letters from concerned citizens.

Since receiving the letter, Food & Water has run very strong full-page advertisements in Hawaii's leading newspapers and produced and ran a 60-second advertisement on major network television stations in Hawaii. And since there aren't any known corporations that are currently planning to utilize the proposed Hawaiian irradiator, they have decided to make their current target one of UFFVA's top members, the Dole Food Corporation, to send a strong signal to UFFVA that such outrageous and unconstitutional tactics will not silence them.

The campaign has fortunately attracted a great deal of media

attention as a result of UFFVA's actions. In addition, should UFFVA decide to go forward beyond a simple "cease and desist" letter and on to court, Food & Water attorneys are not only putting together a defence that they're calling "a legal slam-dunk", they're also relishing the opportunity to get access to UFFVA's books, records and documents, regarding the group's ill-conceived promotion of irradiated foods. Their hope is not only to uphold their constitutional right to free speech, but also to prove once and for all that the government and industry groups like UFFVA have absolutely no proof that irradiated foods are safe for human consumption.

Ironically, the opportunity to file a counter-suit against UFFVA for the outrageous infringements of their constitutional right to free speech will present itself, which may well result in a substantial financial victory for Food & Water.



"Quit complaining, Charlie, or Yukon Boots'll take you to the cleaners!"

claims that his company, Cactus Feeders, lost \$7 million as a result of the Winfrey show.

Since the filing of that case, the US Food and Drug Administration has drafted a rule which would at least partially ban the feeding of cows to other cows.

"Agricultural disparagement statutes represent a legislative attempt to insulate an economic sector from criticism," write David Bederman, Scott Christensen and Scott Quesenberry in the Winter 1997 issue of the *Harvard Journal on Legislation*. "They may be strikingly successful in chilling the speech of anyone concerned about the food we eat. [Their] approach is not only profoundly misguided as a matter of policy, but also flagrantly unconstitutional as a matter of law."

Of particular concern, as Bederman and his colleagues point out, are the laws' intentionally vague language on what constitutes "false information". False information is generally defined as information that is not based on reliable scientific facts or data. But "what is reliable and scientific is unclear."

The US Supreme Court has already ruled that speech regarding issues of grave public concern is protected. And in the US, suits claiming disparagement must prove that a party made intentionally malicious statements, or recklessly disregarded the truth. However, the disparagement laws do not require a plaintiff to prove that the defendant's intent was actually malicious. And according to Bederman, this renders them unconstitutional.

The laws also require defendants to prove that their statements on food safety are based on "reasonable and reliable scientific inquiry, facts, or data." In other words, the burden of proof has shifted from the plaintiff, as it is in other US lawsuits, to the defendant.

"There is a strong argument that this liability is an unconstitutional infringement on free speech," says former Pure Food Campaign Staff Attorney Ted Waugh. "Moreover, what information qualifies as 'reliable' or 'reasonable' is completely up for debate. Must a source be published or subjected to peer review? Must there be secondary sources that reinforce the fact? What about personal observations and opin-

ions?" As experience has shown us, these qualities can all too often be dismissed as 'anecdotal', particularly when they threaten the interests of big business.

There is a long history of the scientific Establishment declaring the safety of various chemicals and foods, only to be proven wrong. For example, DDT, DES and Thalidomide were roundly endorsed by scientists and government officials, and only later were found to cause birth defects and cancer. It is likely that Rachel Carson's classic 1962

There is a long history of the scientific Establishment declaring the safety of various chemicals and foods, only to be proven wrong. For example, DDT, DES and Thalidomide were roundly endorsed by scientists and government officials, and only later were found to cause birth defects and cancer.

book, *Silent Spring*, would be attacked by industry today as a violation of food disparagement laws, and yet it helped launch the modern environmental and food safety movement by exposing the hidden dangers of pesticides, and by questioning the very nature of this 'scientific evidence'.

It is not, however, the strategy of the food multinationals to file numerous lawsuits under the food disparagement laws. They are wary of providing extra

The new food slander laws are but one of a wide variety of tactics being used by the food multinationals to marginalize dissent on the part of consumers and the emerging organic food movement.

publicity for food activists by giving them their day in court, especially in the wake of the recent public relations disaster suffered by McDonald's in the UK McLibel trial. Rather, America's food giants simply want the threat of a lawsuit – and its huge financial costs – to hang like a cloud over journalists and food safety advocates. They understand that if a case ever fully goes to trial and makes its way through the Appeals Courts, the food slander laws are likely

to be declared unconstitutional.

In fact, sources close to the Oprah Winfrey lawsuit say that those involved are anxious to settle the case, and are considering a large donation to her favourite charity as well as an apology in exchange for dropping the lawsuit before it comes to trial.

"To fulfil the agricultural disparagement statute's purpose of protecting the agricultural economy by restricting criticism, sanctions need never actually be imposed," Bederman and colleagues accurately point out. "The mere enactment of the statute and the possibility that a person may be sued under it has a chilling effect."

Other American activist groups are also under attack. Earlier this year, a letter was sent to Vermont-based Food & Water, a leading food safety organization working to stop food irradiation [see accompanying box]. One of Food & Water's current campaigns is to stop the state of Hawaii building a nuclear irradiation plant to zap its exotic tropical

fruits. Food & Water received a threatening letter from the law firm, Olsson, Frank and Weeda (hired by the United Fresh Fruit & Vegetable Association [UFFVA]) warning the organization to "cease and desist" from criticizing irradiation. Food & Water has been successful in reversing the pro-irradiation positions of three UFFVA members corporations.

"The food industry has effectively bought these laws from politicians so that citizens concerned with issues such as irradiation, toxic pesticides, or food biotechnology will think twice before speaking out about the devastating impact such technologies have on the planet and its inhabitants," says Michael Colby, Executive Director of Food & Water.

"Should the UFFVA decide to take this to the next step and go to court, the publicity will only increase and we'll have an amazing opportunity to bring one scientist and citizen after another before the judge and jury to explain just how wacky the idea of food irradiation actually is, all at no cost to us," says Colby.

The US food industry regularly justifies the need for food disparagement laws by citing the example of the so-called "Alar scare". In 1989, the popular "60 Minutes" TV show exposed the

dangerous human health effects of spraying the pesticide Alar on apples, based on a report by the Natural Resources Defense Council titled 'Intolerable Risk: Pesticides in Our Children's Food'. After the show was aired, millions of consumers stopped buying apples and apple juice. The demand for organic apple products increased significantly, and many school systems pulled apples from their menu.

Alar, first marketed in 1968, was sprayed on apples to make them ripen longer on the trees, and breaks down into a by-product called unsymmetrical dimethyl hydrazine, or UDMH. In 1985, the EPA discovered that Alar and UDMH might have been causing as many as 100 cancers per million people exposed to it for a lifetime in their diet. This was 100 times the human health hazard considered acceptable by EPA standards. However, Alar's maker, Uniroyal, was able to put pressure on the EPA to keep it on the market. After the show, however, Alar was forced off the market.

In response, 4,700 growers filed suit against the CBS television network and the NRDC, disputing the report's findings on the health risks posed by Alar. The suit alleged that the "60 Minutes" piece had cost Washington state's growers at least \$75 million.

While the apple growers eventually lost their court case, the food industry continually touts the so-called "Alar scare" as an example of why food disparagement laws are needed.

The food industry is now following a well-planned campaign to get food disparagement laws passed in all 50 states. The Animal Industry Foundation, whose funding comes from the agribusiness industry, acts as the national clearing-house for helping those groups

interested in getting disparagement bills passed into laws. AIF distributes its "model food disparagement statute" to legislators and agribusiness interests in state capitals across the country. While each state's law is somewhat unique, they are all based on the AIF model.

In the US, the new food slander laws are but one of a wide variety of tactics being used by the food multinationals to restrict information and to marginalize dissent on the part of consumers and the emerging natural or organic food movement. In the case of genetically

USDA officials have emphasized their desire to legalize the nuclear irradiation of beef, while agribusiness lobbyists are simultaneously trying to weaken federal regulations which currently require labelling of most irradiated foods.

engineered foods (such as milk, beef, dairy products derived from the Bovine Growth Hormone [rBGH or rBST], soybeans, corn and tomatoes), Monsanto and other agribusiness companies have been able to work within the United States Department of Agriculture (USDA) and the Food and Drug Administration to prevent the labelling of such foods, despite industry and government polls that show over 90 per cent of the public favouring mandatory labelling. The USDA is also expected in the near future to force through unpopular new national organic standards that will allow genetically engineered and factory farm-produced foods to be labelled as "organic". These new federal laws will also make it illegal for any regional or private organic certification boards to uphold standards which are more strict than USDA standards.

Recently the US Congress has begun to roll back labelling laws regarding "dolphin safe" tuna, as well as to weaken pro-consumer pesticide protection laws – arguing that they are "trade restrictive" under the GATT and NAFTA treaties. In addition, USDA officials, in the aftermath of the latest e-coli hamburger scare, have emphasized their desire to legalize the nuclear irradiation of beef, while agribusiness lobbyists are simultaneously trying to weaken federal regulations that currently require labelling of most irradiated foods.

As a response to efforts by American agribusiness to limit information to consumers about their food, food activism is on the rise in North America, just as it is in the rest of the world. Groups such as the Pure Food Campaign, the Centre for Media and Democracy, Greenpeace, the Humane Society of the US, the Consumers Union, Sustain, Food & Water, and the Council of Canadians have stepped up their efforts. Increasingly, public interest non-governmental organizations (NGOs) concerned about food and agriculture have begun networking and campaigning on a global basis as well, such as in the recent Global Days of Action against genetic engineering, cloning, life form patenting and factory farming, in April and October.

It is difficult to discern the impact of food disparagement laws on the media in the US, but what is clear is that what amounts to outrageous criminality on the part of government and big business has strengthened the resolve of most food safety activists.

*by Ben Lilliston, of Sustain,
and Ronnie Cummins of
The Pure Food Campaign.*

Action

- Join in the upcoming April 1998 Global Days of Action. For more information, contact: **The Women's Environmental Network**, 87 Worship Street, London EC2A 2BE. Tel: 0171 247 3327; Fax: 0171 247 4740; E-mail: <ricarda@gn.apc.org> or, **The Pure Food Campaign**, 860 Highway 61, Little Marais, Minnesota 55614, USA. Tel: +1(218) 226 4164; Fax: +1(218) 226 4155; E-mail: <alliance@mr.net>
- Contact Oprah Winfrey and ask her to blow the whistle on food disparagement laws, and keep airing programmes on critical food safety issues. Oprah Winfrey, 110 N. Carpenter Street, Chicago, IL 60607. Tel: +1(312) 633 0808; Fax: +1(312) 829 2134.
- Subscribe to the free electronic E-mail network called pure-food-action. Write to: <majordomo@mr.net> with the message: subscribe pure-food-action.
- Access the worldwide web site of the Pure Food Campaign at: <http://www.geocities.com.athens/1527>
- Get involved locally, but network and campaign globally as well.
- Help Food & Water to fight these libel laws. For more information, call them at +1-800-EAT SAFE.

Counter-Development in the Andes

by Frédérique Apffel-Marglin

A group of indigenous writers and activists in the Peruvian Andes has set up what has turned out to be a highly successful organization to research, write about and re-imbue Andean people with the Andean traditional world-view and associated way of life – a process the group refers to as “cultural affirmation”.

The accent is on the highly ritualized agricultural practices of the traditional Andean peasantry that are very much the product of their world-view, and that enable them not only to produce the food they require but also to preserve their environment and maintain the health and cohesiveness of their local communities.

Colonized peoples have three choices in response to colonization, according to Yvonne Dion-Buffalo and John Mohawk in a recent article: to become “good subjects”, accepting the premises of the modern West without much question; to become “bad subjects”, always revolting within the parameters of the colonizing world; or to become “non-subjects”, acting and thinking in ways far removed from those of the modern West.¹ Dion-Buffalo and Mohawk advocate the latter not only for Native Americans but for all colonized peoples, which includes not only indigenous peoples everywhere but most of the so-called Third World. Formal colonization may have ended but the global market with its attendant intellectual and cultural colonization spread via the imperial road of development makes colonization a contemporary reality.

Dion-Buffalo and Mohawk’s notion of “non-subjecthood” seems to have captured the historical moment, for one finds something very similar to it articulated by a group of indigenous writers in the Peruvian Andes. The group, called PRATEC (Proyecto Andino de Tecnologías Campesinas), was formed in 1987. Its core members are academics and government bureaucrats who left their positions to form a non-governmental organization devoted to researching and writing about traditional Andean technologies, knowledge and world-view. PRATEC has been teaching a course aimed at would-be rural developers – mostly agronomists – in which it presents the Andean worldview and also assesses modern Western knowledge from a native Andean point of view, and its voice has since become well known throughout the Andes.

PRATEC’s conception of “non-subjecthood” emerges from its perception of what it calls “officialdom”. Officialdom from the point of view of the people native to the Andes is a colonizing entity: it not only covers all governmental organizations and

opposition political parties and movements but includes also the knowledge system pervading schools and universities, the judiciary system and the Church. Officialdom’s perception of native peoples and cultures is to exalt them when safely dead and in the past – make them emblems of “national” identity enshrined in museums and history books – folklorize ancient ceremonies for the tourist industry where lucrative; and where it is not, relegate native contemporary practices to the marginalized status of “backwardness”, anachronism and even illegality.

PRATEC’s presentation of Andean world-views is always contrasted to modern Western knowledge which it sees as undergirding all branches of officialdom. The modern Western knowledge system is assessed not from an unsituated “objective” perspective but from an indigenous Andean point of

view. PRATEC emphasizes the situatedness of its Andean point of view, and rejects claims to universality and absolute truth. PRATEC sees the Andean cosmovision as emerging from the very soil and air of the Andes, inseparable from its landscape and its history. Indeed, the very process of assessing modern Western knowledge from an

Andean point of view has the powerful effect of revealing the historico-cultural particularity of modern Western knowledge, by which PRATEC refers to the globalization of what originated in Western Europe and which continues to be imported and channelled to the rural areas through all manner of development endeavours. To look at this hegemonic knowledge system from such a light robs it immediately of its claims to universality, and places it within the context of a particular cosmology rooted in Western European culture and history.

PRATEC’s radical critique and rejection of the cosmology of the modern West consists of a rejection of basic assumptions about nature, about the nature of humans, of knowledge, etc. It rejects evolutionary paradigms which lead to a utopian pursuit of “development”. It rejects the rather hollow notion of “preserving the best from tradition with the best of modernity”. Neither is its stance that of a knee-jerk rejection of all that is foreign to the Andes, but rather PRATEC’s position is a dialogical one.

A dialogical stance is inherently a pluralist stance, one that

Dr Frédérique Apffel-Marglin teaches Anthropology at Smith’s College, Amherst, Massachusetts, USA. As part of a project to create “Centres for Mutual Learning” in various countries, she was invited by PRATEC to visit them in Peru, and has been collaborating with them since 1994.



"It is the voice of nature itself which announces to us the manner in which we must plant our crops."

rejects a linear evolutionist vision of the future and entertains the possibility that industrial or post-industrial civilization and the global market are not the inevitable futures for everyone. A dialogical stance is not an oppositional or an essentialist stance either, rejecting whatever comes from a foreign source. The late Eduardo Grillo Fernandez, who was a core member of PRATEC, liked to compare the Spanish conquest with the advent of frost, hail or pests in the peasants' fields:

"Just as when frost or hail falls in the fields of our peasant communities it is because some of us have disturbed the harmony of the world with our incorrect conduct, similarly the apparition (arrival) of the Spanish invaders is due to a disturbance in the harmony of our own world. To free ourselves from colonization we have to recuperate our own internal harmony. It will then be impossible to colonize us, just as in a healthy and strong person, in whom life flows fully, illness cannot penetrate. It is not a question of acting directly against the invader because while we remain perturbed another can always come and invade us."²²

PRATEC's writings are not primarily aimed at the international academic community; nor are they designed to increase the store of universal

knowledge about peoples and their cultures in the manner of social sciences. They are meant rather to re-identify another world in which to live for those who dwell in the Andes today but have been convinced of the inevitability of modernity, post-modernity or any of its other hybrid variants.

PRATEC's writings point to the fact that the Andean peasants have been in existence for over 10,000 years and possess the dynamism and the resources to regenerate themselves creatively without breaking with their history. The issue is an important one for PRATEC. They argue that with the collapse of the formal economy of Peru, the spectacular failure of most development projects, the rapidly deteriorating environment and the chaotic political situation in the country, the only vibrant, non-destructive and dynamic sector of the country is the Andean peasantry. Today the peoples native to the Andes have fully recovered from their demographic collapse after the conquest, and constitute an actual majority of the Peruvian population. With the collapse of the hacienda system in 1968 and the failure of subsequent governmental co-operative schemes, indigenous modes of relating to the land are sponta-

neously expanding throughout the Andes.

Non-subjecthood, what PRATEC calls "cultural affirmation", should not be confused with a political movement. PRATEC is emphatic on this point: Julio Valladolid Rivera went to great lengths to explain to me that PRATEC was not a movement or a political organization at all (the word *movimiento* is in South America inextricably linked with political movements). As Eduardo Grillo has pointed out:

"... it is not a matter of forming another political party, because such formalism would undermine the decentralized creative capacity necessary for the task of decolonization. Nor is it a matter of using violent means to deactivate the apparatus of colonization. We consider that what is adequate is to affirm ourselves each time more in our own Andean culture, dispensing with having recourse to the colonial authorities, leaving them thus without function and obsolete ... we believe rather that violence justifies the presence and the action of the police, the army, the magistrates and the rest of officialdom. First of all, to decolonize ourselves is to affirm our Andean culture and to reject the imperialist pretension of homogenizing peoples. Consequently, to decolonize ourselves is to break with the global enterprise of development."²³

Cultural affirmation corresponds to the third path of 'non-subjecthood'. It can be understood as a cultural politics that "support(s) alternative (non-Western) discourses of reality that legitimate entirely unfamiliar stories and versions about how the world works."²⁴ Cultural affirmation or non-subjecthood are stances that question the evolutionary inevitability of something called "progress" or "modernization" while at the same time recognizing the continued relevance and vitality of ways of life that existed long before the advent of the Europeans.

Just as the Andean landscape is one of the world's most ecologically diverse, it also harbours a great diversity of human ways of life. In its work, PRATEC has attempted to articulate the sources from which all this diversity keeps emerging. Thus, rather than giving us snapshots of reality in the manner of empiricist social sciences, their efforts are aimed towards capturing something like a world-view,

what they call an Andean cosmovision. It is a point of view that goes behind or beyond the happenings of everyday life with their inevitable rough spots and difficulties as well as small triumphs. It is an approach less intent on giving knowledge about a world and more akin to an invitation to enter that world.

A phrase which perhaps more than any other captures the heart of the Andean ways of life is "*criar y dejarse criar*" (to nurture and let oneself be nurtured). Since the translation does not do justice to the original, let me quote some examples. In the Andes it is common to hear the breeders of alpacas say: "Just as we nurture (or raise) the alpacas, the alpacas nurture (or raise) us."²⁵ In a first fruits ritual in the region of Puno in the southern altiplano, the wives of the ritual leaders mix the first fruits or seeds at the time of the harvest with those preserved from the ritual of the previous year. The ritual leader, becoming the voice of the old seeds and fruits, addresses the new fruits and seeds as follows: "As we have nurtured these people, now it is your turn to also nurture them."²⁶

What is clear from these two examples is that nurturing is not the sole prerogative of humans, but also that of nature and

With the collapse of the formal economy of Peru, the spectacular failure of most development projects, the rapidly deteriorating environment and the chaotic political situation in the country, the only vibrant, non-destructive and dynamic sector of the country is the Andean peasantry.



The enormous variety of cultivated plant species in the Andes continues to astonish plant geneticists today.

of all that inhabits the world. This mutual nurturing between humans and the rest of the world happens through dialogue, conversation and reciprocity. As one Bolivian peasant explains:

"We have great faith in what nature transmits to us.

These indicators are neither the result of the science of humans, nor the invention of people with great experience.

Rather, it is the voice of nature itself which announces to us the manner in which we must plant our crops."

Thus the position and brilliance of stars, for example, speak to the peasant about aspects of the weather; the frequency, intensity, odour and colour of the winds speak to the farmer about the coming weather; when and how a particular wild plant flowers tells the farmer that this fallow land is now ready to be cultivated again. These are only a few examples; there are thousands of such signs that speak to the Andean farmer. The peasants learn the language of the world and respond to it, thus engaging in a constant conversation. It is out of these dialogues and conversations that life generates and regenerates itself. Nature speaks to the peasants just as the peasants speak to nature and to their deities (*huacas*). Given the great diversity of ecological niches, of micro-climates, given the great changeability of the weather as well as the diversity of human communities, no two conversations are the same. Out of these conversations emerges an immense diversity.

Indeed, the Andes have been identified by the great Soviet plant geneticist Vavilov as one of the eight centres of origin of cultivated plants. The enormous variety of cultivated plant species continues to astonish plant geneticists today. The peasants grow and know some 1,500 varieties of quinoa, 330 of *kaniwa*, 228 of tarwi, 3,500 of potatoes, 610 of oca (another tuber) and so forth.⁸

This mode of conversing with all the inhabitants of the world – be they rock, tree, animal or human – is one which we should be careful not to assimilate with current prevalent notions. To assume when a peasant tells you that she is conversing with the soil or the wind that she is speaking metaphorically is to assume that Andean peasants are the intellectual heirs to the Reformation and the Scientific Revolution, in which nature does not speak directly, but can be interrogated in the laboratory through experiments, in which to 'hear nature speak' one has to be specially trained and taught to construct mechanical devices for proper interrogation. As Robert Boyle, the first experimentalist and inventor of the air-pump

in the seventeenth century explained, the experimenters must be "priests of nature",⁹ having received lengthy intellectual training as one would need in order to become a priest. This is very different from the idea of conversation, for which the signs which comprise nature's language – known as *lomasas* in Aymara – cannot be reduced to mere 'representations' or 'symbols' as they were after the Reformation.¹⁰ Rather, Andean peasants do not experience themselves as being apart from the rest of the inhabitants of the world. Just as we humans speak, so do the other inhabitants of the world. To hear these other inhabitants speak, no special training is required, just attention and practice. No special training and certification is required, rather it is open to all those willing to listen and hear. Openness, attentiveness, receptivity and respect are the attitudes that foster conversation. The senses are not apprehended as limiting or distorting. With the beginning of experimental science, the senses were seen as 'infirmities', as obstacles to correct understanding. These 'infirmities' were to be remedied and enhanced by the use of experimental devices and instruments. Such denial of the senses in the pursuit of knowledge can only arise in a worldview that has already separated humans from the natural world. In the Andes, rivers, mountains, lakes and rocks have eyes and ears: everything is sentient.

Some mountains, streams and lakes, as well as some animals and plants are *huacas* (deities). In Quechua, the human community is called the *runa*; the rest of the natural world is called the *sallga*. The three are interconnected and together form a living whole called the *pacha*. The three realms meet at the site of the *chakra*, the field where the peasants raise their crops but also any site where the human community, the natural community and the community of deities converse and reciprocate in order to regenerate life.¹¹

"What happens between the Andean communities of humans, deities and nature is reciprocal dialogue, a relationship which does not assume any distancing and objectification between those dialoguing, but rather an attitude of tenderness and understanding towards the life of the other. Such dialogue does not lead one to a *knowledge about the other*, but rather to empathize and attune oneself with its mode of being, and, in company with that other, to generate and regenerate life. It is a dialogue ... that leads [not to knowledge but] to wisdom."¹² (Rengifo Vasquez)

Many of the graduates of PRATEC's course have returned to their *ayllus* (communities in the broadest possible sense) of

"Consequently, to decolonize ourselves is to break with the global enterprise of development" – Eduardo Grillo.



Andean women displaying their very high quality local cheese.

origin as did Marcela and Magdalena Machaca, two sisters from a peasant community near the central Andean city of Ayacucho. There they work to counteract the influence of the state educational system which devalues the peasants' ways of doing and living. They work to recuperate practices and knowledge which many among the younger generations have abandoned. Marcela and Magdalena had made it to the university in Ayacucho from their villages, seeking there to "better themselves". Magdalena told me that when they arrived at the university in the school of agronomy:

"All knowledge in the university is against the life of our mother culture. My professors did not speak of that culture. As a result my sister and I were very disillusioned. All the knowledge we had acquired in our work in the field was not reflected in the university curriculum. We became confused."¹³

Many other graduates of PRATEC's course have instead returned to their university or government posts, in the hope of initiating profound transformations. I met with twelve instructors of the faculty of agronomy of the University of Cajamarca during my visit there. All twelve were graduates of PRATEC's course. Isidro Rimarachin Cabrera

explained to me that, out of a faculty of sixty, their group is in the minority. They have organized themselves and struggled for the representation of Andean culture and agricultural knowledge in the university curriculum. The struggle was not easy but as of 1993 what had been an informal course of Andean agriculture has become an accredited part of the curriculum. Isidro explained that up to then agronomy textbooks taught about such things as spring, summer and fall wheat, all of which are European and do not correspond to local crops or seasons. Since the majority of the student body (as well as the faculty) is of peasant origin, this learning alienates them from their own experience and knowledge. Isidro and his friends have created an alternative curriculum, where Andean culture and knowledge is taught.

Teoladio Anguro, another member of Isidro's group of twelve, explained:

"We spent a whole year living in the villages, learning the rhythms of life of the farmers. We observed that the peasants practise *ayni*; the families help each other and pool labour and other things. We did not observe from the outside, which is what is usually done in rural development schemes. Rather we worked with families, we integrated ourselves in the community. We observed that farmers also had house gardens next to their *chacras*. We noticed that they had two gardens: one laid out according to the instruction of the visiting agronomist and another according to the farmer's ways. When the agronomist visited he was shown the agronomist's garden. We have ignored the agronomist's garden and have worked in and studied the farmer's garden. We no longer take seeds from the farmer for improvement in the university's experimental station. The farmers themselves propagate their seeds and those of their relatives. We have compared the productivity of the two kinds of seeds and have found them to be equivalent."

The experience of this group was summed up for me by Juan Seminario:

"We ourselves who are agronomists were profoundly surprised to discover the immense wealth of seed varieties that the farmers grow. A veil has been covering our

eyes: we have been told that the region is a degraded zone and that everything has been lost. That is not so; we do not need seeds from the outside. We have the vitality to grow our own. We are not poor; we are not eroded. Some seeds and knowledge have been lost but others have been raised."

From Puno in the South to Tarapoto in the north-east of the Peruvian Andes, through Ayacucho, Cajamarca and Moche, I met with dozens of graduates of PRATEC's course. What struck me was the tremendous transformative power of that course. All the students I met had come to PRATEC's course out of a deep malaise with what they had learned or taught at schools and in the universities, as well as with their experience with rural development schemes. They have all in their various ways dedicated themselves to learning from the peasants, seeking out particularly the elders of the community in order to salvage some of the knowledge which is being eroded by the activity of the state and international agencies.

Meeting so many of PRATEC's graduates I had the opportunity to see for myself that Eduardo Grillo's vision of a decentralized and dispersed society is in fact a reality.

None of the groups formed by these graduates of PRATEC's course is dependent on PRATEC or in any way organizationally or financially related to PRATEC. There is no party line to be followed. PRATEC plants seeds in people and communities and most of them seem to have flourished in their own soils and in their own manner. Everywhere in the Andes, even in Lima, sprouts of non-subjecthood have emerged and are flourishing, quietly and unobtrusively regenerating an ancient but always new world.

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Frédérique Apffel-Marglin is the editor of a forthcoming book, *The Spirit of Regeneration: Andean Culture confronting Western Notions of Development*, which is a selection of the works of PRATEC. The book will be published in February 1998 by Zed Books, 7 Cynthia Street, London N1 9JF, priced £14.95/\$22.50 paper and £42.50/\$62.50 cloth.

Village vs State

by Gavan McCormack

Sentenced to death following a central government decision to submerge their village beneath the waters of a dam, the people of Kito had no option but to reclaim control over their local economy and environment and organize themselves in resistance to the famous might of Japan's State bureaucracy. Their almost unprecedented success in halting the development has paved the way for further political and economic decentralization in Japan and has served to inspire numerous other communities in similar situations.

Sometimes the dimensions of the whole are appreciated better from the periphery than from the centre and, as Archimedes once famously remarked, there are some points, however apparently remote and peripheral, from which even the greatest bodies might be shifted by the application of a lever. The mountains of Tokushima region in Japan's Shikoku Island offer a distinctive perspective on late twentieth century Japan, and it may be that the village of Kito could be both vantage point and Archimedean fulcrum, a point from which not only to observe and understand, but also to lever, however slightly, the behemoth of the modern Japanese system. The local mayor, Fujita Megumi, has no such grand ambition, but for 25 years his village has been saying "No" to the authorities of the Japanese state.¹

"A project to build a dam on the Nakagawa River near the village of Kitoson, Tokushima Prefecture, has been halted due to residents' opposition," Construction Minister Shizuka Kamei said on Tuesday after a Cabinet meeting. (News item, June 1997.)

Along Highway 195 the yellow protest banners flutter, as once in the rebellious villages of feudal Japan, and the bridges and walls are daubed with resistance slogans. From time to time in recent years, other mayors or governors have tried to stand against the power of the authorities in Tokyo, as did

Okinawan Governor Ota in 1996, but like Ota they have all in the end been forced to the negotiating table, where they have had to make the most of a set of cards shuffled by Tokyo's bureaucrats. Today only Fujita, backed by a village consensus that shows no sign of cracking, refuses even to talk to Tokyo and, while he seems more impregnable than ever, Tokyo's commitment to submerging his village beneath the waters of a dam is beginning to falter.

Kito is typical of the thousands of upstream, mountain hamlets and villages which one after the other from the late 1950s have been sacrificed as Japan set its course for high growth and industrialization, at any cost. Up-country Japan was 'backward'; downstream lay the

future, the modern. After three smaller dams were completed on the Naka River below Kito, in the 1950s and 1960s, the flow of the river was blocked and the once-abundant salmon and sea-eel disappeared. Kito village, population 2,000 and 98 per cent forest, appeared on the Ministry of Construction's lists as a potential dam site in 1971, and by 1972 Prime Minister Tanaka had even decided on the construction company to be employed on the job.² Because the village is the lowest unit in the Japanese bureaucratic pyramid – expected to implement measures decided at the prefectural or central state level without question – co-operation of the local authorities was taken for granted. Kito, however, gradually showed that it was not so 'typical'.

*The village shows no sign of cracking,
refuses even to talk to Tokyo and seems
more impregnable than ever.*



Yellow protest banners line the streets at the Kito dam site.



Mayor Fujita outside his office in Kito, February 1997.

In the 1970s, the national faith in growth – and in the wisdom of bureaucratic decisions on how to pursue it – was almost absolute, and its influence was felt even in Kito. After first declaring unanimous opposition in October 1972, under pressure two years later the Village Assembly did what most other villages in the same situation had done: it yielded and adopted a 'Comprehensive Village Development Basic Plan' predicated upon construction of the dam (i.e. extinction of the village). Gradually, however, the local community stirred and opposition spread. The Assembly was 'recalled' and following fresh elections in December 1976 it passed a resolution of opposition to the dam. In the teeth of immense pressure both from prefectural and central governments and from business groups, that resolve has held steady ever since.

Like all Japanese villages, Kito's self-governing rights under the constitution are severely constrained, especially by fiscal arrangements under which the proportion of taxes to be spent in and for the village is determined at much higher levels. The authorities are therefore able to enforce submission to such projects by cutting allocations for public works in villages. In the early 1990s, as the Kito project entered its third inconclusive decade, the pressures escalated. When the Tokushima Prefectural Assembly in December 1992 declared its intention to push ahead with construction and the then Kito mayor was seen to be vacillating, he was 'recalled', and replaced in 1993 by the present mayor, Fujita. The Dam Survey Office was immediately upgraded to a 'Dam Construction Office', and provision for the works began to appear in the national budget. A sense of 'High Noon' enveloped the village.

Despite the odds, at the local level the opposition succeeded in entrenching itself: in September 1993 a petition for cancellation of the project was signed by 1,321 of the local electorate's 1,781 people (74.2 per cent). A 'Kito Village Basic Environmental Ordinance for the Protection of Nature and the Unpolluted River' and a 'Kito Village Ordinance to Block Kito Dam' were adopted in December of the following year. In the elections of January 1995 the anti-dam camp won 80 per cent of the votes and eight of the ten seats. On 22 June 1995 the village adopted its own 'dam-less' development plan and shortly afterwards set up a corporation, known as 'Kito Herushikku' (Kito Healthy) which in April 1996 opened a factory producing soya bean-based cakes and ice-cream. Various means of promoting other local industries were also explored.

Beyond the village boundaries too, rivers began to be seen, not as bundles of utilitarian functions but as living natural entities, organically linking mountains and sea and their adjacent communities. The rush to growth, in whose name so much had been sacrificed for 20 years, began to be reassessed, and a sense of loss at the scars inflicted on the rivers, mountains and coast spread. A June 1995 prefecture-wide survey found that opposition to the dam was running at 41 per cent, and support at only 24 per cent.³

In response to this changing mood and to the growing international attention being focussed on Japan's 'iron triangle' of public works-centred corruption, criticism focussed on the hitherto absolute and unquestioned prerogatives of the Ministry of Construction. A system of public consultation to address particularly controversial projects was introduced. Late in 1995, thirteen 'Deliberative Councils' were set up to advise continuance, amendment or cancellation of construction plans. Kito's long-unresolved dam was referred to one such council, but the mayor and his assembly, alone among other problem districts, refused to participate. The new council, they realized, would naturally lean towards the governor's nominees (the majority) and would serve as a new means for



The rich farmland of Kito village - much of which would have been lost to the waters.

ensuring local compliance. After twenty-five years and a dozen formal resolutions of opposition to the dam, Fujita could argue not unreasonably that the stance of his village was clear and non-negotiable.

Flood prevention is the main reason given for needing the dam. The Ministry of Construction concedes that adequate coverage already exists against a 'once in 30 or 40 years' scale flood, but argues that downstream communities should be protected against the hypothetical event of a 'once in 100 years' flood following torrential rainfall in the headwaters.⁴ Basing itself on figures which indicated a maximum historic flow of 9,000 mms per second – in the typhoon of 1950 – it set 11,200 mms per second as the hypothetical force which the dam should be built to withstand.

The sheer naïveté of presuming to be able to construct a human environment impregnable to nature is breathtaking. Although some flooding in unprotected areas has occurred during the post-war period, the river's dikes have never been breached. Furthermore, when a 'once in 150 years' record 1,114 mms of rain *did* fall one day in 1976, the damage that resulted was due to a 'back-wash' of waters, blocked from their natural flow by another dam (Kominono). An accumulation of silt forced the water back upstream, thereby flooding Kito Village; in short, it was the dam that caused the damage, not the rain.⁵ In any event, a hypothetical case, such as the Ministry presents, is by definition impossible to contradict. All that can be said with certainty is that, if once a '100-year proofing' of the river were achieved, the Ministry would then turn itself, like the 1980s 'Star Wars' experts in Washington, to work on coping with a hypothetical 'once in 1,000 years' storm. The fact is that the 'proofing' system has not worked on other rivers, and that nature is not predictable. Twenty-five years of intensive propaganda have not convinced the residents of the river basin that they need to be 'nature-proofed', and opinion surveys show a growing national consensus that it is preferable to adapt to nature rather than

strive for mastery over it.⁶

A so-called 'multi-purpose dam', this one will be designed to provide water both for irrigation and for industrial and 'town' water uses. Critics point out, however, that early predictions about the demand for both have been drastically reduced, and scholars increasingly prefer the prescription of increased attention to forest care upstream and conservation downstream.⁷ Fujita himself stresses the amenity value of the Kito forests in terms of their contribution to combating global warming, preventing erosion, regulating river flow, etc. Taking the figure for the 'ecological services' performed by the entirety of Japan's forests and paddies as Y40 trillion, he assesses the worth of Kito at one per cent of this, or Y40 billion.⁸

This may seem a somewhat arbitrary figure, but the Y40 trillion is a relatively conservative one. Katsuya Fukuoka, Dean of Economics at Risho University, puts a figure of Y60 trillion on the environmental national amenity benefits of Japan's farmland alone.⁹ Fujita also points out that the existing dams built downstream on the

The rush to growth, in whose name so much had been sacrificed for 20 years, began to be reassessed, and a sense of loss at the scars inflicted on the rivers, mountains and coast spread.

Naka River in the 1950s and 1960s had filled with silt at three times the planned or anticipated rate,¹⁰ while the severance of the flow of nutrients and silt to the river mouth had severely eroded the estuary and devastated the once-rich fisheries. None of these costs had been considered in the original dam construction estimates.

Fujita and his village compatriots can look around them at the situation on the lower reaches of their river, which is already dammed, and at the experience of dams in other parts of the country. What they see is that dams have served to destroy the life of Japan's rivers, to decimate the population of mountain and up-country districts, and probably to increase flooding. When representatives of Kyushu towns in which dams had been built gathered in August 1992 for the first time to discuss their experience of being dammed, they reached a consensus that no village had ever flourished thanks to a dam, and that the social

problems of ageing and depopulation sharpened following construction.¹¹ Even from his very different perspective, Takemura Kotaro, a negotiator from the Ministry of Construction's Development Bureau, admitted that towns may flourish briefly thanks to the employment that is brought by construction works, but that, once the works are finished, they suddenly become silent: "It is illusory to think that a district may be brought to life by a dam."¹² Ultimately, Japan's dams will have to be demolished, and in the long term the disposal of old concrete dams and their massive silt accumulations will be an environmental problem of immense proportions.¹³

Mayor Fujita insists that there is no real democracy in Japan, that the Ministry of Construction is no different from the Mafia, and that local government in Japan has scarcely progressed in the 150 years from the time when mayors were simply appointed by Tokyo.¹⁴ He quotes with passionate conviction the words of the German constitutional scholar Jhering to the effect that throughout the world the basis of human rights is law, and "all laws ... are won by struggle, having to be seized from those that would deny them."¹⁵

Archimedes could not have wished for a point more remote than Kito from the centres of power in late twentieth century Japan for a lever to be inserted. The contest between the mayor of this mountain village and the concentrated might of the national and prefectural bureaucracy is as uneven as any contest could be, and the 100 years of modern Japanese history is bleakly lacking in any precedent for such a victory. The idea that Fujita, saying "No" to the Tokyo design and preferring to nourish the village's traditional and more ecological economic activity, might constitute a lever capable of shifting the Japanese edifice seems improbable. Still, there is no doubt that after decades of stubborn resistance the position of Fujita and his community is stronger than ever, and it is his stand, not the bureaucracy's, which is supported by the growing national consensus in favour of a new, decentralized, environmentally sensitive, more modest approach to the coming twenty-first century.

By 1995, 4.5 billion yen had been spent on various 'stud-

ies' as part of the prolonged campaign to foist the dam on Kito village, but a significant new factor then began to operate – a growing recognition of the depth of the fiscal crisis of the Japanese state.¹⁶ By mid-1997, consideration of two major public works programmes – shifting the capital and constructing new *shinkansen* rail lines – had been frozen, and it was becoming clear that the funds for large infrastructural projects, doled out in the 1980s with few if any questions asked, would no longer be available. The combination of fiscal, political and environmental considerations made it less and less likely that Hosogöchi Dam would ever be built. The dam proponents were forced to take a perceptible step back from the project when the allocation for 'works' in the 1997 budget was downgraded to 'survey'. Then in June 1997 came the announcement quoted at the beginning of this article. The dam would not be built.

It would be hard to exaggerate the significance of this outcome. Beyond the immediate drama of this village, victorious now in its long drawn-out saga, were a number of important questions. Whether it would presage a turning of the national tide after decades of lavish spending on socially and environmentally damaging public works projects remained to be seen. The simultaneous draining of the Isahaya tidal flats in Nagasaki Prefecture made it hard to envision any pattern in the Kito outcome. Yet in so far as it is difficult to think of any precedent in the hundred and more years of modern Japanese history for such a victorious defiance by a local government and its community against the concentrated forces of the national and prefectural bureaucracy, its consequences are literally incalculable. If political devolution, local empowerment, fiscal responsibility and environmental sensitivity are to be the watchwords of the twenty-first century, then that century has begun in Kito.

Gavan McCormack is professor of Japanese history in the Australian National University. A regular visitor to Japan since the early 1960s, his most recent book is *The Emptiness of Japanese Affluence*, published by M.E. Sharpe, New York, 1996.

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Kyoto: Our Last Chance

by Simon Retallack

Climate change, without doubt, could dwarf all other problems facing the world today. If greenhouse gas emissions are allowed to rise unchecked, unprecedented havoc will be wreaked upon our lives and the natural world. This December could be our last opportunity to prevent catastrophe. As government ministers from around the world gather in Kyoto – this article asks what action, based on ecological limits, must be agreed upon if we are to prevent spiralling climate change.

In the ancient Japanese city of Kyoto, after many years of warnings and countless failed initiatives, the world's leaders are expected at long last to commit themselves to achieving targets and time-scales for reducing the emissions of greenhouse gases. Nothing greater could now be at stake. The prospect of a planet that is uninhabitable because of man-made climate change is a real and impending possibility. Urgent agreement on early and radical reduction limits has to be reached. We cannot afford to fail.

Accepting the facts

That climate change is a genuine and man-made problem is not now in dispute. Scientists still sceptical of global warming, like Patrick Michaels and Richard Lindzen, can now more or less be counted on one hand and are out on a limb in the face of a peer group which holds a robust counter-view. Almost all contrarians work for the fossil-fuel lobby and enjoy their status as iconoclasts with apparent indifference to the human stakes involved in the debate. There are, however, certain indisputable facts, which even men like Lindzen do not

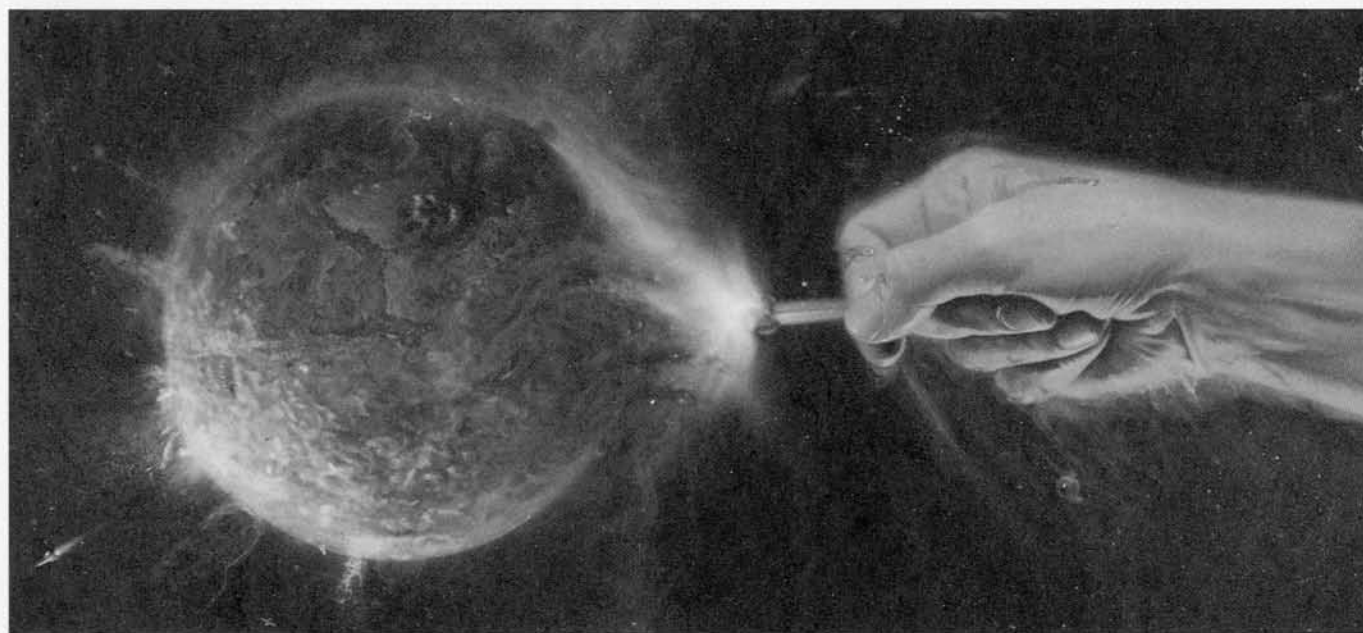
question. First, that greenhouse gases are radiatively active – they trap heat in the Earth's atmosphere. This is simple physics. So, if you fill the atmosphere with heat-trapping gases, you will trap heat. And second, that this is precisely what we have been doing. No one denies that atmospheric greenhouse concentrations have been soaring for decades. Consequently, it should

come as no surprise that we are heating the planet. Official confirmation of this came in 1995, when the Intergovernmental Panel on Climate Change (IPCC) – the official scientific body established in 1988 by the UN to investigate climate change – published its Second Assessment Report, written and reviewed by some 2,000 scientists and experts. It found that "the balance of evidence

suggests there is a discernible human influence on global climate."¹ There is therefore now a consensus that climate change is real and that it has to be tackled.

The long time-scales involved in the climate system underline the urgency of immediate action. Greenhouse gases have a long residence in the atmosphere: between 40 and 60 per

A degree of climate change far worse than even the most pessimistic predictions have so far indicated could be triggered by the reactions and interactions of the planet's land, ocean and ice masses in response to the rise in temperatures which we have already initiated.



With special thanks to Mark Garro for permission to reproduce his artwork

cent of the carbon dioxide currently released into the atmosphere is expected to take many decades to be removed. It is therefore the concentrations of greenhouse gases in the atmosphere, in other words the extent of accumulation of emissions, which must be focussed on.

Atmospheric concentrations of greenhouse gases have grown significantly since pre-industrial times as a result of human activities. CO₂ concentrations have grown from about 280 to almost 360 parts per million volume (ppmv), methane (CH₄) from 700 to 1720 parts per billion volume (ppbv), and nitrous oxide (N₂O) from about 275 to about 310ppbv.² If business continues as usual, the concentrations of greenhouse gases, translated into their carbon-dioxide equivalents, are set to rise to 560ppmv by 2030, double pre-industrial levels, taking levels of long-lived greenhouse gases higher than they have been for several million years.³ A second doubling by 2100 would take us to 1100ppmv – four times pre-industrial levels. The consequences would be severe, and wholly unpredictable.

The threat to life

Rising temperatures are already the clearest sign of climate change. So far, according to the IPCC, global average temperatures have risen 0.6°C above the pre-industrial average. As Sir John Houghton, the co-chair of the Scientific Working Group of the IPCC, told me, the IPCC's latest coupled ocean-atmosphere models show that in the second half of the next century, for business as usual, "we would see a global average increase of 2.5°C, with perhaps 4°C over land masses, particularly in the northern high latitudes, 3-4°C over parts of the Arctic or Antarctic, and possibly substantial regional variations from the global average." If the increases in temperature seem modest, it should be noted that a 3-5°C cooling brought on the most recent

ice age. What is more, Houghton believes that a second doubling of pre-industrial levels of CO₂, which would occur by the end of the twenty-first century, would lead to a rise of 5°C, "with a possibility of it being closer to 10°C temperature rise". As Houghton says, "That would be very serious indeed."

While most of the world warms, however, Northern Europe could be plunged into much colder weather because globally higher temperatures could cause the sudden collapse of the northern spread of the Gulf Stream, which Ben Matthews, climatologist at the European Study of Carbon in the Ocean, Biosphere and Atmosphere, believes might switch off altogether after 650ppmv. On a business-as-usual scenario this could well happen by the end of the next century.

Other effects of climate change could be equally severe. Many natural ecosystems will not be able to adjust fast enough to a rapidly warming world – leading to sharp increases in the already alarming rate of species extinction.

Because of the melting of continental glaciers, and the thermal expansion of the water, sea levels could rise by 0.5-1 metre if we reach double pre-industrial levels of CO₂, according to Sir John Houghton, making low-lying islands, such as the Maldives, uninhabitable. Most worrying of all, Mark Meier of the University of Colorado estimates that, were just one-third of the East Antarctic ice-sheet to slip into the sea, the melt would raise sea-levels by 30 metres and completely inundate low-lying land and coastal cities. The portents are not encouraging. Global sea levels have already risen by between 10 and 25 cm, which is significantly higher than the rate averaged over the last several thousand years.⁴ Worse still, a startling 2.5°C warming in Antarctica has been reported since 1940, the fastest on record, leading to the disintegration of Antarctic ice-sheets.⁵

The threats to fresh water supplies (which are already under pressure), from higher evaporation rates, melting glaciers and snow, and falls in precipitation, could be very significant. Most continents have already experienced a drought-of-the-century since 1990. Climatic insecurity could cause havoc for farmers who would find it increasingly difficult to know when to reap and when to sow. A clear danger to food security would be posed first, by proliferating droughts, which the IPCC's models suggest could lead, for example, to soils in Europe losing up to 50 per cent of their moisture once CO₂ equivalent levels double; second, by proliferating floods as violent storms increase and as sea levels rise, drowning valuable arable land; and third, by proliferating pests, which could spread 200 kilometres further north for every 1°C temperature rise. This would clearly exacerbate existing problems such as chronic malnutrition, which 700 million people already endure. A startling indication of how vulnerable we are to climate change came in June 1991, when the worst floods so far this century burst across the Yangtze plain. China, which faces the challenge of feeding a quarter of the world's population with 8 per cent of the world's cultivable land, lost 20 per cent of its croplands.⁶

Climate change is also likely to have adverse impacts on human health, with significant loss of life. Direct health effects include increases in mortality and illness due to an anticipated increase in the intensity and duration of heat waves and aggravated air pollution. Indirect effects of climate change include increases in the potential transmission of vector-borne infectious diseases, such as malaria, dengue, yellow fever and some viral encephalitis. Perhaps more catastrophic would be the inevitable flooding of nuclear and chemical dumps, many of which are on coasts.

Climate change also poses a very real threat of societal destabilization and conflict. The effect of drowning coastlines could lead to hundreds of millions of climate refugees, more than the world has yet seen in the course of the twentieth cen-

Worst-of-the-century climatic extremes

Droughts:	South and Eastern UK	1990-1992
	California	1990-1993
	Peru	August 1990
	Southern Africa	1992-1993
	US Northwest	May 1992
	Queensland	1993-1994
	Greece	Summer-Nov.1993
	Northeast China	1993-1994
	Mongolia	May 1990
	Indonesia	October 1991
Wildfires:	Siberia and Poland	August 1992
	Zimbabwe	September 1992
	Sydney, Australia	January 1994
	Eastern Australia	May 1990
Floods:	Southeast Iran	February 1991
	China: Yangtze	May-July 1991
	Thailand and Cambodia	August-Sept. 1991
	Cuba	February 1992
	Papua New Guinea	June 1992
	Pakistan: Indus	September 1992
	US Midwest	June-August 1993
	Northwest Europe	December 1993
	Southern China	May 1994
	US Southeast	July 1994
	Northwest Europe	Jan-Feb 1995
	Bangladesh (139,000 dead)	May 1991
	Samoa (Cyclone Val)	December 1991
	US East Coast	March 1993
	Madagascar (Cyclone Gerdal)	February 1994

Source: J. Leggett (Ed.), *Climate Change and the Financial Sector*, Munich 1996.

tury. Where would these refugees go? How would they be cared for? A severe disruption of the world's food supplies through floods, droughts, crop failures and diseases brought about by climate change could trigger famines, wars and civil disorder in many countries. As the former UN Secretary General Boutros Boutros-Ghali has said: "The next war in the Middle East will be fought over water, not politics."

One of the central predictions of the climate scientists is that weather extremes will become more frequent, with significant consequences for human infrastructure and economies. According to Dr Jeremy Leggett, Chief Executive of The Solar Century and former scientific director of Greenpeace, "Given only a slight increase in the scope for windstorms, drought-related wildfires, and floods, the \$1.4 trillion insurance industry would be in danger of global collapse, with knock-on economic consequences which are completely ignored in most analyses of climate change."⁷ Property-catastrophe losses have already been enormous in recent years. In 1995, weather extremes caused \$100 billion worth of damage, with costs to insurance companies amounting to \$9 billion.⁸ If this seems a lot, just imagine the economic consequences were the world's big cities, many of which are on coasts, like New York and Bombay, to be flooded. The cumulative costs of climate change, based even on conservative estimates, would be enormous. They too, however, could be dwarfed if certain often neglected positive feedbacks, provoked by global warming, were to occur.

Positive feedbacks

A degree of climate change far worse than even the most pessimistic predictions have so far indicated could be triggered by the reactions and interactions of the planet's land, ocean and ice masses in response to the rise in temperatures which we have already initiated, which could, in turn, provoke a significant increase in greenhouse gas concentrations and temperatures.

There are a number of possible biospheric feedbacks. In a warmer world, plants will respire more rapidly, releasing more CO₂ into the atmosphere. With global warming, forests which do not adapt rapidly enough to rising temperatures will rot, releasing large quantities of CO₂ and methane. The land sink could further be impoverished as forests become increasingly dry, resulting in increasingly frequent forest fires, which will release millions of tonnes of CO₂.

Warming will also accelerate decomposition rates of CO₂ stocks stored in tundra soils, allowing the stored carbon to be released. Similarly, as permafrost melts and peat bogs warm, large quantities of methane (which traps 63 times more heat than does CO₂) will find their way into the atmosphere, further adding to climate change. Annual liberation of as little as 1 per cent per year of either CO₂ or methane stored in the top metre of soils in tundra or peat could double the current rate of increase in the equivalent of atmospheric CO₂.⁹ As sea levels rise, coastal vegetation will be flooded, releasing methane and nitrous oxide. In a warmer world there will also be more evaporation, and so more water vapour in the atmosphere, adding significantly to the warming, possibly by as much as 1.8°C.¹⁰

One of the most important potential atmospheric feedbacks relates to changed cloud cover. It is thought that the Earth will become cloudier as temperatures rise (something which has already been measured throughout this century). If these extra

clouds are of the low, bright variety, they will reflect more of the sun's heat into space. However, it is equally possible that the clouds that form could tend more towards the higher, cirrus type, in which case they would reflect less of the sun's heat than is the case at present – and this could magnify warming five-or-six fold. Similarly, as snow and ice continue to melt, there will be fewer white areas on Earth to reflect the sun's heat directly back to space. According to one model, this could lead to a warming of up to 2.2°C.¹¹

A number of oceanic feedbacks will all lead to an increase in CO₂ in the atmosphere. As the oceans warm, dissolved organic carbon will decompose more rapidly, releasing increasing quantities of CO₂, and the ocean's ability to draw down CO₂, currently 2 billion tonnes every year, will also be eroded for a number of reasons.¹² First, CO₂ is less soluble in warm water than in cold. Second, as the research of Ben Matthews shows, with warmer temperatures, the thermohaline circulation will



Sir John Houghton, co-chair, Scientific Working Group of the UN's IPCC.

Climate change poses a very real threat of societal destabilization and conflict. The effect of drowning coastlines could lead to hundreds of millions of climate refugees, more than the world has yet seen in the course of the twentieth century.

slow. This will reduce the amount of CO₂ usually taken down from the surface to the deep ocean, from which, in addition, less nutrients will be supplied to the oceans' major absorber of CO₂, ocean plankton, whose numbers will consequently fall and CO₂ levels rise accordingly. Furthermore, if there are fewer plankton, they will no longer generate sufficient dimethylsulphide to form cloud condensation nuclei, which create bright white clouds that reflect sunlight. The planet will therefore warm still further. According to a climatologist at the University of East Anglia, who prefers to remain anonymous, "If you took away this plankton-clouds effect, you could see a warming of the order of maybe 5°C in the Southern Ocean." Some scientists suggest that the oceans' absorptive capacity could be reduced by 50 per cent as the ocean circulation system slows down.¹³

In the opinion of James Lovelock, atmospheric scientist and father of the Gaia theory, the burden of added greenhouse gases could well be taking the planet close to the limits within which it can operate as a self-regulating system. According to climate change author Peter Bunyard, "when CO₂ concentrations reach 400ppmv, Lovelock fears the algal system could collapse and the surface temperatures rise quickly. Should the concentrations rise to 700ppmv, then Gaian terrestrial regulation may collapse. At that stage, Lovelock tells us, we are in uncharted waters. How disturbing then, that we are within a century of taking ourselves into those waters."

What is being presented here is the very worst case scenario. The point is not that it will happen, only that it could happen. In the words of Dr Jeremy Leggett, "a snowballing synergism of feedbacks is possible if our luck is out." The uncertainty involved, however, apparently explains the IPCC's relative neglect of the importance of positive feedbacks. Sir John

1,500 of the world's most distinguished scientists, including 104 of the 138 surviving recipients of Nobel prizes in the sciences, have recently signed a declaration urging world leaders to act immediately to prevent the "potentially devastating consequences of human-induced global warming." In stark contrast, the executives of the world's largest fossil-fuel and fuel-related companies sent the following letter to President Clinton:

July 8, 1996

The President
The White House
1600 Pennsylvania Avenue, N.W.,
Washington, DC 20500

Dear Mr President,

US State Department officials have announced that they will begin UN-sponsored negotiations on post-2000 climate change commitments this month. It is critical that an analysis and assessment of the impacts of any such commitments on the US economy be completed before these negotiations proceed.

We are deeply concerned that such negotiations may lead to premature agreements that will severely disadvantage the US economy and US competitiveness simply to meet an arbitrary deadline.

While there is reason for concern about global climate change, the models that are relied upon to make climate change projections are evolving and there remains great uncertainty about the extent, timing and effects. Each time the models have been improved, the estimates of the potential environmental impact have been significantly scaled back.

The US must take care to avoid commitments that will cost US jobs, retard economic growth or damage US competitiveness. Moreover, given the long-term nature of the issue, there is time to determine optimum strategies that are economically sound, comprehensive, market-based and can be adjusted over time as new data and technologies become available. For example, a policy of accelerated research and development efforts leading to breakthrough technologies may achieve the same or better results with less cost and economic disruption than near-term strategies aimed at incremental reductions in greenhouse gas emissions.

The US should not accept other nations' agendas. This is a global issue that needs to be addressed on a global basis. Agreements cannot exempt developing nations, which are expected to be the major contributors to greenhouse gases in the 21st century. Policies, instead, should encourage activities in developing nations to help them limit future greenhouse gas emissions. At the same time, care must be taken to avoid a one-size-fits-all strategy or acceptance of unilateral obligations. The US has the most to lose and will pay the highest cost for many of the proposals currently on the negotiating table.

We urge you to ensure that the US negotiating team recognizes that the unique needs of the US economy are of the utmost priority and to adopt a negotiating position that protects US interests. The US should support accelerated research on climate change causes and effects. The US should demand time for a thorough study of all proposals with respect to their cost effectiveness and economic, social and international competitiveness impacts. The US should not agree to any of the three proposed protocols presently on the negotiating table.

Your leadership on this issue is critical to assuring a continued strong US economy.

Sincerely,

Lee R Raymond, Chief Executive Officer, **Exxon Corporation**
Dr Ray Irani, Chairman, President & CEO, **Occidental Petroleum Corporation**
Lucio A Noto, President, Chairman & CEO, **Mobil Corporation**
Ken Derr, Chairman & CEO, **Chevron**
Peter I Bijur, Chief Executive Officer, **Texaco, Inc.**
John F Smith, Jr., Chairman, CEO & President, **General Motors Corporation**
Drew Lewis, President & CEO, **Union Pacific**
Lawrence A Bossidy, Chief Executive Officer, **AlliedSignal**
Robert J Eaton, Chairman & CEO, **Chrysler Corporation**
Fred Tuckar, Executive V.F and General Manager, **Motorola, Inc.**
Travis Engen, Chairman, President & CEO, **ITT Industries**
Alex Trotman, Chairman, President & CEO, **Ford Motor Company**
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Philip J Carroll, President & CEO, **Shell Oil Company**
Stanley C Gault, Chairman, **Goodyear Tire & Rubber Company**

Deera and Co., Hunt Oil Company, Johnson Controls, Inc., Ashland, Inc., Lear Corporation, Louisiana Land & Exploration Co., LTV Corporation, Marathon Oil Company, Mascotech Inc., Murphy Oil Corporation, Anadarko Petroleum Corporation, Phillips Petroleum Company, Seagull Energy Corporation, California Steel Industries

... and over 90 other corporations



In conclusion, Mr President, we at Exxon feel that human survival may simply not be economic.

Houghton, while recognizing that "the positive feedbacks will become more severe as the temperature rise gets larger," argues that "it's hard to get politicians to concentrate on things that are very speculative of that kind. I prefer to get them to concentrate on things we are pretty sure about." But surely, given the risks involved, our political leaders must be made aware of the worse-case scenario so as to take urgent action if only on a precautionary basis. Take virtually any decision involving military security, and policy-makers know all about insuring against worst-case analyses. Why should environmental security be any different? Neglecting the immense threat of possible positive feedbacks could lead humanity towards a catastrophe as great as any war.

Ecological limits

There is a growing scientific consensus that anything more than a doubling of greenhouse gas concentrations, which on current trends will happen by 2030, poses an unacceptable risk of escalating and, as a result, potentially uncontrollable feedback reactions. Approaching anywhere near this level must clearly, therefore, be avoided. According to Dr Jeremy Leggett, "If we go above 2 or even 1°C, we are inviting apocalypse – both of which fall well short of doubling."

So, to be sure of preventing dangerous interference with the climate system, which is the ultimate objective of the UN Convention on Climate Change, we must stabilize carbon-dioxide concentrations at 350ppmv as soon as possible. This target is based on ecological limits. 350ppmv, which is slightly below today's level, giving us an increase in temperature of 0.5°C, is the only level we can

be relatively sure will not dangerously affect the climate system. Higher concentrations involve an acceleration into a danger zone of increasing climatological instability and uncertainty which we must avoid. As Aubrey Meyer, Director of the London-based Global Commons Institute (GCI), says, with climate change, "we don't know where the edge of the cliff is – so we shouldn't get anywhere near it. We must return as quickly as possible to present levels."

To do this, the annual output of CO₂ emissions from human activities would need to be reduced immediately by a minimum of 60 to 80 per cent of 1990 emission levels, according to the IPCC's First Assessment Report (published in 1990).¹⁴ Instantaneous reductions on such a scale would clearly be impossible. But given the desperate situation we could soon be in, unusually drastic action is an imperative. Ideally, therefore, cuts of 60-80 per cent should be made by the year 2020, and at the very latest, 2050. If we do leave it until 2050, according to Aubrey Meyer, concentrations would peak at about 400ppmv mid-century and return to 350-360ppmv by 2100.

For many commentators on climate change, political and economic 'realities' make even this option far too ambitious. But is it possible, I asked Sir John Houghton? "If we were about to be hit by an asteroid," he replied, "no doubt we would tackle that sort of thing." But the extent of our interference with nature means that we are about to be hit by an ecological asteroid as dangerous as any from outer space. We must therefore tackle this problem in as short a time-frame as possible.

The solutions exist

To avoid extensive damage, we need a crash programme, even if it means reassessing today's economic priorities. The pre-

vention of climate change must surely have precedence.

The technology already exists to help solve this problem. As Stewart Boyle, Director of the International Institute for Energy Conservation, told me, "The 60-70 per cent cuts are available on current technology. Just look at what's available and working now; you have solar, solar-hydrogen, bio-fuels, wind, tidal, zero energy buildings, and 150-200 mile per gallon cars." So what stands in our way?

Currently, fossil fuels are supported by huge public subsidies. Since 1992, fossil fuel subsidies in G7 countries have amounted to at least \$100 billion, and up to \$500 billion in Russia.¹⁵ In the UK, for every £1 of public money used to support the development of renewable energy, fossil fuels have received over £100 in direct subsidies, in the period 1990-1995.¹⁶ Phasing out these fossil-fuel subsidies would release huge amounts of money for public investments in renewable energies and energy efficiency, as well as give an unmistakable signal to industry. As *The Economist* says, "As soon as firms in the \$1 trillion-a-year fossil-fuel industry believe governments are serious about greenhouse emissions, they will invest furiously in reducing costs of alternative sources of energy." Governments should therefore end fossil-fuel subsidies and push for the adoption of ambitious targets for the expansion of renewable energy, to be met, in part at least, through public subsidies, tax incentives and full environmental pricing in the electricity sector.

In addition, our economic systems are needlessly riddled with inefficiencies. For example, even the best coal-fired power stations are only 38 per cent efficient. We therefore need an aggressive emphasis on energy efficiency in homes and businesses through better design and insulation, and the

use of energy-saving lighting, which is four times more efficient than before, according to Christopher Flavin of Worldwatch. Another simple task would be to plug the leaks of methane from Russia's gas pipelines, which currently amount to 35 million tonnes a year, and therefore 6.5 per cent of total methane emissions worldwide.¹⁷ At the same time, Stewart Boyle points out, "If the commitment and the incentives were there, in less than two years you could have 80-90 miles per gallon cars as common as the 40-50 miles per gallon is now". Using energy more efficiently, however, may not be enough. As Sir John Houghton says, "our energy use itself would also have to go down enormously over the next fifty years."

A carbon tax could be introduced, the price of petrol doubled (as recently recommended by Britain's 1997 Royal Commission on Environmental Pollution), and international aircraft and shipping fuel taxed. Enough money could be raised from more taxes to pay for improvements in public transport and, studies show, offset any negative economic effects arising from the increased price of energy.¹⁸

While these technical measures are all important, the problem is not a technical one alone; it is also societal. If in the long term we are to give ourselves any chance at all of surviving, it is vital we question, indeed reverse our commitment to global free trade, which can only, by its structure, massively add to the burden of greenhouse gases in the atmosphere. This mode, dominated by the needs and demands of big business, is inimical to cutting down on pollution. For it is based on rootless and uncontrollable capital spurring ever-higher levels of consumption, competitive markets which undermine the power of governments to set effective environmental standards, the further distancing of producers from consumers, and the almost

Phasing out fossil-fuel subsidies would release huge amounts of money for public investments in renewable energies and energy efficiency.

total dependence of communities on food shipped and trucked from thousands of miles away. If governments are to deal effectively with the problem of climate change, fundamental reform of this economic system must be a prerequisite.

Were all of these changes achieved, not only would they help prevent climate change, but they would also bring many other benefits.

Cutting CO₂ could create almost a quarter of a million jobs for the UK, according to Friends of the Earth, through the expansion of public transport, rapid development of renewable energy sources and big increases in energy efficiency.¹⁹ Similarly, in the US it is claimed that reducing greenhouse emissions by 2010 to just 10 per cent below 1990 levels would generate 773,000 new jobs and save the average household \$530 a year in energy bills. Other benefits that emission reduction strategies would bring include, among a great many other things: a reduction in costs to industry and households; a reduction in city pollution, asthma, traffic congestion and delays; acid rain would be halted; we would even benefit from reducing our dependence on the Middle East; and the world's forests would be more secure.

So we must see climate change not just as a threat, but as an opportunity to change for the better the way we live. Many of these changes could be made today.

What must be agreed at Kyoto

What we need now is political commitment, starting with ambitious goals to be set at Kyoto. To prevent dangerous climate change, putting aside political constraints, what we need from Kyoto is the adoption of a protocol containing legally binding commitments for industrialized countries to reduce their emissions of CO₂ by 60-80 per cent below 1990 emission levels by the year 2020. As a first step, a 25 per cent reduction of CO₂ emissions by 2005 from developed countries must be agreed. This is not an impossible target: Austria, Denmark and Germany have already committed themselves to such a reduction by 2005. Such an early goal is important to give industry an incentive for immediate large-scale investments in energy efficiency and renewables; and also to show the developing countries we are serious about climate change so that they can be engaged in the process and agree themselves to limit their future greenhouse gas emissions. This could pave the way for the adoption of a global framework scheme, which may provide the only means of overcoming one of the largest obstacles in the way of a worthwhile agreement on climate change.

A negotiational impasse

The impasse between the US and the developing countries appears intractable. On the one hand, the US insists that a protocol based only on Annex 1 (developed countries) emissions would be unacceptable, because under such an agreement the US would lose its competitive advantage, as energy-intensive industry would migrate to developing countries where CO₂ emissions are cheaper, leading to a loss of US jobs. On the other hand, the G77 of developing countries argue that historically, emissions from industrialized countries are the main cause of global warming, that on a per capita basis, developing countries' emissions are up to 30 times less than Annex 1, and that their priority is development, for which they want to use fossil fuels as Annex 1 has done. Developing countries, led by China, therefore insist that they will not accept any new commitments at Kyoto and that the developed world should solve the problem of climate change on its own.

The impasse between the US and developing countries must be breached, as there can be no solution without the US or the developing world, particularly China. There is no way

that developing countries' emissions (which are set to reach more than half of global emissions by 2020) can match those of the industrialized countries, without destroying the planet. Agreement by developing countries to limit their future emissions is therefore fundamental.

Similarly, an agreement that failed to bind the United States to significant emission reductions would

clearly be of little worth either, given that the US, with just 4 per cent of the world's population, is the world's largest single emitter of greenhouse gases, currently emitting 23 per cent of the world's total.



Dr. Jeremy Leggett, Chief Executive, The Solar Century.

The Solar Century

Contraction and convergence

The Global Commons Institute (GCI) considers that their global framework scheme, 'contraction and convergence', could provide the only practical way of overcoming this obstacle.

Under the scheme, put in simple terms, a global carbon budget would be set, such as 350ppmv, to be reached by a particular date, say 2050. GCI argues that the only way to divide this budget among states in a way that is acceptable to all, and hence durable, is on the basis of convergence towards equal entitlements to emit on a per capita basis globally. In practice, this would mean that high per capita-emitting developed countries would have to contract their emissions, and low per capita-emitting developing countries would have to limit their emissions to keep within their respective per capita allocations. After convergence had been attained, all countries would subsequently cut their emissions by an equal percentage. Given that developing countries' emissions, on a per capita basis, are currently far below those of the industrialized world, such an arrangement would allow developing countries to satisfy, on paper at least, their desire to develop, and hence increase their emissions in the short term by a limited extent. *The Ecologist* believes this is by no means ideal. It should be remembered that the hunger for the pattern of economic development that motivates developing countries has been very consciously created by the North in order to satisfy its needs for market expansion. What is more, the pursuit of this pattern of economic development often leads to the marginalization of the bulk of the rural masses who are displaced into the slums of the cities, and the further degradation of the natural environment, especially in the context of the global economy [see Edward Goldsmith's article in this issue]. On the other hand, whatever may be *The Ecologist's* reservations, the adoption of per capita allocations within a global carbon budget may prove to be the only practical way of bringing the rapidly industrializing world to agree to set a legal cap on its emissions, a fundamental requirement if the world is to bring the US on board and, even more importantly, if we are to avoid catastrophic climate change. Furthermore, it is not expected that developing countries' emission entitlements will actually be fully used, since they could be traded, providing one of the most effective means of generating major revenue for the purchase of renewable energy technologies and thereby actually substantially avoiding future carbon emissions.

Apathy and greed

However, while such a scheme could be agreed to in principle, the task of achieving an immediate global agreement to cut substantially greenhouse gas emissions at Kyoto is rendered almost impossible by the activities of the \$1 trillion-a-year fossil-fuel industry. The corporations that profit from the production and use of fossil fuels pursue their aim of preventing governments adopting any reduction targets ruthlessly, so that they can pursue 'business-as-usual' for as long as possible to allow them to maximize profits.

In pursuit of this goal, they have formed lobby groups, such as The Global Climate Coalition (GCC), which act as fronts for a host of companies like Shell, Exxon, BHP, Chrysler, and Du Pont. They specialize in intervening in, and systematically sabotaging, the climate change negotiations. Over the past two months, these lobbies have bombarded the US public with well over \$13 million of advertisements designed to prevent any progress at Kyoto, arguing that climate change is not a real threat and that capping greenhouse gas emissions would cripple the economy by inhibiting economic growth and negatively affecting trade, investment, competitiveness and employment. All of these positions are demonstrably false.

The scientific consensus around climate change is now unshakeable, given the clear evidence of the IPCC. Equally spurious are the economic arguments against combating climate change. As the 2,000 prominent US economists, including six Nobel Laureates, who recently signed the 'Economists' Statement on Climate Change' publicly asserted, "Policy options are available that would slow climate change without harming employment or US living standards, and these may be economically beneficial in the long-run."²⁰ The fossil-fuel lobby, however, grossly underestimates the capacity of America's economy to achieve the kind of technical innovation that we have seen in the past in response to other major environmental problems. It is also clear that the fossil-fuel lobby is all too willing simply to ignore the massive positive job implications of developing renewable energy technologies and increasing energy efficiency, not to mention the improvement in many companies' competitiveness in global markets that a re-orientation towards renewable energy would bring. Even the isolated commitments to launch solar power programmes made in the past two months by BP and Shell, represent less than a penny in every £100 that these companies are spending on looking for yet more oil.²¹ Most foolishly of all perhaps, the fossil lobby consistently fails to take account of the economic losses, amounting to billions of US dollars, that would follow from inaction on climate change.

But we can refute the claims of the fossil-fuel industry until hell freezes over, because when big business starts waving money under our politicians' noses, reason is mysteriously set aside. Without fundamental reform of the way politics operates, and in particular the way it is financed, there can be little hope of achieving a rapid solution to the problem of climate change.

The most important governing system to have been bought by the fossil-fuel lobby is of course that of the United States, where many Congressmen are deeply indebted to Global Climate Coalition companies who fund election campaigns in return for promises to block progress on curbs to pollutants.

The fossil-fuel lobby's most glorious triumph must surely be President Clinton's October commitment to stabilize emissions at 1990 levels by 2012, and even then on condition that action is also taken by developing countries. It effectively maintains corporate business as usual, putting back by 13 years the pledge made in Rio in 1992 to stabilize emissions at 1990 levels by 2000, and postponing for at least 16 years the cuts that are so urgently needed below 1990 levels. Were this target to be met, the date of CO₂ doubling would only be postponed by less than five years. If climate change results in the way most scientists predict, millions of people's lives could be ruined as a result of the US government's failure to take adequate action. The American government, and the fossil-fuel lobby which controls it, are holding the world to ransom.

While the politicians involved are of course fully culpable for their irresponsible failure to engage with the severity of this global crisis, history will record with even greater disdain the sheer criminality of those business leaders whose greed, mendacity, myopia and utter cynicism have corrupted the political process and, as a consequence, set the world on a path to climatic upheaval and, ultimately, ruin.

All is not lost, however. The political representatives of most countries can and must still act at Kyoto. The facts before them are clear. If we accept the status quo, we are condemning ourselves to oblivion. What we need is action based on ecological limits, notwithstanding so-called political or economic constraints. Ultimately, the governments of the world must decide whether to allow the suicidally short-term interests of the coal, oil and gas lobby to prevail, or whether a sustainable future based on renewable energy and greater harmony with nature is something worth working for. Our future is in their hands.

The facts are clear. If we accept the status quo, we are condemning ourselves to oblivion. What we need is action based on ecological limits, notwithstanding so-called political or economic constraints.

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Clear-Cut Madness in Russian Karelia

by Eeva Berglund

A unique expanse of boreal forest, or taiga, in what used to be a closed-off, military zone running for about 900 km along Russia's western border with Finland, from the Arctic Ocean to the Gulf of Finland, has become a zone of political confusion, criminality and colonialist exploitation. Before the political changes of 1991, the area was peripheral to the Soviet Union and more or less unknown beyond it. Since then, however, there has been an eruption of conflicting agendas for the future of the region among the foreign paper and pulp companies (mostly from Finland and Sweden), the governments of Finland, Karelia and Russia, NGOs both from the West and from Russia, and Finnish defenders of the area's cultural heritage. The debate hinges largely on the fate of the forest which includes magnificent areas of old growth unlike any to be found further west.

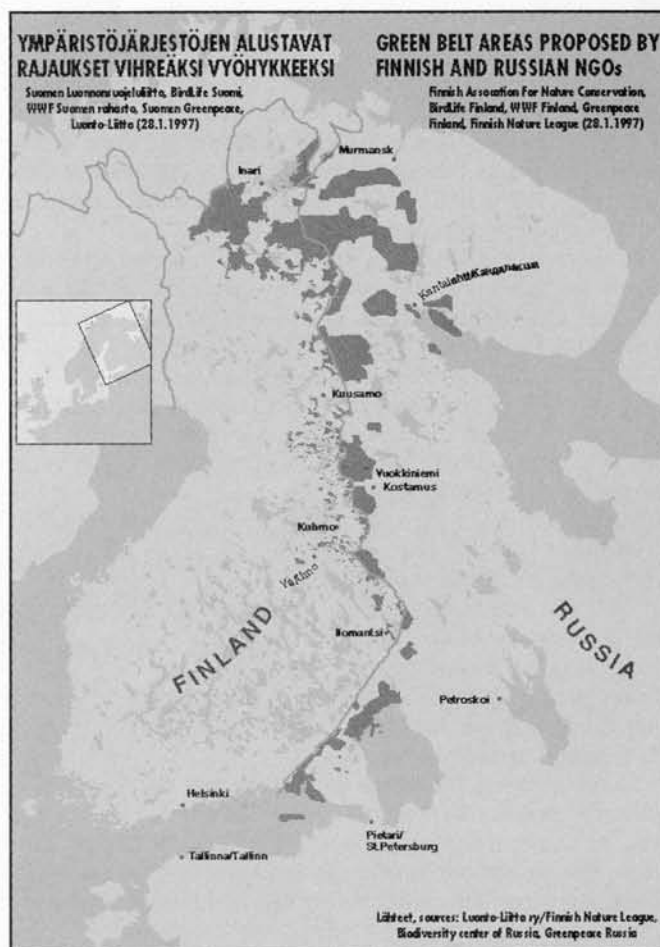
To establish a new political environment and civic culture in the former soviet socialist republic of Karelia is no trivial challenge. The sparsely populated region is effectively a colonial frontier – and an attractive one for those quickest to take up the opportunity – with an abundance of raw materials within easy access for the Finnish and Swedish paper and pulp industries, and extensive forests to turn into nature reserves. And the opportunity has indeed been seized. The activities of foreign paper and pulp companies and their more-or-less shady associates inside Russia have provoked local anxiety. “Until recently, many people had never seen a clear-cut. Last summer I saw one for the first time,” said one local woman. “It was like the hallway to Hell.”

So far, local communities have gained little financially, whilst rumours are rife that administrative elites and the Mafia are making huge illegal profits. Unknown quantities of old-growth forests of unique biological richness have been logged.¹

The paper and pulp industry in Finland, and increasingly also in Sweden, has been criticized domestically, but also abroad, particularly in Germany, for ignoring the ecological impacts of its production process. Through the 1990s the Finnish media has covered the industry well, including the question of imports from Russia, but the fact remains that it is an industry which represents an extremely prominent sector of the Finnish economy. Environmental groups and nature lovers have sought consistently to protect the “last wilderness”,² the chain of old-growth forests on the Russian side of the border and to prevent Karelia from taking the path of intensive management that Finland has taken.

Culturally, Karelia is of special significance for the Finns. The area around Kostamuksha, a mining town built in the 1970s about half-way up the border on the Russian side, is home to Karelians whose traditions have inspired enthusiasts of Finnish folklore for over 150 years. Finnish culture and even the country's independence owe a debt of gratitude to the vibrant oral traditions of this region of small ‘song villages’

Eeva Berglund is currently a post-doctoral research associate and lecturer in the Department of Geography at the University of California, Berkeley. She has carried out anthropological research on environmental groups in Germany which is shortly to be published in the UK as a book by the White Horse Press. Her current research is on forest issues in Finland.



that straddles the border. Significantly, the embeddedness of Karelian and Finnish identity within the forest has always been strongly emphasized and, despite Soviet efforts to eradicate the Karelian language, the bond has remained close between Karelians and Finns who still speak mutually intelligible languages, different from Russian, which for centuries has been the language of oppressors. Although most of this area has never been a part of independent Finland, other parts



Only a few grand old pines had been left standing, and this because so far the site had only been covered with a harvester, manufactured in Finland for Finnish conditions which do not feature trunks so thick, and which could not therefore fell such trees. They too would soon be torn down.

of Karelia were ceded to the Soviet Union in the Second World War, and on the Finnish side of the border there is still an area known as Finnish Karelia. The consequence of this tangle of interests is that claims made over Karelia's forests in Finland evoke strong emotional responses.

A short visit to the area around Kostamuksha gives the impression that, whereas outsiders are polarizing debate into pro- and anti-logging camps, the local view has remained – perhaps not surprisingly – largely unheard. Decades of control by outsiders and foreign bureaucracy have not, however, despoiled the locals who have sought and achieved co-operation between their own political actors, the regional level and NGOs from elsewhere. The focus of their work has been cultural and ecological. Environmental groups have also sprung up in Kostamuksha, a town made up mostly of immigrants brought in to work in its iron-works, and surrounded by the extremes of intense pollution and a *zapovednik* or strict boreal forest nature reserve.

In the villages, the sense of humour and the irony with which locals describe the recent entry of loggers, tourists, and even of environmentalists, puts the grand schemes of both well-meaning activists and profit-seeking industrialists into a new perspective. The political rhetoric, familiar from Western debates, posits humans as being somehow separate from nature, beholden either to manipulate it or to protect it, but rarely to live in it.³ The expertise of local people is all too often ignored, as is the possibility that a meaningful life for locals may not conform to the ideals of activists. I too was yet another intruding outsider, one of many who have come with questions, often with promises of better times to come, but frequently also bearing trouble of one kind or another. Nevertheless, mindful of the fact that the fate of Viena Karelia lies very much in the hands of political and economic structures beyond it, locals want their story to be told.

My first trip to the area in summer 1996 left me angry but not resigned. I was thoroughly unprepared for the immediacy of the colonialist atmosphere, and how it would strip me of my academic distance and leave me sharing, with the Finnish activists who were my initial guides, their anger and disgust.

Our route took us north from Akonlahti to Vuokkiniemi. Akonlahti had been emptied of inhabitants by force and razed to the ground in the 1950s. But in 1996 a village festival was organized there, attracting descendants of the old inhabitants from as far away as Sweden. As we drove we kept an eye out for new clear-cuts. We stopped our cars on the side of the road and followed the fresh tracks of heavy goods vehicles into a clearing a few metres from the side of the road. A Western

concern with 'aesthetics' has spread the practice of leaving a strip of forest alongside the road to camouflage unsightly clear-cuts. As we came into the open clearing the first thing we saw was a Finnish harvester, and then a small trailer carrying the name and

telephone number of a Finnish contractor from a few dozen kilometres across the border. Next to the trailer was an old tour bus carrying the name of a Finnish football club. Behind these there was a scene of utter devastation. Only a few grand old pines had been left standing, and this because so far the site had only been covered with a harvester, manufactured in Finland for Finnish conditions which do not feature trunks so thick, and which could not therefore fell such trees. They too would soon be torn down.

Clear-cutting, rarely practised around the small villages even during the Soviet period, is a tangible sign of how times have changed. "We've lived from the forest all our lives," said Galina Vatanen, a schoolteacher from Vuokkiniemi, the largest of the Karelian villages. "In the last few years so much has been going on in the forests around here." As logging continues, the landscape is undergoing constant change.

Until recently, the military presence ensured that the entire

As threats from climate change increase, so too does the importance of unfragmented species habitats for mitigating its effects.

length of the border remained isolated and mostly outside intensive exploitation even though Karelia, like the rest of North West Russia, has long played a strategic role in Russia's, and formerly the Soviet Union's forest sector.⁴ Following Soviet practice, much of the forest was classified into management group I, meaning areas with water protection, anti-erosion or scientific and historical significance. Although more land is designated for commercial use than for protection, there is nevertheless a dense chain of forests here, much of it old-growth or untouched since before the Second World War. This Green Belt is even due to be nominated by UNESCO as a world heritage site. In fact much of this area is already officially included in conservation areas of various kinds, and plans to increase the area of protected forests and provide financial and professional aid to do so were accepted at government level in Finland in November 1996.⁵ Efforts to survey the forests and designate future conservation areas are underway even at Russian Federation-level, but rogue loggers and harvesting plans that are inconsistent with already existing protection areas continue to hamper progress.

Since the beginning of the decade, researchers from the Karelian Research Centre, universities and forestry institutes in Finland,⁶ and teams of surveyors commissioned by WWF⁷ and other NGOs have undertaken surveys in the border region. Looking at aerial photographs, even an untrained eye can see the difference between the dense forests to the east of the border, and the young, intensively managed areas to the west. In contrast, in fact, to the fragmented landscapes of Western Europe as a whole, ecologists stress the extent of these intact forests, relatively untouched and therefore of great importance in efforts to maintain biodiversity. Furthermore, as threats from climate change increase, so too does the importance of unfragmented species habitats for mitigating its effects. The WWF survey team calculated the area covered by undisturbed forest to be almost 3,000 km², a feature rivalled only by the Komi Pechora-Ilych forests of the Urals – and a feature under threat from a short-sighted hunger for easily accessible timber.

The boreal zone, or taiga,⁸ covers a vast area between 50 and 70 degrees latitude from Scandinavia to Kamtchatka and from Alaska to the Labrador peninsula. In Karelia, as in Northern Europe generally, very few tree species (one species of pine, one species of spruce and half-a-dozen broad-leaved species, for instance) dominate. As an ecological and also geological zone developing in the aftermath of ice ages, the taiga is still "ageing". Thus, it may be able to adapt to changing climate conditions better than areas where relationships of mutual dependency between species have long been established. Nonetheless, the taiga is also a fragile ecosystem, beleaguered as it is by a very short growing season and sharp changes in seasonal conditions. Also, compared with more temperate areas, the absolute numbers of species are much smaller. The uniqueness of the Green Belt of Fennoscandia as it stretches from Norway to the Gulf of Finland lies partly in its abundance of species of all kinds, preserved as they have been by the isolation of the area.

Across the border in Finland, in areas where intensive forestry has brought about changes in the composition of the taiga, diversity has been reduced, leaving the forests drastically impoverished. Comparisons between Finland and Russia show that Finnish forests contain far fewer animals and that many

species still thriving in Russian Karelia are now extinct in Finland.⁹ Furthermore, endangered forest fauna in Finland's forests are probably dependent on an influx of animal species from the more untouched areas in Karelia. Although it would be false to claim that the border region is an area completely unaffected by human intervention, the differences between these forests and the managed forests throughout Finland are striking.

These events should be seen in view of the fact that Russia's own paper mills frequently stand still, and occasionally even sawmills in villages like Vuokkiniemi are refused logging permits by authorities in Petrozavodsk. This effectively means that landscapes, ecosystems and community environments are being destroyed in order to make paper for use elsewhere.

Although logging for mechanical wood processing as well as paper and pulp manufacture has been carried out in Karelia for over 100 years, the intensive exploitation of these forests only became visible enough to become a political issue after the end of the Cold War when foreign companies were given access. Already in 1990 the Finnish consultancy firm Jaakko Pöyry signed a contract for a Master Plan project with the Soviet Gosplan agency in Moscow to cover the entire coniferous taiga belt west of the Urals.¹⁰ Finns were supposed to introduce more modern and sustainable practices, but critics pointed out that the proposals did little to change the worst of the old administrative and management practices. Indeed the remit of the project was

to encourage managers to proceed in more business-like and efficient ways whilst ecological concerns and local participation did not figure at all. Now a different tone has been forced upon the champions of paper and pulp.

Finnish activists in particular have become perturbed by

the colonialist and high-handed behaviour of their compatriots who have moved in for the "logging fever", to take advantage of political and economic uncertainty and low population density. In the last few years, the public has heard of ecological devastation caused since the political transformations of the early 1990s, and of drunk Finnish contract workers abusing prostitutes whose business, even in the smaller villages, they have boosted.

Given how hard it apparently is for Finns to carry on a cool-headed debate, the international efforts of the Taiga Rescue Network, an umbrella organization concerned for boreal forest conservation since the early 1990s, may prove to be significant. They could lend invaluable support for policies that recognize the ecological importance of this area but also emphasize the human element of the conflict. At the Taiga Rescue Network's October 1996 conference,¹¹ Canadian activist and forester Herb Hammond urged delegates to recognize the legitimacy of local communities' relationships with their immediate surroundings; to recognize also that locals, having evolved as part of their local environment, are more naturally equipped to understand how best to live within its necessary constraints. At the same time, he questioned the myth that everybody needs to adapt to the requirements of the ever more globalized market economy. In so far as his thoughtful commentary was seen to refer to Karelia, it was a welcome contribution in an area which has left many feeling that legality, sanity and decency are concepts no clearer than the waters in the effluent basin of the Kostamuksha ironworks.

There is, however, a fear that turning the Green Belt into national parks will make its population into museum pieces, dependent on insecure subsidies from elsewhere. The rhetoric

Locals, having evolved as part of their local environment, are more naturally equipped to understand how best to live within its necessary constraints.



No matter what form the protection of these beautiful and diverse forests takes, it must be one which grows from the collective, experience-based knowledge acquired over generations by those who inhabit the threatened region.

of some activists, particularly those with an interest in the cultural heritage of the region, features a desire not only to save the wilderness, but also to avoid corrupting the integrity of the indigenous people.¹² What role, exactly, there would be for local people in well-meaning activists' visions remains unclear. But what is clear is that locals wish to continue utilizing the forests for their livelihoods. In Soviet days Karelia's forests provided the Soviet Union with newsprint paper. In the 1990s, they have broadened the resource base of Scandinavian industry. Yet they could be providing local people with a livelihood through a diverse forestry which would leave the forests intact and the population employed. Throughout living memory they have used the products of the surrounding forests and know that forests are capable of regenerating themselves. Villagers from Vuokkiniemi are now hoping for support from NGOs to prevent large corporations from denuding their surroundings.

Criticisms of "Parks without people"¹³ have been introduced into the conflict by enemies of environmentalism from Finland and administrators inside Russia. As elsewhere, in Karelia also, they appealed to the rights of local people to resist NGOs whom they accuse of imperialism. Newspaper editorials in Finland pointed out that most activists are themselves outsiders and therefore have no legitimate voice. But most environmentalists have by now realized that social realities cannot be excluded from the debate.

In November 1996 Sergei Tysplenkov from Greenpeace, Moscow, was angry that Finnish companies in particular had paid lip service to the ecological importance of the Green Belt's forests, yet avoided co-operation with Russian NGOs. Along with other Russian representatives at the Taiga Rescue Network's conference in October, Tysplenkov appealed to Finnish industry and government to enter into the dialogue with Russian NGOs. Whilst Russian officialdom is naturally implicated in the devastating situation in the boreal forests, Russian NGOs were nonetheless justified in pointing the fin-

ger directly at Finland's paper and pulp industry, given the lack of established rules for dealing with the new situation inside Russia itself. Certainly Finnish industry and administrators have since recognized NGOs as legitimate partners in dialogue. But establishing forms of accountability in the region will take much more work. And the logging of the Green Belt is not a problem that can be solved from within Russia alone. Having targeted Finnish companies to change their practices, NGOs are increasingly focussed on Swedish companies, operating both inside Russia and in Sweden.

In October of 1996, Enso Ltd, one of the criticized companies, initiated a working group to carry out a survey of the unprotected valuable areas that could be transformed into conservation areas, a working group which would set the guidelines for the future of forestry in North West Russia.¹⁴

Their efforts were endorsed by the WWF and the Finnish Association for Nature Conservation and, following Enso's promise of a moratorium

in October 1996, WWF put out a press release with the heading "An important step towards protection of old-growth forests in Russian Karelia." Three days later the Russian Forest Club, an informal working group of representatives from Russia's largest forest NGOs, headed its press release as follows: "An important step towards protection [of] Enso's image in Russian Karelia." Whilst supporting the idea of an independent committee in general, the group was angry that yet again the key Russian conservation organizations were being ignored, not merely by Enso, but by government.¹⁵

Like the physical landscape, the political landscape continues to change. The Russian forest NGOs are learning that they need to take on board the need to integrate social and economic elements with ecological concerns. In the above-mentioned press release it is noted that in dealing in an area where the population is already balancing on the poverty margin, any initiatives promising immediate profit, such as the continuation of logging Karelia's forests for export revenue,

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are likely to gain enthusiastic support. But in a paper circulated to NGOs, the group bemoans the fact that most of Karelia's exports are of roundwood, whilst local processing, which would create jobs and add value to the resultant exports, suffers and cannot be developed. The orientation towards Scandinavian-style mechanized exploitation of the forests has overpowered alternatives. The Forest Club's memo is understandably critical.

The choice must extend beyond the simple intensive forestry in the Scandinavian style Vs wholesale preservation. People do have a place in Karelia's forests as the villagers know, and as more and more environmentalists seem to recognize.

Vuokkiniemi, with a population of over 500, is the largest of the villages in the Kostamuksha administrative area. It is the centre of efforts by Karelians to influence the direction of future changes. The local population has remained impressively calm, given the antics of the interested parties around them and the poor economic conditions. Charges of mismanagement of funds, corruption and irregularities of various kinds abound, but little is said that could directly implicate known persons. What is clear is that the last few years have seen increasing hardship as funds fail to find their way from the regional capital, Petrozavodsk, to the village population.

However, at the same time, Karelian-speaking villages are being invested with new life, and have attracted families back who had already moved to larger urban centres.¹⁶ Co-operation – even when it has been problematic at times – between locals, the culture, NGOs from Kuhmo, Finland, WWF and ENSO, has provided Vuokkiniemi with a sorely-needed new school building. In part this is the result of the efforts to revitalize the village folklore, to promote Karelian language and culture, and, ideally, to foster sustainable ways of life, partly dependent on the resources in the local forests and lakes with which locals are indeed familiar. Although the priorities of the cultural NGOs and the ecologically motivated activists do not always coincide, there is a chance here to successfully integrate social, economic and ecological concerns as the paths for the Green Belt's future are decided.

Santeri Lesonen is a prominent local whose vision of the future includes several communities spread out over the area. His own young family are among those who have so far returned to previously deserted villages. He opposes the idea of setting apart vast tracts of forest, out of reach of local use. As he notes, there may be little that is truly pristine or untouched in the Karelian forests, for humans are part of nature also and need to have access to it. As Galina Vatanen also noted, Karelians have always lived off the forest. On the other hand, Lesonen has at least twice agitated locally to prevent clear-cutting in the vicinity of the villages. He recognizes that there is an urgent need to establish the rules of conservation and forest use quickly and he is keen to work together with environmentalists from beyond Viena Karelia. His concept of selective forest management has an eager if perhaps unlikely fan in Sergei Tsyplenkov from Greenpeace, a group often criticized for dismissing local concerns.

I also spoke with Yrjö Lesojev and his wife Olga, who like other locals have a detailed knowledge of these forests. Olga's jam is made from locally-picked berries and her knowledge of mushrooms, berries, and even medicinal plants, is startling.

It is not easy for outsiders to follow the intricacies of the local political situation, and thus the NGOs' frustrations with what appear to be efforts to stall conservation laws even by locals are understandable. The difficulty has been to identify the legitimate partners in dialogue. This continues to be hard work, given the tendency to secrecy not only of the Russian and Karelian authorities but also of the foreign actors in the conflict.

Quite clearly, no matter what form the protection of these beautiful and diverse forests takes, it must be one which grows from the collective, experience-based knowledge acquired over generations by those who inhabit the threatened region. Only then, with an emphasis on the relocalization of economic activity, and the returning of local responsibilities to local people, can the healthy future of the forests be ensured. If the role of 'protector' is handed over to foreign experts, corruptible officials, corporations and others too far removed from the reality of local subsistence to be able to take into account unique, site-specific conditions, then the forests will almost certainly suffer the same fate as their cousins in most other parts of the world, where standardization and universalization of 'local management' have removed humans from the context of their surroundings and have pitted the two against each other with fatal results.

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3. Recent social theory, particularly in social-cultural anthropology, provides a powerful (and not naive) critique of Western-style ideas of human-environment relationships which posit nature as an external resource and object of knowledge. Putting the emphasis on knowledge as a process rather than a disembodied commodity helps raise the respectability and legitimacy of local people's ways of life, even where disembodied scientific expertise might suggest otherwise. See Palsson, G. and Descola, P. (eds), *Nature and Society: Anthropological Perspectives*, Routledge, London and New York, 1996.
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11. I attended in the capacity of a researcher and was thus only able to attend open sessions, but was also able to interview several actors in the Karelian forest conflicts.
12. See footnotes 2 and 3. Also the many thoughtful essays in Cronon, W. (ed), *Uncommon Ground: Rethinking the Human Place in Nature*, W.W. Norton, New York and London, 1996, highlight the conflation of people with natural resources in environmentalist visions.
13. See for example Colchester, M. 'Salvaging Nature: indigenous peoples, protected areas and biodiversity conservation', discussion Paper 55, United Nations Research Institute for Social Development, Geneva, 1994.
14. Enso Ltd., press release 22.10.1996.
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16. A.A. Lehtinen *op.cit.* writes that the "indigenous Karelians and their successors have shown a marked interest in returning to their ancestors' lands" (page 22).

Further information

- Nature League, PO Box 226, SF-00151 Helsinki, Finland.
- Socio-Ecological Union, PO Box 211, 121019 Moscow, Russia.
- Taiga Rescue Network, PO Box 116, 96223 Jokkmokk, Sweden.
- Taiga Rescue Network's publication on-line *Taiga News*: <[http://www.sll.fi/TRN/Taiga News/News20/GB.htm](http://www.sll.fi/TRN/Taiga%20News/News20/GB.htm)>

Can the Environment Survive the Global Economy?

by Edward Goldsmith

The globalization of economic development can only massively increase the impact of our economic activities on an environment that cannot sustain the present impact. What is more, by signing the recent GATT and other agreements we are in effect removing all constraints on the activities of transnational corporations and thereby subordinating environmental imperatives to their immediate interests.

By now, it should be clear that our environment is becoming ever less capable of sustaining the growing impact of our economic activities. Everywhere our forests are overlogged, our agricultural lands overcropped, our grasslands overgrazed, our wetlands overdrained, our groundwaters overtapped, our seas overfished, and just about the whole terrestrial and marine environment overpolluted with chemical and radioactive poisons. Worse still, if that is possible, our atmospheric environment is becoming ever less capable of absorbing either the ozone-depleting gases or the greenhouse gases generated by our economic activities without creating new climatic conditions to which we cannot indefinitely adapt.

In such conditions, there can be only one way of maintaining the habitability of our planet and that is by setting out methodically to reduce this impact. Unfortunately, it is the overriding goal of just about every government in the world to maximize world trade and create a global economy – which has now been institutionalized with the signing of the GATT Uruguay Round Agreement. To increase trade is justified because it is seen to be the most effective way of increasing economic development, which we equate with progress, and which in terms of the world-view of modernism, is made out to provide a means of creating a material and technological paradise on Earth, from which all the problems that have confronted us since the beginning of our tenancy of this planet will have been methodically eliminated.

Unfortunately, economic development, by its very nature, must necessarily further increase the impact of our economic activities on the environment. This could not be better illustrated than by the terrible environmental destruction that has occurred in Taiwan and South Korea, the two principal newly industrial countries (NICS) that in the last decades have achieved the most stunning rates of economic growth, and that are currently held up as models for all Third World countries to emulate.

In the case of Taiwan, as Walden Bello and Stephanie Rosenfeld have carefully documented in their book *Dragons in Distress*,¹ forests have been cleared to accommodate industrial and residential developments and plantations of fast-growing conifers. The virgin broadleaf forests that once covered the entire eastern coast have now been almost completely destroyed. The vast network of roads built to open up the forests to logging, agriculture and development, has

caused serious soil erosion, especially in the mountain areas where whole slopes of bare soil have slid away.

Efforts to maximize agriculture production in export oriented plantations have led to the tripling of fertilizer use between 1952 and 1980, which has led to soil acidification, zinc losses and decline in soil fertility, with water pollution and fertilizer run-off contaminating ground water – the main source of drinking water for many Taiwanese.

The use of pesticides has increased massively, and it is a major source of contamination of Taiwan's surface waters and ground waters; and their sale is subject to no effective government controls. The food produced is so contaminated with pesticides that, according to the sociologist Michael Hsias, "Many farmers don't eat what they sell on the market. Instead, they grow an organic crop, and that is what they consume."²

A substantial number of Taiwan's 90,000 factories have been located in the countryside, on rice fields along waterways and near private residences. In order to maximize

competitiveness, their owners have disregarded what waste-disposal regulations there are and much of the waste is simply dumped into the nearest waterway. Not surprisingly, 20 per cent of farmland, according to the government

*Not even the rich countries can now
"afford" environmental controls.*

itself, is now polluted by industrial waste water. Nor is it surprising that 30 per cent of the rice grown in Taiwan is contaminated with heavy metals, including mercury, arsenic and cadmium. Human waste, of which only about 1 per cent receives even primary treatment, is flushed into rivers, providing nutrients for the unchecked growth of weeds which use up the available oxygen, killing off the fish life. This largely explains why Taiwan now has the world's highest incidence of hepatitis. Agricultural and industrial poisons and human waste have now severely polluted the lower reaches of just about every one of Taiwan's major rivers – many of which "are little more than flowing cesspools, devoid of fish, almost completely dead". In Hou Jin, a small town near the city of Kaohsiung, forty years of pollution by the Taiwan Petroleum Company has made the water not only unfit to drink but actually combustible.

The prawn-farming industry has achieved a fantastic growth-rate – with prawn production increasing 45 times in just ten years. Prawn-farmers, however, have themselves become deprived of the fresh clean water that they need because of the build-up of toxic chemical wastes from upstream industries in rivers and wells. As a result the mass

deaths of prawn and fish have become a regular occurrence.

Air pollution has also increased massively. Sulphur dioxide and nitrous oxide pollution in Taiwan are now intolerable, regularly reaching levels that are double those judged harmful in the USA. Not surprisingly, the incidence of asthma among children in Taiwan has quadrupled in the last ten years. Not surprisingly too, cancer has now become the leading cause of death, its incidence having doubled over the last 30 years.

Even if the annual rate of economic growth in Taiwan were cut to 6.5 per cent, stresses on Taiwan's already degraded environment would double by the year 2000. Even if this were vaguely feasible, can one really believe that it could be allowed to double again, and yet again, without rendering the island almost totally unfit for human habitation? Already, many people are abandoning Taiwan and buying houses in such places as Australia and New Zealand, partly at least to escape the Taiwan environmental nightmare.

It could be argued of course that once Taiwan has achieved a certain level of GNP, it will be able to afford to install the technological equipment required for mitigating the destructiveness of the development process. This argument was credible until recently. However, with the development of the global economy, competitiveness has become the order of the day. This has meant deregulation – that is, the abandonment of regulations, including environmental regulations, that increase costs to industry. This implies, in effect, that much of the legislation that has been forced on recalcitrant governments by environmental groups in the rich industrial countries is being systematically repealed. Not even the rich countries, in fact, can now “afford” environmental controls.

Creating consumers

Creating a global economy means seeking to generalize this destructive process, which means transforming the vast mass of still largely self-sufficient people living in the rural areas of the Third World into consumers of capital-intensive goods and services, mainly those provided by the transnational corporations (TNCs). For this to be possible, the cultural patterns with which most Third World people, at least in rural areas, are still imbued and that commit them to their largely self-sufficient life-styles must of course be ruthlessly destroyed by American television and Western advertising companies and supplanted by the culture and values of Western mass-consumer society. Of course, it is mainly the appetite for this lifestyle that can be exported – the lifestyle itself, only an insignificant minority will ever enjoy, and even then for but a brief period of time, for the whole enterprise is completely impossible, the biosphere being incapable of sustaining the impact on it of the increased economic activities required.

Thus it has been calculated that to bring all Third World countries to the consumption level of the USA by the year 2060 would require 4 per cent economic growth a year. This, of course, would have to be properly distributed, which in itself would not be easy. The annual world output, however, and, in effect, the annual impact of our economic activities on the environment, would be 16 times what it is today – which is of course not even remotely conceivable. However, this consideration could not be further from the minds of those who are promoting the global economy. Thus America's Big



Patrick McCully

One of the principles of economic globalization and “free trade” is that countries should specialize in exporting a few commodities that they produce particularly well and import almost everything else, leading to monoculture, dependence, economic vulnerability and environmental contamination.

Three automakers soon hope to finalize deals in China, whose object is to bring automobiles to each person who now rides a bicycle or simply walks. Merely the extra carbon-dioxide emissions from several hundred million more automobiles would make nonsense of the UN's Intergovernmental Panel on Climate Change's tentative prognostics by leading to a massive escalation in the rate of global warming with all its concomitant horrors. If every Chinese were also to have a refrigerator, as the Chinese government proudly promises, emissions of CFCs and HCFCs would escalate to the point of making nonsense of any agreements reached on the basis of the Montreal protocol to cut down on emissions of ozone

depleting substances in order to save what remains of the ozone layer.

Production for export

One of the principles of economic globalization and “free trade” is that countries should specialize in producing and exporting a few commodities that they produce particularly well and import almost everything else from other countries. This means that

such production is not limited by local demand but only by world demand, hence a massive increase in production for export. It is worth considering what an enormous proportion of the world's production of the most basic commodities is already produced for export – 33 per cent in the case of plywood, 84 per cent in the case of coffee, 38 per cent in the case of fish, 47 per cent in the case of bauxite and alumina, 40 per cent in the case of iron ore, 46 per cent in the case of crude oil.³

Timber is also above all an export crop. In Malaysia, more than half the trees that are felled for timber are exported. This brings in \$1½ billion a year in foreign exchange, but at a terrible environmental cost. Peninsular Malaysia was 70 per cent to 80 per cent forested 50 years ago. Today, mainly because of the export trade, it has been largely deforested. The result has been escalating soil erosion, the fall of the water-table in many areas, and a general increase in droughts and floods. The Malaysian States of Sarawak and Sabah are being stripped so rapidly that it is but a matter of a few years before all but the most inaccessible forests will have been destroyed, annihilating, at the same time, the culture and lifestyle of the local tribal people.

Of course, it is mainly the appetite for this lifestyle that can be exported – the lifestyle itself, only an insignificant minority will ever enjoy, and even then for but a brief period of time, for the whole enterprise is completely impossible.



Plantation crops mass-produced for export tend to cause terrible environmental destruction. This is clear in the US Mid-West, where intensive cultivation for export is leading to such serious soil erosion that what was once the most fertile agricultural area in the world will, on current trends, be almost entirely deprived of its topsoil within the next fifty years.

As country after country is logged out, the loggers simply move elsewhere. In South-East Asia it is to New Guinea, Laos, Myanmar and Cambodia, the last countries that remain still largely forested – significantly the only ones too that have remained, up till now, outside the orbit of the world trading system. At the current rate of forest destruction, these countries will have been largely deforested within the next decade.

It is probable that so long as a market can be found for the timber, forests will continue to be logged. Effective measures to control logging are unlikely, since in most countries in South-East Asia it is the politicians and their families who own the concessions, and the logging companies with whom they deal are in any case too powerful and too corrupt to control.⁴ It is probable that only a collapse of the world economy could save the remaining loggable forests.

Plantation crops mass-produced for export tend also to cause terrible environmental destruction. This is clear in the US Mid-West, where the intensive cultivation of maize and soya beans, largely for export, is leading to such serious soil-erosion that what was once the most fertile agricultural area in the world will, on current trends, be almost entirely deprived of its topsoil within the next 50 years.⁵

Tobacco is another crop that is largely grown for export worldwide. In the case of Malawi it represents 55 per cent of that country's foreign exchange earnings. Robert Goodland notes that "tobacco depletes soil nutrients at a much higher rate than most other crops, thus rapidly decreasing the life of the soil."⁶ But the heaviest environmental cost of tobacco production lies in the sheer volume of wood needed to fuel tobacco-curing barns. Every year the trees from an estimated

12,000 square kilometres are cut down, with 55 cubic metres of cut wood being burnt for every tonne of tobacco cured. Some experts put the figure even higher – at 50,000 square kilometres.⁷

Coffee is largely an export crop, and its production also causes the most serious environmental degradation. Georg Borgstrom notes how the coffee planters have destroyed the soils of Brazil. "The almost predatory exploitations by the coffee planters", he writes, "have ruined a considerable proportion of Brazil's soils. In many areas, these abandoned coffee lands are so ruined that they can hardly ever be restored to crop production. In others, a varying portion of the topsoil has been removed, or the humus content of the soil has been seriously reduced. In most regions, a mere one-tenth now remains of the amount of humus present when coffee cultivation was started. Therefore the coffee plantations have always been on the march, grabbing new lands and leaving behind eroded or impoverished soils."⁸

The same can be said of groundnut plantations in French West Africa. Indeed it has been estimated, Franke and Chasin write, that "after only two successive years of peanut growing, there is a loss of thirty per cent of the soil's organic matter and sixty per cent of the colloidal humus. In two successive years of peanut planting, the second year's yield will be from twenty to forty per cent lower than the first."⁹

What the export-oriented logging industry is doing to our forests and the export-oriented livestock rearing schemes and intensive plantations are doing to our land, the high-tech fishing industry, itself dependent on exports – with 38 per cent of fish caught worldwide exported – is doing to the seas. Today, nine of the world's seventeen major fishing grounds are in decline and four are already "fished out" commercially. Total catches in the Northwest Atlantic have fallen by almost a third during the last 20 years. In 1992, the great cod fisheries of the Grand Banks off Newfoundland in Canada were closed indefinitely, and in Europe mackerel stocks in the North Sea have decreased by 50 times since the 1960s.

As fish stocks are depleted in the North, it is in the South that the fleets are now congregating, but the volume of fish exported from developing nations has already increased by nearly four times in the last 20 years, and Southern fisheries are already under stress.¹¹

The predictable result is the depletion of Third World fisheries too, with the most drastic consequences for local fishing communities.

The expansion of many export-oriented industries gives rise to a whole range of adverse environmental consequences affecting most aspects of people's lives. An obvious case in point is the intensive prawn-farming industry that has been expanding rapidly throughout Asia and some parts of the Americas and Africa. Its export market for intensively farmed prawns is now worth 6.6 billion dollars.

Already about half of the world's mangrove forests have been cut down, many of them in order to accommodate prawn farms. In Ecuador for instance, in 1987 120,000 hectares of mangroves have been destroyed for this purpose. In Thailand the figure is 100,000 hectares. The consequences of mangrove destruction are catastrophic for local fishing communities, as many fish species necessarily spend part of their life cycle in mangrove forests. If they are destroyed, fishing catches tend to fall dramatically.

Another environmental consequence of prawn farms is a reduction in the availability of fresh water for irrigation in nearby rice paddies, the reason being that prawn farms require large amounts of fresh water to mix with sea water in order to produce the brackish water that the prawns like living in. In

the Philippines the overextraction of ground water for prawn farms in Negros Occidental "has caused shallow wells, orchards and ricelands to dry up, land to subside and salt water to intrude from the sea."¹²

Chemical pollution is another problem, as some intensive prawn farms can use up to 35 chemicals and biological products as disinfectants, soil and water conditioners, pesticides, fertilizers and feed-additives. In South Thailand's "rice bowl" between the provinces of Nakhon Si Thammarat and Songkhla, yields have crashed as chemical runoff from 15,000 acres of prawn farms have polluted irrigation canals.¹³

As more and more land is required for the cultivation of export crops, the food needs of rural people must be met by production from an ever-shrinking land-base. Worse, it is always the good land that is devoted to export crops – land that lends itself to intensive, large-scale mass-production. Production for export always has priority since it offers what governments are keenest to obtain: foreign exchange. The rural population is thus increasingly confined to rocky and infertile lands, or steep slopes that are very vulnerable to erosion and totally unsuited to agriculture. These areas are rapidly stripped of their forest-cover, ploughed up and degraded. This has occurred, and continues to occur, just about everywhere in the Third World with the growth of the export trade to the world economy.

An example is provided by the rapid growth of soya bean cultivation in Brazil, which is now the second largest soya bean exporter after the United States. One of the results of such growth has been the forced migration of vast numbers of peasants from their lands in the southern state of Rio Grande do Sul and into Amazonia, in particular to the states of Rondônia and Para, where they have cleared vast areas of forest to provide the land from which they must now derive their sustenance. This land, which is largely lateritic, is totally unsuitable to agriculture and after a few years becomes so degraded that it is no longer of any use. This forces the peasants to clear more forest, which provides them with land for another few years – a process that could theoretically continue until all available forest has been destroyed.

It has been estimated by the US chief negotiator at one of the UNCED precoms that up to 80 per cent of America's environmental legislation is incompatible with the GATT, and could be declared illegal before WTO panels.

Increased transport

So far we have only considered some of the local effects of extractive export industries, such as logging, ranching, fishing and in particular intensive prawn-farming. But the produce of such industries, as well as minerals such as oil, coal, natural gas, and mass-produced manufactured goods, must be transported to the countries that import them. With the development of the global economy the volume of such produce and the distances over which it must be transported can only increase very significantly.

Already in 1991, 4 billion tonnes of freight were exported by ship worldwide, and this required 8.1 exajoules of energy, which is as much as was used by the entire economies of Brazil and Turkey combined. 70 million tonnes of freight that year were sent by plane, and this used 0.6 exajoules, which is equal to a total annual energy use of the Philippines.¹⁴

A European Union task force has calculated that the creation of the single market in Europe in 1993 would increase cross-border traffic with the consequent increase in air pollution and noise by 30 per cent to 50 per cent. With the increase in trade between North America and Mexico, cross-border trucking has doubled in the last five years and this was even before

trade barriers were reduced between the two countries. The US government predicted that after the signature of the North American Free Trade Agreement (NAFTA) cross-border trucking would increase by nearly seven times. The ratification of the GATT Uruguay Round Agreement can only further increase the worldwide transport of goods even more dramatically – and to accommodate it a vast number of new highways, airports, harbours, warehouses, etc., must be built, which in itself can only cause serious environmental destruction.

The trans-Amazonian highway for instance, which is designed to supply Asian markets with more timber and minerals, will rip through one of the biologically-rich forested areas of the tropics. Like previous World Bank funded highways carved through primary forests, it will fragment habitat and open up previously inaccessible lands to loggers, miners, ranchers and settlers, just as occurred in the case of the World Bank's notorious Polonoereste project, which triggered off the deforestation of the State of Rondônia and the annihilation of most of its tribal groups.

In its aim to expand and accelerate the transport of goods along the Rio de la Plata, the Hidrovia project of the Mercosur countries will dry out Brazil's Pantanal (the world's largest wetland which contains the highest diversity of mammals) while worsening flooding downstream. The building of more ports, essential for exporting and importing goods, destroys coastal habitats by demolishing wetlands and mangrove forests, increasing chemical spillage, and dredging the bottoms of bays and lagoons. The increased transport itself, will of course give rise to even more environmental devastation, if one takes into account the pollution caused by the extra combustion of fossil fuels – and in particular the effect of increased carbon-dioxide emissions on global warming, not to mention the accidents during transport, leading to oil spills and spills of dangerous chemicals etc. Indeed, it is likely that if merely the environmental costs of increased transport were really taken into account – that is, if they were "internalized" – then much of world trade would be totally



A dramatic increase in the worldwide transport of goods and the further distancing of producers from consumers is the natural consequence of globalizing the economy.



Mike Goldwater

Amazonia's traditional rubber tappers are unable to compete with rubber grown on Asian plantations, obtained by clearing tropical forests.

uneconomic and we would return to a very much more localized and less environmentally destructive trading system.¹⁵

The environmental effects of increased competition

A recent EC report has seriously questioned the effectiveness of current environmental regulations in protecting our environment as the impact on it continues to grow.

It points out there has already been a 13 per cent increase in the generation of municipal wastes between 1986-1991, a 35 per cent increase in the EC's water withdrawal rate between 1970-1985, and a 63 per cent increase in fertilizer use between 1986 and 1991. It predicts that if current growth rates continue, carbon-dioxide emissions must increase by 20 per cent by the year 2010, making nonsense of the EU countries' commitment to stabilize them by the year 2000.

Clearly then these regulations must be seriously strengthened. However, in the free-for-all of the global economy no country can strengthen environmental regulations that increase corporate costs without putting itself at a "comparative disadvantage" *vis-à-vis* its competitors.

The push for a global carbon tax illustrates this problem. The European Union and Japan both proposed adopting an international tax on fossil fuels as a first step in a campaign to reduce carbon-dioxide emissions. The United States refused, saying that imposing such a tax on Americans would be "electorally impossible". Not wanting to impose costs on

themselves alone, the EU and Japan dropped the idea. Fossil-fuel use and carbon-dioxide emissions thereby remain almost entirely out of control.¹⁶

In other words, responsible producers who seek to minimize environmental costs must compete against those who do not, and are thereby more competitive. This, among other things, endangers, indeed condemns, the world's remaining ecologically sustainable economic activities.

An example is Amazonia's rubber tappers, who extract latex from the rubber trees scattered throughout much of the Amazonian forests, in a perfectly sustainable manner. They will encounter increasing difficulty in competing with rubber grown on plantations in Asia that have been obtained by clearing tropical forests, especially as under pressure from transnational tyre companies with plants in Brazil, such as Pirelli, Michelin and Goodyear, tariffs on natural rubber imports are due to be eliminated in the next decade.¹⁷

Competition and environmental disaster

In order to increase competitiveness, corporations are increasingly undertaking cost-cutting measures which generally involve cutting down, often drastically, on the number of employees. This can seriously increase the incidence of environmental accidents. A case in point is the Exxon Valdez disaster, which would probably not have occurred if Exxon had not eliminated 80,000 jobs, among other things reducing the crews of its supertankers by a third.¹⁸ In addition the supertanker would normally have navigated in a safe but slow shipping lane. Instead, also in order to cut costs, it was moved to a much faster shipping lane, but one which was incomparably more dangerous, since it meant having to navigate through ice floes from the Columbia glacier. David Dembo considers that the Bhopal environmental disaster would probably not have occurred if Union Carbide had not indulged in all sorts of cost-cutting measures.¹⁹

Deregulation

Until recently corporations have been limited in their efforts to cut costs by a host of regulations that have been passed, mainly in the last decades, in order to protect the interests of labour, the unemployed, the poor, the old and the sick, local community, local economics, and of course the environment. To the hard-nosed businessman these regulations are so much bureaucratic red tape and serve above all to increase costs and reduce competitiveness. As a result pressure has mounted everywhere to get rid of these regulations as quickly as possible. The term used for achieving this cynical and incredibly short-sighted goal is deregulation, and not surprisingly it has been the order of the day for fifteen years or more, in both the US and the UK. Thus when George Bush was Vice-President, he headed the Reagan administration's "Task Force on Regulatory Relief" which, according to the World Public Citizens Congress Watch, was involved in thwarting workers' safety regulations; obstructing consumer products' safety controls; rolling back highway safety initiatives and weakening environmental protection. In 1989, during the Bush administration, this work was taken over by Vice-President Quayle with his "Council on Competitiveness" which did much the same thing. Among other things it was active in opening up the commercial exploitation of possibly as much as half the United States' protected wetlands and tabled more than 100 amendments to the EPA's implementation proposals for the 1990 Clear Air Act.

Free-trade zones

What are likely to be the effects of deregulation at a world

level can be gauged from the experience with "free-trade zones" or "export-processing zones", of which there are now some 200 in the Third World – usually situated near key communication centres. Foreign industries are enticed to establish themselves in these zones by the simple expedient of eliminating any effective regulations to protect the interests of labour or the environment.

Needless to say, wherever free-trade zones have been established, there has been environmental devastation on a literally horrific scale. Alexander Goldsmith argues that with the ratification of the GATT Treaty we are transforming the world into what is in effect little more than one vast "free-trade zone" – a truly horrifying thought.²⁰

The environmental effects of Structural Adjustment Programmes (SAPs)

What provides another eloquent illustration of the environmental consequences of increased competitiveness and deregulation among export-oriented industries is the experience of those Third World countries that in the last ten years have been subject to IMF and World Bank Structural Adjustment Programmes.

For instance, Costa Rica was subjected to no fewer than nine IMF and World Bank structural adjustment programmes between 1980 and 1989. Greatly increased exports were made possible by the massive expansion of the banana industry and of cattle-ranching. The latter was heavily subsidized (a form of government intervention that free-traders do not seem to disapprove of), a third of state agricultural credit going to the cattle ranchers. Expansion took place at the cost of the country's forest cover which dropped from 50 per cent in 1970 to 37 per cent in 1987 and has dropped still further since. Increasing banana production has also been very destructive to the environment. Huge amounts of chemical fertilizers and pesticides have been used, which are washed into the rivers and end up in the sea – leading among other things to the destruction of coral reefs – 90 per cent of these having been annihilated in some areas.²¹

Walden Bello shows that structural adjustment programmes have led to the same sort of environmental destruction in Chile, Ghana and in the Philippines – one of the most structurally adjusted countries in the world. Among other things, the forests, soils and coral reefs of that country have suffered terribly in the last 20 years, as have its mangroves, which have been systematically converted into prawn farms geared to the export trade, their extent having been reduced from the original 500,000 hectares to a mere 30,000.²²

The relevance of the experience of countries subject to SAPs is clear if we consider that by signing the GATT Uruguay Round Agreement we have in effect subjected the entire world to one vast structural adjustment programme.

Cross-deregulation

More effective than deregulation carried out by national governments within their own country is that which is conveniently imposed on them by their trading partners under the GATT Uruguay Round Agreement. In the EU's April 1994 Report on US Barriers to Trade and Investment, it is suggested that the commissioners should seek to overturn a large num-

ber of Californian and US Federal environmental laws which it is felt can successfully be classified as GATT-illegal trade barriers. These include, in the first category, California's Safe Drinking Water and Toxic Enforcement Act (proposition 65) which requires sticking warning labels on products containing known carcinogenic substances.

Among the Federal laws targeted are the "Gas Guzzler" and other taxes which aim at encouraging the production of small, more cost-fuel efficient cars, which is of course essential if we are to reduce pollution levels in cities and more important still if we are to cut down on greenhouse-gas emissions.

Other Federal laws which the European Union hopes to overturn are the Nuclear Non-Proliferation Act and a number of laws designed to protect fish stocks by limiting the use of large-scale drift nets and other devices that lead to the over-exploitation of fish stocks.

A US Federal environmental law that the World Trade Organization (WTO) has already declared GATT-illegal is the Marine Mammal Protection Act (MMPA) which limits the number of dolphins that can be killed when fishing for tuna in a country that exports tuna to the US. Mexico successfully challenged this act before a GATT panel in 1991, though the panel decision was blocked on technical grounds. Since then the World Trade Organization set up by the GATT has

declared the act GATT-illegal, hence repealing this important environmental legislation.

It has been estimated by the US chief negotiator at one of the UNCED prepcoms that 80 per cent of America's environmental legislation could be challenged in this way and most of it declared illegal before WTO panels.²³

At the same time, the US and other countries can conveniently challenge European Union environmental laws in the same way, as indeed they are doing. Already the US has successfully challenged the legality of the European Union's decision to ban the import of beef from America that contains growth hormone residues. A WTO secret panel has thus ruled to repeal yet another important piece of environmental legislation, and this is only the beginning.²⁴

Harmonizing standards

Free trade has been institutionalized by a series of free-trade agreements, such as the FTA between the US and Canada, NAFTA and GATT. It is important to realize that these free-trade agreements were designed and promoted by associations of business people, for whom environmental regulations are no more than costs that must be reduced to the minimum.

Not surprisingly, from the very start of the different negotiations that led to the signing of these treaties, the environmental issue has, when possible, been avoided altogether. The Canadian government sought to justify this in the case of the FTA by insisting at the time that "it is a commercial accord between the world's two largest trading partners. It is not an environmental agreement," and "the environment is not therefore a subject for negotiation; nor are environmental matters included in the text of the agreement." As Steven Shrybman comments: "This is an astonishing statement, in view of the fact that the agreement explicitly deals with such issues as energy, agriculture, forest management, food safety and pesticide regulations, matters that could not bear more directly on the environment."²⁵

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Nor is it surprising that the very word "environment" appears nowhere in the mandate of the GATT, nor is it mentioned in the constitution of the WTO save in a very cursory manner in the preamble.

Public pressure has, of course, forced the bureaucrats to take some notice of environmental issues, and there is even talk of "greening the GATT". But, whatever the rhetoric, when it comes to adopting environmental standards that will increase costs to industry, they are invariably rejected. Thus in 1971 the GATT secretariat stated that it was inadmissible to raise tariffs so as to take into account pollution abatement costs. In 1972 it refused to accept "the polluter pays principle", even though it had been adopted by the OECD Council that same year. Shrybman summed up the situation at the time in the following words: "GATT is being renegotiated with virtually no consideration of its environmental implications. The governmental institutions that have responsibility for trade negotiations have no mandate to address environmental issues, nor the expertise to do so. Environmental organizations are neither being consulted nor being given an opportunity to comment on the various proposals that are being advanced by their respective governments. Instead, participation is restricted to large corporations and trade associations which pursue an agenda of economic growth, profit maximization and deregulation. The shroud of secrecy which surrounds trade negotiations allows these objectives to be advanced in private and without regard to their environmental consequences."²⁶

It is thereby not surprising that the international standards for food safety set by the Codex Alimentarius [a little known UN Agency that now fixes international food safety standards in accordance with the principles established by the Agreement on the Application of Sanitary and Phytosanitary Measures (SPM) and the Agreement on Technical Barriers to Trade (TBT)] are not designed to influence countries to raise their still pitifully lax environmental standards, but on the contrary, to lower them still further so as to reduce costs to industry. Thus 42 per cent of the Codex standards for pesticides are lower than EPA and FDA standards. Fifty times more DDT, for instance, may be used on peaches and bananas, and 33 times more DDT may be applied on broccoli.²⁷

Such EPA and FDA standards are thereby considered too strict, and can be challenged, as almost certainly they will, in the interests of the international harmonization of standards. On the other hand, standards cannot be challenged on the grounds that they are too low and they do not reflect the true environmental costs of destructive corporate activities.

As Ralph Nader puts it: "The international standards provide a ceiling but not a floor for environmental and health protection."²⁸

It may be argued that governments can theoretically set standards that are higher than the WTO standards – but only if they satisfy a number of conditions that are so designed as to make it virtually impossible to avoid their being classified as non-tariff barriers to trade, and hence as GATT-illegal. Moreover, the conditions are vague, and thus subject to all sorts of interpretations, and since the WTO Dispute Resolution Panel is largely made up of corporate representatives who meet, what is more, in total secret, it is unlikely to come to a decision that will lead to an increase in corporate costs.²⁹

Under such conditions, it must be clear that there is no way of protecting our environment within the context of a global "free-trade" economy, committed to continued economic growth, and hence to increasing the impact of our economic activities on an environment incapable of sustaining even the present impact without undergoing increasingly serious and

ever less tolerable degradation.

Of course, measures could be taken to ban or at least limit activities that are particularly destructive – and channel economic development into those areas that are less so. But with the development of the global economy, even this is no longer possible – for by its very nature it must be controlled by increasingly stateless, unaccountable and ungovernable transnational corporations, that have set up, via the World Trade Organization, a new international legal system that is designed to make it virtually impossible to adopt environmental controls that could increase their costs and thereby reduce their competitiveness.

There is no evidence that trade or economic development are of any great value to humanity. World trade has increased by eleven times since 1950 and economic growth by five times, yet during this same period there has been an unprecedented increase in poverty, unemployment, social disintegration and environmental destruction. The environment on the other hand is our greatest wealth. To kill it, as the TNCs are methodically doing, is an act of unparalleled criminality. Nor can it be in anything but their very short-term interests to do so, for, as it might be worth pointing out to their leaders, there can be no international trade, no economic development and indeed no TNCs on a dead planet.

This article is an edited and extended version of Chapter 7 "Global Trade and the Environment" that appeared in *The Case Against the Global Economy*, by Jerry Mander and Edward Goldsmith, published by Sierra Club Books, San Francisco, available in the UK from Random House, London.

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Reviews

Invisible hand of the ERT

EUROPE, INC.: Dangerous Liaisons Between EU Institutions and Industry
by Corporate Europe Observatory

1997, 72pp, £5. ISBN 90 803744 1 5

Most documents you read tend to be like the outer living layer of coral: they are new factual additions to an established mental framework. Occasionally a document like *Europe, Inc.* from the Amsterdam-based Corporate Europe Observatory comes along, which changes your perceptions more fundamentally. The report exposes how a little-known organization, 'The European Round-Table of Industrialists' (ERT) was the driving force behind the EEC's Internal Market in the 1980s, the 1991 Maastricht Treaty and the deflationary, social-welfare-cutting convergence criteria of the Single Currency.

This is not of course the usual way that the forces shaping the future direction of Europe tend to be characterized. Normally the process is seen as a titanic battle. On the one side are some politicians jealously guarding national sovereignty; on the other, MPs aligned with the agenda of a centralising Brussels bureaucracy. The role played by the European Round-Table of Industrialists was pieced together by the Corporate Europe Observatory by trawling through ERT publications, official European Union reports and carrying out extensive interviews with representatives of the various TNC-supported lobby groups.

Of course, the growing influence of TNCs and their free trade agenda on the political processes of every country is well known. What isn't realized is the

high level and highly effective role the European Round-Table of Industrialists has played in shaping the direction of the European Union. At the June 1997 Amsterdam Summit, all the attention was on the EU Heads of State, their prowess or not on riding bicycles and how they could deal with the difficulties emerging from something perceived to be of their own making – the European Monetary Union.

In fact, the strings of these political front-men have long been pulled by the ERT, an organization founded in 1983 and made up of 45 highly influential captains of industry from large European transnational corporations. The corporations involved have a combined turnover approaching £400 billion. They include British Petroleum, Shell, Daimler-Benz, Fiat and Siemens. The European Round-Table was set up with the express intention of promoting European integration and shaping it to the preferences of European TNCs. The key to its success is its extremely privileged access to decision-makers, at both the national and European level.

From its outset the ERT was enthusiastically supported by the European Commission, particularly when under the presidency of Jacques Delors. The ERT's first goal of removing all obstacles to trade within the EEC provided the momentum towards further integration that the Commission was seeking. In 1985, the ERT launched its proposals and timetable for achieving this. Shortly after that, Jacques Delors made a speech in the European Parliament which closely paralleled the ERT's proposal. A few months later, Lord Cockfield, Commissioner for Industry, published his White Paper which provided the basis for the 1986 Single European Act.

It was at this stage that the activities of the ERT began really to threaten the environment. Having secured the required political framework, that organisation shifted its emphasis to pushing for the creation of a European transport infrastructure to speed the progress of the Single Market. Again working closely with the Commission,



the European Round-Table successfully argued for the channel tunnel and the controversial Trans-European Networks (TENs). This is the largest transport infrastructure plan in history involving 12,000 kilometres of new motorways, a series of high-speed train links and numerous airport expansions (see *The Ecologist* v.23 no.4 July/August 1993).

Once the ERT had put this plan on the European political agenda, it set up the European Centre for Infrastructure Studies (ECIS) to work closely with the Commission to ensure the implementation of these infrastructure policies. In December 1995 for example Neil Kinnock, now Transport Commissioner, presented a study showing how the high-speed train network would bring about much higher economic growth than was commonly assumed. It was written by Dr Rana Roy of ECIS. The Commission's arguments for the job-creating advantages of the Trans-European Network were also largely based on a subsequent ECIS study.

Perhaps the ERT's most far-reaching 'success' however has been its shaping of the Maastricht Treaty and its championing of the Single Currency. As early as 1985 the ERT had argued that the

Colin Hines works with the International Forum on Globalization and is co-author with Tim Lang of the Earthscan book *The New Protectionism*.

Internal Market must be completed with a single currency. The EMU remained to be a leading ERT demand in its 1991 report 'Reshaping Europe'. This report also presented a timetable for EMU which bears an uncanny similarity to the one incorporated in the Maastricht Treaty a few months later.

However, the achievement that has and will cause the most damage to the employment, social and environmental situation in Europe is the ERT's success at getting national governments, like New Labour, as well as the European Union as a whole, to institutionalize international competitiveness as the primary objective of the EU. Again Delors played a key role with his December 1993 'White Paper on Growth, Competitiveness and Employment', which was prepared in close collaboration with the ERT. In the autumn of 1993 the latter had published 'Beating the Crisis', and the two documents are strikingly similar in their calls for deregulation, flexible labour-markets and transport infrastructure.

For some strange reason many on the left seemed to take heart from the unemployment bit in the Delors title, forgetting that the kind of growth and the degree of competition proposed could only increase unemployment. Such optimism often went hand-in-hand with the blithe hope that an employment chapter in the Treaty would somehow put things right. The blunt statement of the ERT's Secretary-General, Keith Richardson, quoted in *Europe, Inc.*, should put such straw-clutching in perspective. For him, the proposed employment chapter would be "a large waste of time....If politicians feel it is important to get the chapter referring to the desirability of full employment, and if they think that will help with public opinion, we don't really object....It won't help jobs, but it won't do much damage – provided of course it remains, in general terms, related to aspirations". [emphasis added]

The Delors paper was also bad news for the environment. It extolled biotechnology as a major source of future economic growth and employment. As a result, policies promoting the development of biotechnology are now at the centre of EU growth strategies and last year featured strongly in Jacques Santer's 'Confidence Pact for Employment in Europe'. To build on this trend a new industry body called the EuropaBio was set up towards the

end of last year. It consists of the largest European biotechnology companies and national federations of smaller enterprises. EuropaBio's major concern is to get the Commission proposals for a biotechnology Patenting Directive through a sceptical European Parliament.

Yet all did not go quite to plan. When the European Commission authorized the marketing of genetically-modified maize and soybeans last year there was public outrage. This resulted in a series of national measures restricting the marketing of genetically-modified maize. The ERT was swift to protest. In a meeting with Jacques Santer in February of this year it questioned how companies can operate efficiently when the EU is able to decide unilaterally to adopt a specific policy in a given field, but where individual member states can impose their own controls at the same time. EuropaBio is committed to reversing what the industry sees as "often contradictory controls".

The key to its success is its extremely privileged access to decision-makers, at both the national and European level.

When the EU proposed minor constraints on energy use in an attempt to slow down climate change, this too was challenged by the ERT. Its working group on the environment, the 'Environmental Watchdog Group', firmly rejected the EU's attempt to limit fossil-fuel use through proposals for a carbon energy tax. Although the actual tax increases were anodyne and exempted most energy-intensive industries, it was regarded as an obstruction to industrial competitiveness by the ERT. The proposal was subsequently dropped.

The ERT's success in getting the EU to claim that international competitiveness has to be the main objective of most policies continues to have damaging implications for the environment. This was clear at last June's Heads of States meeting in Amsterdam, where the follow-up to the Maastricht Treaty was agreed.

This new Treaty allowed one tiny step forward for the environment, but buried in the details were two large steps back. On the 'plus' side the promotion of sustainable development was mentioned at the beginning of the

Treaty as one of the main objectives of the EU. The dampener was the limits on the rights of EU countries to protect the environment and health by adopting stricter national rules than the European norm. This was only allowed if the stricter rules proposed were based on new scientific evidence, if they addressed a problem specific to that member state and, most ominously of all, if the regulations did "not constitute an obstacle to the internal market."

A country like Sweden, which has considered banning the production and use of PVC, might be allowed to do this if it had the 'new' evidence. Indeed, if it were successful, the Commission would have to consider extending such a ban Europe-wide. The problem is that to get that far the measure would have to be seen as not adversely affecting the internal market by impeding trade. Since most forms of environmental protection will restrict some form of trade, this provision is likely to allow the ERT and other business interests to continue blocking measures which they regard as reducing competitiveness.

The second Treaty disappointment was the rejection of EU-wide eco-taxes. The hopes of those who have ardently promoted them were undermined when towards the very end of negotiations it was decided that "qualified majority voting" should not be extended to environmental taxation. This means the Treaty will continue to allow a single country to veto any proposal to adopt it, doubtless again in the interests of maximising competitiveness.

The eco-tax lobby was dealt a further blow in the UK in the recent budget. The New Labour Party's fine words on ecological taxation were quickly forgotten once it came to power. Now the emphasis is on minimising curbs on the country's ability to compete, not increasing them by introducing effective taxes.

None of the above should surprise us. The European Round-Table of Industrialists is the dominant force in the EU, and makes maximum use of its power to protect its perceived short-term interests. Yet there is a lesson that needs to be drawn from all this by activists with a different and greener agenda. The future success of the environmental movement must lie in its willingness to challenge head-on the acceptance of the need to be internationally competitive. It is this blind acceptance that gives the green light to so much that is destructive.

Quite clearly demands for green taxes, tighter regulations to stop this or that destructive activity, still less the promotion of new eco-gizmos to help business become greener, are no longer adequate. Increasingly such demands fall at the hurdle marked "reject because (they) render us uncompetitive."

What holds for activists attempting to mobilize public unease about environmental problems also holds for those attempting to tackle the far greater public fear of social disintegration and job insecurity. Such activists campaign for more public money and better regulations, and are constantly stumbling at the same hurdle.

Activists in these areas also need to rethink their passive acceptance of the need for "competition über alles".

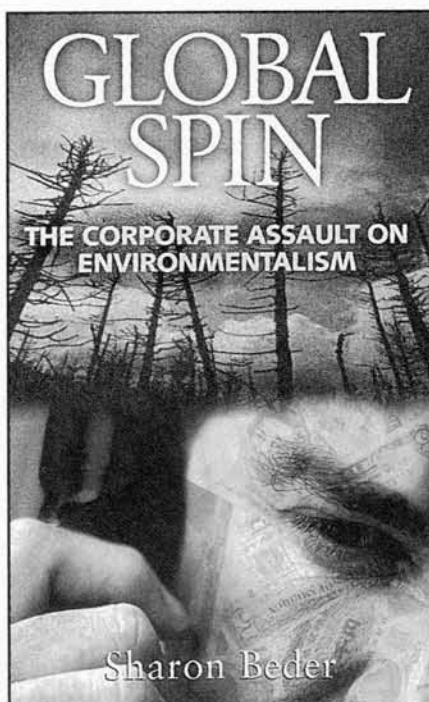
The authors of *Europe, Inc.* address this issue when they end with a call to reject the 'there is no alternative' dogma to free-trade. The report rightly asserts that the acceptance of this dogma has ensured that there can be no public debate about alternatives to sacrificing environmental policies, social services and public expenditure to international competitiveness – by, for instance, developing more diverse local economies and by rejecting policies that increase the economic dominance of transnationals.

The authors see democratic control over capital as the key to providing the money with which governments and communities can improve environmental and social conditions and job opportunities. They suggest a Europe-wide Tobin Tax on international capital transactions, taxes on short-term speculative transactions and controls on corporate investments that are against the wishes of the affected communities. Limiting corporation size plus the adoption of community reinvestment legislation, allied to adequate ecological taxation, are also proposed. Perhaps most fundamental is the authors' implicit rejection of today's overriding goal of maximizing international competitiveness.

Unless more people wake up and start questioning the TNC-led European agenda, such moves will increasingly be the shape of things to come. *Europe, Inc.* is an invaluable tool for sounding this much-needed alarm.

Colin Hines

(*Europe, Inc.* can be obtained from 'Corporate Europe Observatory', c/o A SEED, PO Box 92066, 1090 AB Amsterdam, The Netherlands, for £5 inclusive of postage and packing.)



Old wine, new bottles

GLOBAL SPIN: The Corporate Assault on Environmentalism
by Sharon Beder

Green Books, 1997, 288pp, £10.95 (pb).
ISBN 1 870098 67 6

This book deals with the *real* environmental crisis – the one that consists, not in decaying ecosystems, ozone depletion and global warming, but in the corporate domination of what we are able to hear, see, know and think; the crisis that lies in the fact that the modern mass-media system is a corporate one deeply embedded in, and dependent on, the wider corporate status quo; and in the related capacity of corporate power to boost facts, ideas and political choices conducive to profit maximization, and to stifle those that are not. The effect of these realities on the environmental movement has been both dramatic and catastrophic.

In 1989 a *New York Times* poll found that 80 per cent of people surveyed agreed that "protecting the environment is so important that standards cannot be too high and continuing environmental improvements must be made regardless of cost." In the same year Green parties in Europe attracted 15 per cent of the vote, while 16 per cent of Canadians surveyed said the environment was the most important problem in Canada.

By 1991 all this had changed. In that year 50 per cent of those surveyed

agreed that environmentalists had "gone too far" compared with 17 per cent the year before. The decline in Green party fortunes reflected this perception, notably in Britain where Jonathon Porritt observed that the British Green Party had "all but disappeared as a serious political force."

How can we account for such a rapid change in public feeling? According to Sharon Beder, the answer lies in a massive corporate response to the threat of costly environmental regulations. Corporate executives soon came to realise that environmentalism was, in their own words, "the life and death PR battle of the 1990s." The objective, one consultant told the oil and gas industry, was to "put the environmental lobby out of business", to render it "superfluous, an anachronism". Likewise, a consultant told a meeting of the Ontario Forest Industries Association: "You must turn the public against environmentalists or you will lose the environmental battle as surely as the US timber industry has lost theirs."

The aim was clear, the means also – money, lots of it. US corporations today spend over \$1 billion a year waging the war of ideas through propaganda of various kinds. The assault against environmentalism begins deep in cultural norms, which are shaped around clearly defined corporate objectives. Retailing analyst Victor Lebow explains:

"Our enormously productive economy ... demands that we make consumption our way of life, that we convert the buying and use of goods into rituals, that we seek spiritual satisfaction, our ego satisfaction, in consumption ... We need things, consumed, burned up, worn out, replaced, and discarded at an ever increasing rate."

Consumption as religion, no less. The average American is exposed to some 3,000 advertising sermons to this grubby god every day of his or her life, with more money being spent persuading Americans to be consumers than is spent on higher education or Medicare. As with every power religion, impressionable children are a prime target. As though speaking from the pages of *Brave New World*, the senior vice-president of Grey Advertising declares:

"It isn't enough to just advertise on television ... You've got to reach kids throughout their day – in school, as they're shopping at the mall ... or at the movies. You've got to become part of the fabric of their lives."

They achieved this goal with the cor-

porate educational materials currently flooding the US education system. Corporations like Lifetime Learning Systems remind their corporate clients that "Kids spend 40 per cent of each day in the classroom where traditional advertising can't reach them ... Now you can enter the classroom through custom-made learning materials created with your specific marketing objectives in mind. Communicate with young spenders directly and, through them, their teachers and families as well."

Environmentalists out to spoil the party are subjected to a barrage of corporate flak: "Environmental education is engaging children in politics in primary school and, frankly, is indoctrination," as David Reidnauer, of the US National Center for Public Policy Research, would have it.

If environmentalists are to be prevented from bringing about public awareness in school and beyond, the public must be swamped with misleading, confusing information contradicting the scientific consensus. This is a chief task of thousands of corporate-funded think-tanks and PR companies. The logic is crude but effective, as Phil Lesley, author of a handbook on public relations, explains:

"People generally do not favour action on a non-alarming situation when arguments seem to be balanced on both sides and there is a clear doubt. The weight of impressions on the public must be balanced so people will have doubts and lack motivation to take action ... Nurturing public doubts by demonstrating that this is not a clear-cut situation in support of the opponents usually is all that is necessary."

An argument that perhaps accounts for Ronald Bailey's otherwise bizarre summation of the ozone-depletion question:

"The impact of man-made chlorofluorocarbons (CFCs) on the ozone layer is a complex question that turns on murky evidence, tentative conclusions, conflicting interpretations, and changing predictions ... it turns out that ozone depletion, like the other environmental dooms analysed here, is less a crisis than a nuisance." (Ronald Bailey, *Ecoscam: The False Prophets of Ecological Apocalypse*).

Beder notes that the Cato Institute, which published Bailey's book, is supported financially by the American Farm Bureau Federation, the American Petroleum Institute, Coca-Cola, Exxon,

the Ford Motor Company, Monsanto, Philip Morris and the Proctor & Gamble Fund, among other noted environmentalists – facts which are routinely ignored by the media, who present such propaganda as independent opinion.

The stubborn few who refuse to 'sit down and take it like a consumer' can be hit with "Strategic Lawsuits Against Public Participation", or SLAPPS. The aim of SLAPPING protesters is to sue them for defamation, injury, conspiracy, etc., not in order to win the case, but so as to bring victims to the point where they "are no longer able to find the financial, emotional, or mental wherewithal to sustain their defence," or, indeed, their protest. If all else fails, environmentalists can be brought on board. Stauber and Rampton, who edit *PR Watch*, note that hiring dissenters is a "crude but effective way to derail potentially meddlesome activists."

Beder also reveals how corporations use sophisticated market research and tele-marketing techniques to identify members of the public potentially sym-

that encompasses sexual, political, social issues or any editorial content that could be construed as provocative or offensive."

These pressures apply throughout, and are the reason that radicalism and dissent are almost nowhere to be seen in our culture. The corporate media is a system of economic evolution that selects for business-friendly bias: business-unfriendliness loses advertising, shareholders, jobs and career opportunities. Only the subservient thrive to achieve significant public outreach. Thus, according to the host of one of the United States' Public Broadcasting Service TV shows:

"You cannot get a TV or a radio show on the air in America these days unless it targets an audience that corporations are interested in targeting and unless it carries a message that is acceptable to corporations."

In the current situation, individual environmental issues can hardly be considered the central, let alone the sole problem for environmentalists, given that corporate domination makes the raising of public awareness and concern for these issues all but impossible. After all, it hardly matters whether a person is bleeding to death, poisoned, or drowning, as long as there is some kind of obstacle preventing all medical aid from reaching the patient.

To be an environmentalist today, to do something, must mean understanding and exposing the nature of this attempt to stifle environmentalism. As Beder says:

"A new wave of environmentalism is now called for. One that will engage in the task of exposing corporate myths and methods of manipulation."

In *Global Spin*, Sharon Beder provides the tools for just that, and enables environmentalism to successfully engage with, and expose, deceptions knowingly designed to forestall the threat of mass public concern. As they say – if you beg, steal, borrow, or buy only one book this year, make it this one – it is the most important contribution to the environmental debate I have read.

David Edwards

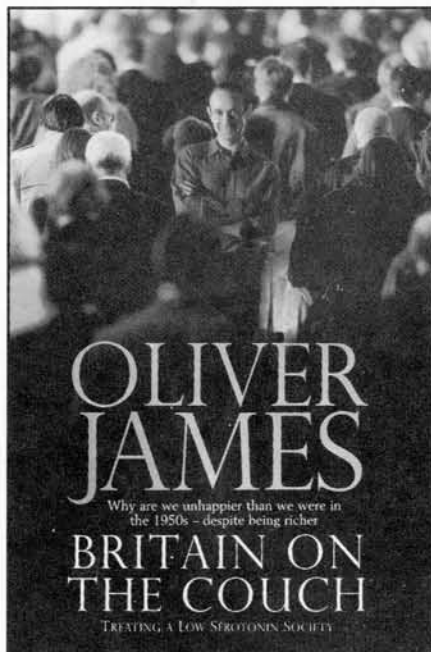
"You must turn the public against environmentalists or you will lose the environmental battle as surely as the US timber industry has lost theirs."

pathetic to their position. Individuals responding positively are patched directly through to the office of the relevant politician, thereby creating the impression of a passionate public response against, say, environmental regulation – a synthetic grassroots movement known in the trade as 'astroturf'.

As Beder proves beyond reasonable doubt, anything more than token media criticism of the corporate programme is unlikely, given the media's position within the corporate system. (The media, after all, are themselves corporations.) The car industry, for example, is a major advertiser in the *New York Times*. No surprise, then, that *Times* publisher and CEO Arthur Sulzberger admitted that "he leaned on his editors to present the auto industry's position" because it "would affect advertising."

Elsewhere, Chrysler corporation made its position clear in a frank letter to over 100 magazines: "In an effort to avoid potential conflicts, it is required that Chrysler corporation be alerted in advance of any and all editorial content

David Edwards is the author of *Free to be Human*, Published by Green Books.



Progress to unhappiness

BRITAIN ON THE COUCH: Treating a Low Serotonin Society

by Oliver James

Century, London, 1997, 401pp, £16.99 (hb).
ISBN 0 7126 7885 9

Oliver James is a clinical psychologist and in the vanguard of the movement for emotional literacy. He has produced numerous TV programmes, appeared as a TV therapist of the famous and written columns on our psychology for popular newspapers. *Britain on the Couch* explains that we, in Britain and in most of the developed world, are increasingly unhappy and that the structure of modern industrial society is to blame. The solutions suggested include a combination of individual therapies, but are, more importantly, systemic.

James' argument is that, despite an overall increase in material wealth, we are more unhappy, and cites much evidence from divorce rates, suicide rates, socio-psychological studies and patterns of clinical diagnosis to support his case. For example, the UK rate of psychiatric morbidity – which includes panic attacks, phobias and depression – rose from 22 per cent in 1977 to 31 per cent in 1986 over a period during which UK Gross Domestic Product (GDP) also rose. On an individual level, he argues that those young people with the best education and prospects might be

expected to be happier, yet he cites many case studies to show that this is often the opposite of the truth.

Accompanying this argument is one about serotonin, one of the chemicals used by the brain to transmit messages between nerve cells. There is a good correlation between a low level of serotonin in the brain of an individual and depression. James acknowledges the danger of an argument which reduces happiness to serotonin levels, but his real point is that serotonin is an index of well-being – and one with greater value than GDP.

The critical argument of the book is that the cause of our increasing unhappiness stems from the mismatch between our evolutionary heritage and the nature of modern industrial society. Our evolutionary heritage has resulted in people designed to live simpler lives in close-knit communities in which everyone has a fixed role, and accompanying status, in relation to one's occupation.

Urbanization and global capitalism have fostered a society in which no role is fixed. The modern person is forced to invent and re-invent oneself; James reminds us that this is a burden, not just a 'freedom'. The increasingly individualistic nature of society means that people are constantly encouraged to strive harder to achieve more – the very notion of 'career' today implies that at no stage should anyone be satisfied with what they are doing – there is always another rung. Psychologically, people are constantly comparing themselves with others, irrespective of the appropriateness of the comparisons. While, in fact, very few people may realistically be expected to be able to achieve the lifestyle shown in advertisements, the four to five hours a day most people spend in front of the TV means that such comparisons are constantly made. James identifies such comparisons as the prime mechanism for inducing depression. A globalizing world is one in which comparisons will be drawn from an ever-widening pool – aspiring footballers comparing themselves not to others in their town, or even their country, but to the best in the world.

In addition to the role of adverse self-comparisons, the book contains a lengthy analysis of the way inter-personal relationships, which could mitigate some of the effects of self-comparisons, are being undermined. The logic of the economy often requires that relationships are torn apart so that a career can be pursued.

On top of this, James argues that our evolutionary heritage has also left us with an unfashionable disposition to gender roles – with, crudely, men being,

among other things, more oriented to achievement and women to relationships. James treads carefully along the front line of the gender war, but produces evidence that the liberal capitalist assumption of women being as much disposed to achievement as men is the cause of further deprecating self-comparisons – particularly for women. As a woman, you are damned if you pursue a career (because that will not feel natural and is anyway not easy in a male-dominated world); and you are damned if you don't (because that is acquiescing to a politically incorrect position).

Yet where does this evolutionary baseline come from? The evidence of traditional societies which have survived unchanged for thousands of years must count more strongly than conjectures of the nasty, brutish and short variety concerning life thousands of years ago.

One factor which is not mentioned in the analysis of depression is the impact of the destruction of the environment – living in a constantly degrading environment must surely exacerbate depression. It is no accident that the same forces which are destroying our social life are also destroying our environment. Perhaps a reaction of depression to this, which must figure increasingly prominently in most people's lives, is a realistic response to what is happening.

What is to be done? James suggests some short-term and some longer-term solutions. The short-term solutions involve treating individuals with both drugs and therapy. The longer-term solutions involve treating society – making advanced capitalism "work in our emotional favour rather than against it". In arriving at this conclusion, James surprisingly dismisses the more obvious solution: "... to recreate the conditions for which our genes were evolved – a low-density population living in a technologically primitive world in which humans were nomadic." "Of course," he assures us, "this is not a realistic option anyway."

Part of the reason, I suspect, why James dismisses a return to such a way of life, is paradoxically that he does *not* feel people were happy in it – "in the past," he again assures us, "violence was so commonplace that it was a widely accepted feature of life." His view of pre-industrial peoples, however, appears soiled particularly by fieldwork he himself conducted in Ecuador, where life in the parts he describes is indeed rather depressing. However, the crucial point is that the depressed community he visited was not a traditional, pre-industrial one – it was far more the *child*

of development, having been subjected to "50 years or so of very deliberate deculturation" by colonial masters and then left to survive on the crumbs of the industrial world. At what view would he have arrived if his 'control group', instead of being North American, had been taken from a pre-industrial, *pre-colonial* (or never colonized) group, such as could be found, until recently, in Ladakh or Papua? In Ladakh, for example, until the advent of Western influence, there appears to have been hardly any violence at all.

In my view the most important contribution of the book is understated. This is a plea for maturity in the face of the frustration induced by consumer culture, a maturity which comes from people understanding that a society based on imposed and insatiable desire, and the consequent exponential and indiscriminate consumption, can only remain an unsatisfied one.

If we had the maturity, and the infrastructural support, to withdraw from obsessive materialism and accept what are natural constraints, we would also be able to reap the rewards of a life lived much more closely in harmony with our biological nature. The psychological conflicts which James describes would have little place. Communities, and those living in them, would be able to thrive.

Adrian Henriques

Adrian Henriques is an occasional writer on environmental issues.

Can the intentional polluter comply?

INTENTIONAL OIL POLLUTION AT SEA: Environmental Policy and Treaty Compliance

by Ronald B Mitchell

The MIT Press, Cambridge, Massachusetts, 1994, 361pp, £29.50 (hb). ISBN 0 262 13303 2

Do the ways in which international environmental treaty rules are designed determine whether or not states and other international actors comply with them? The case of oil pollution is very instructive. Oil tankers have long discharged oil-laden ballast waters into the open seas with little regard for the environmental consequences, and their operators have long

argued that the practice of using ballast waters to clean out tanks after delivery of oil cargo is the most economically efficient way to prepare them for subsequent shipments. When the number of oil tankers roaming the oceans increased dramatically over the past 50 years, the global community took steps to regulate the levels of oil pollution they leave behind. Various efforts have been undertaken with the International Convention for the Prevention of Pollution of the Sea by Oil (OILPOL, 1954) and its successor, the International Convention for the Prevention of Pollution from Ships (MARPOL, 1973/78). But the provisions of these conventions have met with varying success, with some treaty rules eliciting more compliance than others.

What accounts for this difference in treaty compliance? Mitchell has set out to illustrate that, at least in the case of intentional oil pollution at sea, the *design* of treaty rules is a key factor in explaining the variation. In making this argument he downplays 'realist' international relations interpretations of state behaviour, which argue that compliance with treaties is a reflection of a state's power and self-interest, such that the treaty rules themselves are of little consequence. By taking this long-standing 'institutionalist' vs. 'realist' debate head-on, his book is likely to attract a great deal of attention in the field of international relations.

The rich empirical case-material on intentional oil pollution treaties which Mitchell presents will be of great interest to those concerned about improving the effectiveness of international environmental policy. Using case-material, Mitchell shows that early efforts to control the discharge of oil into the sea, which merely established the various zones in which discharges were regulated, was almost completely ineffective. Subsequent rules which ultimately sought the same outcome but which were based on regulating equipment standards, such as the requirement to install separate ballast tanks on newer ships, fared better in terms of eliciting compliance with the treaty, because, Mitchell argues, it was the rules themselves which made the difference. Taking examples from the oil pollution case, he argues that the types of treaty rules which are more likely to elicit better compliance are those which are designed to ensure that the responsible regulatory actors have the appropriate economic and political incentives, the practical ability, and legal authority to enforce them. Further, he argues, when states can shift the cost of compliance

on to those actors responsible for creating the problem, in this case the multinational oil companies and shipping firms, they are much more likely to enforce that compliance.

But here we have a contradiction, in that it can rarely be in the interests of the state to raise the standards of environmental protection, since that would lead to loss of investment, and would probably result in driving away the MNCs which most states are busy trying to attract. Within the context of the global economy, in which to remain internationally competitive is the primary goal of most states, rather it is the lowering of standards which is more attractive.

The argument made by Mitchell is persuasive, but the narrow focus on demonstrating that compliance to treaty rules depends on the rules themselves might lead environmental activists to argue that more pertinent questions regarding compliance need to be explored. After all, does improved compliance even make much of a difference? Given the weakness of most international environmental treaties, it is not clear that improved compliance results in significant improvement in states' behaviour. Furthermore, while states may agree on new types of international environmental treaty rules, compliance is usually voluntary, as there is no enforcement mechanism at the global level to force states to honour their treaty commitments.

We must also ask whether better compliance rates lead to environmental improvement. This question is only dealt with toward the very end of Mitchell's book, but it deserves much more attention throughout the overall analysis. Illegal discharges of oil from tankers are still commonplace, and we don't know for sure how much of a reduction in oil discharges has actually been made, if any. Indeed, it appears to have become worse, due to increased ocean traffic. So while compliance with some of the rules of these particular treaties may have been improved, the environment may not have benefited anyway, because the existing rules may still be too weak to make a difference. The question of how to design rules not only to elicit significant improvements in compliance, but also to ensure environmental improvement, is an important one.

Jennifer Clapp

Jennifer Clapp is an Assistant Professor in the Comparative Development Studies and Environmental and Resource Studies Programmes at Trent University in Canada.

Relocalization of forgotten knowledge

PLANTS FOR A FUTURE: Edible and Useful Plants for a Healthier World

by Ken Fern

Permanent Publications, 1997, 344pp,
£19 inc. p&p (UK), £21.85 inc. p&p (rest
of world). ISBN 1 85623 011 2

In 1989, Ken Fern set up 'Plants for a Future'; a project based in Cornwall, UK, to explore the growth and uses of a wide range of edible, medicinal and otherwise useful plants from around the world. The project now has a record of almost 7,000 species, and that's just those which can be grown outdoors in Britain. Fern's book explores the wealth of knowledge gained from the project, and focusses particularly on perennial plants and useful species that have been largely overlooked by most of Western society.

Fern notes that for most of our existence we have been hunter gatherers, using a wide variety of plants and attempting to maintain balance with the natural world. His interest in plants

seems to stem from the fact that in most parts of the world this knowledge has largely been lost and that only by regaining it can we begin to develop a viable alternative to industrial agriculture.

For those with experience of permaculture design or forest gardening, many of Fern's attitudes towards agriculture will not be new. Digging or planting rows of lettuces are not things you're likely to find him encouraging. What you will find are tips on growing plants in ways that both encourage diversity and attempt to work as closely as possible with nature. The main strength of this book lies in Fern's personal explanation and experience of each plant. Subjects included range from growing fruit-bearing trees and shrubs through to edible lawns, and from dye-plants to plants for producing your own fuel. As well as the directly useful plants, there is also a chapter on producing habitats for native flora and fauna, emphasizing the need for practical ways to combine agriculture and the local, natural habitat.

For those concerned with food production and the relocalization and maintenance of genetic diversity, fundamental for the very survival of our species, this book provides a ray of hope for the future.

Luke Hutchison

PLANTS FOR A FUTURE

Edible & Useful Plants
For A Healthier World



KEN FERN

The 'Plants for a Future' project can be contacted at: The Field, Penpol, Lostwithiel, Cornwall, England; Tel: +44 (01208) 873554.

This book is available from Permanent Publications, The Sustainability Centre, East Meon, Hampshire, England, GU32 1HR; Tel: +44 (01730) 823311, for £19.00 (UK) or £21.85 (rest of world), including postage and packing.

Luke Hutchison was the editor of the *Earth First! Action Update* and is now the editor of *West Country Activist*, a grassroots environmental campaign newsletter.

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Double Yield: Jobs and sustainable food production

In this new report, the SAFE Alliance reveals how the current £4 billion spent on subsidising UK farmers could help create new jobs through more sustainable food production systems.

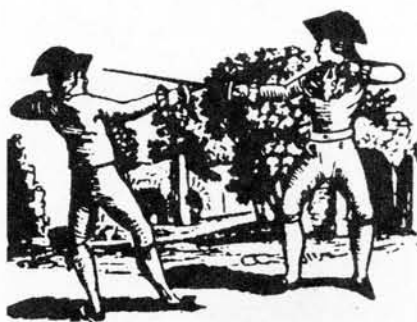
Rural communities and workers are suffering from a long term decline in farm employment yet just a few changes in farm policy and practice could yield in excess of 60,000 new jobs.

Free range production, more organic and 'green' farming and new businesses in food and farming are just some of the ways we could be tackling employment and environment problems together.

Ignoring the potential of 'Double Yield' will be costly in terms of social welfare, environmental clean up, damaged countryside and food hygiene. 28 recommendations are given for policy makers, the food and farming industry, unions and consumers.

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Double Yield, By Vicki Hird, (50 pp, ISBN 1 899 779 40 X) costs £12 and is available from the SAFE Alliance, 38 Ebury Street, London SW1W 0LU



The power is in our TNC connections

Edward Goldsmith sees TNCs as the new colonial powers but believes their reign will be short-lived. No matter how short or long, their reign has huge potential to damage people and planet. 1997 saw a shareholder resolution on environmental issues at the Shell AGM. It was the first resolution of its kind in the UK and 17 per cent of those shareholders who voted did not follow the Board's recommendation to oppose the resolution. This was a significant proportion and an article in *The Chemical Engineer* suggested that the event was possibly more significant than the state opening of Parliament with a new Labour government, which happened on the same day. Not only Shell but other major companies will have to respond to shareholders' concern for environmental issues.

The questions remain as to how we can keep up the impetus and how we can be sure that statements made in the North about changes in policy and culture apply in countries of the South.

Shareholders supporting the resolution included individuals, pension funds, charities and church groups. The action was co-ordinated by the Ecumenical Council for Corporate Responsibility (ECCR) and PIRC. We all have connections with TNCs through our savings and investments, if not through direct shareholding, and so we could all have an influence if we worked together.

Barbara Hayes

RITES, 25 Carlton Road
Oxford, OX2 7SA

It's pure science itself which must change

Anyone thinking of putting the case for a moratorium on genetic engineering biotechnology should first consult 'The Unholy Alliance' in the July/August edition of *The Ecologist* in which Mae-Wan Ho defines the main issues which must be brought to the attention of anyone who wishes to understand the lie of the land in this controversy. Dr Ho charts the events which have allowed the current perilous situation to develop. She

Letter Forum

exposes the tactics of the transnational companies whose pressure has jammed to the floor the accelerator driving these developments, pinpointing their moves to prevent the application of brakes by concerned parties. She also provides a detailed catalogue of reasons from genetics itself showing why a moratorium should be called for, at least temporarily. Her willingness to put her own future as a scientist and an academic on the line by taking such an unfashionable stance and exposing the role played by pure science itself in this situation is to be commended, and activists in particular owe her a debt of gratitude for effectively providing them with a basic toolbox for explaining their actions to those who are not yet aware of these problems.

The organisations listed at the end of the article, however, concentrate their energy on bringing pressure to bear on government, industry and the public, with the result that readers who share Dr Ho's belief in the need to put pressure on pure science itself may be left wondering what sort of tools they should select for the task.

It is time for scientists to stop thinking of themselves as the only ones qualified to interpret situations and instead to consider themselves as being accountable to the lay public they serve. What they have been involved with must be made known fully and communicated in terms which make sense to the people who have to put up with the adverse effects of their musings. At the very least, we need to stem the flow of rhetoric from people like Richard Dawkins who are continually prodding us to bow down with rather more alacrity in the presence of scientists. Dawkins seems incapable of understanding that the public's lack of interest in science has something to do with the fact that a language has developed around that science to which they have no access, and that it is science, not the public, which should be forced to adapt.

Seamus McCourt

Wage war in the name of Nature

I wonder if the article 'The Authoritarian Biologist and the Arrogance of Anti-Humanism' (*The Ecologist*, January/February 1997) was published in the right magazine. It certainly would have fitted very well into any of the publications that reflect the viewpoint of

big business on "the folly of nature conservation" in the Third World.

I admit that I am not familiar with the particular problems that conservation of nature faces in an overpopulated country like India. However, I insist that the conclusions of the said article are not applicable to Third World countries in general. As far as I can judge from experience in Latin America, it is not the conservationist community that forces people to leave the lands they have occupied for many years but the anti-conservationist coalition of business interests that deny nature as well as people a place in their profit-dominated world. It is not for the creation of nature reserves or national parks that people are deprived of their land and livelihood everywhere; it is for the clearcutting of forests, the building of huge dams, the establishment of extensive agro-industries and similar projects that people are driven away from their natural habitat while the latter goes down the drain.

It is important to realise that people are in the same boat with nature. The forces that intend to sink the boat by destroying nature and natural resources are also the ones that work hard to make people lose their human dignity and reduce them to the condition of mere "human resources". The fight to keep the boat afloat must be waged at the same time on behalf of people and in the name of nature.

I may point out in this context that 24 years have passed since I submitted to an environmental law meeting in this country, on the eve of the overthrow of Chile's democracy, a paper calling for the recognition of Nature as a legal entity whose interests comprise the preservation of everything belonging to the natural world and in whose name these interests can be defended without the need to prove the involvement of human interests. During the following years I developed this idea in a number of essays read at conferences and published in magazines, most of them in Spanish and German and some also in English, while other authors supported my point of view in different books and publications.

I shall be pleased to provide interested readers of *The Ecologist* with copies of my essays and shall look forward to receiving their requests.

Godofredo Stutzin

Camino El Alto 17220
Santiago 52, Chile

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24-25 November 1997: **THE FUTURE OF THE EUROPEAN RAIL INDUSTRY: Creating an Integrated Infrastructure for the 21st Century.** Brussels, BELGIUM. For more information, contact Mary Mavrogheni, Tel: 0171 453 2107; Fax: 0171 631 3214; E-mail: <Mary.Mavrogheni@ibcuk.co.uk>

3 December 1997: **AGENDA 2000 CAP REFORM.** Central Hall, Westminster, London. For further details, contact CIIR, Unit 3, Canonbury Yard, 190a New North Road, London N1 7BJ. Tel: 0171 354 0883; Fax: 0171 359 0017.

11-17 December 1997: **DRIVING THE WORLD.** Orlando, Florida, USA. For more details, contact Pam Turner, Electric Vehicle Association of the Americas, 601 California Street, Suite 502, San Francisco, CA 94108, USA. Tel: +1 (415) 548 0311; Fax: +1 (415) 548 9764; E-mail: <firstopt@aol.com>

16-18 December 1997: **British Ecological Society** Winter and Annual General Meeting. Art Gallery, University of Warwick, UK. For detailed programme, contact BES, 26 Blades Court, Deodar Road, Putney, London SW15 2NY. Tel: 0181 871 9797; Fax: 0181 871 9779; E-mail: <winmet@ecology.demon.co.uk>

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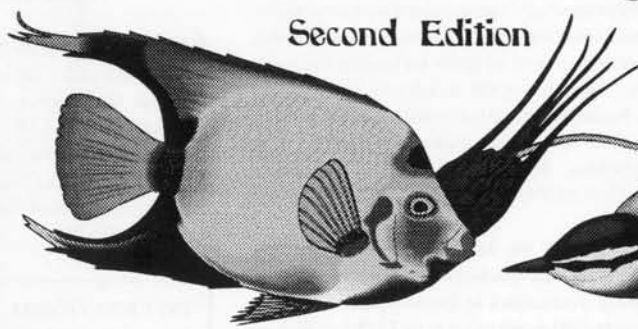
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