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Achievements at Rio

Despite the sabotage of the Bush administration, the mutual advantage of environmental and economic health has been firmly established.

RIO DE JANEIRO—The Bush administration has blundered its way through the United Nations Conference on Environment and Development—the Earth Summit. This first attempt at solving the global challenges of the post-Cold War era ends with the United States snarling at its closest allies and having confirmed developing countries' suspicions that it neither understands nor cares about their staggering economic problems.

As the summit opened, the White House trumpeted a major new initiative to save the world's forests. Within hours, its domestic provisions had been shown to be a pastiche of loopholes. What remained was a stirring call to save other countries' forests and an offer of a small amount of U.S. aid to help do so.

Inexplicably, the White House failed to see how its initiative would look to others. The United States had refused to commit to reducing its carbon dioxide emissions in the climate treaty. We refused to sign the biodiversity treaty because it might eventually require biotech companies to pay for the industry's raw materials, which are the genetic wealth of the tropical forests. And the initiative came on the heels of the administration's decision in the spotted owl case to cut our own ancient forests and to weaken the world's premier law for protecting biological diversity, the Endangered Species Act.

Taken in this context, the forest initiative and the U.S. drive here for a strong declaration on forest protection could only be read one way: Tropical forests should be saved to absorb our wastes and provide the means for our companies to profit. The United States would make modest efforts to help others change their ways but would not commit to change its own. The harder the United States pushed in the forestry negotiations, the more blatant the double standard seemed to others.

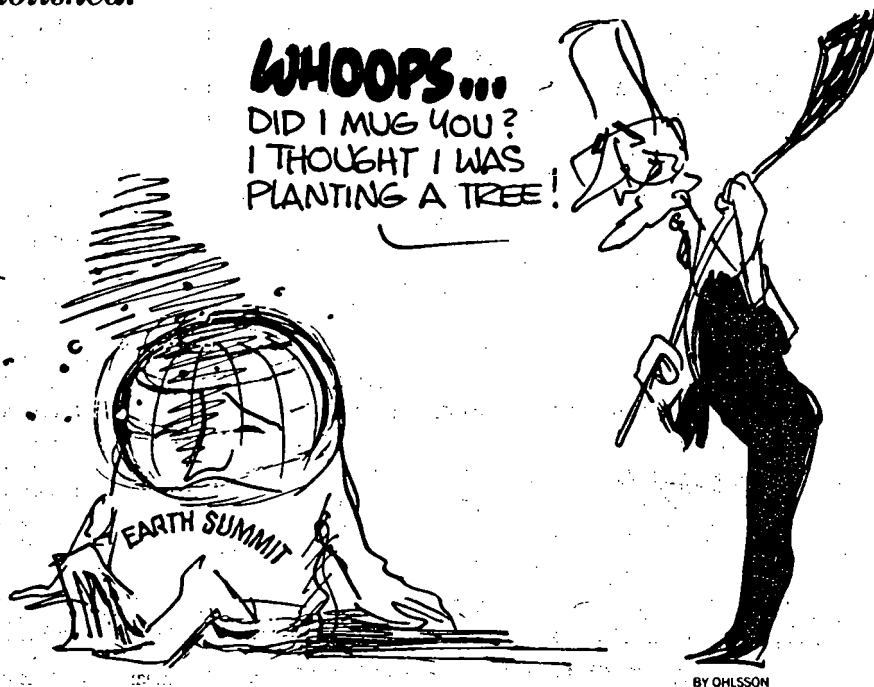
Presumably operating on the premise that offense is the best defense, Washington needlessly advertised its disdain for the summit. Unnamed official briefers called the event "a circus." Deputy Undersecretary of State Michael Young rubbed it in by asserting to a chorus of derisive cheers here that circus is not a pejorative term. Europeans were accused of rhetorical posturing and said to deserve "a shot across the bow." The head of the world's richest economy personally demonstrated an appalling insensitivity to the concerns of most of the world's governments, which grapple with grinding poverty and astronomical unemployment, by suggesting that only he understands economic realities: "I also have to be the one at this conference that is responsible for jobs and people being at work."

The tensions derive from two sources. The president and his closest advisers do not accept the premise on which the Earth Summit negotiations

are based that economies must fundamentally change in order to protect a troubled global environment, but can prosper while doing so. The administration bows to public opinion when necessary—as in accepting a climate treaty—but sees environmental initiatives as irritating or threatening, not as vital and potentially beneficial.

Under its present leadership, Washington also seems unready for global problem solving. The Bush administration is comfortable with international cooperation when the United States plays the preeminent role, as it did in the gulf war. But in addressing newer global problems, which require universal cooperation and where the United States cannot dictate the outcome, Washington holds back, even when the commitments required are nothing more than it is prepared to undertake unilaterally.

Nonetheless, UNCED was a notable—perhaps a historic—success. The mutual dependence of environmental and economic health has been firmly established. The compelling but heretofore fuzzy concept of sustainable development has been given form and substance in the several hundred page Agenda 21 document hammered out here and in the products of numberless smaller meetings held during two years of preparatory work. The treaties on climate and biodiversity establish frameworks for global action on two critical fronts. (Ignoring U.S. requests not to do so, the European Community served notice here that it intends to keep pushing for specific targets and timetables for greenhouse gas reductions.)



BY OHLSSON

Two months ago, negotiators spent a week debating the placement of a single comma, yet all of this was eventually achieved by consensus—a near miraculous achievement for any legislature much less a global one.

Finally, by allowing a new role for non-governmental groups, UNCED has for the first time opened international diplomacy to the direct scrutiny and pressures of public opinion. The key moments came in the months before the summit, when for week after tedious week, scientists, activists and policy experts representing environmentalists, women, youth, urban interests, rural groups and many more, lobbied, pressured, educated delegates and helped draft agreements. Lengthy daily bulletins written by these groups and distributed instantaneously by global electronic mail broadened the audience and spurred diplomats' normally lethargic pace. It is no accident that at the culmination, more than twice as many journalists—9,000—came than have attended a U.N. conference before. The world is truly here in Rio.

There is a hitch. U.N. conferences are notorious for commitments made and not kept. This time an international mechanism for holding governments accountable has been created. But only vigilant attention by citizens and the world press for years to come will ensure that Rio's achievements do not add to the stack of broken promises.

The writer, vice president of World Resources Institute, writes this column independently for The Post.

Jessica Mathews

THE WASHINGTON POST

5/26/92

Industry First, Environment Last

Nearing the end of its tenure, a divided administration has yet to settle on its approach to energy and environmental policy. For now, the "environment president" is out. Deregulation, shortcuts for industry, limits on the public's right to appeal government actions and a clear preference for resource extraction over conservation in the politically dicey western states, are in.

Aware of the depth of public support for environmental causes, however, the president is also trying to hold on to the tattered remains of his earlier stance. He mixes signals of support with moves to undermine various environmental laws. In the past two weeks, the administration has made conflicting or outright contradictory moves on atmospheric protection, the spotted owl and energy. The message shifts from day to day, generating public confusion and policy stalemate.

At the same time that it declared concern for the atmosphere by agreeing to the greenhouse warming treaty, the administration moved to gut the Clean Air Act through a regulation that allows companies to unilaterally increase their allowed emissions without public notice. Like it or not, the law's unequivocal requirement for public participation should have been enough for the Council on Competitiveness to reject industry's request for the loophole.

It wasn't. The president approved the recommendation and ordered the Justice Department to come up with a justification—which has not yet appeared. Eventually, the regulation will be thrown out by the courts, and no lasting damage (or benefit) will be done. An unfortunate message is sent, however. The disrespect for the law inherent in issuing a manifestly illegal regulation ill befits a White House that rightly urges greater respect for law and order.

In a single week, the administration first complied with the Endangered Species Act by issuing an "owl recovery" plan, and then aimed an arrow straight at the statute's heart by voting to exempt

timber sales from its provisions. It capped the week by issuing an "owl protection" plan, which acknowledged that its provisions would probably cause the owl's extinction. Orwell would have been proud. Most Americans were simply confused.

Recognizing that no leadership would come from the White House, Congress, surprisingly, grasped the hot potato. Two plans to protect ancient forests—not just the owl and salmon, but the entire ecosystem—are moving through the House. If one can be enacted, the seven federal lawsuits that have brought logging in the Northwest to a near standstill could be quickly ended. If not, the timber industry will be left where government agencies' stonewalling put it—being managed by the courts.

The most striking evidence that the administration would prefer to serve a narrow set of industrial interests, even when its own analyses dictate otherwise, was recently unveiled by Rep. Howard Wolpe (D-Mich.). In the course of investigating the Energy Department's budget, Wolpe discovered an extraordinary internal analysis of DOE's \$5 billion R&D program.

The analysis evaluates and ranks projects on the basis of their contribution to energy supply, economic growth, reduction in dependence on oil, and technical and market risk. "Political sensitivities can be applied later," wrote the staff in forwarding the analysis to Energy Secretary James Watkins, "but you need to know, first, what seems to be right based on the merits."

The procedure is unusual—and praiseworthy—for its intellectual honesty. What makes it newsworthy is that the results "on the merits" directly contradict what emerged in the president's budget. Apparently, "political sensitivities" turned black to white in almost every case:

- Energy efficiency, conservation and alternative fuels programs uniformly received the highest rankings. In the budget, they received the smallest

percentage increase and continued to account for a tiny share of the dollars.

- On the other hand, all of DOE's nuclear programs—fission and fusion—were ranked at the bottom of their group, though they account for the bulk of the funds. The analysis recommended that they be cut by 22 percent. The budget allotted them an 18 percent increase.

- Just above the nuclear programs at the bottom of the list is the Clean Coal program. The analysis concluded that it should be cut nearly in half. Instead, the budget awarded the Clean Coal program a massive \$300 million (30 percent) increase.

- DOE's most expensive project, the Superconducting Supercollider, ranked 10th among the 11 projects in its group. In the budget, the SSC gobbled up nearly all the added funds available for fundamental research.

- Overall, in the wake of the Persian Gulf War, DOE's strategic planners urged increased spending for projects to reduce oil imports. The budget cut funding for these projects by 14 percent.

The Department of Energy declined to send witnesses to a hearing Wolpe called to explore the differences. What would have been said is not new. What the high-cost, low-scoring coal and nuclear programs lack in an objective competition with efficiency and certain renewables they more than make up for in bureaucratic habit and political clout—as much in Congress as in DOE and the White House.

"On the merits," DOE's analysts found exactly what a growing body of outside experts have been arguing for years—that the United States is missing a huge opportunity by continuing to give short shrift to energy efficiency while pouring money into less promising, but better connected, ventures. Until someone in government pays attention, we'll continue to squander energy and dollars.

The writer, vice president of World Resources Institute, writes this column independently for The Post.

The Soviet Union's War on Itself

When environmentalist Fred Krupp spoiled the president's party last week by criticizing his extension of the moratorium on government regulations, top economic adviser Michael J. Boskin got so mad that he all but called Krupp a communist. His is the kind of "old thinking," fumed Boskin, that destroyed the Soviet Union.

Krupp's point was that the regulatory freeze is a gimmick that will hurt the environment without providing any real help to the economy—a widely shared view. The irony Boskin tripped over is that it was precisely the sort of growth-above-all-else kind of thinking that lies at the heart of the deregulatory drive, not excessive environmentalism, that appears to have played a major role in the collapse of the old Soviet Union.

Hard data on the former superpower are still rare. What few numbers there are are spotty and massively infected with fraud. Some of the distortions come from reporting by local managers who met their central plans on paper, if not in reality. Some are the result of adjustments made in Moscow when numbers proved too embarrassing for international consumption. Even basic social indicators, like infant mortality, must be inferred and deduced from anecdote. There are almost no reliable, national statistics.

Yet there is growing evidence that the Soviet Union waged a war on itself of such concerted ferocity that in the space of a few decades the costs in lost health and ruined resources grew large enough to cripple the national economy. "When historians finally conduct an autopsy on the Soviet Union and Soviet Communism, they may reach the verdict of death by ecocide," conclude Murray Feshbach and Alfred Friendly Jr. in their just-published book "Ecocide in the U.S.S.R." The costs already counted, one must add, are a fraction of those yet to come.

Every great body of water—Lake Baikal, the Aral Sea, the Black Sea, the Baltic, the Volga, the Don, the Dnieper—tells its own awful tale. Dammed for power, indiscriminately tapped for irrigation and everywhere treated to uncontrolled dumping of raw sewage and industrial wastes, rivers (where they have not dried to a trickle) and inland seas are deadly to humans and fish. Pesticide contamination of the water is so high in some regions that breast milk is toxic. Various described as brown, green, pink and grey, even the color bears little resemblance to the life-giving substance the water once was.

Eventually, at huge cost, much of this damage can be repaired, whereas the destruction of agricultural soils is, in many places, permanent. Erosion, salinization and contamination by radioactivity and virulently toxic heavy metals (lead, zinc, mercury, cadmium) have removed thousands of square miles of agricultural land from the country's fund of natural capital. Less damaged land is now producing vegetables that are dangerous to eat.

The legacies of the Soviet Union's life with the atom may prove horrific, though the accidents and regular dumping of radioactive waste are all so deeply buried in official lies that an accurate reckoning may never be possible. Feshbach and Friendly's account of the aftermath of Chernobyl is eye-opening. A cleanup worker upbraids his supervisor for recording an exposure of 1.5 roentgens when the meter reads 70. "I don't have the right to record any dose that high. I can see it, but I can't do anything about it," the boss responds. To what cause will this worker's early death be ascribed? It will take decades to arrive at a semblance of the truth, but it is already clear that Chernobyl's human and economic costs are vastly greater than reports of the first five years indicated.

Day by routine day, industry is pro-

ducing equivalent disasters. Respiratory disease, retardation and congenital deformities are all on the rise. In Magnitogorsk, reports U.S. News and World Report in a recent cover story, fewer than one percent of the children are believed to be in good health. Downwind of aluminum factories, explains a doctor to Feshbach: "The children never smile. Their teeth have all rotted out."

The bottom line of the environmental havoc, combined with heavy smoking and alcoholism and a terrible medical system, is that the Soviet Union and its former satellites seem to have achieved a unique result in the modern era: Infant mortality is up, and life expectancy is down. While the numbers are much worse in the poorest countries, only in the Soviet Union and parts of Eastern Europe has the trend been in the wrong direction.

A Russian economist puts the cost of all this at 15 to 17 percent of the pre-collapse GNP. Based, as it is, on fragmentary monitoring and doctored numbers, that figure is probably low. Cleanup costs and rising medical needs will inflate it further. Though the estimate is shaky, it is worth a moment to compare the consequence of the Russian debacle with current American spending on environmental protection of 2 percent of GNP (which produces wealth) and additional environmental losses estimated to range from 0.7 percent to 2 percent of GNP.

With the worst will in the world, democracy and a free market could never produce a mess remotely like that the Russians inflicted on themselves. We are not immune from a similar kind of short-term thinking, however. You hear its echoes quite clearly in the administration's anti-regulation rhetoric.

The writer, vice president of World Resources Institute, writes this column independently for The Post.

Jessica Mathews

It's Not 'Jobs Vs. the Earth'

Every opinion poll on the subject seems to pose the same false choice: Environmental protection or economic growth, nature or jobs? It's jobs or the owl, jobs or fish, jobs or subsidized water.

Not only the polls but the president put it in such terms. Columnists Evans and Novak report that Mr. Bush will end his Cuomoesque anguishing over whether or not to attend the Earth Summit if he can get other leaders to agree in advance that "improvement of the world's environment depends on strong economic growth." (Where will he look for someone who disagrees?) What he and his advisers don't understand—and what invalidates the premise that there is a choice to be made—is that the reverse is also true.

Look beyond single-interest descriptions of the environmental controversies roiling America these days, and you will find that at their core the real choices are not between nature and jobs but between some jobs and others. From salmon in Puget Sound to haddock on Georges Bank, from shrimp off Louisiana to cattle in Wyoming and water in California, the battles are really about farmers vs. fishermen, one kind of fisherman vs. another, jobs on the coast vs. jobs at sea, jobs in extractive industries vs. jobs in the service sector and—the hardest—jobs for today vs. jobs now and in the future.

The fish stories are the clearest. Fourteen years ago, foreign fishing fleets were raping U.S. fisheries. The United States declared a 200-mile limit of national jurisdiction to hold them at bay. Then we proceeded to rape the fisheries ourselves.

Expand, invest, fishermen were told. Buy bigger ships equipped with sonar and electronic fish finders that can pinpoint the schools day and night, in any weather. Use electric harpoons, spotter planes for the huge tuna. The fishermen did, and then fished frantically to pay off the mortgages. Technology did its job. So did the free market. ("Tuna are doomed," explains one fisherman, quoted in the Wall Street Journal. "They're too valuable to live.") In less than a decade the fish stocks plummeted.

Since the United States took control, a third of its fish stocks have declined. In the Atlantic, nine of 12 of the valuable groundfish stocks are decimated. The haddock catch is down to a fifth of what it was. Instead of cod and flounder, fishermen pull up spiny dogfish. Tuna and swordfish are depleted. The Atlantic salmon is nearly gone. Clam and oyster catches are both down by half.

Fishermen tell individual versions of the same story. Where they once brought back 50,000 pounds of fish from a three-day trip, now their bigger, better equipped, more expensive boats work twice as long to bring back less than half as much of less valuable species. Total groundfish landings dropped by more than half in eight years, costing New England 14,000 jobs.

Now those who are still in the business face a difficult choice. Nature's cutbacks mean that most are barely scraping by. Their choice is to accept additional restrictions—Draconian limits on who can fish and how much they can take—that will allow the stocks to recover but will mean more economic hardship and force some more fishermen out. Or, they can continue on as now, and very soon they will all be out of work.

Scientists estimate that the current catch is less than half the sustainable yield under sound management. Thus the choice is much more fish for the indefinite future at the expense of some jobs now, or a rapid decline to no jobs and no fish.

Pick your controversy, and you will find the same story. In the Gulf of Mexico, shrimp fishermen protest the cost of devices to save endangered turtles. The devices will also stop the devastation of red snapper and mackerel fisheries by the shrimp fishermen's nets. This case is not just fishermen vs. turtles but shrimp fishermen vs. fin fishermen. In the Pacific it's chinook and sockeye and other salmon species whose need to spawn in fresh water forces job tradeoffs among farmers, loggers and those reliant on cheap hydropower far inland.

Protection of spotted owl habitat accentuates job losses that were inevitable as the old-growth forests were depleted. The industry predicted the trend 30 years ago. Automation made it worse. Cutting the last of the old-growth forests would be a permanent decision for the owl and the forests, and a temporary palliative for loggers. Looking ahead, some argue that cutting could mean a permanent job loss, not just from lost tourism but from the loss of the region's comparative advantage in attracting workers and industry that derives from its environmental attributes.

In the mountain West, where federal subsidies of logging, ranching and mining are all under attack, the debate again turns on whose jobs. A Wilderness Society study of part of this region suggests that an economic transition is underway. It found that in the past 20 years, almost all job growth took place in sectors outside the area's traditional economic base in agriculture and the extractive industries. If so, then the region may gain in the future by relying relatively more on preserving its natural capital and somewhat less on extracting it.

All this is not to say that environmental protection is free. Experience has shown, however, that over the long term, resource mismanagement costs more than sound management. And as New England's fishermen have learned, with modern technology, the long-term can arrive almost overnight. The next time a pollster or politician asks which you care more about, economic growth or environmental protection, tell him or her the choices are more complicated. Better yet, tell him it's a dumb question.

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Jessica Mathews

Seven Years of Stalemate

Nearly a decade has been lost in a stalemate over energy use in cars and light trucks. Today the fleet consumes more than half of U.S. oil use, more than half of which is now imported, accounting for half of the trade deficit.

New cars reached a 27.5 mpg target, set in 1975, seven years ago. Since then trench warfare has been waged between those who want the mileage standard—known as CAFE—upped to 35 or 40 mpg and the auto industry, which doesn't. While the fight dragged on, the efficiency of new cars began to decline in 1988, and auto use has grown steadily. This year the issue proved so contentious that it had to be dropped altogether so that Congress could consider the remainder of a national energy policy.

With each new study, one side or the other advances a few yards only to retreat. Every valid argument for and against CAFE has been fired, as well as a growing number of blanks (including the phony argument that safety concerns rule out improved mileage). The intellectual battlefield is so muddled that when the National Academy of Sciences issued its long-awaited contribution to the debate recently, both sides claimed victory.

The new study, said General Motors, is a "total rebuttal" of the proposed CAFE increase, a bill sponsored by Sen. Richard Bryan (D-Nev). Not so, say Bryan's backers. It supports the bill's mileage standards, simply stretched out over more years. "Preposterous," says Chrysler.

Enough, already. At this rate we'll still be fighting about a CAFE increase when oil import dependence hits 70 percent and the trade balance is drowning in red ink. It's time to try something new. The academy study is not the first, though one of the clearest, to point the way.

What's needed is a package of initiatives that spreads the burden of improving mileage across policies that affect all cars, not just new ones, and that address consumer, as well as manufacturers', behavior. Given the present public mood, crafting the right package unfortunately requires trading economic efficiency against political feasibility. It's a delicate, but not impossible task.

"Feebates" are one alternative. Like

the system just adopted in Maryland, feebates add an additional fee to the price of a car that achieves less than a certain mileage, and provide a rebate for a car that exceeds it. The threshold can be raised each year, pushing fuel economy upward. CAFE is the surest forcer of technological advance, but it hides the cost of achieving it. Feebates reveal it.

Neither system influences how much drivers use their cars once they've bought them. CAFE has the additional weakness that when gas is cheap, as it is now, it contradicts the market. The pump price tells consumers that fuel economy doesn't matter. The regulations say that it does. The obvious solution, favored by everyone (including, emphatically, myself) but voters, is to substantially raise the price of gasoline through a phased-in tax increase. Detroit favors this approach, secure in the belief that the likelihood of its happening is near zero.

A more likely possibility is a fully rebated gas tax increase. This would do nothing for the federal deficit or for repairs to our crumbling infrastructure. But if the tax is refunded through an investment tax credit or

by eliminating double taxation of corporate income, it could be an economic stimulus. Refunding it directly to consumers through an income or payroll tax cut would make it far more palatable.

With today's bleak mix of angry voters, disheartened legislators and absentee executive leadership, even a rebated tax may be beyond hope. If so, the next choice is a pretend price increase. The best notion, under study in California, is Pay-as-You-Drive insurance. In this scheme, drivers would pay at the pump for the 70 percent of their insurance that covers the costs of meeting claims, raising the apparent price of gasoline by about 50 cents. The system has many other advantages, including reducing the number of uninsured drivers.

Another step with multiple benefits is to purge the tax code of a powerful subsidy that lures people into their cars. This little noticed provision allows employers to provide free parking as an untaxed fringe benefit. Instead, employers should only be allowed to provide a tax-free travel allowance for all forms of transportation—putting cars, transit, van pools and the other options on an equal footing.

Finally, congestion tolls, collected electronically at rush hours by beams reading coded license plates, should be tried. Since, in addition to saving fuel, these would produce obvious benefits of shortened commutes, reduced pollution and fewer accidents, their political acceptability is hard to gauge. It would certainly be improved by rebating the cost through a tax reduction.

The CAFE standard has been asked to bear more of the burden of reducing gasoline use than it can efficiently carry. Seven years have been spent without progress. Surely it's time for a new approach, of which less stringent CAFE standards would be, at most, one component.

I know that Congress's anarchic committee system makes a legislative package extraordinarily difficult. I also know that determined leadership can overcome that barrier. The only real question is whether, in this dispirited town, such leadership can still be found.

The writer, vice president of World Resources Institute, writes this column independently for The Post.



Jessica Mathews

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Politically Correct Environmentalists

As things now stand, when the Earth Summit convenes in Brazil in early June, it will studiously ignore the central issue that will determine the planet's long-term livability. Silence will surround the crucial matter of how many people the planet can realistically sustain.

A century hence, global population will likely lie between 9 and 14 billion, somewhere between nearly double and almost triple today's 5.4 billion. Even with an all-out effort to do everything else that must be done—develop less polluting technologies, direct economic growth along more sustainable paths, close the poverty gap between North and South, and cooperate closely in managing the shared lifelines of air and water—that 5 billion person margin almost certainly spells the difference between success or failure in providing, for most people, a reasonable standard of living in some harmony with nature.

From the start of preparations for the U.N. meeting, the group of 77 developing countries wanted to focus attention elsewhere. What they see as the central issue, with a good deal of justification, is the responsibility of the industrialized nations for the environmental woes that afflict the planet. So determined were they to assign blame and thereby fix financial responsibility for the needed changes, that even nations with strong population control policies denied the need for such policies in Geneva and New York.

Slowly, however, a fragile consensus emerged. Environmental stress, it recognized, is equally determined by how many people there are, how much each person consumes and how much environmental damage that consumption entails. The average American, European or Japanese consumes vastly more and produces more waste and pollution than the average inhabitant of a developing country. Environmental protection therefore requires controlling both population and what came to be called overconsumption.

The term was never clearly defined. To some it merely required a benign and obviously desirable effort to develop less polluting technologies and reduce

economic disparities between North and South, creating new markets and overall economic growth. To others, including the Bush administration, the suggestion that lifestyles might need to change in the North was flatly unacceptable. Just as developing countries could not tolerate international references to policies they believed in at home, the United States found itself objecting on ideological grounds to such motherhood issues as the need for greater energy efficiency.

When, in the final negotiating session, the United States moved to delete all references to consumption in

Both population and overconsumption must be controlled.

the North, the G-77 retaliated by deleting references to the urgency of slowing population growth. That opened the way for extremely aggressive and effective lobbying by the Holy See. The fate of the population language was sealed, ironically, by representatives of women.

Feminist health groups, along with some women's groups in developing countries and representatives of minority women in the United States, have long been antagonistic to population control because they believe it jeopardizes women's health, is disguised genocide, or places blame on women (the only producers of babies) who instead should be seen as victims of a male dominated society.

Though they believe that women's poverty and powerlessness are directly tied to uncontrolled fertility and that poverty and environmental degradation go hand in hand, ideology leads this small but noisy group, too, to deny what they know to be true. "We know that the major causes of environmental degradation are

economic systems that exploit and misuse nature and people," declares their position paper for the U.N. meeting, "we are outraged by the suggestion that women's fertility rates (euphemistically called population pressures) are to blame."

Politically correct environmentalists, these women insist, should talk about health, education and broad development issues, including—but not mentioning—family planning. The inevitable, though unintended, result of constantly downplaying the importance of family planning is to encourage governments that are already inclined to do so to avoid the issue.

The Rio meeting is not the end of the line. At the least, a great many people in governments have had to learn a good deal about issues that are now firmly on the international agenda. Progress will inevitably flow after the meeting as well. But the failure of governments—alas, particularly our own—to come to grips with the core issue of how many people can be sustained with what patterns of consumption must be accounted a costly defeat that will delay urgently needed action.

Less understandable is the wedge that is being driven, wholly unnecessarily, between environmentalists and women's groups. Of course population and the planet's environmental future are linked. There is no magic number of people the Earth can support. That will depend on our collective wealth, wisdom and degree of social justice. But there are limits, of capital and technology as well as natural resources, and in many places present rates of population growth are testing them.

Women's and environmentalists' short-term priorities differ, but their long-term interests are identical. Both have urgent reasons to adopt the same goal: that every woman on the planet who wants to space or limit the number of her children have the safe and affordable means to do so by the millennium, and not a day later.

The writer, vice president of World Resources Institute, writes this column independently for The Post.

Jessica Mathews

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Missing the Transportation Story

Once in awhile, the national news media completely miss a big story. This happened last year, when Congress closed the door on 35 years of single-minded devotion to highway construction as the be-all of transportation policy.

Perhaps transportation issues had been so boring for so long to any group other than the National Asphalt Pavement Association and the Crushed Stone Institute that no editor could imagine anything interesting happening. Or perhaps the subject had become so arcane and overlaid with jargon that few reporters could translate enough acronyms to understand what was happening. Or perhaps cynicism about Congress was so deep that few believed it could do anything genuinely new and important.

Whatever the reason, Congress did write the ground rules for a revolution in the nation's transportation system, holding the promise of huge improvements in mobility, energy use, air quality and plain old livability, and to this day only a few cognoscenti know that it happened.

This is more than a little weird, since transportation is Americans' second-largest household expense (nearly a fifth of the total, second only to housing). Moreover, for the 70 percent of us who live in urban areas, the experience of getting from one place to another heavily influences our quality of life.

Whether it's the length of the daily traffic battle, the disappearance of farm and recreation land in mindless sprawl, air pollution that may be responsible for making asthma the number one cause of pediatric hospitalization, or employee productivity, almost every one of us has a personal reason to care how the country's 440 billion annual transportation dollars are spent.

Until this year, however, the choices were largely about which road should be built next. State highway departments, staffed by civil engineers, ran the process. Even governors had little influence. Most of the available funds were earmarked for

building roads. New construction was heavily favored over maintenance. Little was spent on transit, bicycle and pedestrian alternatives. Almost nothing was spent on planning or research.

With few exceptions, little time or money was spared for creating or managing interconnected systems—roads that link with transit, buses that go from where people live to where they work etc. Demand management measures—such as HOV lanes and time-of-day pricing, which encourage people to drive less or to drive at less congested times—were seldom considered.

Unhealthy air, even when a cutoff of federal funds was in the offing, was someone else's problem. So was the livability of neighborhoods. And so, above all, was the kind and direction of economic growth that transportation decisions gave rise to, and its consequences for land use.

With sufficient citizen involvement, the new rules make it possible to change every one of these priorities. Federal funds now encourage repair and maintenance over new construction. Much more money is available for transit and the non-driving alternatives. Funds and regulations attempt to force states to plan before they build and to accommodate, rather than ignore, local and regional decisions. Air quality consequences have to be taken into account. The process is opened up to the public at the planning stage, where alternatives can be usefully debated.

Change won't come easily. Thirty-five years of habit creates a huge financial and psychological momentum to continue doing things the old way. The highway lobby wields powerful political clout, and in most states there are years and years worth of road projects waiting to consume all available funds.

Yet even in the highway agencies, the conditions are ripe for a cultural shift. The interstate system is complete. Its engineers are looking for guidance on

what to do next. Many, moreover, realize that in a fundamental sense the road-building era didn't work. Its purpose was to make the United States the most mobile society in the world. We are that. But congestion is worse than it has ever been, at exploding economic cost. Many knew before the new law was passed that we could never meet our travel needs by continuing to just build roads. Oregon and New Jersey had already turned their systems around.

Across the country a small but rapidly widening circle of new transportation decision makers is gathering strength. It includes environmentalists concerned about air quality, energy consumption and land use; community agencies and citizen neighborhood groups; job development agencies that need to link areas where people live with areas with unfilled jobs; representatives of unmotorized Americans, including the elderly and suburban children whose only choice is to take the school bus home and stay there; employers concerned with employee recruitment, retention and productivity; and poorly served transit users. Planners and architects are thinking about communities where life need not depend on the automobile. They aim to persuade lenders to underwrite transportation-efficient development, just as some now favor energy-efficient homes.

It is a moment of tremendous hope and excitement. Countless new players are getting involved. In some places, unprecedented cooperation between federal, state and local agencies seems possible. As in foreign policy since the Cold War, old ways of thinking are out the window and new opportunities seem to be everywhere. There isn't enough money, but there are plenty of new ideas.

Great story. Too bad the media missed it.

The writer, vice president of World Resources Institute, writes this column independently for The Post.

Tiny Steps Toward a Greenhouse Treaty

Rather than bear the blame for the failure of international negotiations to slow global warming, the Bush administration blinked last week. At nearly the last minute, the United States turned the stalled United Nations talks from gloom to hope by announcing that it would voluntarily adopt a set of measures to limit emissions of greenhouse gases.

Europe has been pushing hard for an agreement that would require the developed countries to stabilize their emissions of carbon dioxide, the chief greenhouse gas, at 1990 levels by the year 2000. Washington has adamantly opposed such "targets and timetables." But while the administration is not yet ready to say what the overall effect of its limitation measures would be, the chief U.S. negotiator opined that it would "compare favorably" with the European target.

In effect, the administration has found a way to reverse its position while maintaining that it has not changed at all. The likely scenario signaled by last week's surprise announcement goes like this. The first step is to calculate optimistic assessments of the effects of the various measures, which are a medley of long-standing programs and recent commitments in transportation and energy legislation. Next, factor in lower projected GNP growth and, *voilà*, instead of the 13 percent increase in carbon dioxide emissions predicted in last

year's National Energy Strategy, emissions are stabilized, or close to it.

Washington will then be able to negotiate a deal among the OECD countries, not to stabilize emissions (a still unacceptable "target") but to adopt a set of measures that would stabilize emissions. Neat.

This happy outcome is not a foregone conclusion. Energy producers, led by the coal industry, will lobby hard against it. So will extreme right-wingers, who view any international agreement as the first step down a slippery slope to world federalism. The administration itself is deeply divided internally. But there is at least a fighting chance that the White House will at last acknowledge that there are things the United States can do to limit its fossil fuel use at little or no cost. The measures themselves are modest. The significance of the policy shift, if it holds up, is substantial.

The administration's other announcement, that it would contribute \$75 million toward helping the developing countries deal with global warming, is in the same vein. It is clearly intended to meet those countries' demand that an international agreement provide additional financing, which Washington has opposed. But the announcement was purposefully murky as to whether the \$75 million is "new" money or funds shifted from other accounts, so the U.S. stance is officially unchanged.

The new policy stems in part from

John Sununu's departure. It owes something as well to last month's news of greater ozone loss in the Northern Hemisphere, which was a sobering reminder of the potential costs of delay when dealing with gases that last for more than a century in the atmosphere.

More important was the recent discovery that chlorofluorocarbons, rather than being a major contributor to global warming, may have no net greenhouse effect (because the ozone loss they cause creates an offsetting cooling). Since getting rid of CFCs no longer helps slow the greenhouse trend, the administration is now forced to confront the biggest greenhouse gas, carbon dioxide.

Bush well knows from his 1988 Boston Harbor attack on Michael Dukakis how politically damaging a bad environmental image can be. This fall he has to defend not only his record as "the environment president," but his outright pledge to use "the White House effect" to take care of the greenhouse effect. Last week's initiative was the first sign in three years that the Bush White House effect could be anything but obstructive.

A greenhouse treaty ready for signature and photo ops at the Earth Summit in June must still be judged a long shot. But with the new U.S. policy, the odds have shifted dramatically. If an agreement is reached, it will likely contain few specifics, but formalizing a commitment to slow greenhouse warming and creating the mechanism for

international cooperation, would be a major achievement—one that seemed a farfetched goal just two years ago.

In nature's terms, however, even an agreement to stabilize the industrial countries' emissions would be only a tiny first step toward eventually wrestling greenhouse forces to a standstill. Because present emissions are so much greater than natural levels, and because carbon dioxide lasts so long in the atmosphere, stabilizing emissions is a far cry from stabilizing the amount of the gas in the atmosphere. If that ultimately proves necessary, it will require cutting present global emissions by a staggering 60 percent.

If successful, a greenhouse agreement in 1992 would say a lot about a new world order. It would be by far the most demanding, domestically intrusive, international treaty ever attempted. It would be the first global security arrangement to require the active engagement of every nation. It would have been achieved at blinding speed, setting a new standard for what can be expected of international negotiations. And, worth noting by the last remaining superpower, it would be the first great international achievement of the 20th century achieved without American leadership.

The writer, vice president of World Resources Institute, writes this column independently for The Post.

Jessica Mathews

The Puzzle of Nuclear Power

Paul Tsongas dodged a nuclear bullet in the Maine caucuses. His near loss to Jerry Brown was due in large part to his views on nuclear power. The issue was costly in New Hampshire as well, where the Seabrook plant has been a political stinging nettle seemingly forever. Tsongas's hometown paper worried in print that the issue may prove to be an Achilles heel, and the other Democratic candidates were quick to take aim.

While it could never satisfy purist nuclear opponents, Tsongas's bottom line—that after full exploitation of conservation and of renewable energy sources, nuclear power is the likely choice for a long term, non-fossil energy supply—is entirely sensible.

The lengthy discussion of energy policy in the Tsongas economic manifesto is much too dogmatic about the eventual need for, and competitiveness of, nuclear power. ("There must be a major base load energy capability that is sustainable. Inevitably that capability has to be nuclear.") But its basic thrust, revealed in the section headings, is unarguable. First, "Maximize Conservation." Then, "Maximize Renewables." Finally, "Research into Nuclear Options." Tsongas should resist the advice he is surely receiving to tailor his position to his new front-runner status.

The most that anyone can say with certainty about nuclear power's future in this country is that it may have one. The conditions for success are severe. Nuclear energy must, above all, be able to compete with alternative sources (including efficiency improvements) on a strict "least cost" basis. There must be an operating waste repository, or at least, clear signs of progress toward one. There must be solid public confidence in the safety of operating plants and a lay and expert consensus on new reactor designs. Finally, the industry will have had to regain Wall Street's confidence and that of utility executives, most of whom are now loath to bet the company on a nuclear plant.

None of these conditions is met today. Even the most ardent nuclear proponents doubt they will be before 2000. The biggest question marks surround two of them—economic competitiveness and public acceptance—that are not in the industry's control.

The utility business is in the midst of a revolution. Regulators in 40 states have already—or will soon—changed their rules so that utilities earn as much on steps taken to reduce demand as on building new supply. Regulators then compare bids to select the lowest cost. An astonishing 40 percent or more of present electricity use can be met by conservation and efficiency improvements for less than the cost of new plants. New technologies are certain to increase that figure.

On top of this, recent developments in wind and photovoltaic technologies suggest that these renewable sources could become tough price competitors. Nuclear's present costs may be reduced by streamlining regulation and standardizing reactor designs, but they may also rise as decommissioning costs become clearer. In short, it may be a very long time—if ever—before there is a need for additional electricity that can be most cheaply met by nuclear energy.

Everything must also work on the technology front, and that too is anything but guaranteed. It has been 10 years since Congress finally hammered out a waste disposal plan, and all sides breathed a sigh of relief. But since then the schedule for building a repository has slipped by more than a year each year that has passed. It now won't be ready until will be ready until 2010 at the earliest.

Nor are experts any closer to agreeing on which reactor design should replace this generation of light water plants. There is some agreement that it must be passively safe (able to avoid a meltdown without any intervention from operators) and about half the size of today's plants. Beyond that, the fights that have been raging for years over the relative merits of competing designs show no signs of abating. If this industry were an animal, it would be one that eats its young.

Most unpredictable of all is whether public acceptance would be forthcoming even if these technical and economic conditions were met and operating plants have a perfect safety record for the remainder of the decade. The industry buys a lot of polls in a vain effort to convince itself and others that the public really wants nuclear power. What is remarkable and hard to explain about public opinion is how touchy the issue remains 14 years after the last reactor order was placed. Maine Yankee, which excited such opposition last week, is not one of the industry's notorious failures—neither poorly sited, badly built nor sloppily run.

No one knows whether this star-crossed technology should or will revive. No one can be sure that conservation will prove to be as large an energy source as it now seems, or whether greenhouse warming may rule out new coal plants. Paul Tsongas need not apologize to anyone for recognizing that when uncertainty is the name of the game, the only wise course is to keep options open.

The writer, vice president of World Resources Institute, writes this column independently for The Post.

Jessica Mathews

A Retreat on Trade?

It could mean hunger for hundreds of millions of people.

After five years, the world trade talks are teetering on the brink of failure. Massive agricultural subsidies provided by developed countries are the decisive issue. The United States rightly wants to remove or at least lower them. Europe and Japan do not.

If the talks break down over this impasse and the accumulated irritations of the years of negotiation, one likely consequence for the developing world will be harsh: more hunger for tens, and eventually, hundreds of millions of people.

Those of us lucky enough to live in one of the world's few rich countries have seen decades of explosive growth in agricultural productivity, yielding unprecedented variety and abundance from less land, sometimes even with less environmental damage. We are awash in surpluses we pay to store. It is hard from this vantage point to appreciate how precarious the global food outlook is.

While the proportion of malnourished people in the world is declining, their numbers are growing. There are more hungry people now than there ever have been. An appalling 40,000 of them die from hunger and hunger-related causes daily.

There is, moreover, accumulating evidence that the agricultural resource base is stressed as never before. Few opportunities remain to bring new land into production or to add to the area under irrigation. Worse, land now used for agriculture is being lost from overuse and environmental mismanagement.

Preliminary results of the first global assessment of soil conditions were released a few months ago. They make grim reading. Since World War II, 11 percent of the earth's vegetated surface—an area about the size of India and China—has been degraded. About one-tenth of this area is permanently destroyed. On about one-quarter, the soil's biological functions are "largely destroyed" but could be expensively reclaimed. On the rest, agricultural productivity is merely "greatly reduced."

The study confirms what earlier anecdotal evidence had suggested. The great increases in agricultural production of the '50s, '60s and '70s were achieved through expanding cropland and irrigated acreage, better crop strains and heavier use of pesticides and fertilizer. These additions masked an

underlying loss of productivity from erosion, water-logging, salinization and loss of green cover and of soil nutrients, without which production would have been much greater. The world has, in effect, been running up the down escalator.

For 35 years, world grain production grew by 3 percent annually, handily outpacing population growth. But since 1984, grain production has grown by only one percent per year, far slower than the number of mouths. Total food production has fallen behind population growth in 70 nations, including most of Africa, the Philippines, Bangladesh and Mexico. Latin America has made a tremendous effort just to stay even.

The trend since 1984 need not be permanent. Deteriorating soil conditions have been reversed before. "Our lands were originally very good, but use and abuse have made them quite otherwise," complained George Washington in 1768. They were to become worse still, and then to improve mightily in the years after the Dust Bowl. One needn't be a blue sky optimist to be confident that the stream of powerful new technologies—especially from biotechnology—will continue to flow.

It would be almost criminally foolish, however, to ignore the severity of the environmental constraints or be confident that they can be overcome. Population will grow by 40 percent in 20 years, adding

another India each decade. Per capita availability of cropland and irrigated land will drop. Pressure on the land will continue. Most of the proven sources of increased productivity—research, construction of rural roads and food storage facilities and land reclamation—cost money that many developing countries simply do not have.

With so little elasticity in the system, the last thing the world can afford is economic policies that depress production or exacerbate environmental harm. The subsidies over which the General Agreement on Tariffs and Trade talks are hamstrung are prime offenders.

They encourage farmers in the developed countries to overproduce at unnecessary environmental cost. Governments then dump the surpluses on the international market, forcing down prices. This in turn reduces production by farmers in developing countries whose crops are taxed, not subsidized, by their governments. To partially make up for low prices, these governments heavily subsidize irrigation, pesticides and fertilizer, causing their overuse and consequent water pollution, health problems and land degradation.

If the president's disastrous Asian trip had not been about politics, politics, politics, Japan's closed agricultural market and immense farm subsidies would have belonged at the top of the agenda. The attempt to negotiate precise targets for Japanese imports of U.S. products compounded the damage of this missed opportunity by throwing Mr. Bush's long commitment to free trade into question.

The United States is still pushing in the GATT talks for an agreement that would wean the world from subsidies that create more food where it isn't needed and less where it is desperately needed. The question now is whether "whatever it takes to get reelected" includes a retreat on trade. The president should stick with his instincts on this one, and those who care about poverty, hunger and the global environment should stick with him.

The writer, vice president of World Resources Institute, writes this column independently for The Post.



Energy Policy: Where the Real Action Is

After the national energy bill went down to defeat last week, there was talk in Senate hallways and on the talk shows of milestones and watersheds. For once, it wasn't ballyhoo. The energy package, on which the administration had labored for more than two years and on which Congress had spent months, was solidly repudiated on the broadest grounds, not on the narrow question of the environmental risks of oil drilling in the Arctic National Wildlife Refuge.

ANWR merely served as a symbol. The conflict on which the bill's fate hinged was whether U.S. energy policy should above all strive to increase supply or whether it should address energy demand. The rejected bill was an oil production bill—a hopeless strategy for a country that possesses 3 percent of the world's oil reserves. It represented a last-gasp embrace of the past.

The Senate knew what it didn't want but is far from a majority vote in favor of any alternative. The good news is that although Congress hits special-interest gridlock whenever it confronts this issue, energy policy is being vigorously made by the states, by utilities and business and even, indirectly, by Congress under the guise of clean air and transportation policy. The policy coming from these sources focuses—at long last—on energy demand.

Here's where the action is:

■ Days before the Senate vote, nine eastern states, from Virginia north to Maine, announced that they would jointly adopt California's auto emissions standard. That standard is much more stringent than the new federal standard. It requires that one-tenth of the cars sold in California by 2003 be emissionless vehicles, which means they will be electric cars.

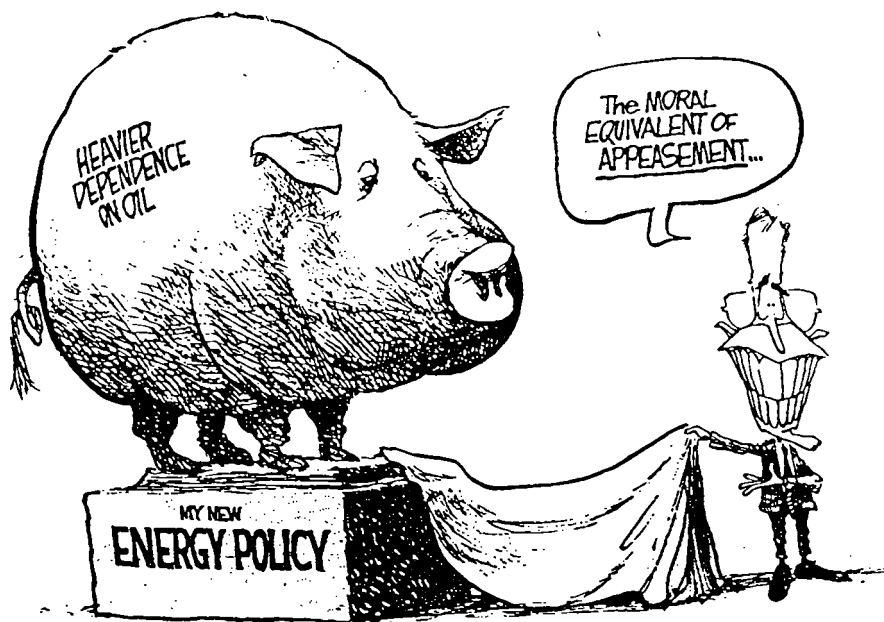
Together the 10 states represent 35 percent of the national auto market. Texas and Illinois are considering joining. They would bring the new standard's share to 45 percent. The California standard—which could never have made it though Congress—is on its way to becoming, de facto, the national standard.

Even without the boost of the nine additional states, California's requirement had unleashed a boom in electric vehicle development. Today's batteries are heavy and primitive, but they won't be for long. Dozens of new electric technologies are being explored, including hybrid cars that pair electricity with a tiny internal combustion engine that recharges the batteries and vastly increases the car's range. The whole country won't be driving electric and hydrogen vehicles overnight, but it will be much sooner than most people expect. Congress could still be arguing about raising the auto efficiency

CAFE standard as a way to reduce gasoline use, when technology, forced ahead by the states, has long since passed it by.

■ Thirty states have changed or are changing their rules so that utilities may earn as much on steps taken to reduce demand as they would earn on building new power plants. Reinforced by the tough limits on sulfur dioxide emissions in the Clean Air Act, the new rules have created a torrent of innovation in the conservative utility industry. CEOs like Richard Clarke of Pacific Gas and Electric and John Bryson of Southern California Edison, the nation's largest and second largest utilities, are heard loud and clear throughout their industry when they say they will meet 70 percent or more of new demand through conservation. Across the country, some of the best known names in the Fortune 500 have signed up for energy retrofits with investments that will pay for themselves in two years. Sober analysts believe that the energy needed to heat, light and cool the nation's buildings could be cut by 40 percent with present technology.

■ Even at the federal level, stalemate is not universal. Last year's Clean Air Act made energy policy by requiring for the first time that transportation plans be consistent with air quality needs. States could no longer blindly pursue a highways-only strategy if that would make it impossible to ever achieve clean air. The transportation bill now being debated could cement a revolution in how we use most of our oil. The House version rewards states for increasing oil use (the measure is vehicle miles traveled, or VMT) continuing old ways. But the Senate version turns



BY JIM BORGMAN FOR THE CINCINNATI ENQUIRER

the old formula around and sends more federal money to states that reduce VMT. If the Senate bill prevails, a major step will have been taken toward a balanced transportation policy that could simultaneously reduce energy use, congestion and pollution.

The bad news—you knew this was coming—is that we still need a national energy policy. Important as state initiatives are, it is economically grotesque, and sometimes impossible, to attempt change on this scale one state at a time. When President Reagan, prompted by the appliance industry, vetoed an appliance efficiency bill, states began to set their own standards. Soon the industry was back in Congress begging for a national standard to avoid marketing chaos.

The same sort of disruption will be repeated over and over absent some federal decision-making. Energy supply—from pipelines to service stations—requires a nationwide infrastructure. National interests, import dependence and the trade deficit especially, are at stake. International competitiveness demands that the country be able to seize technological opportunities with all the resources at its command. And only the federal government can decide the U.S. role in controlling greenhouse warming.

Inside the Beltway, one energy era ended last week. Outside, a new approach is taking hold. A lot depends on how long it takes Washington to catch up.

The writer, vice president of World Resources Institute, writes this column independently for The Post.

Science, Uncertainty and Common Sense

Greenhouse warming is the moral equivalent of the Cold War.

The administration's response to the latest bad news about greenhouse warming seems scripted by the Red Queen. If confirmed, the new results would pull the rug out from under the president's greenhouse policy, yet administration spokesmen are patting themselves on the back.

The news concerns chlorofluorocarbons, the gases that cause ozone depletion and contribute to greenhouse warming. Until last week, it seemed that getting rid of CFCs, which must be done to stop ozone loss, was a twofer: It would also cut out a major cause of greenhouse warming. But ozone loss, through complicated rearrangements of the atmosphere, has a cooling effect. The new research suggests that CFCs' two effects—causing warming through their greenhouse activity and cooling by way of ozone depletion—are about equal. Therefore, getting rid of CFCs will not help control the greenhouse effect.

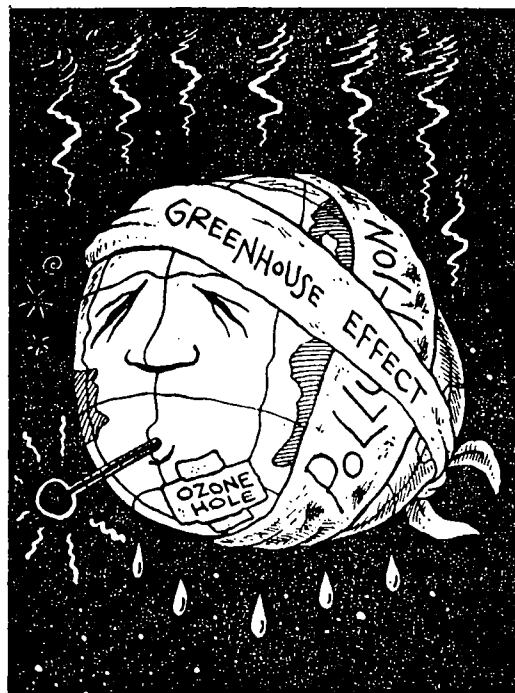
The problem for the president (after three years this is his policy, not Sununu's) is his insistence that getting rid of CFCs is all the United States should do about greenhouse warming. How then respond to the unsettling new information? Simple. You see, says the administration, we told you so. No one knows what's going on up there. The uncertainties are just too great to take any action.

This is the equivalent of driving a car over unknown terrain without headlights and saying, "Gosh, it's dark out there and getting darker. But since we don't know exactly where the dangers are, and we haven't hit anything yet, why slow down?"

The president gets away with such a suicidal strategy in part because the issue is so complex and in part because non-scientists, especially lawyers, don't understand scientists when they talk about uncertainty.

Most people avoid uncertainty. The law ruthlessly stamps it out. The jury's choice is "guilty" or "not guilty," not "guilty with an 85 percent confidence limit." A scientist welcomes uncertainty, for it is the inevitable accompaniment of exploring the unknown. Moreover he has reliable ways of measuring it. A statement about uncertainty is his way of pinning down exactly what he knows, not a reflection of what he is unsure of.

You can watch the noncommunication on any given day on Capitol Hill. Frustrated congressmen prod scientists for a straight answer, unadorned with caveats. Baffled scientists retreat ever far-



BY AUTH FOR THE PHILADELPHIA INQUIRER

ther into ifs and buts when they find that their error ranges and confidence limits and standard deviations do not translate.

Even when they grasp what experts are telling them, policy makers have few tools for matching decisions to ambiguity. During the Cold War they generally used worst-case analysis.

Economists like cost-benefit analysis, which works well in the rare cases where all important costs and benefits are known and measurable. Often the choice is merely to set a deadline, make a call and get it over with, à la Clarence Thomas.

None of these approaches works when applied to greenhouse warming. There are too many unknowns for rigorous economic analysis, and though the outcome could be as catastrophic, it lacks the immediacy of nuclear annihilation. The administration's suggestion is that when high risk and high uncertainty collide, uncertainty should rule and the appropriate strategy is to do nothing beyond research. This would be defensible if the risk were reversible or the

uncertainties could be soon removed. It is extraordinarily dangerous when applied to the experiment mankind is now running with the planet.

It is also the opposite of the policy that served reasonably well in the Cold War. Then, as with greenhouse warming, the ultimate risk was the habitability of the planet. Then, as now, there was disagreement about the extent of the threat—how powerful were the Soviets, what were their intentions, how likely were they to attack. Then, our strategy was to do just about everything we could think of to reduce the danger. Building a nuclear deterrent purchased insurance against the risk.

The dimensions of the planetary risk inherent in global warming demand a similar, but more modest, insurance policy. It is sufficient to plan for the most likely outcome, not the worst case. The uncertainties are not a cause for paralysis but a reason to take only those steps that are low cost and that make sense no matter how the scientific questions are answered.

Getting rid of CFCs was just such a step—it is still necessary in order to protect the ozone layer even if it turns out to provide no help in controlling global warming. Stopping methane leakage from mines, pipelines and landfills is another. The biggest and cheapest step by far is to drastically improve energy efficiency. But this the president will not entertain. Greenhouse warming was ignored in the administration's shortsighted National Energy Strategy. The risk to the United States if we continue to put off the inevitable is not just from global warming but will also come from our declining ability to compete with Europe and Japan, where the shift to higher efficiency and fewer carbon emissions is well launched.

What matters most about greenhouse warming is not what we don't know, but what we do. The science will shift constantly over the coming years, but its central policy implication—that mankind will eventually have to stabilize greenhouse gas concentrations in the atmosphere—will almost certainly not. To treat each new piece in the scientific puzzle as a confirmation of ignorance rather than as a small step forward is to stand science and common sense on its head.

The writer, vice president of World Resources Institute, writes this column independently for The Post.

A New String on Third-World Loans

It's been a bad year for the established rules of international relations. The latest convention to bite the dust is that a nation's military spending is and will remain strictly its own business. The World Bank and the International Monetary Fund announced last week that henceforth they will look askance at governments that devote too much money to defense.

Recognition of the link between excessive defense spending on the one hand and crippled economic growth and human despair on the other seems obvious and long overdue. Yet this unprecedented invasion of the most sacrosanct domain of national prerogative could not have been attempted as little as a year ago. Now, with arms experts debating such previously unthinkable matters as the minimum safe size of the superpowers' nuclear arsenals, all the old guidelines are gone. Just about everything is on the table.

Military spending in the developing world has been fueled by the Cold War and by deeply rooted regional conflicts. These were, and remain, true security threats. Increasingly, though, it has begun to feed on itself. Some states need more, and more powerful, weapons to offset the arms purchases of neighbors. Others use them to prop up authoritarian regimes whose lack of popular support is in part a consequence of too much spending on defense and too little on human needs.

Supply has been as important as demand. As the defense budgets of the major powers drop, there is an ever greater incentive to find new markets for their arms industries. Arms are a lucrative source of export earnings for the growing number of developing country manufacturers as well.

These forces have multiplied Third World military spending fivefold in 30 years. Amid deepening poverty and a widening economic gap between North and South, military spending in the developing countries has grown twice as fast

as per capita income. Many countries, especially in Africa and South Asia, spend two or three times more on defense than on education and health combined.

The tradeoff has a human face. Since 1945, an average of nearly a million people a year have died in 125 wars and conflicts in the developing world. Every year 10 times that number of children die before their first birthday because of inadequate or nonexistent family planning services (closely spaced children are at much greater risk), basic health care and food. One hundred and fifty times as many children have no place in primary school. A thousand times as many people are chronically hungry. If the financial institutions are serious about seeing their money used for its intended purpose, there is no alternative but to do what they can to break the momentum of military spending.

IMF Director Michel Camdessus has been laying the groundwork for this step for some time. The fund's and the bank's mandates allow them to weigh only economic criteria. Consideration of defense spending will not be a new political condition for making loans, Camdessus is at pains to point out, but merely a recognition of the economic impact of grossly distorted national budgets.

This is true, but the step is nonetheless a bold move that opens the door to consideration of such other strictly noneconomic factors as governmental corruption and incompetence. World Bank President Lewis Preston lent his vigorous support, sending a welcome signal that he sees his new job not only as that of banker but of policy leader as well.

Success in altering governments' priorities will not come easily. Already, a group of 24 developing countries has warned the two institutions off this sensitive territory. The lenders have a powerful tool in the attention the new

policy will bring to countries where social needs and military priorities are appallingly out of line, countries in which per capita GNP amounts to a dollar a day, while 20, 30 or even 40 percent of the government budget goes to the military. But even the combined pressure of public opinion and the threat of reduced lending will not be enough. The financial institutions' leverage will have to be bolstered by agreements to limit international arms transfers and to build reliable collective security regimes.

Ultimately, though, the success of this initiative rests with the governments of the South. Developing countries' needs for investment in human development, natural resource management and job creation are far greater than the likely sources of additional aid. The developed world must do more to ease the developing countries' economic woes—more aid and more debt reduction—for its own sake as well as theirs. But it would be a fatal mistake for the developing countries to base needed investment plans on the promise of large North-South transfers that are not in the offing. Cutting military spending is by far the largest source of funds that the South can contribute to meeting its own needs.

Camdessus and Preston have taken a courageous first step. Now it's up to the bilateral aid donors, particularly the United States, and the recipient countries to support them. All sides need a goal: The year 2000 is not too soon to cut Third World military spending, now \$150 billion a year, by half. If half the savings goes to debt reduction and the rest to education, health care, family planning and the care of soils, forests and water, the burden of human misery on the planet would be dramatically eased.

The writer, vice president of World Resources Institute, writes this column independently for The Post.

Jessica Mathews

Dolphins, Tuna and Free Trade

"No country can protect its own smidgen of air or ocean."

Ten months ago, the United States imposed an embargo on Mexican tuna, which is caught by using practices that indiscriminately slaughter dolphins. Mexico charged that the embargo violated the General Agreement on Tariffs and Trade (GATT). Now, a panel of judges acting in secret (the normal GATT practice), has not only held that the Marine Mammal Protection Act violates GATT, but ruled so broadly that the legitimacy of dozens of U.S. laws, and even of multilateral environmental treaties, is cast into question.

The slow process of tracing the intricate links between trade and the environment was just beginning. The ruling has thrown the scene into chaos, trapping the administration in a morass of conflicting pledges and forcing a frantic search for new guidelines.

The 45-year-old GATT text, like most treaties of its day, does not mention the word "environment," though it does allow trade measures necessary to protect human, plant and animal health or to conserve exhaustible natural resources. Scrutinizing these few words, the GATT judges decided that these exceptions to free trade apply only within national borders. A country can use trade measures to protect its own atmosphere, for example, but not the atmosphere outside its borders.

U.S. laws that would be disallowed under such reasoning include acts to protect the oceans, biological diversity, whales, elephants, fisheries, forests, migrating birds and endangered species. Most international treaties are applied through national laws, so any that employ trade measures are implicated as well, including the Montreal treaty on stratospheric ozone, the treaty banning trade in endangered species and many more.

Further, the judges said, GATT requires equal treatment of products regardless of how they are produced. Thus, tuna is tuna whether it is caught with purse seine nets that kill dolphins, with even deadlier drift nets that kill everything in their 30-mile-long paths or by saner methods that require killing only what humans want to eat.

The panel's rulings may be legally sound, but they are environmental nonsense. No country can protect its own smidgen of air or ocean or living part of the global commons. Trade measures are often the only means short of a multilateral treaty to influence the behavior of other countries. Even within a broad treaty, trade sanctions are an effective tool to discourage free riders, countries that would like to enjoy a treaty's benefits without conforming to its requirements.

In order to win fast-track negotiating status for the Mexican free trade agreement last spring, the Bush administration was forced to assure Congress that it would not allow trade agreements to weaken U.S. environmental protections. Now those laws are threatened more seriously than anyone contemplated, a "worst case scenario" as Rep. Henry Waxman (D-Calif.) calls it, and through a challenge brought by Mexico.

Both governments are running for cover. Awakening belatedly to the ruling's potentially disastrous impact on American public opinion, Mexico purchased full-page ads in U.S. newspapers promising all sorts of dolphin-friendly acts except a commitment to stop their killing. For the time being Mexico has postponed taking its winning ruling before the GATT council, the final decision-making body.

The Bush administration's problems are deeper. Notwithstanding the president's pledge to forbid weakening environmental laws in the name of free trade, U.S. officials have told Mexicans that the government will get the dolphin protection law weakened. Congress, correctly, has no interest in doing so. Moreover, success could doom the Mexican free trade agreement by confirming the most paranoid fears that free trade is an indirect way of forcing environmental backsliding that could not be achieved directly. If wisdom prevails, the administration will leave the dolphin law alone.

That leaves the problem of what to do about the ruling. Committed to strengthening GATT, the United States wants to avoid a



BY DOUG HALL

unilateral veto in the council, but letting the ruling stand is out of the question. The broader question is whether the GATT text must be rewritten or whether its many environmental blind spots can be brought up to date through interpretation and precedent. Negotiations on the range of environmental issues linked to GATT would probably be the last straw for the faltering Uruguay round. But leaving the issues unaddressed until the next trade round promises years of wholesale confusion and recurring international clashes.

The tuna embargo is only a small piece of the tangled trade/environment knot. The connections cut every which way, often conflicting. High environmental standards can expand exports by stimulating innovation or curb them by imposing higher costs. Freer trade could improve environmental management or encourage shortsighted plunder of natural resources. This is not a case where the need is to generate sufficient political will to take widely agreed upon actions, but one in which the right answers are not yet clear.

Given the urgency of many environmental trends, the job of finding those answers cannot wait. It should start now—beginning with a suitable demise for the tuna embargo ruling—continuing in parallel to, and beyond, the Uruguay round.

The writer, vice president of World Resources Institute, writes this column independently for The Post.

Iraq: Shamming the Non-Proliferation Treaty

Among the many pieces of unfinished business from the Iraq war, one in particular threatens future global security. Inexplicably, Iraq is to this day a signatory in good standing of the nuclear Non-Proliferation Treaty. If it remains so, the treaty will become a worthless sham. If that were to happen, not only would nuclear containment be mortally wounded, so would efforts to control the other means of mass destruction: chemical and biological weapons and the ballistic missiles to deliver them.

Released from its siege in the parking lot, the U.N. nuclear inspection team described the evidence of flagrant, wholesale and continuous violation of the intent of the Non-Proliferation Treaty by Iraq stretching back for more than a decade. What was implicit and suspect before is now laid out in terrifying detail. Not the most cautious diplomat nor the most timid international organization can any longer look the other way.

Since preempted by Israel's 1981 bombing raid from producing its own plutonium, Iraq has pursued not one, but three, secret programs for making highly enriched uranium, the other nuclear fuel. The inspectors found that Iraq had neutron initiators, high-explosive lenses, electronic firing sets, computer codes and the other assorted paraphernalia needed to make a nuclear bomb. Except for sufficient fissile material, said the U.N. team leader, "on every other front Iraq had . . . a workable solution." It had even begun to work on the hydrogen bomb.

The international response so far has focused on discovering and destroying Iraq's facilities and on identifying and exposing the companies and countries that provided assistance. While both are necessary, what was built once can be rebuilt, and tighter export controls, though essential, cannot be made leak-proof. The less glamorous but vital task is to repair the damage Iraq has done to the international nuclear control regime and then to strengthen it.

Iraq's nuclear intentions were known long before the gulf war. Beginning in 1976 it bought or secretly tried to buy items whose likely or only use was in a weapons program. These included a suspiciously large research reactor, reprocessing facilities to separate plutonium and large amounts of natural and depleted uranium for use as a plutonium source.

Technically, none of these activities violate the NPT. Throughout the '80s, Iraq accepted International Atomic Energy Agency (IAEA) safeguards and allowed twice yearly inspections of its publicly acknowledged facilities. Without recourse to higher authority, and with some reason for believing that Iraq was less of a threat inside the arms control system than outside it, the IAEA did the best it could—which wasn't much. Both sides persisted in the deceit for a decade. Though there was every reason to believe that Iraq had abandoned its treaty pledge "not to manufacture or otherwise acquire nuclear weapons," there was no proof. Now there is.

The 1968 Non-Proliferation Treaty

offered countries only two incentives to renounce nuclear weapons. Explicitly, it promised special cooperation by the nuclear states in peaceful uses of the atom. Implicitly, it offered the hope that by joining the non-proliferation regime, each country would make itself safer by contributing to the collective action.

In the 23 years since the treaty was drafted, special cooperation has proved illusory. The bright promise of nuclear energy has dimmed, and the hoped for uses of "peaceful nuclear explosions" (for massive construction projects) have vanished. All that is left is the treaty's role in stemming proliferation. If that system—the treaty and the rules, safeguards and inspections built upon it—not only fails but is unable even to acknowledge and react to its failure, it will stand revealed as a Potemkin village.

If, instead, the 140 parties to the NPT wish to see its promise fulfilled, the first step is to expunge Iraq from their ranks and kick it out of the IAEA. (The legal basis for this lies in the Vienna Convention on the Law of Treaties.)

The next step is to amend the treaty to correct two glaring flaws. The NPT's central prohibition only covers "nuclear weapons or other nuclear explosive devices," which means that members can legally do everything in a nuclear weapons program lasting for years except the last step of assembling a weapon, which takes a few weeks. Also, the treaty's stricture against assisting would be proliferators does not apply to non-nuclear weapons states,

allowing countries such as Switzerland that blink at weapons-related exports, to continue unconstrained.

The IAEA's membership must give it the power to protect their interests through the right to make surprise inspections and to refer suspicious behavior to the Security Council. A system of multilateral sanctions must be developed that would apply a real price to any country that acquired nuclear weapons inside or outside the NPT. The unilateral U.S. sanctions that cut off economic and military assistance are the starting point.

Successful regimes need inducements as well as credible sanctions. Non-proliferation is its own reward: India and Pakistan, each now nuclear armed and less secure than it was before, stand as testimony to that truth. Something more may be needed, however, to replace the elapsed promise of nuclear cooperation. Some types of international assistance, to take one example, could be tied to the renunciation of all weapons of mass destruction.

This is, granted, a daunting diplomatic agenda. Only one thought makes it seem worth trying: Suppose Saddam Hussein had been patient enough to wait a few years before invading Kuwait. There are other governments like his waiting in the wings.

The writer, vice president of World Resources Institute, writes this column independently for The Post.

Jessica Mathews

THE WASHINGTONPOST 11/29/91

Getting Back on Track

If you traveled any distance over this holiday, you probably caught a glimpse of the future. It isn't pretty.

The Federal Highway Administration thinks that congestion on the roads will quadruple in 20 years. That means we'll be holding our tempers through a mind-boggling 8 billion hours of annual traffic delay. By 2005, a 30-mile commute on U.S. Route 1 from New Brunswick, N.J. to Trenton could take five hours—considerably slower than the speed of a trotting horse and buggy.

If you flew—enduring airport tie-ups and an endless wait on the runway—the picture was much the same. By the end of the decade, 40 airports around the country will each experience more than 20,000 aircraft-hours of delay annually. For the largest airports, the figure is 100,000 hours each. Estimate your personal share of that, and it's enough to make you weep.

If you took the train, you saw a major reason why paralyzing, productivity-draining, quality-of-life-destroying congestion is so large a part of our future. The United States has tried to become the most mobile society in the world without the third leg of the transportation triad—railroads.

For decades, public investment in the world's best interstate highway system and air travel network has been unstinting, while rail travel has starved. An extensive track network

has disappeared, and technological advance stalled almost a century ago.

It didn't stop in Europe and Japan, however. The French Train a Grand Vitesse (TGV) and the Japanese Shinkansen, the bullet train, operate with top speeds of 185 and 165, respectively, with dozens and even, in a few cases, hundreds of trains per day on some routes. Since their inception, the two high-speed trains have carried more than 3 billion passengers without a single passenger fatality.

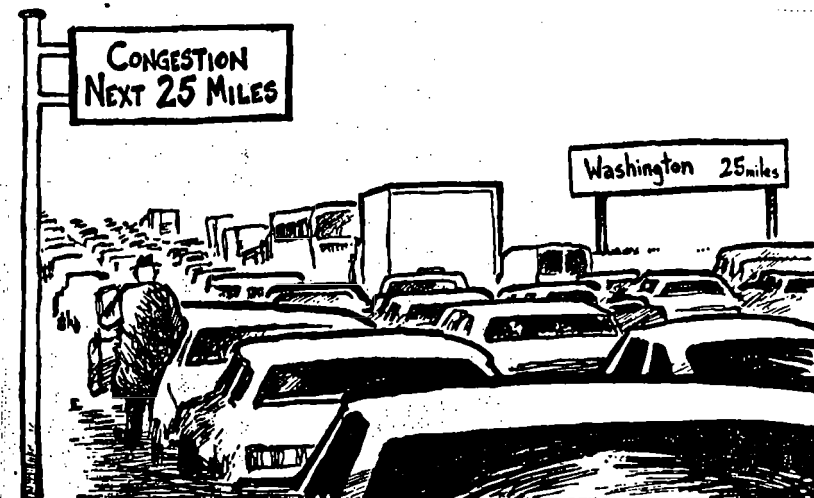
Improvements to both these trains should soon raise their peak commercial speeds to more than 200 mph. The TGV has been smashing speed records on its new Atlantique route. Not long ago, a test train broke 322 mph. Both Germany and Italy will soon have comparable service. The new German ICE train has been tested at 250 mph. Europe plans a high-speed rail network 19,000 miles long by 2015, stretching through the Channel Tunnel from Britain to Greece.

But, you say, the United States is too big for railroads. Not so. Distances here are much greater than those in Europe and Japan, but we also have many heavily traveled corridors with major cities 150 miles to 500 miles apart that fit the bill for high speed trains. Today's Paris to Lyon train—the slower TGV route with an average speed of 130mph—would make the Washington to New York run, or

New York to Boston, downtown to downtown, in well under two hours. At that speed, who would ever choose to take the shuttle? Outside the northeastern megalopolis, comparable opportunities include St. Louis-Chicago-Detroit-Milwaukee-Minneapolis, San Diego-Los Angeles-San Francisco-Sacramento, Houston-Dallas-Fort Worth, Miami-Orlando-Tampa and many others.

Building a modern rail network will be enormously expensive, but there are few alternatives, and they too are costly. Where relief from congestion is most needed, land for new highways is most scarce. A single heavily used high-speed rail line can replace dozens of lanes of highway. Sites for new airports are also hard to find, not least because citizen opposition is so strong. The Denver airport would be the first major new facility to be built in almost 20 years. When a large enough package of land can be found within striking distance of a big city, the costs soar more than \$10 billion.

More highway lanes must be built, but these will only temporarily ease the underlying condition. Widening roads to control congestion, it has been said, is like letting out your belt to control obesity. Nor will more auto travel help control energy use, whereas rail uses 30 percent to 50 percent less energy per passenger-



mile than auto travel, and 75 percent to 80 percent less than flying.

Because of the constraints on new construction, the biggest single benefit from high-speed rail service—comfort and convenience aside—would be to relieve the pressure on highways and airports, making travel predictable and less of an exercise in stress tolerance. Already, a few airports are lobbying for rail improvements to get short-distance passengers out of their overcrowded terminals. In doing so they recognize the linkage between competing forms of travel that policy makers have—until this year—resolutely ignored.

The highway bill just approved by Congress is the first advance in thinking about transportation in 35 years, a near revolutionary change for which New York Sen. Daniel Patrick Moynihan deserves most of the credit. While the new law is vastly better for rail

transit and other options than anything that has come before, it has important weaknesses. It looks to the long-term possibility of magnetic levitation trains instead of to the near term reality of conventional high-speed rail. It is a jungle of provisions regarding which highway trust fund dollars can be used for which other purposes. And because it is the Surface Transportation Act, it excludes air travel.

The next logical step is to pool and abolish the separate highway and airport trust funds. They stand in the way of a transportation policy that targets public investment to whatever mode of travel best serves local and national needs. That will include a major role for rail. All Abooooard.

The writer, vice president of World Resources Institute, writes this column independently for The Post.

Jessica Mathews

The Paradox of Hunger

For every observation about hunger in the modern world, there is an equal and opposite observation. More people are adequately fed than ever before in history; more people are hungry than ever before. Both true. The end of famine is in sight; the end of chronic, debilitating hunger seems more remote than ever. Both also true.

If the subject is characterized by paradox, then Robert Kates, who this week won the National Medal of Science, seems the right

"It is not necessary to get rid of poverty to get rid of hunger."

man for it. An academic with a relentless and passionate concern for practical accomplishment, a former steelworker better known for elegant scholarship, he is now probably the first holder of the country's highest scientific award who never finished college.

Kates directs Brown University's Alan Shawn Feinstein Program in World Hunger. A geographer by training (he did finish a doctorate while missing one of every three lectures to rotating shifts at the steel mill), Kates took up the study of hunger because it is, in his view, "the second hardest problem. . . . I really didn't have any good ideas about how to stop nuclear war."

Others may have a different candidate for "second hardest." Kates's nominee is certainly big enough, bad enough and old enough to qualify. One billion people lack enough food for an active working life. Half that number—twice the population of the United States—suffer severe malnourishment, with insufficient calories to sustain normal mental and physical growth. Neither definition conveys the individual experience. The pain is constant, yet it is only during episodes of acute starvation that the rest of the world pays much attention.

These episodes are becoming rare. Kates's team at Brown has studied the history of hunger over the millennia. They are also keep-

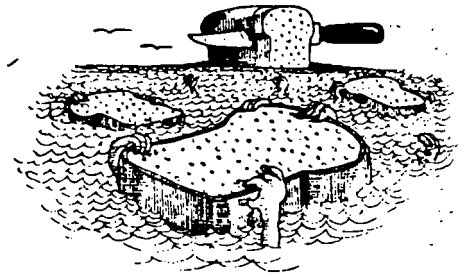
ing track of episodes of famine since 1950. Though famine's history is as old as our species, its end appears to be almost within our grasp. Except for government-caused famine—most notably during China's Great Leap Forward—the incidence of mass starvation has steadily declined since the end of World War II.

Kates's excitement is palpable as he describes this extraordinary milestone in the human chronicle. With efficient use of satellite monitoring, early warning systems and international buffer stocks and delivery systems, starvation from crop failure can be made obsolete. The principal remaining cause of death is from food deprivation used as a weapon against civilian populations in wars. Here too there is progress. In the wake of the Kurdish crisis, there is growing support for an international agreement that would give safe passage of food precedence over national sovereignty in such situations.

The postwar era has also proved that the link between hunger and poverty can be broken. Sri Lanka and China, among others, have shown that it is not necessary to get rid of poverty to get rid of hunger. No political system can lay a claim to unique success in this. In Latin America, the three states that have made the greatest progress in reducing hunger and disease among children are Cuba, Chile and Costa Rica: governments of the extreme left, the extreme right and the solid, democratic middle.

Beyond scattered successes, however, the record is mixed. Until about the mid-'70s, agricultural production grew rapidly. The proportion of hungry people fell almost by half. Since then, progress has stopped. Africa's per capita food production has dropped sharply. Latin America has barely stayed even despite heavy investment in agriculture. The number of hungry people worldwide is growing. Yet, world food production must grow by 60 percent by 2025 just to maintain present nutritional levels. There are grounds in these numbers for both guarded optimism and deep alarm—and rampant confusion about what is best to do.

Hunger experts resemble the proverbial blind men describing their own bit of the elephant. Agronomists worry about production, economists see skewed markets and "in-



effective demand" (hungry people who lack the money to buy food), social scientists and activists see enough food but failures of distribution, public health experts know that, among children especially, hunger and disease march together, while environmentalists focus on signs of growing stress in water and soil. Rarely has there been a determined effort to find common ground among them.

Some programs are known to be effective. Food aid can be targeted to reach the poor. Food-for-work programs can alleviate crises and lay the foundation for a better future. Food stamps, an American invention, have also succeeded elsewhere. Community banks supporting agricultural investment and rural enterprise for the poor look promising. New methods of planting trees and crops together can dramatically raise production. However, many of the projects that have been successful on a small scale do not seem capable of wide application.

Eventually, the world will have to nearly quintuple its present harvest in order to adequately feed a more than doubled population. If physically achievable, that will require huge efforts and fundamental change in everything from village practices to macroeconomic relationships. The present flow of capital from South to North, which former World Bank president Robert McNamara calls "a blood transfusion from the sick to the healthy," will have to be reversed, for example.

The ultimate challenge is whether the world's middle class can come to care enough about the world's poor. Kates thinks history shows a slow "evolution in caring" from family to clan, tribe, co-religionists, fellow citizens and now, all mankind. If he's right, hunger might, someday not soon, be ended.

The writer, vice president of World Resources Institute, writes this column independently for The Post.

Jessica Mathews

Oil Not Worth The Effort

From all the time and passion devoted to it—in newsprint, videotape and countless congressional debates—you might have gotten the idea that whether to drill for oil in the Arctic National Wildlife Reserve (ANWR) is the key national energy decision.

It isn't. In fact, the debate over ANWR is hardly about energy at all. The administration's National Energy Strategy, two years in the making, helps explain why.

The NES focuses on new energy supplies. Yet this 250-page document devotes just two pages to ANWR. Of the large increase in domestic oil production it forecasts for 2010, more than 90 percent comes from enhanced recovery technologies applied to existing oil fields. Less than 10 percent comes from ANWR.

This bears repeating. The best case the president's team can make for drilling in the refuge is that there is a one in two chance it will produce oil equal to 4 percent of U.S. oil use at its peak in 2005, down to one percent by 2010 and less thereafter. In 2010, this would equal 4 percent of oil imports. By the end of the NES's planning horizon in 2030, the administration promises a United States dependent on imports for a whopping two-thirds of its oil supply (up from less than half today).

If 60 percent growth in import volume and 65 percent import dependence is a satisfactory outcome in terms of national security and the trade balance, then the small drop in imports while ANWR is producing is barely worth mentioning. Why then a threatened veto if the refuge isn't opened?

The president is fighting for the oil producers' interest (as he has since he was one of them), not the country's. If ANWR holds the expected amount of oil, it will be a major oil find but a minor amount of oil. It would be of major significance to U.S. producers—for the oil itself and to keep the Trans-Alaska Pipeline open as the North Slope runs dry—but of minor importance to the country.

Outside the White House, the debate rages between those who believe the country needs ANWR's oil and those who argue that we should instead rely on conservation and efficiency improvements. This is a perfect setup for anyone who wants to sound moderate, pragmatic and non-ideological but doesn't want to think too hard. This group says we need both. Choosing among these positions requires agreement on desired levels of consumption, domestic production and import dependence. Not only does such agreement not exist, it is not under discussion.

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The unexamined assumption behind the moderate position is that the United States needs all the energy it can get. This is probably false. A range of studies, not only by environmentalists, suggests that the cost-effective energy efficiency resource is enormous—25 to 70 percent of present U.S. demand. Added to recent advances in new technologies—electric cars, wind and solar power, especially—such savings could make new fossil fuel supplies redundant. In the space of three years, for example, New England has gone from projected brownouts to an electricity glut that is closing power plants, in part due to conservation programs.

Because the energy debate is not a debate at all but simply a repeated exchange of conflicting convictions that fly back and forth without ever engaging each other, opposition to ANWR rests largely on the environmental effects of oil drilling there.

The Fish and Wildlife Service calls the area the "biological heart" of "the only conservation system unit in North America that protects, in an undisturbed condition, the complete spectrum of arctic and sub-arctic ecosystems." But ANWR isn't particularly pretty. It's no Yellowstone or Yosemite. Just as people care more about pandas and whales than gnatcatchers and snail darters, arguments that rest on an abstract notion such as biological value are not convincing.

The issue therefore becomes how much harm drilling will do, so we now know more than we ever wanted to about caribou calving habits. In truth, no one knows how much damage will be done. The nearby North Slope drilling area is a mess—full of toxic waste ponds, air pollution, fish-killing offshore causeways etc. The oil companies say that experience and new technologies will allow them to do much better in ANWR, leaving little lasting disturbance. Perhaps they are right.

Only one thing can be said with certainty. After the wells run dry, 30 years or so hence, the area will no longer be undisturbed. It will never again be wilderness. How much does that matter? Is it worth a few percent of U.S. oil use for 20 years? That is where the heart of this fight lies. It isn't about energy, but values. We can get more Btus from any number of efficiency, enhanced-recovery and alternative-fuel programs. But an oil field that may be the largest new find left in drilled-out America is sitting there, off limits. To many people it is stupid, borderline un-American, to leave it there. "ANWR is of no value unless you produce it," says deputy energy secretary W. Henson Moore. Other people place greater value on what's above the ground than below it.

It's an important decision, one that will tell us something about ourselves. Either way, it will make very little difference on energy.

The writer, vice president of World Resources Institute, writes this column independently for The Post.

8/22/91

Giving Way To Global Concerns

Like a mutant gene whose malfunction reveals what the normal gene does, history is marked by interruptions that illuminate an underlying trend. The Soviet coup is one of these. Touched off by the terms of the union treaty that require a sweeping, voluntary yielding of national powers, the coup is one more piece of evidence that we are living in the midst of the most profound changes in the nature of national sovereignty since the evolution of the nation state.

Economic, technological and environmental trends have punched gaping holes in the once solid walls dividing country from country. Powers that were until recently the sole prerogative of national governments are shifting to multinational bodies and to businesses, individuals and innumerable citizens' groups of all kinds.

The integration of the global economy is best known. The internationalization of markets, capital, sources of supply and even of labor, makes industry mobile to such an extent that the interests and behavior of an American multinational are becoming indistinguishable from those of a French, Brazilian or Japanese firm.

The boundary-erasing effects of telecommunications are at least as powerful. Just as the fax machine was the unexpected new weapon of the Tiananmen Square uprising, television stations were the first target of the coup's armed forces. From the scene of the Russian lying in front of an oncoming tank in imitation of his Chinese counterpart to the expert commentary directed as much to a Russian as to an American audience, television this week has been proof that Marshall McLuhan's "global village" is a reality.

Regional and global environmental trends are forcing change in the same direction. Ozone depletion, which threatens health and agriculture within everyone's borders, tropical deforestation on a scale that affects the world's genetic endowment and its climate, greenhouse warming, which could obliterate island nations completely, regional water pollution and acid rain share certain characteristics. They all pose potentially serious losses to national economies. They are immune to solution by one or a few countries. And they render geographic borders irrelevant. Governments are well aware that as a consequence their ability to ensure their citizens' well-being is in jeopardy.

The United Nations Charter, the cornerstone of international law, still forbids outside interference in the domestic affairs of member states. But although that holy of holies is intact, the definition of "domestic affairs" is changing so radically that it is hard to say any longer what qualifies. Not long ago, governments' treatment of their own citizens was no one else's business. Today human rights is a matter of international law and has spawned such influential and global nongovernmental operations

as Amnesty International and Helsinki Watch, groups that helped undo Communist rule in Eastern Europe.

Even at the United Nations, where sovereignty is most jealously guarded, the change is obvious. Nicaragua and Haiti accepted hitherto unthinkable U.N. supervision of their elections. Iraq's treatment of its minorities, because of the threat posed to international peace and security, was held to warrant armed intervention. A precedent was set when food and medicine were delivered to the Kurds over Baghdad's objections. Now there are calls from several quarters for a formal declaration that human rights concerns should override sovereignty whenever a government uses denial of food as a weapon.

Secessions, confederations and various types of partial sovereignty are being discussed or fought over from the Soviet Union and Yugoslavia to the West Bank and Kurdistan. Next year, European union, an unprecedented ceding of sovereignty, will crown the longest period of peace in Europe's history. In Latin America, economic integration is gathering momentum, and the possibility of political union has even been raised. It won't happen soon, but remember that Jean Monnet's dream, too, was once considered wildly unlikely.

Despite the pressures from so many directions toward a pooling of sovereignty in order to serve mutual interests, greater international cooperation is not a foregone conclusion. Some of the trends toward globalization will provoke a backlash. Ethnicity, for example, seems to be stronger than ever as groups sense a threat to their cultures and identities. Some governments will respond paradoxically to the erosion of their influence by clinging even more tightly to their old powers.

Still, as borders become more and more porous, security is seen to rest more and more on international, rather than national, conditions. While military might remains paramount for most governments, it is also clear that no ability to project power beyond borders or to enforce order within them can protect a regime that cannot manage its economy and its natural resources. The Soviet Union makes the point. During the last 30 years, despite military superpower status, life expectancy in the Soviet Union declined: a historical first for an industrialized nation.

Monnet saw all this coming years ago. "Like our provinces in the past, our nations today must learn to live together under common rules and institutions freely arrived at. The sovereign nations of the past can no longer solve the problems of the present: They cannot ensure their own progress or control their own future."

The writer, vice president of the World Resources Institute, writes this column independently for The Post.

Pork-Barrel Highways

After 35 years of building the world's most extensive highway system, the Federal Highway Administration's self-assessment could not be more damning if it had been written by the program's most rabid critic. With the project 99 percent complete, "congestion now affects more areas, more often, for longer periods and with more impacts on . . . the economy than at any time in the nation's history."

A significant impediment to productivity growth and competitiveness, the cost of congestion in the largest metropolitan areas was \$34 billion in 1989 and growing explosively. The duration of daily near-gridlock highway conditions grew by 45 percent in 1985-88.

The president's response to the irrefutable evidence that only building roads produces more, not less, congestion, was a proposal to build more roads. Last month the Senate said, "enough."

The bill it passed shifts a single-minded, no-choice highway policy toward a balanced transportation system, with far greater emphasis than ever before on transit, rail, van, pedestrian, bicycle and congestion management options. The new program would at last force energy, clean air and transportation policies toward common goals instead of cross purposes. It gives greater powers to metropolitan areas where transport problems are worst. If not quite revolutionary, the bill is a dramatic break with past mistakes.

The fate of the Senate reforms now rests with a deeply divided House of Representatives. Caught between the most virulent outbreak of pork-minded politics in years, and a distasteful tax increase, the House this week was unable to make a choice. The bill it was set to consider includes more money and less policy for everything, especially for highways. Its old-time religion ties federal dollars to fuel consumption, providing a positive incentive to the states to worsen the country's energy security. It gives the president his new highway program, throws in more money for transit and glues together the whole with a record breaking number of so-called demonstration projects. All of this is to be paid for by an additional nickel-per-gallon gas tax.

Originally meant to prove new technologies, demonstration projects long ago mutated into incumbent reelection tools. Two hundred and eighty such projects were authorized during the past 20 years. This year, Public Works Committee Chairman Robert Roe (D-N.J.) touched off a congressional feeding frenzy with an invitation to members to submit requests. After the list topped 700, Roe carefully whittled it down to reward the powerful and silence potential critics. The 300-page bill, revealed to committee members hours before they were asked to approve it, included 458 highway and 50 transit demonstration projects costing \$11 billion. The process is a perfect

example of why Congress occasionally deserves its single-digit public approval rating.

Demonstration projects are pure political opiate, keeping members in a contented daze, oblivious to national needs or common sense. The Public Works committee's "Big Four," the two ranking Democrats and Republicans, representing less than one percent of the country, would take home 20 percent of the demonstration bounty. Overall, the bill manages to spend much more than the Senate version while allocating less to most urban areas—where 70 percent of Americans live. The irony that the representational body of Congress is about to do less well by its constituents than did the Senate, where New York and Montana have equal votes, seems lost on the House.

The lure of self-interest is so strong that it overwhelms even partisanship. Forty percent of the top priority highway demonstration funds are allocated to the districts of the Public Works Committee's two ranking Republicans—saying, in effect, that 40 percent of the nation's most urgent highway needs just happen to lie in rural central Pennsylvania and northwestern Arkansas.

To pay for all this pork, members would have had to swallow a gas tax increase that the president opposes. This country desperately needs higher gasoline prices; for energy efficiency, environmental needs, long-term economic competitiveness and deficit reduction. Since the real price of gasoline is lower than it has been for many decades, there is plenty of room for a slow, steady, planned increase. What the country doesn't need is a tax too small to contribute to energy or environmental goals used to fund a program that will make matters worse.

That the House Democratic leadership would even consider walking into the trap of another "read my lips" presidential veto without policy or principle to show for it is a measure of how much more it cares for members' reelections than the possibility of ever again becoming a presidential party. At the last minute, Republican defection saved the Democrats from themselves. The transportation vote was postponed until the fall.

Until this year, the distribution of federal highway funds was of interest largely to the Crushed Stone Institute and the fellowship of road builders. Now there is a dawning recognition that how these dollars are spent profoundly affects the well-being of every American. A conscious transportation policy is vital to achieving energy security, breathable air, livable communities and revived economic growth. Transportation is too important to be treated as a giant, bipartisan, incumbent reelection fund mindlessly pouring dollars into more lanes of highway. The House owes itself and all of us another, better effort.

The writer, vice president of World Resources Institute, writes this column independently for The Post.

The Medicine No One Knew Was There

The Wall Street Journal calls it "the ultimate confrontation between medicine and the environment." The New York Times, a bit lower key, warns that "recovery for sick people may mean death for the spotted owl." The controversy could make earlier battles over endangered species and habitats look tame.

This time the subject is a drug called taxol. The head of the National Cancer Institute says it's the most important new cancer drug in 15 years. It has been shown to fight ovarian, breast and lung cancer and is only beginning to be tested. The difficulty is that taxol comes from the bark of the Pacific yew, a rare tree found in endangered, ancient forests. It is a complex molecule that so far has stymied chemists' best efforts to synthesize it in the lab. A breakthrough might be around the corner or years away.

The yew is a slow growing, shade loving tree, which makes it a poor candidate for plantations devoted to producing the drug. That leaves the natural forests as the only source of taxol for the indefinite future. But the yew grows sparsely, and six 100-year-old trees are needed to treat one patient. Harvesting enough for the vast potential market, at an affordable cost, could mean clear-cutting all the remaining ancient forests in the Northwest. Even then, there might not be enough taxol to meet the demand.

On first glance, the story seems to pose a stark ethical choice between human and other forms of life. If so, there would be only one acceptable answer. But in fact, the taxol dilemma is not really about ultimate values. It is both more mundane and more important. Stripped of philosophical trappings, it is actually about waste, sound resource management, the value of bio-diversity and the blinkered human habit of favoring short-term gain over long-term yield. Ironically, those who may most threaten the supply of the drug are not environmentalists trying to prevent the cutting of ancient forests but the managers of these public lands.

Until now, loggers have treated the Pacific yew as a trash tree, ripping it out and burning it along with other underbrush. Though taxol's potency was established in 1989, the Forest Service has been slow to respond, trapped by a mind-set that prizes lumber above all other forest products and services. Almost 2 billion board feet of ancient forest timber is under contract to be cut this year and next, yet it took intense pressure from environmental groups to finally produce a government moratorium on burning yews just two months ago.

Only now is the Forest Service proposing an inventory to discover how much yew is in the forests and where. Without that knowledge it is impossible to sell as much as possible each year while sustaining the supply for the years ahead.

Scientists estimate that worldwide, 50 species become extinct each day. At that rate, in 25 years we will eliminate 10 to 15 percent of the planet's biological wealth. Biologists tear their hair out over this, for it represents a rate of loss that probably has only a single precedent in the planet's 4 billion year history. That was the hypothesized meteorite crash 65 million years ago that plunged Earth in darkness and wiped out the dinosaurs in a few years. Otherwise, mass extinctions take place over millions of years, not decades.

To those who catalogue it, today's loss is a catastrophe that will impoverish future generations in ways beyond reckoning. Harvard's E. O. Wilson calls it "the folly our descendants are least likely to forgive us." Yet because the numbers are uncertain, and the disappearances gradual and largely invisible, loss of biological diversity remains just another unaddressed problem on an overcrowded list.

Slowing the loss requires first of all that we preserve viable fragments of as many habitats and ecosystems as possible. Only 10 percent of America's old-growth forests remain. Had they been cut a bit faster, taxol might never have been discovered. The spotted owl became a *cause célèbre* not for itself, but because it was chosen as an indicator species of the health of the ancient forest habitat and therefore of everything it contained—known and unknown.

Next, it is essential to find out more about what's being lost. Most species are unidentified, let alone screened for possible uses. Taxol was discovered in one such screening effort, but only a tiny fraction of species have been looked at and only for an even tinier portion of their potential value. Many species will have no direct human use but will turn out to be essential to the survival of others that do. Some species can disappear with little impact, but by and large ecosystems

are stunningly interdependent networks of plants and animals.

The formula for balancing immediate human needs with environmental values and long-term human well-being is, therefore to save, study and use—not use up now, rue later. There will be some collisions, but a policy that puts a high value on preserving bio-diversity—knowing that there are thousands more taxols out there—will in the long run preserve more options than it forecloses. Business as usual has been: Ready, fire, aim. Too many of those shots are backfiring.

The writer, vice president of World Resources Institute, writes this column independently for The Post.

THE WASHINGTON POST

June 17, 1991

War and Water in the Middle East

Through all the years of U.S. efforts to devise a Middle East peace formula, one pattern has never changed. We have never paid enough attention to the approaching crisis over water.

It matters because fears of shortages and even of violent conflict over water are entangled right now in Arab-Israeli, rich Arab-poor Arab and Arab-Israeli-Palestinian enmities.

Anxieties about water directly inhibit progress on peace initiatives, particularly Israeli willingness to relinquish the slightest degree of sovereignty over the West Bank. They hobble peace talks by exacerbating tensions and feelings of insecurity and distrust between every state in the region, with the possible exception of Lebanon. And if by some miracle a regional peace agreement were achieved, one that did not address water issues would be a fragile reed in the peril that is brewing over water.

This is no secret in the region. At least two heads of state (of Egypt and Jordan) and any number of foreign ministers are on record saying that water is the issue most threatening to their security and most likely to lead to war. The man in the street knows it too. A Jordanian quoted recently put it this way: "You think we have bad fights over oil. Just wait until we start fighting over water. It's predicted in the Koran." The warnings are clear. We simply have not been listening.

Most countries in the Middle East are already in a water deficit. They consume every drop of the rechargeable (annually renewed) water available to them in rivers and subsurface aquifers and are rapidly mining underground fossil water that can be used once and then is gone for good. Yet their needs are growing.

Jordan, Syria, Iran, Iraq, Saudi Arabia and all the emirates have annual population growth rates of about 3.5 percent. (Iraq and Saudi Arabia are two of only four remaining countries worldwide that restrict access to modern means of birth control.) Except for a handful of African countries, these are the fastest growth rates in the world. They mean that a population doubles in 20 years. Only Turkey

and Israel have a natural increase of less than 2 percent per year, and Israel is bracing to accommodate a huge wave of Russian immigrants.

The rivers that thread through the region—the Nile, Jordan, Yarmuk, Tigris and Euphrates—might some day bind it together. Now, they fracture it. Syria and Iraq fear Turkey's ambitious plans to dam the Tigris and Euphrates. Israel, Jordan and Syria cannot agree on how to develop and share the Yarmuk. Egypt, whose national existence completely depends on a single river, is the ninth and last state in the troubled Nile basin.

Conflict over river flow is as old as history: The word rival comes from a Latin word meaning

"Land for peace is hard enough. Water for peace may be impossible."

"someone who shares the same stream." The fears of modern downstream states are not only that there may not be enough water but that what reaches them may be unusable. In the Mideast, untreated sewage and salinity from poorly managed irrigation are growing threats to an ever dwindling supply.

Underground aquifers are even more difficult to share because they are so difficult to map. Forty percent, or perhaps more, of Israel's present water supply comes from an aquifer that underlies the West Bank. The aquifer's size and extent are ferociously disputed. Land for peace is hard enough. Water for peace may be impossible.

Aquifers are also the most difficult water resource to manage wisely because their depletion passes unseen. The government of Saudi Arabia, though it has plenty of sophisticated economists and resource managers, supports wheat production in the desert at a cost of five to eight times its

price in the international market. The difference is the cost of water. Although the rationale for the program is to diversify the country's economy, the water that is being wasted in this pyrrhic enterprise will be exhausted decades, if not centuries, before the oil that is paying for it.

The kingdom's stronger motive for growing its own wheat is the wish to assert national self-sufficiency and independence. In today's world, in the arid Middle East especially, that is a futile hope, even for the wealthiest few. There is enough water in the region to meet present needs and sustain substantial future growth (assuming much slower population increase), but only if it can be wisely developed and shared.

Dams, pipelines and other types of water development are extraordinarily expensive, and providers of multilateral financing rightly insist that sharing agreements be reached in advance. Today, political tensions block cooperative management. Attempted national solutions, hoarding, deceptive statistics and false hydrological data all feed mutual suspicion and well-based fears. It is a beggar thyself situation to which there has seemed no alternative.

Turkey's President Turgut Ozal hopes to break the impasse beginning at a Mideast water summit this fall. Preparations for that meeting provide an opportunity to link the Arab-Israeli peace process—which must include means to defuse tensions between the rich and poor Arab states—with the central issue in the region's development.

Water is not an afterthought. We have difficulty believing it, but water lies at the core of the greatest fears Mideast nations harbor. To the extent that peace requires countries to exchange insecurity and old animosities for a new feeling of confidence in the future, water needs to be dealt with sooner rather than later.

The writer, vice president of World Resources Institute, writes this column independently for The Post.

Jessica Mathews

At Last—A Sensible Transportation Bill

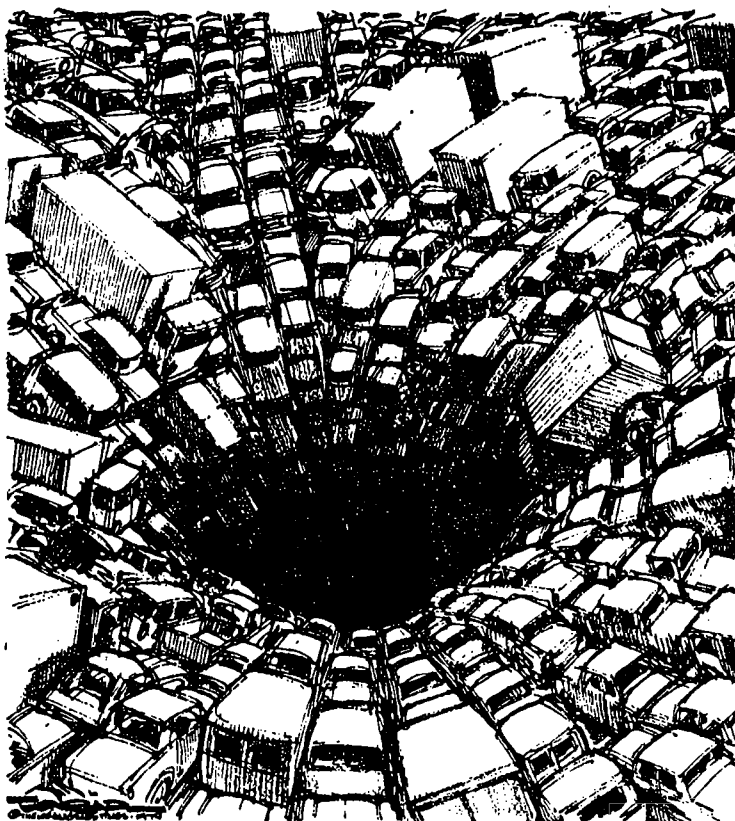
These days Washington is a city of missed opportunities. The administration has no domestic agenda to speak of, and while Democrats in Congress have more than enough ideas, they have no priorities. So when an opportunity to significantly improve national well-being looks like it might be seized, that is big, unexpected good news.

By an accident of timing, 1991 provides the first real opportunity to rethink national transportation policy since the interstate highway system was launched 35 years ago. Completion of that system has come in the same year as reauthorization of the five-year, \$100 billion, federal highway act and just as the new clean air act has finally recognized in law the connection between what's in the air we breathe and how we travel. On top of this, the gulf war was a sharp reminder of the costs of oil import dependence in a country that devotes 70 percent of its oil use to transportation.

The moment has been seized by a bipartisan coalition led by Sen. Daniel Patrick Moynihan (D-N.Y.). This unlikely foursome, which includes Sens. Quentin N. Burdick (D-N.D.), John H. Chaffee (R-R.I.), and Steve Symms (R-Idaho) represents the range of national transportation needs, from those of rural, clean-air states to the heavily urban, congested and polluted ones. Their bill would revolutionize how transportation funds are spent. Over time, it could alter the face of America.

For half a century, our transportation priority has been highways. The crown jewel of the system, the 44,000-mile Interstate network, has contributed significantly to economic growth. But the single-minded focus on automobile and truck travel has proven to be self-defeating. Congestion in urban areas is worse than it has ever been. Productivity loss from time wasted in traffic is one of the country's fastest growing economic indicators.

Despite all the effort and money that has been devoted to improving air quality, the number of



Americans who live where the air does not meet minimum health standards is growing. Communities have been fractured by huge roads and weakened more subtly by shopping areas that sit barricaded within vast stretches of alienating parking lots. Suburban sprawl drains cities of their jobs and tax base but cannot recreate their richness and vitality. Transit service is crumbling because it has been starved for funds. Continuing a long trend, federal spending on highways rose 85 percent in the past 10 years, while transit investment fell.

Beyond a shadow of a doubt, we now know that new roads generate more traffic than they serve. We know that vehicle use is growing faster than individual vehicles' emissions can be curbed. We know that we cannot build roads fast enough to meet demand under a highways-only policy.

It has been said that a working definition of lunacy is doing the

same thing over and over again and expecting a different outcome. The country isn't crazy, but until this year the sheer political power and momentum of the highway program has been invincible.

No longer. The administration has proposed a new 150,000-mile highway program (including the existing interstate) to be called Highways of National Significance. Without a discernible rationale for a huge new construction program, the handsome name rings hollow. With the interstate program complete and the shortcomings of present policies undeniable, this is the moment to try something different.

The Moynihan proposal drops the new highway system and eliminates the longstanding bias against using federal money for anything other than highways. Under this plan the federal sharing ratio would be equal for all modes of transportation, and more than half of the money could be used for transit. It lets states choose

how to spend these funds based on their individual needs. If Arkansas needs more roads, fine. If New Jersey needs more transit, that's fine too.

This is no block grant program that abdicates the federal policy role to the states. It asserts a broadened federal interest. The national interest in transportation, the proposal in effect says, is not in moving cars and trucks but in moving people and goods with higher energy efficiency, lower environmental cost, greater economic productivity and more attention to the integrity of communities.

Today these interests—clean air, for example—are largely the responsibility of local and regional bodies, while state governments control transportation funds. The result is chaotic transportation spending, deteriorating air quality and endless, demoralizing political gridlock. The new plan shifts power to local and regional authorities, forcing everyone to the same table to agree on a coherent transportation plan that meets this broadened set of goals.

It sounds like common sense, and long overdue at that. But success requires overcoming the rich, powerful and experienced highway lobby, which over the years has come to view this pot of money as a birthright. On the other side are arrayed regional and local authorities tired of wasting years drawing plans their state agencies ignore, environmentalists who know that the promise of the clean air act cannot be met without a new transportation policy, local groups concerned about congestion, historic sites, rational land use, neighborhood preservation and a host of other issues, and a variety of groups interested in energy security and economic efficiency.

It will be a classic battle between pork and policy, whose outcome could improve the quality of life in this country immeasurably.

The writer, vice president of World Resources Institute, writes this column independently for The Post.

Jessica Mathews

As Good as American Politics Can Be

I'm not completely clear-eyed about this, I should confess that up front. I worked for Congressman Morris K. Udall for three years and came to feel for him enormous admiration and affection.

It is unpleasant to write like this, in the past tense. But Mo's resignation from Congress due to ill health after 30 years of service marks the end of a political career that deserves to be pondered and celebrated, for it epitomizes just how good American politics can be. He believed, and proved over and over again, that despite public cynicism and apathy, instant polls, sound bites and negative advertising, a politician in the United States can succeed by appealing to the best in his constituents and his colleagues.

This wasn't just a matter of refusing to trash public debate with feel-good slogans or inflammatory red herrings. Rather it was a positive belief that elected officials could raise public understanding through their handling of even the most complex or touchy issues. A liberal from a conservative state, often the only Democrat in the Arizona delegation, he had plenty of opportunities to put these convictions to the test.

In 1967 Mo became one of the earliest elected opponents of the Vietnam War. At the time, his brother, Stewart, was serving in Lyndon Johnson's cabinet. The speech was to be delivered in Goldwater's home state in a district to which Udall had barely won election a few years earlier. He was repudiating not only his party and a president who did not easily tolerate disloyalty, but his own prior support of the war. The political risks could hardly have been greater.

He began, "I have come here tonight to say as plainly and simply as I can that I was wrong two years ago, and I firmly believe President Johnson's advisers are wrong today." He went on to detail the reasons for his change of mind and his proposed alternative policy. The audience, which had been skeptical to openly hostile, responded with a standing ovation. The following year he was reelected with 70 percent of the vote.

The speech was published the next day in one of Mo's now famous newsletters. These had no pictures or lists of accomplishments. Each was simply an essay, distilling his understanding of a major issue and nearly always concluding with his proposed policies. In his first decade in Congress he (not his staff) wrote more than 80 of them covering everything from gun control to arms control. He wrote about the connections between



BY JAMES K. W. ATHERTON—THE WASHINGTON POST

economics and energy use (years before anyone else saw them), and about his ideas on tax reform, welfare, the health of the House and of the political system, trade and nuclear first use. He sought out issues on which he and his district might disagree. The newsletter was the vehicle by which he gave himself and his constituents an all-embracing education in public policy.

In an accident of history, Mo was the last member sworn in by Speaker Sam Rayburn, who could not know that Mo's arrival would mean the end of old ways in the House. Believing that there was no good reason for newcomers to spend years just learning the ropes, Udall first co-authored "The Job of the Congressman," a book that quickly became a bible for members and staff. Then he directly challenged the archaic practices that kept congressmen waiting decades before acquiring power by making a symbolic run for speaker. It was a bold, even brash move that later cost him dearly, but, in the words of his friend

and frequent ally David Obey (D-Wisc.), "it gave heart to an entire generation" and broke the back of the seniority system. Later came reforms of the committee system, a sunshine rule that opened markup sessions to public scrutiny, creation of an ethics committee and a host of other improvements.

Udall compiled what a later speaker, Carl Albert, called "one of the most remarkable legislative records of all time." It was remarkably broad, but what was most unusual was how he did it: not simply by dealing and coalition building but through his personal example. On being elected, he resigned from his law firm—not then the usual practice—and became one of the first to disclose his personal finances, long before that was required. That laid the basis for his leadership in civil service reform and the breakthrough campaign finance laws of the early '70s, under which the Watergate abuses were prosecuted. His civility and unfailing decency and his commitment to extracting the best from the political process proved infectious. Colleagues found themselves following his lead out of sheer respect and affection.

He was able, also, to communicate his love for the environment. "A nation that does not love and respect its land," he said over and over, "does not respect itself." The citation to one of his many environmental awards reads "lion of the wilderness, champion of champions," which does not overstate his achievement.

Here is the measure, I think, of Mo's political career. Sit back for a moment and imagine a Congress full of Morris Udalls. Not necessarily those who share his interests or his political persuasion, but 535 men and women who share his faith that voters will respond to the best that is asked of them, who exemplify the highest in personal ethics and who follow the credo Mo followed without hesitation: "The job of leaders is to lead." Where might this country be today?

One thing is certain. One of Mo's favorite jokes, an old line of Adlai Stevenson's, would lose its laugh. It tells the story of the little girl who said in her prayers, "God bless mother and father, and sisters and brothers. And now this is goodbye, God. We're moving to Washington."

The writer, vice president of World Resources Institute, writes this column independently for The Post.

Chantilly Crossroads

The lineaments of the new world order were discernible last week in Chantilly, Va., though not in the Persian Gulf. Here, governments are taking the first difficult steps to negotiate a global regime limiting emissions of greenhouse gases.

Delegations from 130 countries are present, more than triple the number involved in even a small way in the war. More important, the turnout dwarfs the handful of nations that played a significant role early in prior global environmental negotiations. Countries whose environmental agency is two people and a typewriter are in attendance. A message has gotten through: "Your country's future is at stake—be there." The delegate roster is an unmistakable sign that the notion of global security is no longer theoretical.

The threat posed by global warming typifies the security risks the new order must grapple with. These threats come without enemies to personify the danger and galvanize political will. If there is an enemy, it is only us. They are threats to which national borders are largely irrelevant. The line on the map that represents the border of Kuwait means nothing when the risk arrives by air, not airplane. And unlike war, cold or hot, these threats pose an invisible, gradually accumulating, long-term risk whose outbreak cannot even be marked, even though their eventual results may be devastating.

These threats also come riddled with uncertainties. Most military threats are straightforward by comparison. In the case of greenhouse warming, how much will average global climate warm in response to a doubling of carbon dioxide? Two degrees (Centigrade) may be quite tolerable. Five degrees may be catastrophic. Two degrees may be worse than we think. How fast will climate change? What effects have we not yet imagined? How much will it cost to counter the threat? How is the threat progressing? Detection and monitoring are vastly more difficult than spying on missile sites or even chemical weapons plants. Intelligence collection, risk assessment, contingency planning, budget projection and all the other elements of a national response to a traditional threat will be far more complex.

We have gone to war in the Gulf partly in defense of national sovereignty—the right of a country to freedom from outside interference. Meanwhile, climate change, other environmental

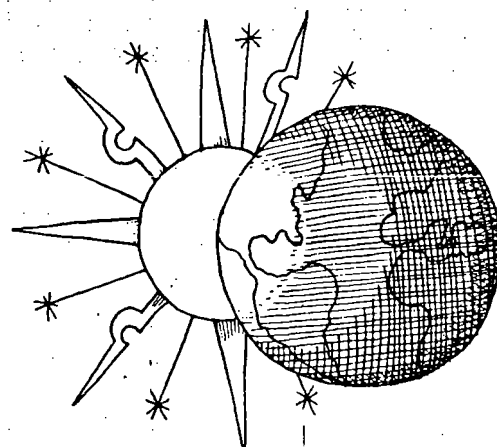
trends and growing economic interdependence are undermining sovereignty in ways we cannot restore. The United Nations charter may still forbid outside interference in the domestic affairs of member states, but unequivocally "domestic" concerns are becoming an endangered species. At Chantilly, U.S. energy policy, which causes us to emit more carbon dioxide than the rest of the Group of Seven combined, is emphatically not viewed as solely a U.S. domestic affair. Tariffs and subsidies, health policies and human rights concerns, as well as the panoply of environmental matters, are all metamorphosing into the stuff of

"The threat posed by global warming typifies the security risks the new order must grapple with."

foreign policy. The new world order must emerge through the mind-set and amid the tensions of the old.

Governments today are far more experienced in conflict than in cooperation. Neither the institutions nor the intellectual tools for coping with the new concerns are at hand. The climate control regime, for example, must somehow account for the fact that the world's industrialized countries built their economic growth on unrestricted use of nature's global waste sink, whereas now, as the developing countries face a much steeper climb out of poverty, access to that resource must be rationed. What is a just solution? A very old order echoes in the demands that developed nations pay "ecological reparations." The more recent, fruitless conflicts over the New International Economic Order are not far from the argument that the "survival emissions" of the poor should be treated differently in the new regime from the "luxury emissions" of the rich.

Despite all these difficulties and the alien terrain for diplomats, the advent of negotiations on a greenhouse control regime has been breathtakingly swift. One reason events have moved so



BY MARGARET SCOTT

fast is that there is a powerful new player on the international scene.

Public opinion has not been a major influence in national security affairs heretofore. Indeed, American presidents so often come to prefer foreign to domestic policy because secrecy and a tradition of bipartisanship in foreign affairs insulate them from the pulls and tugs of organized public opinion. In the new world order, public opinion will make itself felt not just as domestic opinion but sometimes as a body of international public opinion. Eventually, it will even be at the negotiating table, represented by nongovernmental organizations whose operatives swarm around the fringes of the Chantilly meeting and by international business.

As if to emphasize the stakes in this most difficult of international undertakings, fate arranged that the climate talks would open on the hottest Feb. 4 on record—a day when the temperature in Washington reached 70° Fahrenheit, 26 degrees above normal. The news was full of California's frantic scramble to respond to a January that brought 15 percent of normal rainfall after five years of deepening drought, a situation that could, in the words of one official, bring growth in the world's fifth largest economy to "a screeching halt."

Halfway through the meeting, it is still too early to predict the outcome. The negotiations may stall. The greenhouse threat might turn out to be less comprehensive than it now appears. Or we may someday look back and see Chantilly in the same light we now see Bretton Woods, as one of the places where the rules of a new order were born.

The writer, vice president of World Resources Institute, writes this column independently for The Post.

A Cure for Nuclear Neurosis

Let us be optimistic for a moment and assume that the president follows through on his State of the Union pledge to propose a comprehensive national energy strategy. In the much-needed debate that will follow, the hottest and most perplexing charges and counter-charges will be aimed at nuclear power.

One side will say that efficiency and conservation can only go so far and that the only sure answer to pollution, greenhouse warming and oil import dependence is nuclear energy. The other side will assert that nuclear is the highest cost option among many and that safety, proliferation, waste disposal and other considerations make nuclear power a last resort at best. One thing is certain, the vehemence of the arguments will bear no relation to the judgment the marketplace has rendered.

The last time a nuclear reactor was ordered that was not later canceled, Spiro Agnew was vice president, the Vietnam War was still being fought and Three Mile Island was six years in the future. It was 1973. Yet no subject so reliably brings discussions of energy policy to a screeching halt.

As hard-core proponents see it, the nuclear industry has been the victim of a conspiracy they variously attribute to the president, to Congress, to a biased elite that has misled an otherwise pro-nuclear public or to a strain of "irrationality" that infects public opinion. The other side sees a uniquely favored technology that was allowed to sidestep political checks and balances through secrecy and a special regulatory arrangement and grew into a sloppy industry incapable of ever managing a demanding technology.

A few battle-scarred souls believe there is a middle ground. In their view, nuclear power may be an important element of the nation's long-term energy mix if it can regain public trust and lower its costs. Changes in federal policy, such as streamlining the licensing process and requiring a standardized reactor design, are worthwhile but will contribute less than the industry hopes to either goal. Regaining trust will be achingly slow.

Attempts to force the pace, for example by excluding public intervenors or rushing to choose a new reactor design, are guaranteed to backfire. There must also be a solution to waste disposal. Most sensibly, that would entail dropping the ludicrously inflated official goal of assuring the wastes' safety for 10,000 years in favor of an achievable target, but doing so may be politically impossible.

The key to a saner future life with nuclear energy is understanding what went wrong. From the beginning, neither government nor industry took this technology seriously enough. Some in the industry still don't. They put too much effort into buying poll

The key is to understand what went wrong.

after phony poll showing overwhelming public support for nuclear energy and too little into the demanding task of technical and managerial reform. Despite efforts to tighten up after Three Mile Island, the industry is still plagued by utilities that simply shouldn't be in the nuclear business. Not long ago regulators discovered that a plant in Pennsylvania was being run by operators who slept and played video games while on duty, apparently with management's knowledge. Until such incidents are only dim memories, the industry need look no further for the source of its woes. As Peter Bradford, chairman of New York's Public Service Commission, bluntly puts it, "The lesson that Wall Street learned from Three Mile Island was that a group of federally licensed operators—not appreciably better or worse than any other crew—could convert a \$2 billion asset into a \$1 billion cleanup job in about 90 minutes."

Government bears a heavy responsibility for the industry's poor record. Victor Gilinsky, a former federal regulator, points out that the first medium-sized commercial reactor was licensed in 1964. Before it had operated even a single day, 38 larger

reactors had been licensed. Most of today's 115 reactors were licensed and built at the same time, leaving no opportunity to learn from others' mistakes. Worse, the great majority of nuclear utilities operate just one or two plants, which means they also have had no opportunity to learn from their own experience. It is no coincidence, says Gilinsky, that the most notorious problem plants—Diablo Canyon, Shoreham, Seabrook, Zimmer and others—were each their respective utility's first commercial nuclear project.

The solution is to consolidate the more than 50 nuclear utilities, leaving fewer and better management teams each in charge of a sizable number of plants. That process could also ease safety concerns by removing some of the chronically poor performers, which would in turn lighten the regulatory burden for all.

Even after all this has been achieved—a perfect operating record, improved management, growing public confidence, more efficient regulation, a functioning waste disposal system and an improved reactor design—a question mark will remain. Will nuclear power be more or less costly than other means of supplying electricity, including efficiency improvements? No one knows. Today it is one of the most expensive options. Reforms should lower costs, and pollution surcharges for fossil-fired plants will help nuclear compete, but the ultimate outcome is impossible to predict. It will be about a decade before reactor construction resumes, if it does. There is time to turn down the heat. If the industry can end its fruitless hunt for villains and its long habit of promising more than it can deliver, and if nuclear opponents can relax long enough to allow regulatory changes that will improve performance, a way might yet be found to come to terms with this promising, troubled technology.

The writer, vice president of World Resources Institute, writes this column independently for The Post.

A Strong Secretary General to Reshape the U.N.

The silver lining of the pre-war Gulf crisis was that multitudes realized, as a united Security Council worked around the clock, that whatever else the end of the Cold War may bring, it made possible the rebirth of the United Nations.

It comes not a moment too soon. The times have outgrown many of the U.N.'s founding purposes, but the new challenges that only a United Nations can deal with have never been as weighty. The selection of the U.N.'s next secretary general at the end of this year captures the institution and the world at a moment of tremendous opportunity.

Governments have been ambivalent about the secretary general from the beginning. Often, they talk as though they would welcome a strong leader. Studies and official memorandums spell out lists of qualifications that would eliminate anybody this side of Alexander the Great. In practice, governments have generally opted for someone thought to be passive, a competent administrator, and unlikely to cause trouble.

The sequence of events by which the secretary general is chosen is less a process than a series of haphazard, last-minute, often accidental choices. There is no search for qualified candidates. By the U.N.'s rules, the General Assembly makes the decision on the recommendation of the Security Council. Since this means that the five permanent members of the council can exercise their veto, other governments have had little reason to get involved. The surprise is how little the great powers have cared. A recent study by former U.N. insiders, attributes Kurt Waldheim's selection to "lack of top-level governmental interest, inadequate high-level consultation, opportunism, gossip, rumor, intrigue and a complete absence of record-checking." The fact that such a process once produced a Dag Hammarskjöld is small consolation.

So long as the U.N. was hamstrung by East-West polarization, the choice of secretary general mattered

little. Indeed, it was a job few individuals of intellectual stature, energy and ambition would want. But now that the political landscape is being transformed and as one global issue after another demands attention, the job could become—not immediately, but eventually—one of the most important and rewarding in the world.

The next secretary general could start the process of reshaping the United Nations from an institution designed to manage the status quo to one that catalyzes international problem-solving. He or she will have three great tasks. First, to lead the institution in its



enhanced role in actively maintaining international peace. If collective security is ever to be realized, the U.N. must do more than react in crises, though it must do that swiftly and effectively. Second,

to manage, motivate, root out ineptitude and cronyism and reorganize an institution in which the proliferation of jealous, independent agencies has created managerial chaos. And third, to define a leading role for the U.N. in the intertwined economic and environmental concerns, from debt and development to global warming, that can only be dealt with at the global level and that will increasingly determine nations' security and well-being.

Optimally, the next secretary general would therefore be a woman or man who is a skillful diplomat, someone to whom governments would readily give a leading role in a crisis (as the United States did not feel it could do in the present crisis) and in mediating disputes before they mature into crises. He or she would be a tough, proven executive, able to initiate

sweeping internal change and recapture the post's eroded authority. He or she would be knowledgeable on the issues that make up the new international agenda, issues that are largely multilateral rather than bilateral, defined more by a North-South divide than an East-West one and which are—to an unprecedented degree—economic, social and environmental. To make all of these qualities felt, this would be an individual whose intellect and experience command international respect.

Candidates of this caliber must be looked for. In the U.N. system few run for office. The U.N. should create a formal search process, though there is probably not time enough this year. This leaves individual governments, citizens' groups and the media with the task of suggesting and sifting names. No nationality should be ruled out, even the great powers that have traditionally been excluded. Even if the selection of an American or a Russian is politically unrealistic right now, consideration of names like Elliot L. Richardson, Eduard Shevardnadze or Britain's former Permanent Representative Sir Crispin Tickell will help set the standard by which others should be judged. By U.N. tradition it is Africa's "turn" for the post. African candidates should be scrutinized, like all the rest, but the goal should be to find the best individual of whatever nationality.

Most secretaries-general have served for a decade. In this decade, issues such as poverty, population growth, greenhouse warming, international debt and others whose momentum builds on itself are waiting to be dealt with. All of which means that the consequences of this year's choice could be felt well into the middle of the next century.

The writer, a vice president of the World Resources Institute, writes this column independently for The Post.

Jessica Mathews

The Road to Aug. 2

There is a startling disjunction between the cry in the streets—"No Blood For Oil"—and the arguments that consumed Washington in the days before the U.N. deadline. To listen to last week's congressional debate was to be forcefully reminded of how deeply the original cause of this conflict lies buried beneath the weight of decisions taken since the Iraqi invasion.

True, after months of threats and brinkmanship, we have not now gone to war over oil. But it is also true that we would almost certainly not be in this position if not for the oil in the Gulf. And while there is nothing that energy policy could have contributed in the past few months to averting conflict, there is a grave danger that caught up in the war and its risky aftermath we will forget not how we got to Jan. 15, but how we arrived at the morning of Aug. 2.

The now infamous "we have no opinion on . . . your border disagreement with Kuwait" July 25 discussion between Saddam Hussein and U.S. Ambassador April Glaspie was largely about oil, and rightly so. Five countries control the bulk of proved oil reserves: Iraq, Iran, Kuwait, the United Arab Emirates and Saudi Arabia. Together they hold two-thirds of the world's future supply. Look closely at this list. It comprises Iraq, the two countries it has attacked, the other country besides Kuwait that Iraq was verbally threatening and the country we leapt to defend.

Oil reserves measure tomorrow's power rather than today's production. By this crucial gauge, the rest of OPEC pales into insignificance, with only Venezuela and Libya holding more than 2 percent each. The world's oil supply is more heavily concentrated in the

Saddam must have gotten the message that so long as the price was right, the United States didn't much care who owned the oil.

Persian Gulf now than it was at the time of the first embargo. And Saddam knows, as does the U.S. government, that these reserves will grow even more concentrated in the 1990s. Events in the Persian Gulf since the beginning of the Iran-Iraq war in 1980 have been no accident. In Saddam Hussein's mind, at least, they have been about oil: oil as a means to power, rather than an economic lifeline, but oil nonetheless.

What is known about the pivotal July 25 meeting comes from a transcript supplied by the Iraqi government, with which the State Department has not publicly taken issue. If it is accurate, Saddam Hussein must also have gotten the impression that oil was principally on the United States' mind as well. Remarks by Saddam such as "We clearly understand America's statement that it wants an easy flow of oil," are scattered throughout the transcript.

Coupled with our "no opinion" on "Arab-Arab conflicts," Saddam must also have gotten the message from this meeting, as well as from earlier events, that so long as the price was right the United States didn't much care who owned the oil. He might have remembered, for example, that after the 1973 oil embargo, Washington created the Rapid Deployment Force amid talk of invading Saudi Arabia.

Saddam might, however, have felt some confusion as to what the United States considered to be an acceptable oil price.

"Glaspie: I would ask you to examine the possibility of not charging too high a price for oil.

Saddam: We do not want too high prices for oil. . . . Twenty-five dollars a barrel is not a high price.

Glaspie: We have many Americans who would like to see the price go above \$25 because they come from oil-producing states."

If the transcript is accurate, that sounds remarkably like an invitation.

Understanding our own energy policies, and lack thereof, is therefore crucial to understanding the genesis of this crisis and what can be done at home to improve prospects for stable U.S. relations with Persian Gulf countries. The United States could not have made itself completely independent of Persian Gulf oil and should not try to do so. But with a purposeful and stable policy we could have become far more self-reliant, attentive to long-term price trends rather than short-term fluctuations and in a position to command our own fate.

It has not gone unnoticed abroad that the United States is unable to manage its energy

demand. Policy has been frozen: caught between a declining oil resource, a commitment to environmental goals and different parties' fierce opposition to using either price or regulation to control consumption. What's left of a national policy is a series of lurches, responding to crises created by others and determined almost solely by today's oil price. The net effect has been the moral equivalent of unilateral disarmament.

Two years ago, President Bush promised to change all that. To that end, Energy Secretary James Watkins has spent the past 18 months preparing a national energy strategy. The results went to the White House some weeks ago, where by all accounts the same thing has happened. Economic advisers objected to regulations, political types objected to taxes and ideologues objected on principle to anything that Jimmy Carter might have supported. Not much is left. The expectation on Capitol Hill is that no strategy will emerge. The surviving bits and pieces will eventually be released one by one.

However the crisis is resolved, and however difficult and demanding our Middle Eastern relationships, the country cannot afford to follow the president's preference for foreign affairs over less glamorous domestic needs. As regards energy, the two are not distinct. No matter how hard it will be to reach agreement, the country must argue its way to a coherent energy policy—if for no other reason than that national security demands it.

The writer, a vice president of the World Resources Institute, writes this column independently for The Post.

Jessica Mathews

The Year They Mulched Christmas Trees

The biggest environmental news of 1990 may turn out to have been its weather, the hottest ever recorded. But it will be several weeks before computers churn out the final measurements of 1990's global average temperature. Until then, notable events and trends of the past year size up like this.

Best: The United States' predicted solid waste crisis may be averted before it is fully upon us. Recycling is bursting out all over. From paper, plastics and magazines to Christmas trees, American consumers and corporations are tackling our mountains of garbage, most of which still goes to nearly full landfills.

In city after city, consumer participation in new recycling programs far exceeded predictions. Seattle recycled 37 percent of its waste in 1989, well on the way to its 60 percent goal in 1998. The city even makes "Seattle beige," a recycled latex paint. Recycling of newsprint was held back by a shortage of de-inking plants, but with the new capacity under construction in 1990, production will double by 1992. Exciting new technology developed this year for recycling magazines means that 30 percent to 40 percent of them could be recycled by mid-decade, up from less than 5 percent today.

Spurred on by consumer demand, some of the country's largest corporations are actually showing leadership. "We have identified a new consumer need not to feel guilty," said Procter and Gamble. While that hardly sounds inspiring, P&G Chairman E. L. Artzt told his shareholders this year that the United States can reduce its solid waste stream by an extraordinary 70 percent, and P&G will plan accordingly. The company, which already markets some of its products in 100 percent recycled plastic containers, plans to help develop large-scale municipal composting to replace landfills (in which almost nothing biodegrades), and said it would develop fully compostable disposable diapers.

Pepsi and Coca Cola simultaneously announced plans to market their sodas in recycled plastic bottles. McDonalds, under constructive pressure from the Environmental Defense Fund, abandoned its "clamshell" packages in favor of paper. By that single step the company reduced its volume of garbage by 90 percent and the national market for foam packaging (still made with atmospherically damaging chemicals) by 8 percent.

Oh yes, about Christmas trees. The Swedish retailer Ikea does a brisk business renting rather than selling trees. Upon return the trees are turned into mulch, which is given to the renter.

Fastest: The French TGV train continued to smash world speed records, beating 320 mph on May 18,

"Recycling is bursting out all over."

confirming that the goal of commercial speeds of about 225 mph are achievable with conventional "steel wheels on steel rails" technology. At that speed, Boston and Washington are each one hour from downtown New York, and San Francisco less than 2 hours from Los Angeles. Europe plans a network of 19,000 miles of high speed rail lines by 2010.

Slowest: Congress completed a comprehensive rewrite of the Clean Air Act as the elapsed time clock neared 10 years. Former president Reagan gets most of blame, with House Commerce Committee Chairman John Dingell (D-Mich.) a solid second.

Missing: Almost half a year into its third oil crisis, the country seems not to notice that not having a national energy policy is costly. Among the questions yet to be addressed: What is the tolerable upper limit of U.S. dependence on oil imports? Fifty percent (about where we are today), 90 percent, lower? Is it wise to be the only industrialized country in the world that does not tax gasoline heavily? Have the others got it right, or do we? What are the economic consequences of an energy productivity level half as high as Japan's and Western Europe's? Are we willing to use price signals to improve energy efficiency, or should we rely solely on unpopular regulation?

Quote of the Year: We have a hands-down winner by J. R. Spradley, member of the U.S. delegation to a conference on climate change, addressing members of the delegation from Bangladesh. "This is not a *disaster*, it is merely a *change*. The area won't have disappeared, it will just be under water. Where you now have cows, you will have fish."

What to Watch for in 1991: The Bush administration plans to announce its version of a national energy strategy early in the year. Whether Congress can deal coherently with it is an open question. The endless energy battles of the 1970s have left lasting bruises on Capitol Hill. Members are loath to approach the subject again. The Democratic Party in particular lacks leadership—policies and influential spokesmen for them—on energy.

U.S. policy on greenhouse warming is a closely related question. In February the White House will host the first negotiations of an international global warming regime. Together with the Soviet Union, the United States is the only remaining industrialized holdout against targets to limit its carbon dioxide emissions. If U.S. policy doesn't shift, expect repercussions. The new world order is not only being shaped in the Persian Gulf.

New on the agenda next year will be how to come to grips with national over-reliance on the automobile. Environmental, energy, regional land preservation, urban neighborhood and other interest groups have finally realized that none of their various goals can be met without a more balanced approach to transportation. Look for an unprecedented attack on the Highway Trust Fund and related federal policies.

Jessica Mathews, a vice president of World Resources Institute, writes this column independently for The Post.

Romance of the Manned Space Missions

Can NASA let it go now that the Cold War is over?

A new report by a presidentially appointed panel of experts supports the surprising conclusion that the country's space program is an unexpected casualty of the end of the Cold War.

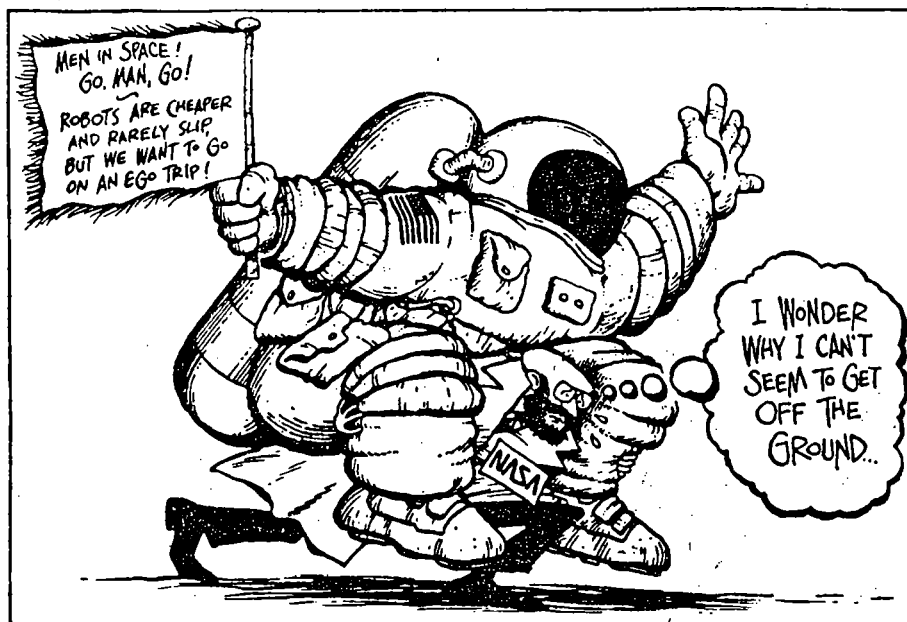
NASA's public woes, from Challenger to Hubble, were less on the Augustine committee's mind than the space agency's long drift in search of a mission and its symptoms of what Robert M. White, president of the National Academy of Engineering, calls "an acute case of gigantism." Both are deeply rooted in NASA's origins.

Listen to Burt Edelson, a former associate administrator of NASA, describe how it looked from inside the agency. "I recall that we went to a blackboard . . . and we listed the purposes of the civil space program. Up at the top of the board we put national image, and we talked about that in terms of prestige among other nations . . . and a race with the Russians. . . . That was obviously the top priority. It was the main purpose of the space program. Then we listed underneath that, and we really couldn't agree, but we listed the following words: exploration, science, applications, technology, spin-offs and societal benefits."

The agency was, in short, conceived as a Cold War weapon whose purpose was to beat the Russians into space. Everything else, including all the reasons put forward to justify the space program today, was just background noise. In that non-fighting war, where victory had to be won by proxy, symbolism counted as much as pure technological milestones. Therefore, space flight had to be manned. No one remembers that the Russians beat us to the moon with an unmanned orbiter. What history records is Neil Armstrong's breathtaking "giant leap for mankind."

As the Cold War waned, no other motive could replace the drive of superpower competition, though the leaders of both countries were the last to realize it. Bruce Murray, former director of the Jet Propulsion Laboratory and a leading proponent of space programs, notes that in the past several years both presidents Gorbachev and Bush have tried to give space a new priority, and both have been rebuffed. And so, in Murray's words, "the first great era of space exploration, which was born in the Cold War, and declined as the Cold War ran down, is ending when the Cold War ends—now."

The currency of national prestige has changed also. Symbolism and romance



BY WITTE FOR THE PHILADELPHIA INQUIRER

count for less on the international scene than the bottom line. Yet NASA remains committed to manned operations, making everything it has recently attempted too big, complex and expensive. In 1980 the goal for the space shuttle was 50 flights per year at a cost of \$15 million-to-\$20 million per launch. The actual average has been four flights per year. The cost is now \$400 million per flight, the highest launch cost of any nation. Despite its continuing, prestigious technological preeminence, the United States now faces humiliating decisions of whether to lift its satellites and astronauts on someone else's—even Russian—rockets.

The panel didn't mince words. Drastically cut back or cancel grandiose plans for space stations, aerospace planes and manned missions to other planets, it said. Develop an economically competitive launch vehicle to replace the shuttle. Focus instead on unmanned scientific exploration and the study of environmental change on Earth.

Important questions remain. Can any agency, committed for years and professional lifetimes to one rationale and course of action, suddenly admit error and change course? It's asking a lot. Can NASA let go of the shuttle, relegate manned missions to a minor role and cure itself of gigantism? Even the agency's program for monitoring global change is badly infected. The Earth Observing System (EOS) is far too big, too costly and too inflexible, and it threatens to leave an irreparable gap in measurements essential to understanding greenhouse

warming. Scientists have been criticizing EOS for some time without much response from NASA.

Can space exploration survive for long without a manned program in its future, or does the lure of exploration, no matter how exciting its discoveries, depend on the risk to individuals? Would anybody care, asked the Augustine group, if an instrument package reached the summit of Everest? The Voyager probe on its Grand Tour of the solar system, an opportunity that arises only once every 175 years, has succeeded beyond its designers' wildest hopes, reaching all the way to Neptune, yet Voyager's superb achievement is little known. There are great mysteries still to be fathomed in space. Is a manned program the necessary price of admission? Would it be worth it? A forthright debate is overdue.

And, what, if anything, can replace Cold War competition to justify the costs of space exploration? Some hope that the prospect of international cooperation is the answer. Perhaps, though I doubt it. Visions of the new world order imagine multilateral cooperation playing an unprecedented role in peacekeeping, trade and environmental management. Shared benefits should sustain that degree of teamwork, though it is by no means a sure thing. But is cooperation for its own sake ever a positive inducement? The answers may have relevance well beyond whatever happens in space.

The writer, a vice president of World Resources Institute, writes this column independently for The Post.

Jessica Mathews

THE WASHINGTON POST 12/7/90

Saddam and the Bomb

The administration has added Saddam Hussein's nuclear weapons program to its list of reasons why a war with Iraq may be necessary. This new justification was cited after polls showed it to be the only motive for fighting supported by a majority of Americans. Since the administration had until recently been relaxed to the point of offhandedness about Iraq's nuclear activities, critics have naturally enough claimed that the threat is now being exaggerated. This prompts angry countercharges from the Saddam-as-Hitler group, and the whole issue is becoming muddled at a time when clear thinking is more than usually valuable.

There can be no doubt that Iraq is trying to become a nuclear weapons state. That has been clear at least since 1980, and some would say since 1976, when Iraq purchased the Osiraq research reactor from France. When asked why a party to the Non-Proliferation Treaty would want such a large facility, Iraq said it needed to produce medical radioisotopes. In 1980 Iraq attempted to buy 25,000 pounds of depleted uranium, which could have no other use than to be irradiated inside Osiraq to produce plutonium. After that, even the most credulous could no longer swallow the peaceful program/medical research cover story.

There are five covert ways to acquire the fissile material for a nuclear weapon, two involving highly enriched uranium (HEU), two that use plutonium and one that could use either. Iraq has pursued all five.

One can buy a research reactor and then divert its highly enriched fuel. When the Israelis bombed Osiraq, they missed 12 kilograms (about 27 pounds) of its fuel, which is enough to make a single weapon and is the source of concern behind the

estimates that Iraq might have a bomb in six to 12 months. According to the International Atomic Energy Agency, which inspects this suitcase-sized material twice a year, it could actually be readied for weapons use in one to three weeks (assuming the rest of the bomb is ready).

One can also build a centrifuge enrichment plant, buy uranium and then enrich it to weapons grade. This was the route Pakistan followed in its successful covert program. Such plants require materials and components that have few other uses, which Iraqi agents and front companies have been aggressively shopping for worldwide. However, building a large enough enrichment plant is no small undertaking. Intelligence estimates have generally concluded that it will take five to 10 years for Iraq to acquire weapons this way.

One can produce plutonium either by irradiating natural or depleted uranium in a research reactor, as Iraq attempted with Osiraq, or one can build a reprocessing plant. Iraq bought a laboratory scale reprocessing unit from Italy in the mid-'70s and tried to buy a full-sized one. But, like Pakistan, it now seems to have pinned its hopes on enrichment.

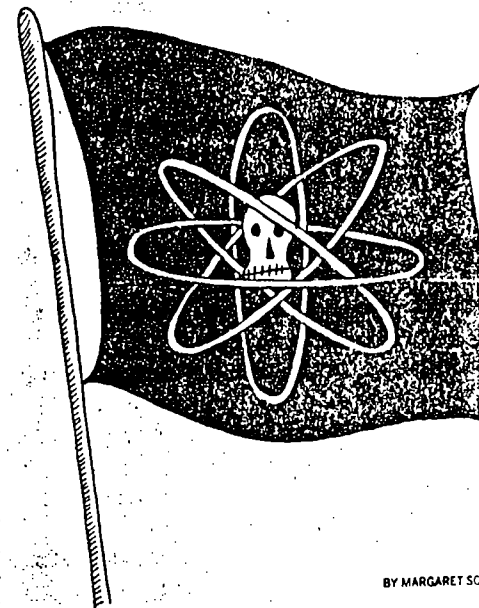
Finally, one can buy HEU or plutonium on the black market if it can be found, or one can steal it, probably from a civilian facility where security may be lax. Sting operations have shown that Iraq has tried to do the former, though without success. The latter belongs in the category that worries some experts most—what Iraq may have that we don't know about. There is no evidence that such a theft has occurred in Iraq's case, but the possibility is not farfetched. It may have been the route by which Israel acquired its first HEU—from an American facility.

Making a nuclear weapon entails a lot more

than acquiring the fissile material, however. Iraq's sophisticated missile program can be taken as evidence that its technicians could be equal to the task, though not that they are ready today. Saddam's use of chemical weapons shows unequivocally that he is prepared both to use weapons of mass destruction and to violate treaty commitments in doing so.

The question remains whether any of this is relevant to the choice of whether to attack soon or to wait and see if sanctions will work. A military solution to either the immediate (one-week to one-year) threat or to the five-to-10 year possibility requires that intelligence be able to pinpoint where in Iraq the nuclear materials and facilities are (key components have certainly been scattered to as many sites as possible). If U.S. intelligence were that good, there would be much more certainty about the nature of the threat. There must also be high confidence that air strikes can destroy everything completely, including underground laboratories. The 1981 Israeli raid on Osiraq was a textbook example of pinpoint bombing, yet one weapon's worth of nuclear fuel remains. Inflicting permanent damage to the key facilities would probably require extensive use of ground troops in Iraq.

And what if sanctions force Iraq out of Kuwait? If, as the bulk of the evidence seems to suggest, Saddam still needs many items from abroad, the present crisis may improve the chances of stopping him. Nations that have supported his various programs with financial or technical assistance—including Brazil, Egypt, Saudi Arabia and Kuwait—are not likely to do so again. Pakistan and China would be questionable, but international



BY MARGARET SCOTT

pressure and greater scrutiny could certainly be brought to bear. European countries where companies have inadvertently or knowingly made key exports—including Germany, Switzerland and others already mentioned—would presumably intensify their efforts to prevent any further sales.

If Saddam were to make and use a single bomb from his 12.5 kilos of HEU, he would be choosing national suicide. A U.S. attack might prevent that from happening, though such a small amount of material could be hidden by the Iraqis or smuggled to safety. Against the far more serious risk that Iraq is attempting to build a militarily significant nuclear arsenal, sanctions appear to be at least as effective as a military attack. There may be other reasons to opt for war over sanctions but public opinion polls notwithstanding, the nuclear threat is not a strong one.

FRIDAY, NOVEMBER 16, 1990 A19

Jessica Mathews

The Big, The Green, The Political

What explains the many setbacks for the environmental movement in last week's election? After all, the results were these: Big Green and Forests Forever failed in California. (California ballot initiatives acquire names because almost as much money is spent on them as on the human candidates.) Oregon, pioneer among the states in much environmental legislation, defeated a recycling initiative that would have sparked a revolution in packaging design. Washington turned down a land-use planning provision similar to Oregon's popular 20-year-old law. Missouri's stream protection initiative went down. So did a \$2 billion environmental bond proposal in New York. Only two initiatives, both involving lottery revenues, survived the trend.

Oddly, given all this, Democratic and Republican pollsters agree that the returns do not reflect a lessening of support for the environment. Fred Steeper, an associate of President Bush's pollster Robert Teeter, says categorically, "I see no evidence of any decline whatsoever." And the Roper poll reports that when voters are asked to name the issues that would matter most in deciding whom to vote for, environment—though not among the top priorities—registered the largest increase between 1988 and 1990.

I have a few ideas to account for the discrepancy. First, of course, is voters' natural reluctance to spend money with a recession looming. In part, also, the defeats reflect the difficulty of passing a ballot initiative on any subject. Ordinarily, the burden of proof rests so heavily on the Yes vote that three-fourths of all propositions fail.

This year, Californians went further. According to Mark DiCamillo of California's respected Field Poll, the No vote on ballot propositions was 10 to 15 points higher than preelection polls had indicated. Considering that the state's handbook explaining the ballot reached 142 pages, so that the conscientious voter faced a task uncomfortably reminiscent of a college entrance exam, the reaction is not surprising. The ballot was also riddled with counter-initiatives. By confusing voters as to which forest proposition, for example, was written by environmentalists and which by the timber industry, counter-initiatives turned positive votes into negatives.

Asked to draw lessons from the defeat of the recycling initiative, Andrew Kerr of the Oregon Natural Resources Council adds some key points. "Environmentalists," he says, "have to get richer and smarter." Richer, because trying to do something new (as opposed to trying to stop something), requires far greater resources than they can command. Whether or not trying to raise so much money is a sensible future strategy, there is no doubt that the huge disparity in campaign funds this year was as big a factor in defeating environmental initiatives as it was in reelecting congressional incumbents. The opposition to Big Green, to cite the extreme case, spent a staggering \$16.5 million—about what each candidate spent in the hotly contested gubernatorial race in the nation's largest state. The sum was about four times what proponents raised.

As for smarter, the clear lesson is, next time, keep it simple. Big Green dealt with agriculture, timber, air pollution, global warming and offshore drilling in one impenetrable 16,000-word mass. The New York bond issue touched half a dozen issues. The recycling initiative was much more focused but almost as complex. All of them overreached. The reason Big Green was defeated, says DiCamillo, "was not the Green, it was the Big."

Moreover, Big Green's authors ignored the basic rule of diplomacy, which warns that when you pick your issues, you pick your enemies. By uniting so many well-funded industries against a single measure, they sealed its fate. Add to that the Tom Hayden-Jane Fonda factor, and it's surprising that the proposition ended up with as many votes as it did.

The environmental message from the candidate races is also hard to discern. Jesse Helms (R-N.C.) was reelected after garnering Environmental Action's first lifetime achievement award for longest residence among the Dirty Dozen. But in Minnesota Paul Wellstone (D) harped on environmental issues in his upset of Sen. Rudy Boschwitz (R), as did Harry Lonsdale in Oregon, giving Sen. Mark Hatfield (R) the scare of his political life. Most significant, in the House races, among the tiny band of 15 incumbents who were defeated, five were top environmental targets, all of them with League of Conservation Voter ratings near the bottom of the barrel.

In California preelection polls, one in three voters described themselves as a "strong environmentalist." This does not mean that they are in fact what a Sierra Club member would recognize as an environmentalist, but that environmental protection has become such a universally accepted goal, like education or civil rights, that it has acquired what pollsters call the halo effect. This represents no small change in American society in a decade or two.

But as advocates of educational reform or civil rights know, such support does not translate into political victories. It is easy to overstep its bounds, as environmentalists did with several of the initiatives on this year's ballots.

On the other hand, a poor environmental record has become a severe campaign liability; judging from the House races, perhaps one of the most serious drawbacks a candidate can carry. That, too, is no small thing. It is, however, a long way from giving politicians a decisive political reason for exercising environmental leadership.

World Population: As the President Turns

Bush is so afraid of the right, he's proposed repeal of a bill that he wrote.

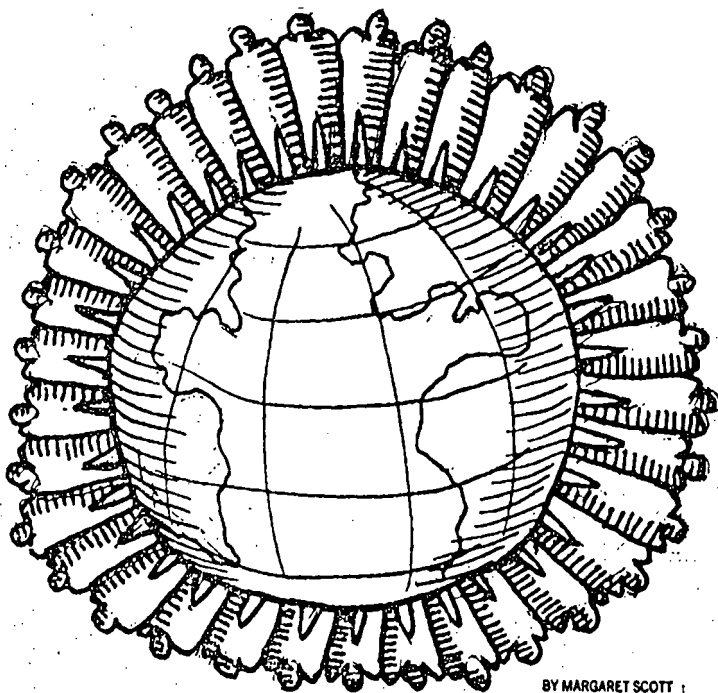
Few people more eagerly anticipated inauguration day two years ago than a small band of moderate and liberal Republicans concerned about global population growth. They confidently expected that this was one issue on which President Bush would decisively part company with his predecessor.

They had reason to be hopeful. In the 1960s and '70s, Bush had not only embraced the cause of domestic and international family planning, he had aggressively sought to be its champion. He was well aware of the political risk he ran in doing so. As he was later to point out, the issue may have cost his father a tight Senate race in heavily Catholic Connecticut in 1950.

As a member of the Ways and Means Committee, Rep. Bush shepherded the first major breakthrough in domestic family planning legislation in 1967, earmarking maternal and child health funds for family planning. He later co-authored the legislation commonly known as Title X, which created the first federal family planning program. He criticized the "timidity" of hospitals and welfare agencies and sought ways of convincing them that the public "desperately needs these agencies' aid" in supporting family planning.

On the international front, he campaigned for the chairmanship of a Republican Task Force on Population and Earth Resources, which eventually recommended that the United States support the United Nations population fund by an amount equal to at least 5 percent of the AID budget (about \$700 million today). He urged, in the strongest words, that the United States and European countries make modern contraceptives available "on a massive scale" to all those who want them. In his defining maiden speech as U.S. representative to the U.N., Ambassador Bush named population and environment as top priorities.

One cannot read the record of those years without being convinced that George Bush believed genuinely and fervently in the importance of family planning and population control for the United



BY MARGARET SCOTT

Bush has reversed himself on one of the few controversial positions he has taken in his career that clearly rose above political calculation.

States and the world. He acted on that conviction without any hope of political reward, and he was modestly ahead of his time in sensing, if not seeing, the connections between very rapid population growth and environmental degradation.

This is what makes the record of the present administration so sad. Emerging evidence of global environmental stress makes the case for concern more compelling than ever. Yet the president has executed a slow-motion, apparently permanent, flip-flop on one of the relatively few controversial positions he has taken in his career that clearly rose above political calculation.

The post-Reagan Bush has proposed repealing the Title X program he authored. He vetoed the AID budget over an amendment

requiring that \$15 million of it—a far cry from \$700 million—go to the U.N. population fund, endorsing the canard that U.S. money would otherwise be used to support forced population programs in China. And he has continued the so-called "Mexico City policy," which dates back to 1984, prohibiting any U.S. support for foreign organizations that directly or indirectly provide abortion services, even counseling or referral. This means that no U.S. funds can go to the major providers of international family planning services.

The president asserts that he strongly supports family planning programs—just not those connected even indirectly to abortion, including in those countries (like the United States) where abortion is legal. In other words, not most of them. To friends from his congress-

sional and U.N. days who have privately raised the global growth issue with him, the president says that he will not rile the right wing over the issue. This leaves Secretary of State James Baker in charge of policy on this matter.

Baker's views emerged in testimony early this year. Sen. Timothy Wirth (D-Colo.), a congressional leader on population growth and its links to the environment, put the question this way: "If we are looking at a globe of 14 billion people at the end of the 21st century, you certainly would not suggest that, if there is something we can do about it . . . we ought to just let that happen?" While taking credit for the Mexico City policy (it was "hammered out around the table in my office"), Baker pleaded ignorance: "I am going to be reluctant to give a yes or no on that. I frankly haven't studied [it]." Perhaps the 14-billion-person figure is wrong, he added, or perhaps 14 billion people would not create the chaos that Wirth foresaw.

Long-term demographic projections are packed with uncertainty. The best available evidence, which is all one can work with, says that if the current slow decline in fertility persists, the human population will level off at nearly triple today's 5.3 billion. Present understanding of environmental trends, technological change and economic prospects in the developing world suggests that such population growth will exact a tragic toll in environmental decline and human suffering. Above all, time is precious. A young woman today who bears three children instead of the six her mother may have borne will have 27 great-grandchildren instead of 216.

Modern contraceptives are by no means an automatic guarantee of slowed population growth. As President Bush once urgently argued, however, they are a necessary precondition. Today only 30 percent of couples in the developing world outside China who want to use modern contraceptives have access to them.

The writer is vice president of the World Resources Institute.

Jessica Mathews

All Quiet on the Second Front

The signs are everywhere—in airports, shopping malls and sports stadiums—exhorting us to “Support Our Troops In Saudi Arabia.” The question neither posed nor answered is, “How?” Beyond moral support, there is little we stay-at-homes can do—this time. But there is much that could be done to reduce our frightening national vulnerability to future upheavals in the Middle East. As Congress prepares to adjourn, there is no sign that it, or the rest of us, is prepared to open up this second front.

It may be that with the strain of dealing with Iraq and the budget deficit, it would have been unrealistic to expect action on energy security as well. In this optimistic view, energy issues will get their turn after deficit reduction, the election and the departure of Iraqi troops from Kuwait.

Don't count on it. Unless a war in the Gulf does major damage to the region's oil fields—a very unlikely outcome—oil prices are likely to subside back to the neighborhood of \$20 per barrel following either a diplomatic or military resolution of the crisis. In that case, the record since Aug. 2 (and since 1973) suggests that America will return with a sigh of relief to the status quo ante, studiously ignoring the costs of its energy dependency.

Here's what's happened since the invasion. Encouraged by a president who clearly regards energy conservation with contempt and a hostile electorate, Congress has let pass its best opportunity to significantly raise the gasoline tax. Before the crisis, the price of gasoline had declined by 30 percent since 1950. Even with the 30-cent-per-gallon rise since the invasion, the real price of gasoline today is less than it has been since World War II. In Europe and Japan, gasoline taxes are close to \$2 per gallon. Here, state and federal taxes are 25 to 30 cents, to which the deficit reduction package may add about a nickel.

One result of our low price is that

motor vehicle use—the least efficient way to move people or freight—has skyrocketed, overwhelming large improvements in automobile fuel efficiency. Since 1973, oil use in the economy as a whole has declined by 2 percent, while in transportation it has grown by 20 percent.

Faced with heavy opposition from the administration and the automobile industry, which quickly flew in car dealers from every state to make the rounds on Capitol Hill, Congress also defeated an effort to raise new-car fuel efficiency standards by 40 percent over the coming decade. The measure would have saved more than 2 million barrels of oil a day. The good news was that the bill garnered 57 votes, a solid majority. The bad news was that 60 votes were needed to defeat a threatened filibuster in the Senate, and the legislation had little chance in the House, where Michigan Rep. John Dingell (D), powerful chairman of the Energy and Commerce Committee, looks after his most favored constituent.

Several other steps taken and not taken confirm that improving energy efficiency is still not taken seriously. At various times in the budget debate, broad-based energy taxes were considered. All were dropped. Energy Secretary James Watkins, asked for the administration's response to the Gulf crisis, suggested a federal advertising campaign encouraging motorists to drive more slowly and fully inflate their tires—not a bad idea as far as it goes, but hardly a serious offering. With a surprise amendment the trucking industry was able to get the Ways and Means Committee to add a fuel tax on railroads equivalent to the proposed increase in motor vehicle fuels, despite the fact that railroads are vastly more energy-efficient than trucks. This latter step has since been partly undone and may yet, to the national benefit, be completely dropped.

The various deficit deals have all

failed to include a small tax incentive that would continue tax-exempt treatment of the rebates utilities offer their customers for adopting energy efficiency measures. These rebates have proven to be a highly effective way to save both energy and money. On the other hand, an incentives package 10 times as large for oil and gas production has been a feature of most of the plans, even though it will have a minimal effect on oil supply. Domestic oil production has been declining for 20 years, in spite of massive exploration efforts when prices were high, for the simple reason that we have pumped most of the resource. There is little that can be done even to slow the downward trend.

All in all, it's a sorry picture. The public is unwilling to use the most promising energy policy instrument, the gasoline tax. Special interests easily defeat the national interest in Congress. And the administration, still engaged in its leisurely two-year stroll toward a national energy policy proposal, makes no contribution.

The United States does not have much flexibility in its energy supply choices. Coal use is constrained by air pollution and greenhouse warming concerns. Natural gas consumption can and should grow, but is limited by low price and regulatory tangles. For the near term, the market has ruled out nuclear power. Over the past decade, research and development funds for solar and other renewables were cut by 89 percent in real terms, diminishing their potential contribution.

In contrast, there are any number of opportunities to cut demand by raising energy efficiency, many of which promise substantial net savings to the economy. Three oil crises, it seems, have not been incentive enough to capture them. One wonders what will be.

The writer is vice president of the World Resources Institute.

Jessica Tuchman Mathews

The Mars Extravaganza

By holding the federal budget to no real growth for the next five years, the deficit agreement sets up some fierce battles about which discretionary programs should rise and which should fall. Given the country's urgent needs for new investment—in civilian technologies, education, infrastructure and energy efficiency, among other priorities—the agreement means that many programs must be dropped completely, at least for the foreseeable future.

In the interest of making a constructive start in this painful process, I propose as an early candidate for the chopping block the administration's program to establish manned outposts on the Moon and Mars.

The plan is to build a large orbiting space station from which crews will be assembled and vehicles built, fueled and serviced for establishing a permanent base on the Moon, which in turn will serve as the launch point for colonization of Mars. The anticipated price tag for this—through 2025—is, coincidentally, the size of the deficit reduction goal, \$500 billion. Realistically, experience suggests that the actual cost would be at least double or triple that and probably much more.

The Moon-Mars program is the pet project of the National Space Council, chaired by Vice President Dan Quayle. Lest you think this just a harmless way of keeping the vice president occupied, the plan has been vigorously endorsed by both President Bush and budget director Richard Darman. The project will find plenty of champions on Capitol Hill as well. As the defense budget shrinks, the pressure grows to fill the gap for the aerospace contractors, whose ability to lobby Congress from

every congressional district is to be taken seriously.

Darman made his case in a much ballyhooed speech last spring. The American example, he argues, is not just important, but nothing less than "fundamental to the pace of human progress and the ultimate quality of human life." It, in turn, depends both on our economic success and on "the inspirational quality" of our behavior. "The question of practical, ideological, even spiritual, interest is: How can we keep America No. 1?"

The answer to that one, it turns out, is to restore "the spirit of the American Romance," which in Darman's lexicon consists of some familiar fundamentals ("love of freedom, respect for individual rights, faith in the future"), mixed with some self-explanatory newcomers ("appreciation of markets") and spiced with a real puzzler, "the heroization of risk-taking."

Prudent risk-taking, one would have thought, is its own reward. But not, apparently, when so much is riding on the inspirational qualities of American investment. The single undertaking that meets that stiff test is—you guessed it—the Moon-Mars project. It alone "will symbolize directly what is at the heart of the American Romance: Man is meant to pioneer, to explore, to expand, to advance, to reach and exceed new frontiers."

If the goal is really to explore the cosmos and advance our knowledge of its mysteries, unmanned rather than manned exploration, which can penetrate longer, farther and deeper into space for a fraction of the cost, is the way to go.

On the other hand, there is no shortage of scientific frontiers here at home. We know less about the deep

oceans than about the surface of the Moon and even, some would argue, than about the surface of Mars. It is not only children who wonder how clouds are formed—atmospheric physicists still do too. We don't know to within a factor of 10 how many species share this planet with us, nor the potentially useful characteristics of those that become extinct daily.

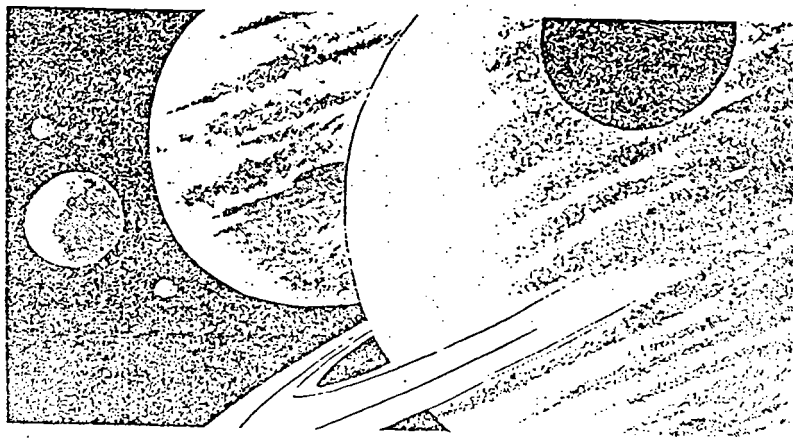
There are any number of exciting technological challenges, as well. We could use a transportation system that gets us to work quickly and comfortably without making the air we breathe a health risk. We need (here's a modest one) substitutes for fossil fuels. We need agricultural systems vastly less reliant on toxic pesticides. The world could certainly use a safe, cheap, lasting and revocable contraceptive. And so on.

But I suspect that Darman had a different kind of frontier in mind. For most Americans, I'd guess, "frontier" conjures up wagon trains, laying the rails, opening the West, new opportunity and also, of course, leaving bad things behind. And here's where, I think, the arguments for *not* attempting to colonize the Moon and Mars become even more compelling than the fiscal realities.

We could, after all, afford this venture and many others if we chose to tax ourselves as we have in the past or as Europeans and Japanese do today. We are rich enough. But we shouldn't seriously consider the massive investment needed to leapfrog mankind onto other planets as long as our planet is in such a parlous condition. Forty thousand children die each day from malnutrition and disease. More than 1 billion people exist—it cannot be called living—in absolute poverty. Forests are burning, soils are turning white from salt, species are disappearing at an estimated rate of four per hour. The specter of greenhouse warming casts an ominous shadow over our future.

All of these trends can be reversed. But that will cost plenty of money. The trick will merely be to convince ourselves that this is as noble—as inspirational—an endeavor, worthy of mankind's greatest effort, as starting over again on Mars.

The writer is vice president of the World Resources Institute.



BY BARNETT

Jessica Tuchman Mathews

Energy: Still We Do Nothing

Nearly two months into the Persian Gulf crisis, Washington's response on the energy front is still nil.

The president's sole specific contribution has been to urge tax incentives to increase domestic oil production. Even were it not for the government's critical need for more revenue rather than less, there is no logic in a call for tax incentives when prices—the best incentive—have just doubled.

The administration simply resurrected four tax breaks proposed earlier this year, which rightly went nowhere on Capitol Hill. The General Accounting Office found that together they would cost the government up to half a billion dollars while producing a minuscule additional supply of no more than 35,000 barrels per day. The GAO concluded that the government would do better to spend the same sum buying oil to fill the Strategic Petroleum Reserve. If the tax breaks didn't make economic sense at \$18 per barrel, what rationale can there be at \$38 to \$40?

The thinking isn't any clearer at the other end of the ideological spectrum. Predictable calls for a windfall profits tax were heard as soon as prices began to rise at the pump. Setting aside price gouging, which seems to have been brought under control, there is no more case for a windfall profits tax than for production tax incentives. When events drive prices up, companies can charge more for their product, even if it costs no more to produce. When prices come down, they charge less. If, as a society, we can't agree on the rules of a market system to this limited extent, we shouldn't be trying to explain to the Russians how to set one up.

Somewhere between these extremes, an important energy debate began to take shape earlier this week, as the Senate argued the merits of raising new car fuel economy standards by 40 percent over the coming decade.

The American auto industry hates the mileage requirement, believing that it forces them to build cars consumers don't want. There is some truth to that. It is also true, however, that U.S. automakers make most of their profits on the big, loaded-up models, and those are the ones they urge consumers to buy, so that the apparent cost of the standard becomes a self-fulfilling prophecy.

The industry also argues that the proposed new standard can't be met without forcing everyone into a sub-sub-compact car. This is precisely what was said 15 years ago, when new cars averaged 13 miles per gallon, and is no more true now than it was then. The roster of promising mileage-raising technologies is, if anything, longer than it was in the mid-'70s. Since the mileage standard was first adopted, fuel efficiency has doubled, pollution requirements have been significantly tightened, and although cars lost weight, fatalities per vehicle-mile have dropped by 40 percent. Detroit has protested vehemently every step of the way.

Proponents of raising the standard can point to the indisputable fact that the present requirement has saved the nation more than 2 million barrels per day of fuel, three times as much as we were importing from Iraq and Kuwait. Economists argue, however, that the standard applies only to new

cars, prolongs the life of old, inefficient cars and provides no incentive to drive less, perhaps even encouraging owners of highly efficient cars to drive more. A gasoline tax corrects all these flaws while raising badly needed revenue.

Advocates of regulation rejoin that the price of fuel is too small a part of the cost of owning and operating a car to induce the desired improvements unless the tax is enormous. Besides, say the hard-liners, even with a big gas tax, automakers won't make the mileage improvements unless forced to, preferring instead to improve what the industry calls "performance" and what the rest of us know as acceleration.

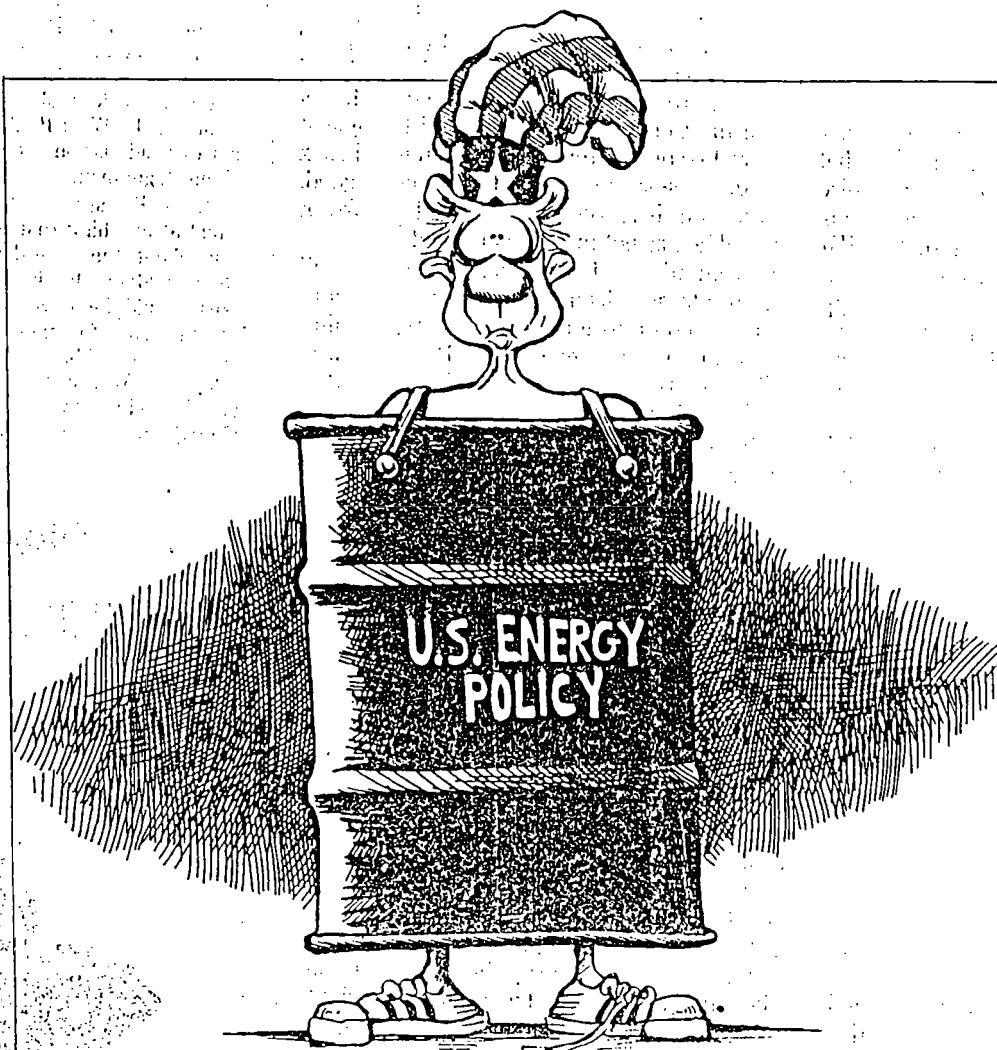
As the argument in the Senate swung between taxation and regulation, no one, sadly, said the obvious: a workable policy must draw upon both. Regulations that make mileage a key factor in new car design are economically inefficient and politically vulnerable so long as gasoline is cheap. Paired with a slowly rising gasoline tax, however, the mileage standard could work wonders, saving an additional 2.5 million barrels per day by 2005, by far the largest opportunity to reduce oil imports.

But taxes are the purview of the budget summit, and agreement on a meaningful gas tax (the Republicans have reportedly suggested an increase of 1 cent per gallon) seemed remote.

In this hobbled debate, the vigorous opposition of the administration and the auto industry proved enough to sink the bill, even as Saddam Hussein's threats spurred oil prices skyward. On the same day, the EPA released its list of the 10 most fuel-efficient 1991 cars. Nine are Japanese, the 10th is German. The administration seemed immune to the irony—and the warning.

Though the costs of a do-nothing energy policy are mounting daily, it is unlikely after this defeat that Congress and the administration will agree on any helpful energy initiatives this year. The best that can be hoped for is that they will avoid giveaways or worse for the sake of being seen to do something. Perhaps by the new year the need to reduce our energy gluttony will have become obvious enough to break through even Washington's policy gridlock.

The writer is vice president of the World Resources Institute.



BY DER FOR THE GREENVILLE IN

Jessica Tuchman Mathews

The Era of Cheap Energy Is Over

Laboratory rats, scientists say, are capable of one-trial learning. If the reward is sweet enough or the punishment harsh enough, they can learn a complex lesson in one encounter. Not so, it seems, for Americans and energy.

Our attitude toward the central commodity of modern economies can be roughly summarized this way:

While energy is cheap, use all you can. Respond in a crisis. When those measures work, abandon them. Return to the old ways, and forget the long term. Never on any account take command of energy availability by managing demand through price or policy. Leave that, by default, to OPEC. Instead, wait until supply gets tight again and foreigners raise the price. Then pay them what we might have paid to ourselves.

We've ridden this roller coaster up and down the energy price-and-demand-curve twice already; after the 1973 embargo and again after the '79-'80 price increase. Both times we've absorbed staggering economic shocks without ever seriously reexamining the notion that there is nothing we can do about energy other than respond to crises caused by others. Our unwillingness to act on energy is an inexplicable and hideously costly national blind spot.

Our third ride up the coaster began in 1986, when oil prices fell sharply. While other countries raised taxes to keep their energy-use trends constant, we prepared to enjoy another binge. Energy use, which had been declining in relation to GNP, took off again and has grown steadily ever since.

After the 1973 embargo, there was talk of invading Saudi Arabia. Rapid deployment forces for use in the Middle East were proposed and funded. Over the ensuing years, administrations proved willing to spend vast amounts of political capital accommodating Iran and Saudi Arabia with contro-

versial arms sales. Now we are again poised on the brink of war and economic turmoil.

Yet never in all of this have we connected energy self-reliance with national security. At his most recent press conference, the president's flip response left little doubt of his views.

Q: We haven't really heard you call upon Americans to conserve as part of this crisis.

A: I call upon Americans to conserve.

Q: Will you elaborate?

A: No."

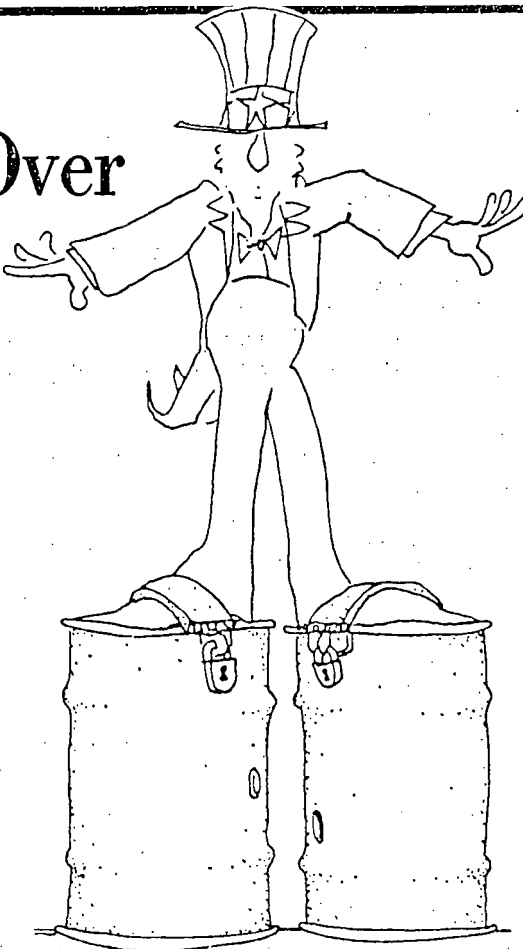
On second thought, he added, "We are doing everything we can to guarantee . . . that there will be an adequate supply of hydrocarbons."

The president's mind was clearly on the immediate crisis, but in the broader sense nothing could be further from the truth.

Insofar as the United States has had a national energy policy, it has focused single-mindedly on energy supply, whereas adequate energy is equally a matter of supply and demand. Our assumption has been that we need all the energy we can get. The truth is that energy demand is far more malleable than are the ineluctable geological limits of fossil-fuel supply.

We've nearly used up the U.S. oil resource. Production in the continental United States peaked in 1970 and has been declining for 20 years despite large price increases and intense exploration. In 1988 Alaskan production, too, passed its peak. North America holds 4 percent of the world's proven oil reserves. Iraq, Kuwait and Saudi Arabia together own 44 percent. OPEC as a whole holds 75 percent. Nothing the United States can do on the supply side—including drilling every drop of expensive and environmentally risky offshore oil—can even slightly alter these numbers.

There is, however, much we can do. Step 1, without which nothing else follows, is to recognize that the era of cheap energy is over. That



BY T. GIBSON

means using taxes to price energy commensurate with its value. The small price increases caused by the Middle East crisis are no reason not to act. The real price of gasoline is still less than it has been for 40 years. The price swings we will see in the coming weeks are irrelevant to the underlying need to set oil prices on a slow but steady long term incline. The prices of other forms of energy will follow. Taxes should be designed with the costs of air pollution and the eventual need to slow greenhouse warming in mind.

Step 2 is to recognize that the value of a barrel of oil not burned because of cost-competitive efficiency improvements is actually greater than the value of a barrel burned,

because it performs the same services but produces no pollution. From this insight many changes flow. Federal law should require state regulators to allow utilities the same profit on each kilowatt hour they save as on every kilowatt hour they generate. This simple regulatory change will unleash a vigorous new industry of mining waste in the electric sector.

In transportation, we need cars whose mileage is not equal to but better than anyone else's, because our population density is so low and our suburbs enshrine a heavy reliance on the automobile for years to come. Today Detroit is way behind. But this can be changed through a combination of innovative price and regulatory signals. In residential and commercial buildings, too, energy demand can be dramatically cut.

Step 3 is to get serious about developing new efficiency technologies and alternative energy sources. Nuclear energy should remain an option, but only after we have a hardheaded answer to the question of why a technology that has been commercialized for decades, which should be mature, should still require the lion's share of public R&D funds. Dollar for dollar, solar technologies and hydrogen as a replacement for gasoline show greater promise, as do energy storage technologies and other new opportunities.

Presidents Reagan and Bush have given us 10 years of non-leadership and worse on energy. But it must be said that leaders need followers, and so far we Americans have punished any politician with the courage to say out loud that energy prices are too low. We are properly consumed right now with resolving the immediate crisis, but five years from now what will most matter to us is not the fate of Saddam Hussein or the house of Saud, but whether three oil crises were enough to learn the energy lesson.

The writer is vice president of the World Resources Institute.

Jessica Tuchman Mathews

Energy Tax Options

The word from behind summit doors is that some form of energy tax will likely be the largest source of new revenue in a budget agreement. This is as it should be, for energy is too cheap in the United States relative to its unpriced costs, especially of pollution. Taxes are a far more cost effective means than regulation to signal the need for greater energy efficiency and cleaner fuels.

Therefore, the budget crisis could yield substantial environmental benefits. But as always with taxes, the fine print matters. Of the major proposals now on the table—a gasoline tax, an oil tax, a carbon tax and some type of broad-based energy tax—some would provide benefits beyond their revenues, others may be destructive.

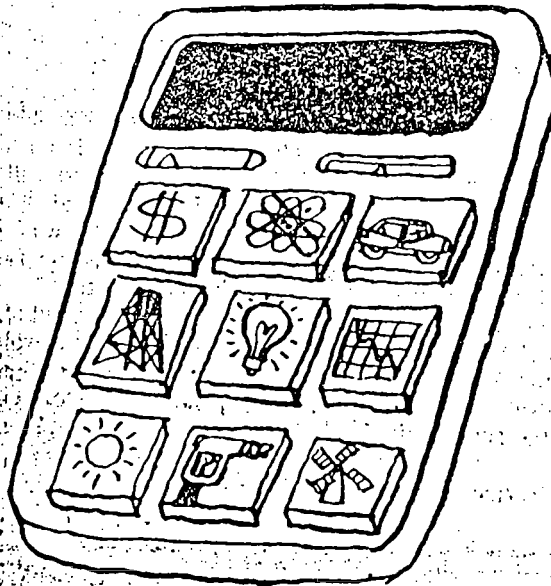
Gasoline Tax: In real terms, the price of gasoline is at its lowest point since 1918. Our combined federal and state tax of about 25 cents per gallon compares to taxes of \$1-to-\$3 per gallon in Europe and Japan. Clearly, there is room for a large increase. If the tax is slowly phased in, with a commitment to a sizable long-term increase, its economic impact would be cushioned while it induces Detroit to develop the very high mileage automobiles now being tested by European and Japanese producers. Over time, higher gasoline prices would spur the development of mass transit alternatives and by doing so ease gridlock, lessen urban air pollution, and ameliorate the fierce local battles being waged over new highways. And, because oil and automobiles top the national import bill, a gasoline tax would have a particularly salutary effect on the trade deficit.

Opponents argue that the tax is narrowly based (though 88 percent of American households own a car) and regressive (though the Congressional Budget Office finds that by some measures its impact would be nearly proportional across all income classes). Among the options on the table, the gasoline tax is the only one whose likely macroeconomic impacts are well understood. It is also the only one of these taxes that is widely familiar. Politically, it suffers for that reason.

Oil Tax: This tax shares many of the advantages of its more narrowly based cousin. Like the gas tax it would lessen American dependence—now more than 50 percent—on imported oil. Changes in the international oil market since 1973 have made the threat of another politically motivated oil embargo very small. But high and growing import dependence creates a modest constraint on U.S. foreign policy, which an oil tax would lessen as it would the much more serious threat of economic shock from a sudden OPEC price increase.

Because a third of petroleum use is outside the transportation sector, the benefits of the more focused gasoline tax on automobile technology and transportation options would be muted. And, unlike a tax on gasoline, for which coal can not be substituted, an oil tax would enhance the value of coal, eliciting opposition from those concerned about global warming and acid rain.

Carbon Tax: A carbon tax directly addresses emissions of carbon dioxide, the major greenhouse gas. The fossil fuels differ strikingly in their carbon content. Coal produces twice as much carbon per unit of energy as does natural gas; oil lies in between. Thus wherever choices among fuels are possible, a carbon tax would discourage the use of coal and synfuels (including so-called "clean coal") and lead to greater use of natural gas, nuclear power, wind, solar and to efficiency improvements. It



BY STUART LEEDS

because by this measure, too, coal is the dirtiest fossil fuel, and natural gas the cleanest. If large enough to reduce overall energy demand, a carbon tax would lessen dependence on imported oil and boost transportation efficiency, though less powerfully than a gas tax.

A carbon tax would be fiercely opposed by the coal industry and those states dependent on it. On the other hand, it is a broadly based tax that would slow global warming while meeting the administration's "no regrets" test (steps must be justified for non-greenhouse reasons) for greenhouse policy.

Broad-based Energy Tax: Two variants are being discussed: a tax based on heat content—the so-called Btu tax—and an ad valorem tax that is simply a percentage of energy price. By increasing the price, any such tax leads to some conservation. But depending on its size, and the arcane details of its design, such a tax could have economically surprising and environmentally perverse effects. For example, across the country electricity prices differ by more than 100 percent. Under an ad valorem tax, Chicagoans, New Yorkers and others who pay at the highest prices would be hit with the largest tax bite. Californians would be penalized because of the state's development of wind, solar and other new higher-cost technologies. In fact, all of the many regional inequities in energy costs would not only be frozen in place but enlarged—a bizarre political result. And the dirtiest but cheapest fuel, coal, would be favored over all the others. A Btu tax has similar quirks. The worst thing about both of these taxes is that neither is well understood. A budget agreement that rests heavily on either one would be an economic leap into the unknown and risk an early unraveling.

All five of these taxes can raise the needed revenues. Equity, effects on competitiveness and ease of administration must also be factored in. But if the choice among them is made with the possible environmental payoff in mind, politicians may discover that the bad tasting tax medicine they fear so deeply slides down much more easily with the voters.

The writer is vice president of the World

Jessica Tuchman Mathews

How Green the Pentagon?

It's limited in what it can do to protect the environment.

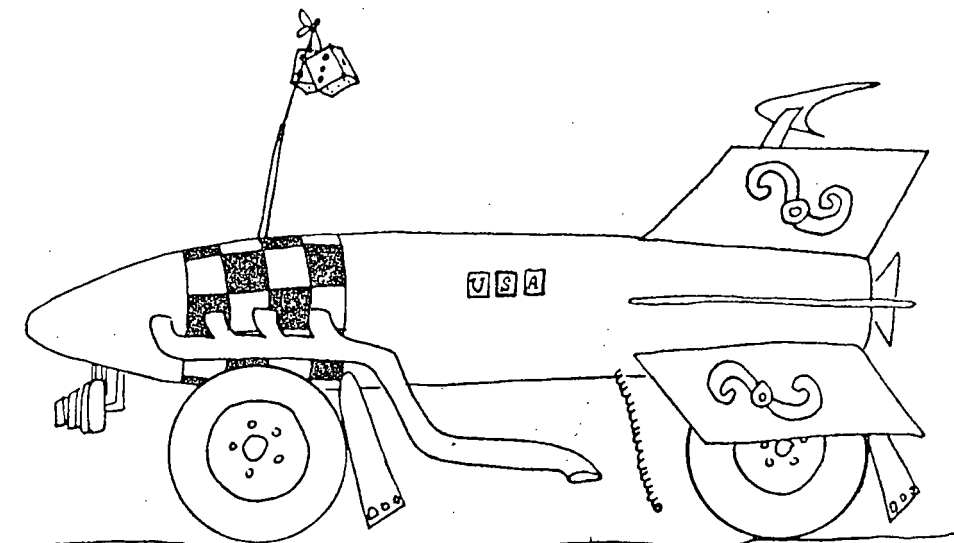
With pressures growing daily to shrink the defense budget and to increase spending for the environment, Senate Armed Services Committee Chairman Sam Nunn (D-Ga.) has taken the obvious step of attempting a merger.

He proposes that the departments of Defense and Energy (whose nuclear weapons responsibilities make it part of the defense establishment), their associated contractors and research centers, the national laboratories and parts of the intelligence agencies be organized into a formidable new program of environmental research and development in what Nunn revealingly calls the "likely growth industry of the next 20 years."

Nunn's initiative is both welcome and troubling. Because his judgment on military affairs is universally respected, Nunn's recognition that environmental trends "pose an increasing threat to our national security" gives new credibility to what others have been asserting for some time, namely that the traditional definition of national security no longer reflects global realities. On the other hand, the new program suggests that the defense establishment hopes to cash in on environmental concerns with funding and tasks that should instead be aggressively shifted to the civilian commercial sector. The net result could be to slow both the shrinkage of the defense budget and the development of environmentally beneficial technologies.

Parts of the Nunn proposal are unexceptionable. The defense establishment has reams of data that now sit uselessly in vast government warehouses. Ships and submarines have measured ocean temperature and the thickness of Arctic ice for decades, information that would be immensely valuable in understanding global warming. Satellites track the progress of tropical deforestation and other changes in land use. Catalogued and analyzed, just this existing data would be a treasure trove for environmental science. In the future, military platforms, from satellites to submarines, can combine purposeful environmental data gathering with their routine operations, producing large benefits for minimal extra cost.

It also makes good sense for Department of Defense and the Department of Energy to work on improving methods for environmental cleanup, since both agencies have made a huge environmental mess with toxic, radioactive and hazardous wastes. The Defense Department especially can also use its enormous procurement budget to good effect by buying new energy efficiency technologies,



substitutes for ozone-depleting chlorofluorocarbons and in general becoming a model environmental citizen.

Beyond this, the Nunn proposal gets onto dangerous ground. The hope that "converting part of the defense establishment's technological know-how from defense to environmental protection can produce a competitive advantage in world markets for U.S. industries" is misplaced. What it amounts to is giving a new mission to the national laboratories and defense contractors who no longer have enough to do. The hitch is that the national security establishment is likely to perform many of the new tasks poorly and at the highest possible cost. It is unlikely that it will be able to produce any commercial technologies that will compete well in the marketplace.

The national laboratories, for example, were established to provide the secrecy needed for nuclear weapons development. Nothing could be less suited to developing competitive civilian technologies. For more subtle reasons of corporate culture and personal inclination, as well as training and experience, defense contractors are unlikely to be good choices for doing much of the work that needs to be done. Their aim has been engineering feasibility, not cost, practicality, ease of use, high materials efficiency, low environmental impact and the other considerations it takes to serve millions of customers rather than one.

Defense now accounts for 70 percent of all public R&D funds. That compares with a global average of 25 percent, and to 12 percent and 4 percent for West Germany and Japan, respectively. Therein lies the root of

the problem. If the United States is to boost its economic competitiveness, the enormously disproportionate share of such funds that has been allocated to the military sector must come way down. That, in turn, means a painful transition for scientific and engineering talent and for firms now supported by defense funds. Attempting to sidestep these inevitable dislocations by funneling money through the same recipients for a new job is not the answer.

Proponents argue that if environmental technology development is not funded through the defense budget, it will not get done at all. Certainly in the past the United States has been wary of any concerted planning and investment except for military purposes. Presumably, though, this is one of many post-Cold War adjustments we must squarely face. Budget stringencies make it more likely that defense cuts would be used for deficit reduction than for a new program, but that too is the sort of strategic choice the system should at least strive for. A more cogent argument is that the economic restructuring that accompanies large defense cuts cannot proceed as fast as the recent changes in military threat. If this is true, there may be value in adopting elements of the Nunn program for a strictly defined transitional period.

Global environmental trends do indeed pose a new kind of security threat, but this does not make them amenable to the old kind of security solution. Better to build public support for the notion that new needs demand a new approach to public investment.

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The Greenhouse Effect: Apparently It's For Others to Worry About

It has been considered axiomatic that little can be done to slow the progress of global warming without U.S. leadership. Yet one by one the countries of Western Europe and Japan are adopting explicit national goals to cut their emissions of greenhouse gases. Without intending to, or even fully realizing that it has done so, Europe has assumed the mantle of international leadership on this central environmental issue, leaving the United States increasingly isolated.

Greenhouse warming is caused by the accumulation of several gases in the atmosphere, most importantly carbon dioxide. Since carbon dioxide is the inevitable outcome of burning a fuel, the question of what to do about greenhouse warming is largely a matter of energy policy—except where there is large-scale deforestation. The choices at issue are how much energy a country needs to grow on (largely determined by the efficiency of energy use), and what mix of fuels will supply it (nuclear, solar and other non-fossil sources produce no carbon dioxide; of the fossil fuels, coal produces the most and natural gas the least).

West Germany's greenhouse-control target is the most ambitious. It intends to cut the country's carbon dioxide emissions by 25 percent from 1987 levels by 2005. Government spokesmen have noted that the comparable figure for a united Germany would be even higher, since energy waste in East Germany offers so many possibilities for easy cuts.

The German announcement followed earlier goals set by Britain, the Netherlands, Denmark and Canada. Denmark plans a 20 percent cut by 2005. The others intend to stabilize their carbon dioxide emissions at 1990 levels sometime between 1995 and 2005.

The means by which these goals will be met are still to be worked out, but the goals have been set—often after fierce internal debate—feasibility studies have been done and planning processes are in place. Each of these countries has concluded not only that greenhouse warming is a real phenomenon but that present scientific understanding, while riddled with uncertainties, is nonetheless adequate to merit launching a major policy response.

Recently Japan, which had heretofore followed the U.S. lead on greenhouse policy, announced that it too

will stabilize carbon dioxide emissions "at the lowest possible level" by 2000. The precise target and program for doing so are to be announced by early autumn. France also is debating cuts in emissions, and the European Community as a whole may not be far from agreement on a stabilization goal. At the last vote, only Spain, Greece and Portugal were opposed.

What makes this trend particularly noteworthy for Americans is that most of these countries are already twice as energy-efficient as the United States. That is, they consume half as much energy to produce a dollar of GNP as do we. Put another way, the United States would have to cut its energy use by an astounding 46 percent without any loss of GNP to reach Germany's present energy efficiency, and then by an additional quarter to reach its planned level.

U.S. greenhouse policy remains as it was articulated at the disastrous international conference sponsored by the White House in April, namely that scientific uncertainties are too great to justify a serious effort to control carbon dioxide emissions, but that further research is a high priority. The United States continues to do the lion's share of basic research on greenhouse warming, but its carbon dioxide emissions are rising each year, and progress toward the articulation of any national energy policy, let alone one that might incorporate greenhouse goals, is questionable. The Department of Energy has been directed by the White House merely to send over options rather than recommendations when it finishes

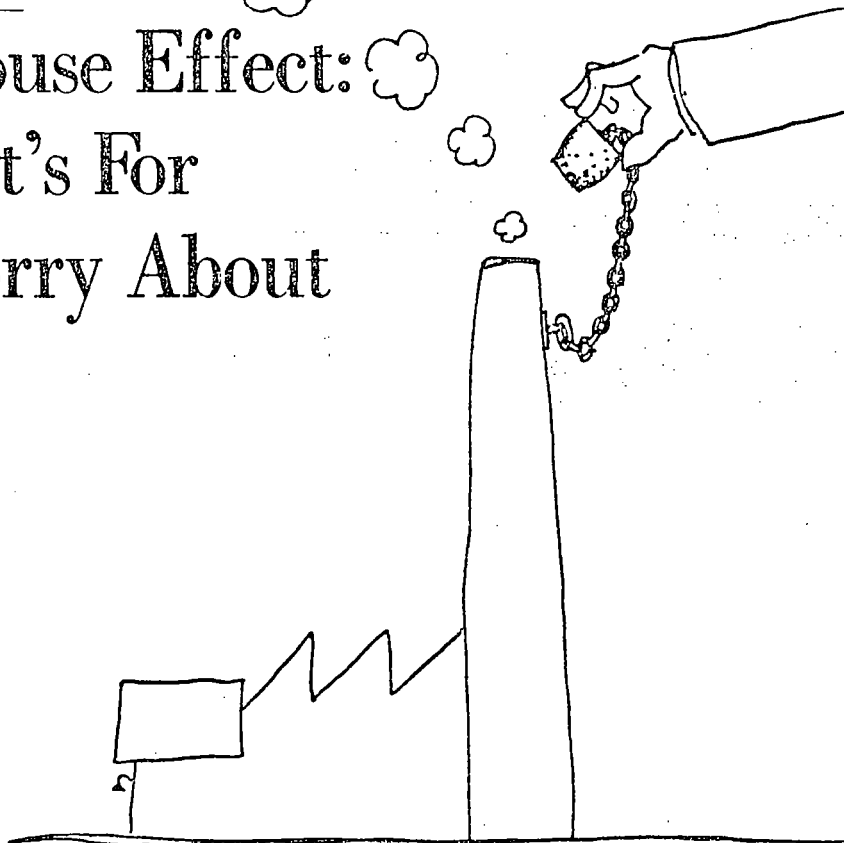
two years of work developing an energy strategy at the end of 1990.

If Japan and the West Europeans are correct and the greenhouse phenomenon proves to be a trend that must soon be reversed, their recent decisions to begin moving in that direction could hold bad news for U.S. economic competitiveness. The means by which carbon dioxide emissions will be cut depend on advances in energy supply technologies, in transportation, agriculture, industry, appliances, building construction—in short in every corner of the economy where energy use is important. An international agreement to control greenhouse warming would dramatically change criteria of choice in the international marketplace.

The United States is already far behind in many respects, especially in the automobile industry. If the emissions goals now being set elsewhere are met, the gap will steadily widen. Moreover, technological innovation, at which the United States is still pretty good, will generally be the easy part. Commercializing the new technologies, changing social patterns and mobilizing political commitment, in all of which we have recently lagged, will be the key to success.

United States leadership on greenhouse control is no longer an option. The question is whether we or Europe and Japan have the more prudent approach to global warming, and if the latter, for how long—and at what economic cost—we will be playing catch-up.

The writer is vice president of the World Resources Institute.



BY T. GIBSON

The Washington Post, July 4, 1990

Jessica Mathews

THE WASHINGTON POST
5/19/92

Doctors, Politicians and Us

We Americans are making the wrong set of enemies. Stymied from getting what we want in health care or government generally by the combination of low taxes (the lowest as a percentage of GNP among the more than 20 industrialized democracies) and high expectations, we are turning on individuals who are the victims of our collective inability to make choices. They happen to be the people who are indispensable to achieving what we want. We stand in danger of losing the best of them—and scaring away tomorrow's best.

In health care we want everything—the best medicine in the world, free choice of doctors and payment systems, administrative efficiency, universal access—and lower costs. We want universal health coverage, but not badly enough to pay for it. We are living longer and developing cures for more diseases and new, more expensive technologies, which means more and more medicine. But we oppose rationing—a system for deciding what types of care we cannot afford. With good reason we worry and complain about skyrocketing costs, yet, when asked, more than two-

thirds say that the nation should be spending more on health care.

Since they cannot resolve these conflicting desires, government and private payers try to control costs by micromanaging doctors. The tools are familiar. Partial, delayed and denied payments. Limitations on which hospitals patients can be sent to. Second-guessing, from a distance, when a particular patient will be well enough to be discharged. Rules about what procedures can be ordered and which drugs dispensed. None of it controls costs very well, but it does exact a tremendous price.

For doctors the rules mean nightmarish paperwork, constant hassles and the sense that they are losing control over patient care. The last matters most, because what brings good doctors to medicine is the desire to make sick people better and a liking for shouldering responsibility.

At the same time, the growth of for-profit medicine is undermining doctors' relationship with their patients. Arnold Relman, former editor of the *New England Journal of Medicine*, describes a "market-oriented, profit-driven industry" that is "frustrating and profoundly disturbing to the majority of us

who believe our primary commitment is to patients . . . We are parties to a social contract, not a business contract."

When doctors become "vendors," the trust that makes the doctor-patient relationship work erodes. A good business relationship is a poor substitute in the examining room. Sensing patient mistrust and fearing malpractice suits, doctors keep elaborate records (more paperwork) and order procedures and drugs they believe are medically unnecessary.

In growing numbers, physicians report frustration, stress, a feeling of harassment and loss of job satisfaction. Almost a third of young doctors say that knowing what they know now they wouldn't enter medicine again.

Departing congressmen feel the same way. Somewhere along the line, what began as an honorable career has become something to apologize for. Many of those who are leaving are as good at what they do as the most celebrated individuals in other fields. Many of the reasons they're giving up are our fault, not theirs and not "Washington's."

We agreed to try voodoo economics (lower taxes means higher revenues), and when it didn't work we refused to

stop believing that somewhere there is a free lunch. We're still convinced there's a painless answer; witness the warm embrace of Ross Perot's claim that he can erase the deficit "without breaking a sweat." We are complacent about a degree of public debt we would find terrifying and intolerable in our personal and business lives.

We condemn Washington for being unable to resolve a 20-year stalemate over energy policy. Yet we have made it an act of political suicide for any politician to speak the truth—that gasoline is too cheap. Everyone knows it. None dares say it. We have made sure that however much time Washington spends trying to forge a national energy strategy, it won't address the core issue.

We are so appalled by the appearance and reality of a political system for sale to the highest contributor that we assume corruption where it does not exist, as in the House Bank non-scandal. Yet campaign finance reform is a yawn. We do not demand it. We exact no political price from those who block it.

We are turned off by negative, contentless campaigns, but we consistently reward them. Congressmen hate them too. Announcing his resignation, Sen.

Tim Wirth (D-Colo.) explained that he was facing "a 'scorched earth,' 'take no prisoners' contest. . . . I would have been under fierce pressure—and more than able to respond in kind. But I don't want to live or to win that way. . . . Negative strategies may win elections, but they destroy public trust in the winner and the loser."

There are greedy, lazy and incompetent doctors. There are hacks, airheads and pretty faces (not female, these have good jawlines and great hair) in Congress. But by and large men and women are drawn to both these professions from the best of motives—a desire for public service.

Neither physicians nor politicians are blameless for the mess in their respective professions. But they are not the villains you hear excoriated on radio call-in shows. If we create conditions that make it uncomfortable or impossible for people of integrity and commitment to practice these trades, we will have no one to blame but ourselves.

The writer, vice president of World Resources Institute, writes this column independently for The Post.

Jessica Mathews

Twists and Turns On the Road to Rio

It won't be the end of the world if George Bush doesn't go to the Rio Earth Summit. If he has little to say and no leadership to offer on the subjects being debated there, by all means he should save the airfare. At least it will be clear where his branch of the government stands.

If the White House had not been so politically inept recently, one could conclude that the endless "Will he go/Won't he go" speculation of the past months was a brilliantly conceived and executed strategy of expectation-lowering. Instead of a debate on the merits—what the world's largest economy should do about greenhouse warming, global population or economic growth in developing countries—we are having one about an essentially meaningless symbol.

On one side, Cher, Jacques Cousteau and assorted chairmen of Fortune 500 companies urge the president to go. On the other, Richard Darman and the Heritage Foundation say no. Op-eds galore argue both sides. There's even an 800 number you can dial to urge the president yourself. After all this, it will seem to be a great moment when the announcement comes that, yes, the president will attend. For unless the White House has utterly lost its ability to discern where the president's interests lie, Mr. Bush will go to Rio. It's a political no-brainer.

Where else could he be that week? Campaigning in California? What urgent Rose Garden business could his schedulers come up with that would stand as a credible alternative to a discussion of policies to ensure the economic and environmental future of the planet?

A president whose strongest suit is international leadership would have a hard time finding a publicly acceptable reason to absent himself from a meeting important enough to attract 100 other heads of state. There is only one such reason: that if he went he would be forced to sign an agreement contrary to U.S. interests.

Such an agreement isn't likely, because one with enough bite to force change in U.S. behavior can't be reached over U.S. opposition. The Republican right wing finds a multilateral forum such as this one objectionable in principle. Its visions of punitive international regulations enforced by legions of international bureaucrats are mere bogeymen, however. When the clouds of rhetoric lift, there will be little of substance the president can cite as reason to stay away.

If, against the odds, something does emerge from the preliminary negotiations to which Bush can take valid exception, staying home is hardly a strong response. It would smack of a child in a sulk. A confident leader would address the conference, describe what is misguided in the agreement and press the case for his alternative.

Unless, of course, he doesn't think the issues are important enough to bother with.

Here, in the most elementary qualification for the role, is where Bush fails to make the grade as environment president. Without apparent embarrassment, the White House admitted last week in response to questioning by Jessica Lee of USA Today, that in 3½ years in office, the president has never found the time for even a one-hour briefing on the science of global warming.

No individual can be expert on everything. That's what a staff is for. But no responsible leader allows himself to be personally ignorant on a subject he considers important to his country. Many of the world's best climatologists work for Bush. A few of them are extraordinarily good at explaining their science in layman's terms. That the president has never felt the need to learn enough to judge for himself what all the controversy is about says everything that needs to be said. Message: I don't care.

The president's personal lack of interest notwithstanding, there is still time to switch the focus of public attention back where it belongs—to the substance of U.S. positions. The administration has been signaling for weeks that it is ready for a deal on the dread "targets and timetables" for addressing global warming. In language obscure enough to satisfy all sides within the administration, the United States will continue to refuse to pledge to meet the European emissions target, but will say that what it has already decided to do will achieve those same levels. While this will hardly clarify our domestic policy debate, it will probably be enough to pave the way for a framework treaty on global warming in Rio.

Once that is worked out, the White House staff and the American public can turn their attention to something more constructive than the go/no-go debate. For the next month, the right question is what the leader of the world's largest economy should say, beyond platitudes, to the global audience the Rio conference provides.

What unilateral initiatives can the president offer in place of the multilateral commitments he hesitates to make? What does he see as needed changes in behavior by both North and South? He rightly expects less corruption, more democracy, better management and accountability, and more reliance on markets in the developing world. What about the North—are we perfect? What vision does he hold for meshing economic and environmental imperatives? And how does he reconcile those views with his deregulatory drive at home? These are the criteria—not whether he makes the trip—against which the president's performance at the Earth Summit should be measured.

The writer, vice president of World Resources Institute, writes this column independently for The Post.

Jessica Mathews

Security's Unglamorous Side

'There is too much for one nation to do.'

While the commander in chief takes an ill-advised and unnecessary sabbatical from foreign policy, the Pentagon seems bent on making the United States look remarkably silly. Its grandiose visions are colliding with reality with embarrassing results.

The military's new strategy document brandishes the biggest stick the nation has ever aspired to: nothing less than sole shaper and guarantor of global security. U.S. military might, according to this plan, would be so overwhelming that even our strongest allies would meekly follow U.S. leadership. Never mind that the role hardly fits the world's largest debtor.

At the same time, Washington raised a major fuss about a North Korean ship believed to be carrying missiles to Iran. Armed with the world's most sophisticated detection and communications technologies, the Navy managed to lose track of the freighter, which successfully delivered its cargo. A second North Korean ship was allowed to dock without even an attempted interception after the administration belatedly realized that it had no authority to intervene.

Though nuclear war no longer looms, a president of the United States will never have the luxury of ignoring foreign concerns, no matter how high the political stakes. George Bush should be the first to know this. At the other extreme, however, this country cannot single-handedly ensure world peace. Even if the rest of the world were comfortable with the United States in such a role and the American people desired to play it, the strategy would fail. There is too much for one nation to do, and the biggest threats cannot be met with military strength. Among these threats, nuclear proliferation is most urgent.

Iran is pursuing nuclear weapons. Algeria has secretly built a research reactor capable of producing weapons-grade uranium. (Thanks to U.S. efforts, it is now under safeguards.) Libya, like Iraq and Iran a party to the Non-Proliferation

Treaty, also has nuclear ambitions. India and Pakistan are edging toward a nuclear arms race.

North Korea's program is the most advanced and the most self-sufficient. Though not just two months away from a weapons capability as the CIA suggested a few weeks back, North Korea is close and, despite protestations to the contrary, seems determined to proceed. Six years after signing the NPT, it has yet to sign the safeguards agreement that would open its facilities to inspection. It has built what intelligence sources believe to be a plutonium production facility and appears to be using negotiations as a means to buy more time.

The most far-reaching threat is China's indiscriminate export policy. For years, China has solemnly declared its allegiance to nonproliferation while becoming, as Sen. John Glenn (D-Ohio) puts it, "a virtual Johnny Appleseed of nuclear and missile technology." China has been Iran's principal nuclear supplier. It has had nuclear and missile dealings with Argentina, Algeria, Pakistan, Syria, South Africa and Iraq. A congressional effort to make most favored nation trade status for China conditional on clear improvement in this miserable record was rejected by the president. Instead he offers continued quiet diplomacy, trade and technology incentives—a policy that has demonstrably failed to achieve its objective.

Set in this context, the most damaging unfinished business from Operation Desert Storm is not Saddam Hussein's continued rule, but the failure to acknowledge and correct the glaring deficiencies in international nonproliferation controls that Baghdad's covert program laid bare.

The effort to destroy Iraq's nuclear possessions needs to go forward, but its limitations are obvious. It is impossible to root out the knowledge in people's brains and nearly hopeless to find suitcase-sized items that could be hidden

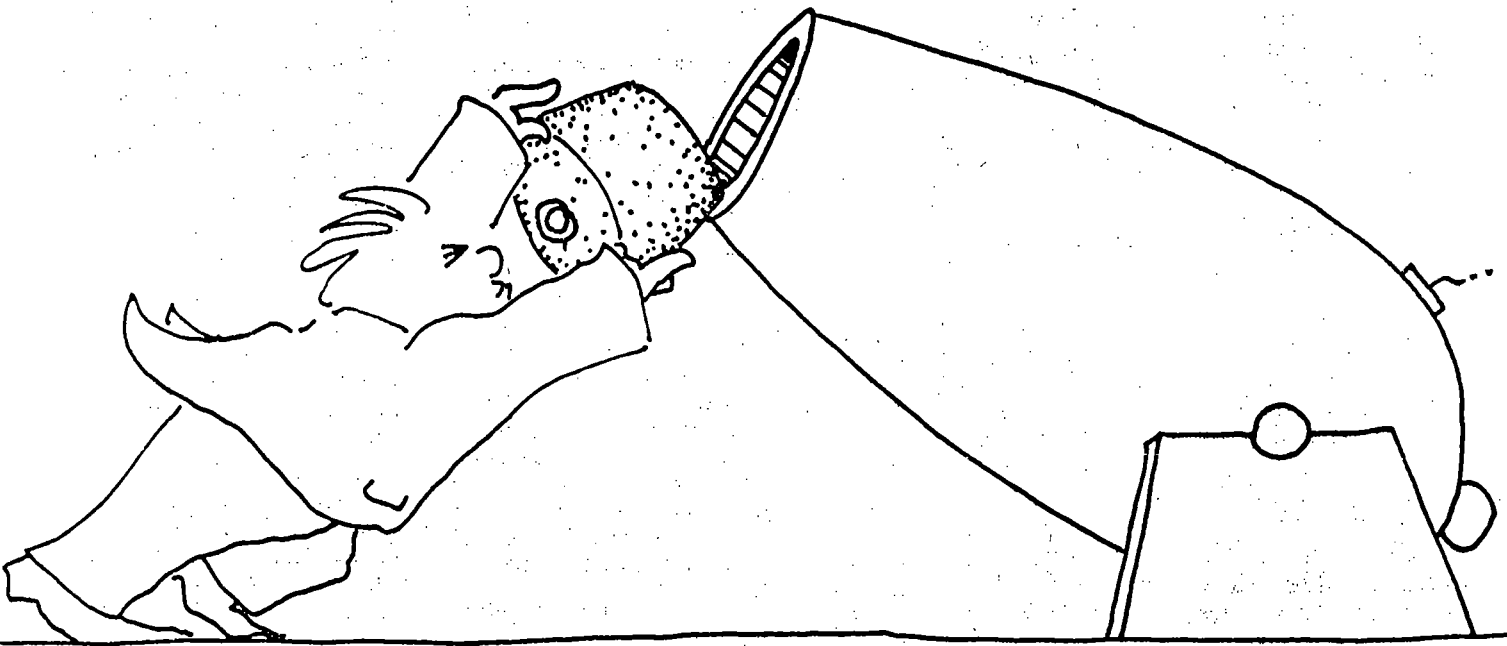
anywhere in the country. It must not be allowed to distract attention from the greater need to foil other would-be proliferators.

A year after the war the extent of the International Atomic Energy Agency's existing but unused powers is still unclear. Does the agency, for example, have the right to inspect undeclared facilities? Can it conduct a challenge inspection? Can inspectors go where they want on the basis of secret information? If not, precisely what additional powers does the IAEA need? It certainly needs a substantially larger budget and more inspectors. There has been no progress in that direction either.

Lasting success will require more than patching the current system. Ways will have to be found to track trained people as well as nuclear materials and to routinely share intelligence with the IAEA. The United States will need, at last, to accept a comprehensive test ban, a step that would put far greater international opprobrium on new nuclear states. The regime needs clear and automatic sanctions applied to exporters—beginning with China—as well as proliferators. It also needs incentives. Various forms of international assistance should be tied to the renunciation of weapons of mass destruction.

The North Korean ship fiasco should remind the president and the Pentagon of the obvious. Security after the Cold War has less, not more, to do with military strength and more, not less, to do with multilateral cooperation. It requires steady, unglamorous effort, with no time off for year-long political seasons. Right now, it demands that less attention be paid to the Pentagon's long-range budget and a good deal more to the immediate task of preventing further proliferation.

The writer, vice president of World Resources Institute, writes this column independently for The Post.



BY T. GIUSI

Jessica Mathews

The Greater Threat to Democracy

Urging a massive U.S. effort to aid Russia and the other independent states, former president Richard Nixon warned this week that "if freedom fails in Russia, we will see the tide of freedom that has been sweeping over the world begin to ebb, and dictatorship rather than democracy will be the wave of the future." I doubt he is correct.

One can agree that the United States should be doing more to prevent a return to autocratic government in the former Soviet Union and still question whether Russia's fate is the make-or-break test for democracy.

The danger in clinging to such a Russo-centered view of the world is that it ignores a greater threat to the future of democracy—the threat that rides on a spreading tide of poverty.

Democracy has enjoyed its greatest resurgence in Latin America. These fragile governments face per capita incomes that fell by one percent each year throughout the '80s, 44 percent of their population unemployed or barely subsisting, stagnant per capita food production, declining wages and cities that cannot begin to provide basic services to keep up with exploding populations. Conditions in Africa are far worse. Asia holds the largest number of hungry people, and the most still to come.

The test that is likely to determine whether freedom or despotism ultimately prevails is not whether Boris Yeltsin survives but whether democracy in dozens of developing countries can

deliver enough economic and social improvement to survive.

Can it deliver more food to the 1 billion who are hungry, including 600 million near-starving? Can it help the 2.5 billion who lack clean or sufficient water and sanitation? Can it provide enough jobs, shelter and education? Can democratic governments do all of this fast enough to

"Poverty and environmental decline are tightly linked."

outrun population growth and turn flat or declining trend lines even modestly upward? If not, then people will—as Mr. Nixon fears for Russia—trade "freedom for security."

Today's fledgling democracies face a sterner test than did ours or Europe's. Modern communications raise expectations. Even the poorest of the poor know how the rest of the world (and their own country's elite) lives. They do not expect to live as well as a poor American or even a poor Russian, but they share the universal human hope that their lot will improve. Radio and television raise the ante.

Governments of developing countries face a much tougher task in another sense as well.

The natural environment on which agriculture—the engine of development—depends is under unprecedented stress, and although the human growth rate is declining, more people are added every year (95 million in the developing world) than ever before.

True, technology is more potent than ever, but the evidence suggests that though its achievements have been dramatic, technological advance will not be enough. Since 1950, global economic output has grown twice as fast as population. Life expectancy has grown by one-third, and infant mortality has dropped by half in the developing countries. But most of these improvements slowed dramatically or came to a complete halt for most of the developing world in the 1980s. And after decades of rapid growth in agricultural productivity, including the Green Revolution and steady expansion of cropland at the expense of forest and wilderness, there are more hungry people on the planet now than ever in history.

In a highly unusual joint statement issued earlier this month, the U.S. National Academy of Sciences and its British counterpart, the Royal Society of London, saw no grounds for optimism. In a deliberately political statement, these normally cautious bodies warned that "if current predictions of population growth prove accurate and patterns of human activity on the planet remain unchanged, science and technology may not be able to prevent either irrevers-

ible degradation of the environment or continued poverty for much of the world."

Poverty and environmental decline are tightly linked. Neither is conducive to stable democracy. Where the land's capacity to produce is ebbing under the pressure of rapidly growing numbers of people who have no alternative means of survival, the result is economic stagnation or decline. This in turn can lead to frustration, resentment, political turmoil and violence. Where soil loss, deforestation and other environmental ills make it impossible to grow food, environmental refugees are created. Now estimated to number 10 million, and growing rapidly, environmental refugees are a destabilizing force—as well as a human tragedy—wherever they settle.

The acid test for democratic governing is not whether it can clean up the shambles that communism left behind in the Soviet Union, but whether it can usher in economic growth in the countries where (not counting China) 60 percent of the world's people live. There are few modern success stories to point to: Most countries have made the leap from poverty to prosperity under autocratic rule. For powerful reasons of economic and political self-interest as well as deeply held values, the United States will have to care about the developing world and Russia even while it struggles to rebuild at home.

The writer, vice president of World Resources Institute, writes this column independently for The Post.

Jessica Mathews

One Man's Land Is Another's Pollution

Two powerful opposing forces are on a collision course. When the dust settles, the meaning of private property and government's ability to promote the common welfare through regulations of just about any type—from local zoning to public health—could be radically redefined.

One force traces back to a group assembled by former attorney general Edwin Meese. As described by Reagan's solicitor general, Charles Fried, this group "had a specific, aggressive and, it seemed to me, quite radical project in mind: to use the takings clause of the Fifth Amendment as a severe brake upon federal and state regulation."

The Fifth Amendment prohibits the government from taking private property without just compensation. Originally, that meant taking physical possession of property for some public

"An American's refrigerator can cause a New Zealander's skin cancer."

purpose. Later, claimants argued that a regulation that drastically reduces the economic value of a property should also be considered a taking. A Kansas brewer, for example, argued that Prohibition amounted to a taking of his brewery. In many decisions, however, the Supreme Court concluded that a regulation is not a taking if it serves a recognized governmental purpose. More recently, recognizing the legitimate interests on both sides of such conflicts, the court warned, "if regulation goes too far it will be recognized as a taking."

The Meese group, some of them extreme Libertarians, wanted the line tightly drawn to cover any regulation that affects the economic value of private property. That would cover nearly all government actions, since just about any regulation—health, safety, environmental, labor, civil rights, housing codes, land use, you name it—could reduce the value of some land or business. Government would either have to pull back or pay compensation. As Fried explains, the expectation was that it would be forced to do the former. The policy was formally enshrined in a 1985 executive order and, more important, in the inclinations of a steadily more conservative judiciary filled by Reagan and Bush appointees.

The force rolling in from the other direction stems from science rather than law. It is the recognition that what individuals or nations do on their own property affects the economic well-being and even the physical survival of others. Pollution is the obvious case. A Pennsylvania farmer's choice of how much fertilizer and pesticide to use can determine the livelihood of a Virginia fisherman. An American's refrigerator can cause a New Zealander's skin cancer. A European's energy use could mean the disappearance of a

Pacific island nation from rising sea level.

Soil also moves. Trees cut on steep slopes can—and regularly do—cost lives from flooding far downstream. An individual can affect others even without producing a product that leaves his property. Filling in a wetland can cause drought, flooding or toxification in the next county, state or country. Altering habitat can cause species extinction, depriving others of aesthetic or economic value. Almost monthly, new scientific findings point toward an ever greater need to regulate how individuals, businesses and nations use their own land.

The two forces overlap in the burgeoning anti-environmental movement, a mix of financially pressed farmers, loggers and ranchers and wealthy corporate developers, timber, mining and oil and gas interests, spiced with a religious view first nationally espoused by James Watt. Ron Arnold, one of the movement's leaders, explains that "environmentalism is the new paganism. It is evil. And we intend to destroy it. . . . We will not allow our right to own property and use nature's resources for the benefit of mankind to be stripped from us by a bunch of eco-fascists. . . . If property rights are lost, our liberty is lost. No one should be allowed to tell a man what he can and cannot do on his land."

The movement is pressing its agenda by filing case after case claiming compensation for government actions to clean up toxics, conserve wilderness, protect wetlands and even to manage grazing on public lands. In Congress, retiring Sen. Steven Symms (R-Idaho) hopes to make his swan song the passage of a bill that would turn the Reagan executive order into law. Moderate senators supporting the bill should think twice. They underestimate the havoc it would cause. Regulations, to cite just one example, generally protect one right while restricting another. The Department of the Interior may set aside a regulation prohibiting mining close to someone's property without the homeowner's consent, on the grounds that it is a taking of the coal company's property! They forget, too, that ultimately Symms's law would require large tax increases to pay compensation for regulations the public would not relinquish.

Next week the Supreme Court, eager to curb regulation, gets into the act. It must try to come up with workable criteria to distinguish a taking from valid regulation. The decision, this summer, will likely mark only a small step on what promises to be a long and painful passage.

Where the takings movement hopes to raise the walls around private property, fencing off governmental intrusions, environmental reality demolishes the walls. There are no boundaries able to stop air, water and soil, and none therefore that can separate private from public welfare. Like it or not, ecological, geological and meteorological forces are tying us ever more tightly together. We can resist, but we can't win.

The writer, vice president of World Resources Institute, writes this column independently for The Post.

Jessica Mathews

Life and Death: U.S. Population Policy

George Bush's hypocritical and cowardly intransigence on world population growth is keeping the United States from offering a choice of life over death to millions of women in developing countries. Recently released population projections shed a new light on the future costs of this harsh policy.

There is no blinking at one devastating fact: Children born less than two years after their next older sibling are almost twice as likely to die as those born more than two years apart. Spacing is the single most important contributor to infant death. Providing the means of spacing births can therefore prevent huge numbers—perhaps one-fifth—of these deaths, and a considerable portion of maternal mortality as well.

This is not a matter of imposing someone else's culturally alien notion of the right number of children on a Kenyan, Indonesian or Saudi couple. It is about providing the means for couples who want to space or limit the number of their children to do so. Demographers call this "unmet demand" for family planning services. They peg it today at 120 million women or couples. They know that to be a gross underestimate, because experience has shown that well-designed family planning programs create demand as word spreads from satisfied users to family, friends and neighbors. The real number lies somewhere between 120 million and the 300 million couples who do not now have access to contraceptives.

The new United Nations projections reveal that it will matter enormously to our grandchildren whether contraceptive use spreads quickly or slowly. They show that the future is far more uncertain, and either much more threatening or a lot more hopeful, than we have been led to think.

Until now, official population projections have been built on the assumption that fertility will eventually reach replacement levels (in which each couple reproductively replaces itself by having, on average, 2.1 children) and stay there. After some decades at replacement fertility, populations stabilize. Depending on how fast replacement level fertility is reached, global population has been projected to stabilize at 9 billion to 14 billion people, approximately double to triple today's 5.3 billion.

The new U.N. figures expose what has been demographers' dirty little secret: Constant replacement fertility is an assumption adopted for reasons of statistical convenience. There are no grounds for believing that human behavior will actually follow that pattern. Most developed countries are 10 percent to 20 percent below replacement fertility today and may not increase. Other countries may never reach replacement.

Here's how much it matters. Sticking with the old assumption and using the most up-to-date data on birth rates, socioeconomic trends, and the like, the United Nations now projects global stabilization in 2150 at 11.5 billion (up, incidentally, from its previous estimate of 10.1 billion). If, however, fertility is assumed to be 5 percent higher than replacement, global population in that year would be 20.8 billion and climbing. If

fertility is just 5 percent lower, population would be 5.6 billion. (This is not a typo. Those who want to know more about these astonishing numbers can consult a clear, short explanation by the Population Reference Bureau.)

Since 1984, the United States has withheld funds from the principal providers of international family planning services, the U.N. Population Fund and private agencies—the former with the concocted excuse that the money might otherwise support forced programs in China, the latter on the grounds that no U.S. money should go to any agency that

In developing countries, birth spacing is the most important factor in infant death.

directly or indirectly provides abortion services, even counseling or referral. The fact that fewer contraceptives means more abortions and more deaths does not seem to trouble those who support these policies.

For three years, the president has vetoed or threatened to veto every congressional attempt to overturn these policies and repulsed every effort at compromise. Yet before Bush became Ronald Reagan's vice-president, he was a leading advocate of international family planning, criticizing the "timidity" of agencies that could not understand how "desperately" these services are needed.

Politicians have the right to change their minds, but when they do they have to explain why. Bush has never done so. I don't believe that he can. All of the reasons he once cited for making population control a top international priority are far more urgent today than they were 20 years ago.

In a recent speech to the United Nations, former World Bank president Robert S. McNamara outlined an aggressive program to slow global population growth, one pillar of which would be the provision of comprehensive family planning. He estimated the cost in 2000 at \$8 billion (in 1990 dollars) most of which would be borne by developing countries. International assistance would need to grow fourfold to \$3.5 billion, about 5 percent of all development assistance. That is a pittance.

Whether the motivation is altruistic or selfish, principally to relieve needless human suffering or to ensure the future habitability of the planet, the U.N. numbers make clear that there are urgent reasons—of both fear and hope—for the United States to do its part in providing the means for family planning. Congress is ready to act. This is the president's choice—between reason and conscience or politics as usual.

The writer, vice president of World Resources Institute, writes this column independently for The Post.

Jessica Mathews

Unfriendly Skies

More bad news from the upper atmosphere. What is one to make of it?

First, the bare facts. A NASA-led team using satellites and aircraft has discovered unexpected, extremely high levels of the most potent ozone-destroying chemical, comparable to, and even higher than levels found in the Antarctic ozone hole. Beneath them, however, were not penguins and phytoplankton, but London, Brussels, Berlin, Moscow and northern Maine. The results mean that the atmosphere is much less able than scientists previously thought to fend off the ozone-destroying effects of chlorofluorocarbons.

The discovery greatly increases the likelihood that an ozone hole will soon develop in the Arctic. Unlike the Antarctic hole, which stays put over the South pole, an Arctic hole will slither around, periodically extending as far south as 45 degrees north latitude, north of which lies most of Europe and the former Soviet Union, Canada and several U.S. states.

In years when the hole lasted for a long time, pockets of very high ozone depletion would persist into May and June, when the sun is strongest, exposing heavily populated areas to very high levels of ultraviolet radiation, raising rates of melanoma and cataracts. Effects on non-human species are less clear but possibly worse for them, and indirectly, for us.

The new findings confirmed earlier predictions that sulfates tossed into the stratosphere in the eruption of Mt. Pinatubo would accelerate ozone loss. This is another instance of a seemingly unrelated man-made change (chlorine in the atmosphere) turning an uncontrollable and otherwise relatively benign natural event (a volcanic eruption) into a severe result. Trees bathed in acid rain succumb to natural outbreaks of pests and disease they would otherwise resist. Deforestation on steep hillsides in the Philippines turned a moderate typhoon last year into a human catastrophe of death by mudslide. On this crowded planet even acts of God are becoming acts of man.

Happily, something can be done. Under the current terms of the Montreal Treaty, ozone loss will continue to grow until 2000. But revised terms requiring an accelerated phaseout of chlorofluorocarbons and tighter controls over related ozone-depleters can cut the inevitable loss significantly. Meanwhile, maximum diplomatic pressure needs to be exerted on India, the chief treaty holdout, to overcome its habitual antipathy to global problem solving and join the effort.

There is a moral here for policy makers. The findings confirmed a hunch scientists had about a recently discovered mechanism of atmospheric chemistry. There are lots and lots (hundreds, maybe even thousands) of things of comparable significance that we don't know about this planet, because its study is a scientific frontier. Also, man is creating conditions that natural systems have never before encountered, which may trigger unpredictable shifts. For the next few decades, therefore, surprise will be a constant backdrop to decision making. It has to be expected—and accommodated.

Waiting for scientific certainty, the administration's constant plea, is obviously a non-starter. By that standard there would be no Montreal Treaty and no action possible even now. The only option is to learn to act in the presence of substantial doubt. The sensible way to do that is by taking relatively low-cost steps to reduce the risk of highly unpleasant outcomes—in the same spirit that we buy insurance.

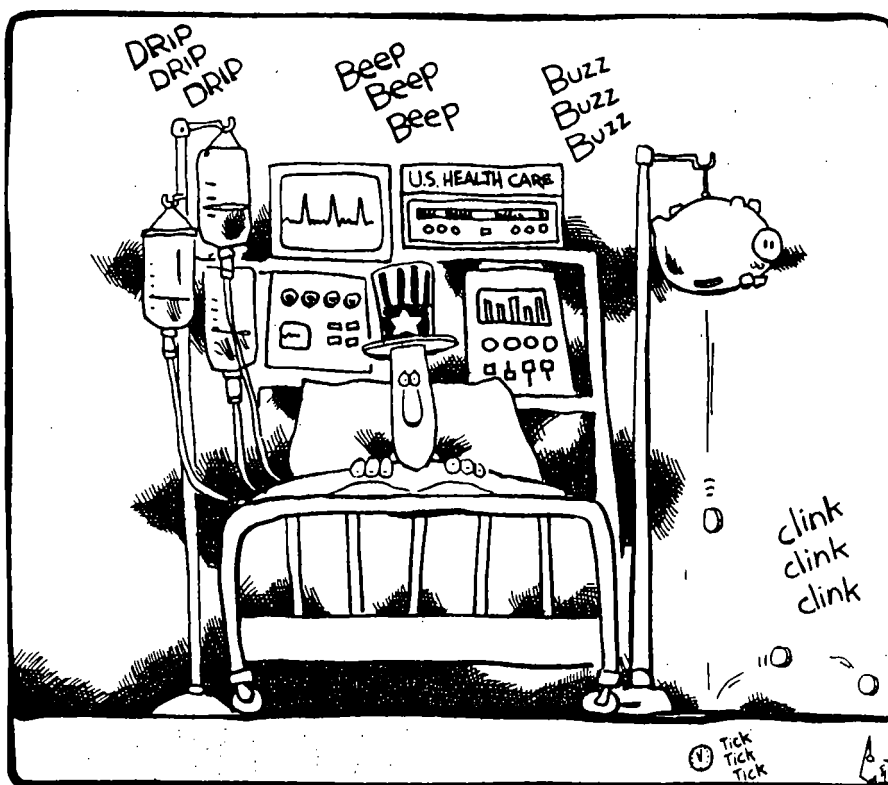
The Senate reacted to the ozone news immediately, requiring tighter controls on the culprit chemicals by a vote of 96-0. The White House went so far as to withdraw its previous opposition, but it has further catching up to do. Regulations on CFCs required by Congress more than a year ago are overdue. Some have not emerged from EPA, others have disappeared into the regulatory black hole of the Quayle Council.

The news should give the administration pause as it reconsiders its posture on greenhouse warming. Without the 1987 Montreal agreement—which involved scientific uncertainty comparable to that surrounding climate change—the world would now be facing a truly frightening situation. As with ozone depletion, there are low-cost options for reducing greenhouse risks, principally through an energy policy that forcefully promotes efficiency. The energy bill now wending its way through Congress takes modest steps in the right direction and should pass this year now that the president has withdrawn his veto threat.

By all accounts, though, internal battles are raging. Skinner is looking for ways to soften the Sununu greenhouse policy. The right wing, encouraged by the president's gimmicky 90-day regulatory moratorium, is beating the drums for no action. The No. 1 item on the Heritage Foundation's agenda of "environmentally sound, free-market goals" for the coming Earth Summit is not to discuss greenhouse warming. It would be funny if it were not so self-defeating.

The Democratic candidates have said little about climate change, though they did electronically attend last week's candidate forum on the subject. Neither Bush nor Buchanan could find the time. Long-term issues are never salient in a presidential campaign, least of all in the midst of a recession. Still, advancing ozone loss is a useful reminder that candidates' thoughts—Republican no less than Democratic—on the future habitability of the planet are worth hearing this year.

The writer, vice president of World Resources Institute, writes this column independently for The Post.



BY TOLES FOR THE BUFFALO NEWS

Jessica Mathews

Health Care: Drawing the Lines

The State of the Union address and Speaker Thomas Foley's response clearly drew the battle lines on health care. The Democrats want a system that will cover everyone, with the government as the provider of last—or, if necessary, first—resort. The president hopes merely to make the present system marginally less chaotic and perhaps (the details have not been made public) slightly more affordable for a very few.

The Democrats are right to insist that 35 million working Americans with no coverage shames us all. The Republicans are right to believe that government-managed health care could well mean lower quality care at higher cost, as it has in the Veterans Administration and the military.

Before a national debate on health has even begun, we have split, seemingly automatically, along a predictable partisan divide. That is a tragedy because it masks the real issue, which both parties have sidestepped. Until that issue is joined, all reforms will fail.

The crux of the matter is that modern medicine can deliver more health care than any society can afford. Unlike any other economic sphere, there are no inherent limits. We can squeeze out greed and waste, even cure the administrative nightmare that passes for our payment system, but as other countries that have already done all that know, it will not be enough. In order to control exploding medical costs, we will have to decide how much of what kinds of health care we can afford. Call it rationing, allocation, or making choices, it will be painful but is unavoidable.

Growth in medical costs of 12 to 13 percent per year means that costs double every six years and triple in less than a decade. Administrative reforms could produce substantial one-time savings, but they will not change the underlying trends. With health care now consuming 14 percent of GNP, up from 7 percent in 1970, we cannot afford to deny the real issue for much longer without lasting damage to the economy.

Without imposed limits, medical costs are driven skyward by biology, demography and technology. The human lifespan isn't precisely known, but it is finite. As mortality falls—whether through healthier living, preventive medicine, or treatment—people live longer. A person over 75 uses 10 times the medical care of a 40-year-old. In this sense, a good health care system, by creating an older population, is inevitably the victim of its own success. (Some believe that ultimately it may be possible to slow aging, compressing its infirmities into fewer years before death, but this remains a theoretical hope.)

The process is well advanced in the United States. Today, those over 100 are the fastest growing age group, those 85-100 the second-fastest. The effect will be magnified as the huge baby

boom generation—now one-third of the population—reaches old age. The youngest of them will be 65 in less than 20 years.

Technological advance in medicine in the past few decades has been spectacular and shows no signs of slowing. More diseases can be screened for, diagnosed and treated, more body parts repaired or replaced, more genes identified and manipulated. For every new drug, instrument or procedure that can do the same job at lower cost, there are many that do the job better but at higher cost and several more that do a new job.

There is no end to this if we continue to believe that medical "need" is the sum total of what is possible. Ethicist Daniel Callahan points out that "we do not think of people 100 years of age as needing artificial hearts. But we should know that if an effective heart is eventually developed and someone will die without it, then there will be a need for it." As instruments continue to get smaller, optics better, the immune system deciphered and harnessed and the human genome fully mapped, the possibilities become, if not infinite, at least nearly so.

That leaves us with the absolute necessity of rationing care, of ruling out some progress as unaffordable and of separating needs from possibilities. We ration already without admitting it by spending without limit on anyone who makes it inside the system and leaving out vast numbers at the bottom.

Former Colorado governor Richard Lamm, a longtime student of health care, recently took a world trip to compare medical systems. He found America unique. "As people are turned away from admission rooms, massive resources in other parts of the hospital are spent on patients for whom there is no happy outcome. America has the best technical health care, yet the cruelest and least ethical health care delivery system in the developed world."

The choices we Americans must face have little to do with whether you are a Democrat inclined to use government to solve a crying public need or a Republican sure that will only make bad worse. The choices are linked to the two parties' relative concern for those in the middle and bottom of the economic scale, but they transcend even that difference. They have to do with deciding how to sensibly and humanely care for the terminally ill and how to rule out some very expensive and marginally, or even clearly, effective procedures. They have to do with how much health care we think we can afford. None of the answers fits in a campaign sound bite, but this is the time to begin posing the right questions.

The writer, vice president of World Resources Institute, writes this column independently for The Post.

Jessica Mathews

THE WASHINGTON POST 1/26/92

It's Not Jobs vs. Endangered Species

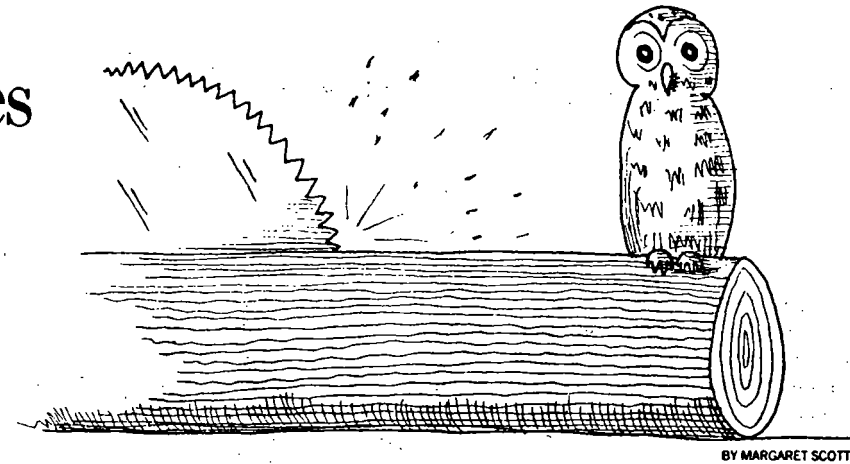
Ever since then-attorney general Griffin Bell waved a dead snail darter in front of the Supreme Court in 1978 to ask how such a trifling thing could be deemed more important than the Tellico Dam, the Endangered Species Act has acquired an ill-deserved reputation for bureaucratic might. What almost, and should have, stopped the Tellico Dam was the finding by the so-called "God Committee" (the same that is now weighing the fate of the spotted owl), that economic development in the region would be hurt, not helped, by the dam. The snail darter played a role, but as in nearly all of the controversies over endangered species, needless waste and questionable economics were at issue as much as the fate of the fish.

Shrimp fishermen, to take a current case, are up in arms over a requirement to use devices that will keep their nets from drowning endangered sea turtles. Fighting for this change are not just environmentalists but commercial and sport fishermen, because the devices will also dramatically reduce the nine pounds of fish that are caught and largely discarded with every pound of shrimp, devastating valuable fisheries like red snapper and mackerel. One side of the conflict makes this sound like a classic case of putting the welfare of another species above jobs and human welfare. The whole story is quite different. Outright waste seldom makes economic sense these days. More often it means that one person's job is another's unemployment.

Similar themes are entangled in the struggle over the old-growth forests of the Pacific Northwest. Protecting the owl will cost jobs. But jobs have already been lost by the thousands due to automation of the mills, export of raw logs rather than processed timber and a shift of the growing industry to the southeastern United States. Without protection of the owl and its habitat (already reduced to about one-tenth of its original extent), the likely eventual outcome is no jobs and no old-growth forests. The question is whether there is a compromise that will save some of both. The answer is almost certainly yes. The Endangered Species Act forces the search for it.

In the present stream of criticism, the 1973 law is nearly unrecognizable. It is portrayed as hugely expensive, generating constant conflict and unable to protect species. In fact, among the more than 600 protected species, 17 have been reclassified from endangered to threatened or moved off the list entirely, 60 more are recovering though not yet reclassified, and an unknowable but significant number have been saved from almost certain extinction had the law not existed.

But, say the critics, it has cost too much. Over 18 years, the federal government has spent \$700 million administering the act, including grants to the states and purchase of land for protecting species. By contrast, it spends about \$300 million each year to protect a few dozen species of wild game. Last year, the Fish and Wildlife Service got



BY MARGARET SCOTT

its largest appropriation, \$39 million, to administer the law for thousands of species. Thirty-nine million dollars is the average cost of one mile of urban interstate. Too much?

The United States, we are warned, is nearing "endangered species gridlock." All environmentalists need do, writes one critic, "to stop commerce and development is to run out and find an endangered species." Florida and Hawaii, hardly examples of arrested development, harbor a quarter of all protected species. Conflicts are actually astonishingly rare. Of 10,000 yearly consultations with the Fish and Wildlife Service for various federal permits and approvals, an average of 25 are found to jeopardize a listed species, and many of these conflicts are easily resolved by modifying the project.

The law is far from perfect. Many species have become extinct while waiting for protection. Badly underfunded, its administration is

often slow and infuriatingly unpredictable even for businessmen and property owners who would like to do the right thing. Its most serious failing, however, is that it offers only last-ditch measures for species that have reached the brink. Like intensive medical care, the cost per life is very high.

It will be hard going this year to separate the facts of endangered species protection from the caricature that is being painted, but it is worth the effort. The costs of extinction cannot be reckoned species by species, but only in our gradual impoverishment—economic, aesthetic and ecological. The price that must be paid can be dramatically lowered by acting sooner, well before species near extinction. The act needs improving, not loopholes.

The writer, vice president of World Resources Institute, writes this column independently for The Post.

Build the Green Machine

Robert Stempel
CEO, General Motors
Detroit, Mich.

Dear Mr. Stempel:

Welcome home. I hope you had a nice trip and are now ready to tackle the real issues. Japanese imports of more auto parts and a few cars will be nice, but it won't change your bottom line or win back those 74,000 jobs.

Every American knows that your problems are here at home. You're losing market share right here. If you can't compete with Japanese cars in the United States, how are you going to compete with them in Japan, even if every last trade barrier were removed? (By the way, next time you go asking for marketing rights in an island country, at least be ready to sell right-hand-drive cars—you'll be taken more seriously.)

So what can you do? You've been hearing nothing but bad news lately, but in fact you have a terrific opportunity. You are in command of a company with technical brains second to none in the world—use them!

Call your top people together, and tell them you're tired of trying to catch up with the Japanese and then finding that when you do, they've moved on to the next generation of improvements. Starting now, for one product line at least, GM's goal will be to leapfrog the Japanese.

The way to do that is to figure out what consumers will want five and 10 years hence. What they'll want, and what GM will give them, is a world class green car.

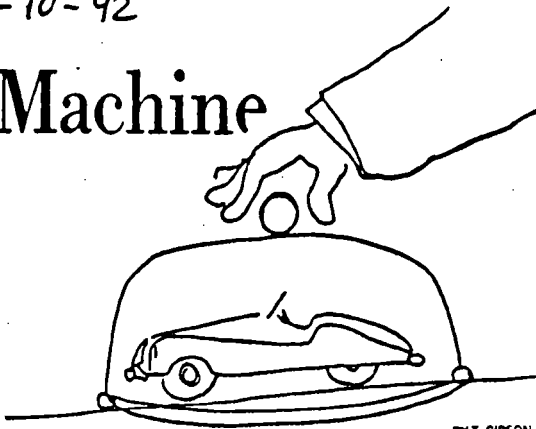
Pick your smartest, boldest and best engineers and give them this task: Design a mass-production car from the ground up that beats every government mileage, emission and safety standard two-, three- or tenfold and that is fully recyclable. Make it stylish, comfortable, adequately peppy and capable of freeway speeds.

You know that technically your people can do it. Your battery-powered Impact car and the four-passenger, 100-mpg "Ultralite" demonstration model are proof of the first steps. Then, round up all the naysayers. Tell the lawyers and lobbyists who warn you that this will make it impossible to fight new regulations in Washington that you don't care; from now on GM will be way ahead of government standards, playing offense not defense. Tell them you know that gasoline is likely to remain cheap for the next few years, but you're looking at the long term. Tell your advertising and PR people to drop the "only big cars are safe" campaign.

Tell your financial wizards that running the company to maximize short-term profits has been tried long enough. Only a fool would continue to swim against the tide of red ink. Radical change is obviously necessary. Your plan is to make General Motors, once again, the world's automotive design leader—a car maker's car maker.

Tell your marketers who think Americans only want power and gadgets that they're missing something. Show them Honda's television ad of a Civic turning a desert into a tropical rain forest, and ask why the company that's now third in American car sales might be using that message.

Suggest they look at what cutting-edge compa-



nies in other sectors are doing and find out why. They'll discover what your own polls and focus groups probably already show: That since 1987 public concern about the environment has grown faster than concern for any other national problem.

They'll find companies like Dow, Du Pont, AT&T, New England Electric, Monsanto, Northern Telecom, Southern California Edison and others setting company environmental goals vastly more ambitious than anything any regulator would dare propose. They'll learn that such companies are doing it because they think they know what their customers want and because when they looked, they found undreamt of efficiencies, technological opportunities and profit.

Tell your planning teams to forget about what's going on in Washington. Public policy is stalled way behind the public's desire for change. If they want guidance about where the world is headed, tell them to read the Japanese Ministry of International Trade and Industry's 100-year plan for planetary recovery to see what they think your markets will look like. Have your planners examine the proposals being debated by the European Community, which stress the need for urgent improvements in energy efficiency and reductions in greenhouse gas emissions.

If the experience of other companies that have adopted their own ambitious environmental goals is any guide, you'll find that setting and meeting your own targets is more rewarding (psychically as well as financially) than having the government tell you what to do. Yours is a corporate culture more resistant to change than any other, but once you get all the can't-do folks out of the way, you'll find more than enough employees excited, even inspired, by the challenge you have set for them.

Once you get things moving inside the company, get the message out. Start by putting the Ultralite in your showrooms. People will come in just to see it, and once they're there, they may buy. Get them thinking about what it would be like to own a car that fills up on five gallons of gas. Boast about the mean, green machine you've got planned.

One of your biggest assets right now is that most of your countrymen are looking for a reason to buy American. For some of them, this change in direction would be enough. Others will wait to see the product. But if you produce the car I've described, don't doubt that there'll be plenty of Americans, Europeans and, yes, even some Japanese, lined up to buy it.

The writer, vice president of World Resources Institute, writes this column independently for The Post.

Jessica Mathews

State of the Planet

THE WASHINGTON POST 1/2/92

On the two central determinants of the planet's future health, energy use and population growth, the United States achieved little in 1991. There were hopeful signs of change, but in the end, with one major exception, they fell short.

For the first time, both houses of Congress repudiated both pillars of the Reagan population policy. They voted to resume financial support for the U.N. population fund and to abandon the so-called Mexico City policy that prohibits support for most international providers of family planning services because these groups include abortion among their services. Though George Bush once championed a massive global effort to provide contraceptives to all who want them, the White House refused even to discuss compromise. The measure died, and for the time being U.S. support for this global imperative remains a bone thrown to the Republican right wing.

It was equally a time of transition on

energy policy. One lesson of the gulf war was forgotten almost before the fighting ended. For a few weeks an energy policy was our most urgent national need, then vanished with hardly a trace.

By the end of the year a critical mass in Congress recognized that a country that holds 3 percent of world oil reserves can ill afford wholesale energy waste or a policy that focuses solely on energy supply. Yet the alternative—a strategy that begins with energy efficiency—is still politically feeble. And so the Senate defeated the president's energy plan, which was little more than an oil production bill, but had nothing to put in its place.

In a move that could mean large future cuts in energy use, however, Congress did say "enough" after 35 years of single-minded dedication to building highways. In the most under-reported story of the year, it redirected 120 billion in federal dollars, and billions more in state funds, toward support of rail, transit, van, pedes-

trian, bicycle and congestion-management options, seating dozens of new decision makers at tables once reserved for highway engineers. The new law is a promise that will have to be redeemed in tough political combat, city by city and state by state. Air quality, oil needs, congestion and rational land use will all be determined by the outcome.

Without an energy policy, the United States was unable to grapple with the threat of greenhouse warming and found itself increasingly isolated in international negotiations. Vigorous diplomatic arm-twisting failed to hold British and Japanese support of Washington's view that nothing should be done yet. By year's end, only Saudi Arabia and the ex-Soviet Union remained in the U.S. corner.

The difference of opinion is about the cost of taking action, not about science. Europe and Japan believe they can prosper with even higher energy prices (their gas taxes are already 10 times

ours) and more efficient energy use. The United States, not yet having started down that path, does not. The administration insists that Europe's intention of cutting carbon dioxide emissions is empty rhetoric. That view took the last of many knocks a few weeks ago, when the European Community approved the general terms of a carbon tax.

The year did not set another global temperature record, probably only thanks to the eruption of Mt. Pinatubo. But in most respects, the global commons continued to show signs that despite heightened effort, man's impact on natural systems still far exceeds his ability to control damaging activities. Ozone loss over the Northern Hemisphere, for example, was found to be twice as great as predicted even though chlorofluorocarbons are being phased out on, or ahead of, schedule.

A global agreement to ban the use of drift-nets in the oceans stands out as an

exception to this trend. The credit for it goes to relentless U.S. pressure applied through trade sanctions. The ban is a vital reminder that trade agreements must not harness the pace of international environmental progress to that of the slowest marcher.

A successful outcome to the Uruguay Round trade talks is devoutly to be wished for, but if it is achieved at that price, as the current draft GATT agreement suggests, it would be a pyrrhic victory. Without the U.S. ban on fish imports from countries using drift-nets, the indiscriminate and wholly unnecessary slaughter of inedible fish, dolphins, whales, seals, turtles and seabirds would still be accepted practice.

On the international scene, and at home, public opinion was the most notable environmental actor in 1991, making itself felt with unprecedented force in international negotiations and corporate

boardrooms. Polling data suggests that governments have not caught up to the public desire for change. Business is responding more quickly, having discovered that improved environmental management often saves money and having seen, in some cases, the long-term gain in embracing, rather than resisting, environmental concerns.

The outlook for 1992 is for more of the same. Energy is likely to remain the stumbling block in Washington, but progress toward greater efficiency will continue through state policies and in the private sector. Without a national consensus, however, the United States will have little to offer in international leadership and runs the risk of severe, long-term economic loss.

The writer, vice president of World Resources Institute, writes this column independently for The Post.

Jessica Mathews

THE WASHINGTON POST 12/20/91

The Struggle Against Cancer

Twenty years ago this week, President Richard Nixon declared a national war on cancer. Ten years later, Ronald Reagan defined the terms of victory as a 50 percent reduction in cancer deaths by the end of the century.

Today, cancer is the leading cause of death for women and will likely be the leading cause for everyone by 2000. Overall, cancer mortality has risen.

On first glance, it looks like a pretty bleak outcome, one for which a general or two ought to be fired. In fact the picture is so unclear that experts in the field fiercely debate whether optimism or concern is called for.

Part of the reason for cancer's greater share of mortality, for example, is that deaths from heart disease have declined so dramatically. And President Reagan's goal was known to be unattainable at the time it was declared. Taking inflated expectations and progress in other areas into consideration doesn't clarify the situation all that much.

The numbers are not in question. At issue is what they mean, and that is determined by which subset of figures a particular expert chooses to use. George Bernard Shaw remarked that a truly educated person is one "who can be moved deeply by statistics." He had a point, but he might better have noted that the educated person is also the one who knows that statistics can be used to prove almost anything.

For cancer, the debate centers on which age groups one looks at and which cancer sites to count. Cancer mortality among children is way down—one battle clearly won—but people younger than 45 account for only 5 percent of all cancer deaths. Cancer mortality among older people, the great majority of cases, is steeply up. The rates are, of course, adjusted to account for the aging of the population.

Many experts prefer to subtract lung cancer because its huge numbers obscure other trends and because it is largely the result of a known cause, smoking. Others set aside stomach cancer because the cause of its sharp decline also seems clear—changes in diet due to refrigeration, less salting and pickling. Setting aside one, both or neither pushes overall mortality rates up and down. The alternative is to look at the trends site by site, which achieves greater clarity at the expense of a clear picture for public health.

In addition to stomach cancer, deaths from Hodgkin's disease and cancer of the cervix and uterus are sharply down. A group of others, mostly of the digestive tract, are stable. The trend that worries many is the steady rise in the incidence of brain, blood and hormone-related cancers. Between 1973 and 1987, breast and brain cancer in the United States each rose by about 25 percent. Prostate

cancer and non-Hodgkin's lymphoma rose about twice as much. Melanoma—lethal skin cancer—rose by more than 80 percent.

Some argue that these increases are due to improved screening and diagnosis or to the fact that older people who would otherwise have died of a different cause are more susceptible to cancer. The scientific debate is colored by personal antipathies between some of the major players and by differences in style more than substance. In a familiar action-reaction sequence, scientists who feel that some of their colleagues overstate their case deliberately understate it. The public is left with an impression of uncertainty that is far greater than the facts warrant or than the researchers themselves believe. (The same thing is going on now in the debate over greenhouse warming.)

The weight of the evidence seems to suggest that neither improved diagnosis nor differences in the older population, nor improved care of the elderly can fully explain many of the upward trends. For example, one in nine American women will be diagnosed with breast cancer during her lifetime, up from one in 20 a few decades ago. Some of that increase, says the National Cancer Institute flatly, "cannot be explained." The melanoma increase may be largely the result of increased exposure to

sunlight in childhood, but the rises in brain and prostate cancer, multiple myeloma and non-Hodgkin's lymphoma are an enigma.

The optimists are right to point out that it is all too easy to let the scary mysteries obscure what we know. Smoking accounts for a staggering 30 percent of all cancer deaths. Alcohol and diets high in animal fat are heavily implicated. Exposure to sunlight is partially controllable, though the effect of greater ultraviolet radiation due to ozone depletion is a growing concern.

Great strides have been made in understanding the basic science of cancer in earlier diagnosis and in treatment and quality of life for some patients. But despite all the money and effort, cancer mortality is up. There are grounds for a degree of optimism (in the cancers that can be prevented through changes in behavior) and for worry. Treatments are still elusive, unbearably painful and terribly expensive. Prevention—not cure—remains the goal, through epidemiology as well as laboratory science. Here there is room and need for an even greater effort.

The writer, vice president of World Resources Institute, writes this column independently for The Post.

Jessica Mathews

A More Perfect Union?

The speed of Europe's historic march toward union belies the magnitude of the problems these 12 nations are wrestling with. Far from the spotlight focused on momentous choices such as the adoption of a single currency are changes so numerous they barely merit press coverage. Yet together these comparatively mundane decisions are as revolutionary as political union itself.

They are decisions about how to economically control air pollution that blows across borders when the cleanliness of industry differs drastically from country to country. They attempt to harmonize energy policies, worker health and safety, food packaging and purity, toxic waste transport and disposal and dozens of social policies. They deal with the cleanup of rivers and seas polluted by many countries. The Danube flows through seven countries before it empties into the Black Sea, which is bordered by three more. Seventeen nations are collaborating in the slow rescue of the Mediterranean.

The significance of these decisions is not their individual content but that Europe is learning how to solve problems that nations cannot solve alone. It is pioneering the mechanisms for regional governance. Because of ever-deepening economic and environmental interdependence in a world adding 1 billion people per decade, this is arguably the most important political advance since the federal system was conceived 200 years ago. For Europe, interdependence is not just the likely motif of the post-Cold War era, but daily experience.

"Europe is reaching agreements among nations that the United States is unable to achieve within itself."

The sheer number of sacrifices that have to be made in the interest of political and economic union makes it easy to underestimate how painful each step can be. Europeans are not only submitting to community decisions of enormous economic consequence, but they are also giving up cherished national traditions. French brie, it appears, does not meet community health standards. Germans and Danes must compromise on bottled beer.

If such choices don't seem so difficult, contrast them to the blocked political arteries we are beginning to take for granted. Europe worked out two international treaties to control sulfur and nitrogen oxides, the precursors of acid rain, in far less time than it took the United States to balance the interests of Ohio and Vermont.

THE WASHINGTON POST

Europe is debating a hefty additional energy tax to control its carbon dioxide emissions, whereas Congress is unable to pass even the tiniest increase in the gas tax. Whenever it considers a gas tax increase, some of the loudest opposition is based on the tax's perceived unfairness to drivers in Wyoming and Idaho. (In fact, regional differences in miles driven vary by only about 10 percent.)

Everywhere, not only in Europe, boundaries are becoming less significant. More and more issues are moving up from national to regional and even global agendas. In the United States a current is flowing in the opposite direction. Unable to reach agreement in Washington, states are making what should be national, and ultimately international, policies. To the extent we have one, for example, energy policy is being made by the states.

While a common interest cannot be reached by members of a 200-year-old union, members of one that is yet to be born seem able to do so. Europe is forging agreements on waste transport and disposal. Here, western states are slapping lawsuits on each other and the federal government over the movement and fate of nuclear waste. States all over the country are enacting bans on "imports" of garbage only to have them struck down by the courts.

So last year more than two-thirds of the Senate voted to legalize such trade bans. Other states are trying tariffs. Alabama's heavy tax on non-Alabama waste has been approved by its supreme court. Borders that recently cost lives are disappearing in Europe. Borders that once were only lines on a map are closing in the United States.

None of this is to suggest that Europe has become an environmental or social nirvana. Lots of community decisions have been made. Many are not followed. Few are enforced. There will be plenty of setbacks and outright failures. In many respects—human rights and immigration policies come immediately to mind—European countries have some catching up to do with the United States.

Still, a striking contrast remains. Europe is reaching agreements among nations that the United States is unable to achieve within itself. Success in problem solving, as in anything, breeds confidence. With all the change they are inflicting on themselves, European governments and businesses are more ready to take on the competitive challenges of a rapidly changing world.

The United States, or at least Washington, is getting more accustomed to failures, large (reducing the budget deficit) and small. The experience shrinks our sense of what we should even attempt, makes us more protective of the status quo and less sure that we can protect our interests in messy multilateral negotiations where we cannot dictate the outcome. As Europe's union is born, ours could use some fresh beginnings.

The writer, vice president of World Resources Institute, writes this column independently for The Post.

Jessica Mathews

Countdown To Earth Summit

John Sununu's departure forces the president into a number of unwelcome choices on issues with which the former chief of staff was personally and vociferously associated. A shift in policy will suggest that prior decisions made by Sununu were made not just in the president's name, but in his stead. No change in these policies will saddle Bush with clear ownership of positions he has been more than happy to leave to his pit bull.

The clearest of these is the administration's posture on global warming. Sununu's conviction that the threat of rapid climate change is hysterical tree-hugger nonsense is, by now, well-known. He kept a simple global climate model on his personal computer, as though in his spare time he could somehow disprove what researchers were concluding. The strength of his feelings was sufficient to scare off as powerful a figure as James Baker, whose first official act as secretary of state was a speech urging action on greenhouse warming. Not long thereafter, Baker did an about-face, taking the extraordinary step of legally excusing himself from an opinion on the subject because of his personal oil and gas holdings.

Fearing to tread where Baker would not, Energy Secretary James Watkins and then-attorney general Richard Thornburgh (whose department played a role in international greenhouse negotiations) both backed away from the issue. It was made very plain to EPA Administrator William Reilly where White House tolerance of his views ended. Newly arrived presidential science adviser Alan Bromley was put in charge of a "no action because of too much scientific uncertainty" policy—and that, until now, was that. There has been much criticism of the administration's position, but it has largely attached to Sununu.

Now the president has a few months to reconsider. The timing is forced by the 1992 United Nations Conference on Environment and Development (UNCED), the so-called Earth Summit. Though the conference is not until June, its success or failure will be largely decided in negotiations during the first three months of the year.

After more than a year of intense diplomatic preparations, hopes for UNCED are fading. The general opinion is that unless the United States changes course or the conference's adroit chairman—Canadian Maurice Strong—is able to pull a rabbit out of a hat, UNCED will end in a North-South standoff. Blame for this is being placed on Washington. The conference might well fail to meet its ambitious goals anyway, the feeling goes, but with the world's remaining superpower and richest economy objecting at every turn, progress is impossible.

Three tenets shape the U.S. position in the UNCED negotiations, including those concerning a global climate treaty. (1) The United States (the lowest aid donor, as a percentage of GNP, among OECD nations), will not agree to any additional money, only to a reshuffling of present funds. (2) It will not agree to specific targets or timetables for the achievement of internationally set goals, reducing much of the conference material to hortatory mush. (3) And it objects to discussion, introduced by developing countries, of the need to alter present consumption patterns—especially of energy—in the industrialized countries.

Together, these principles leave little room for an agreement. The South might not insist on new funds if the industrialized countries promised action in their own economies—for example, a commitment to stabilize or cut back their carbon dioxide emissions. Or the developing countries might agree to mutual efforts on atmospheric protection, tropical deforestation, biodiversity, land degradation and the rest, without the North taking the first steps, if additional funds were forthcoming. With neither dollars nor northern initiatives in the offing, even those nations that recognize the costs of environmental degradation and its intimate connection to poverty can see little to discuss.

The United States has approached UNCED and the climate convention in a defensive crouch. The negotiations are viewed as a job of damage limitation, not as a potential contribution to international security and economic growth. The Haitian boat people, fleeing a country denuded of topsoil, illustrate the links between environmental ruin, economic decline and political chaos. Eastern Europe, much of Africa and many of the Asian Soviet republics make the same point. But so far the Bush administration has shown no signs of recognizing that protection of the planet is among the essential tasks of a new world order.

Presidential politics may nonetheless dictate a change of course. Recent polls indicate that a candidate's environmental record weighs heavily with voters of both parties. Bush will have to consider whether a barrage of criticism on UNCED and the climate treaty shortly before the campaign would destroy his claim to have been the "environment president." A key factor will be whether the United States has been forthcoming enough in the negotiations for him to comfortably appear in Brazil. If the heads of state of most leading nations decide to attend, a decision to stay home could be politically costly.

Like it or not, Bush now has to declare himself. His choices are not, in fact, as unpalatable as they have seemed to the White House. A clear-eyed evaluation of the possibilities will show that there are several low-cost, high-gain agreements to be had at UNCED, particularly on global warming. Politics and substance both dictate a new beginning.

The writer, vice president of World Resources Institute, writes this column independently for The Post.

Jessica Mathews

Bush's Double Game

Rep. Henry Waxman (D-Calif.) doesn't mince words on the subject of the White House Council on Competitiveness, chaired by Vice President Quayle. He thinks it is engaged in "wantonly illegal" activities that make it "a domestic version of the Iran-contra operations of the National Security Council during the Reagan era."

What has aroused Waxman's ire is a series of decisions that, if allowed to stand, would demolish much of the Clean Air Act, which Congress has just finished 10 painful years writing. The council provides a back door for industry to win policies explicitly rejected by Congress and by government agencies in public proceedings. By claiming executive privilege, it can act in secret, flouting public accountability rules meant to ensure the fairness, openness and integrity of official decision making. The gravest damage done is to the dwindling stock of public confidence in government.

At a time when conservatives as much as liberals can see the crying need to rebuild trust, the council's actions nourish the view that the federal government is an elaborate exercise in deception and hypocrisy. For its real job is to allow Bush to play a sophisticated game of bait and switch. By now the pattern is well established. The president claims public credit for environmental achievements and then reaps a quiet political reward from businessmen who use the council to undo them.

Thus the Clean Air Act, target of the council's most egregious recent attacks, is also proudly cited by the administration as the chief accomplishment of Bush's tenure as the "environmental president."

Bush saw the potential in this stratagem while still vice president. As chairman of the council's predecessor, the Task Force on Regulatory Relief, he tried to derail the phase-out of lead in gasoline. While there are many questionable claims of environmental and health hazards, lead is not one of them. It causes severe mental and physical retardation and, in the most minute quantities, lowers IQ. For the environment president, the education president or the just plain responsible president, getting rid of lead is beyond debate.

Nonetheless, the task force blundered ahead, trying to save the oil industry a few bucks. The move created such an uproar that it ultimately resulted in tougher regulations than those the task force reversed. During the campaign, Bush actually claimed credit for that outcome. That he got away with it is a tribute to the breathtaking ineptitude of the Dukakis campaign. The council hasn't gotten the message on lead yet. This year it rejected out of hand a proposed clean air ban on incinerating lead batteries.

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Here's candidate Bush on another point: "Japan's recycling rate is 50 percent, yet some feel the EPA's national goal of a 25 percent reduction in waste is excessive. I'd like to see us exceed that goal in my first term." Following through, EPA proposed that incinerator operators be required to separate 25 percent of their garbage for recycling so long as the price of the recycled materials covered the costs. Rejected—by the council.

Candidate Bush got lots of mileage out of his "no net loss of wetlands" pledge. President Bush got a lot of heat from developers. Solution? Have the council rewrite the technical manual to define away half of the wetlands. Oh, there are a few minor glitches. The new definition of wetlands doesn't cover the Everglades, for instance. Like the lead phase-out rule, this one has elicited a chorus of Bronx cheers and will have to be reversed. EPA will get the job of devising a face-saving outcome.

Remember that great photo op when the president in shirtsleeves pointed out the shrouded beauties of the Grand Canyon and announced an agreement to cut local emissions by 90 percent? What he didn't say was that the plan had been worked out by environmentalists, industry and local officials after the Council on Competitiveness had proposed to allow three times as much pollution.

The council's crowning achievement, the mother of all loopholes, concerns the Clean Air permit process. Under a key feature of the new law, factories and other pollution sources must obtain a permit stating their allowed emissions. The council's twist allows emitters to unilaterally change their permits—increasing emissions by any amount—by writing a letter to their state agency. Unbelievable as it sounds, unless the state agency objects within seven days, that's it. Instead of the "polluter pays" principle, this is the "polluter permits" principle.

The White House is taking a second look at the plan now. If issued, the rule is likely to be struck down by the courts eventually. In the interim it will create regulatory chaos and delay clean air progress for years.

The Grand Canyon agreement, arrived at by negotiation and consensus, left all sides reasonably satisfied. It will stick. The council's one-sided rulings, by contrast, more often than not end in confusion, delay, litigation and uncertainty for investors—everything businessmen rightly hate in government regulation—and a drag on productivity and competitiveness. Still, a quick fix that leaves no public footprints is too good to ignore. As long as the opportunity is there, it will be used. The best way to end the president's double game and the council's assaults on policy, is a heavy dose of public scrutiny.

The writer, vice president of World Resources Institute, writes this column independently for The Post.

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Jessica Mathews

The Race To Claim The Gene

The story of the 20th century has been one of sprinting technology and plodding societal responses. Technology produces a *fait accompli*, and sometime later society struggles to cope with the consequences.

Now, because of explosive progress in the lab and a profoundly misguided move by the U.S. government, we could wake up one day soon to discover that the human genome, the information in the 100,000 genes that make us everything we are, is owned—patented—by a handful of companies and governments in Europe, the United States and Japan. We are not ready for this, neither as Americans nor as human beings.

In brief, Craig Venter, a scientist at the National Institutes of Health, has developed a technique that enables him to rapidly read the information in short stretches of human genes. These chemical sequences act as tags, which can be used to isolate the complete gene. Neither the chemical tag nor the complete sequence tells what the gene's function is, however. That requires a long and arduous discovery process.

Using machines, Venter can produce 2,000 gene tags per month, and other labs will soon be doing likewise. NIH has filed for a patent covering Venter's first 350 tags, their complete genes and the genes' yet-to-be-discovered products. They say an application covering another 1,500 genes is on the way.

The patent application has created a furor, though not for the reasons you might expect. There are arguments over whether a patent can meet the legal test of "utility" when the genes' functions or possible applications are unknown. There are arguments about how broad patents would affect industrial investment in developing applications. And there are charges that patents would force researchers into secrecy, frustrating the scientific goal of mapping and sequencing the entire genome, most of which lies outside the informational genes. That would transform a collaborative international research effort into a cutthroat competition in which no country could afford not to lay claim to whatever human genes its scientists could get to first. There is little doubt that if the NIH patent is granted, it will set off an international gene race that would make the Alaskan gold rush look sedate.

These are the concerns of people caught up in a swiftly moving enterprise that promises huge economic and scientific rewards. The scientists you might expect to be raising the more fundamental questions are either involved in biotechnology companies themselves or primarily concerned with the success of the \$3 billion Human Genome Project, biology's first encounter with big science. Society's interest has been swept aside in the stampede.

Eleven years ago, in a landmark decision, the Supreme Court ruled 5 to 4 that a genetically engineered microorganism could be patented. In the majority view, the case turned on whether this bacterium, which could live off oil spills, was a product of nature or a human invention. The answer seemed clear. What might have provided the occasion for a far-reaching ethical debate seemed, in the decision, to be only a narrow legal issue. Patenting humans seemed an entirely different matter and a long way off.

It wasn't. From the *Chakrabarty* decision until today, it has been a fast slide down a legal slippery slope. Transgenic animals were patented—they too were clearly not products of nature. Individual human genes with particular medical applications were patented. With the promise of a new industrial revolution in the offing, the right moment to consider the question of what if anything in the genomes of plants, animals or humans should not be patented never arose.

Is the basic information in the human genome an assignable property right? Or does it belong to nature, God or all mankind? The question has never been put, and now it may be decided by, of all things, the Patent Office.

There is an international dimension to this as well. The United States is pushing hard for an agreement in the Uruguay Round for uniform international patent law. Since patents are a form of monopoly that freezes technological, and therefore economic, power in the hands of those who already have it, this is strongly opposed by the developing countries. A key concern is that uniform patent protection, combined with the North's free access to the South's wealth of species, would mean that a developing country's genetic riches would leave that country free of charge and return to it in the form of costly, patented drugs, seeds and other products.

Not only would developing countries not reap the economic gain of their biological wealth, the incentive to conserve it would be removed. Contentious as this issue is, it will be as nothing compared to the reaction if a few developed countries, representing perhaps 10 percent to 15 percent of the human family, were to stake a preemptive claim to intellectual property rights over the human genome.

The choices here are too important for patent lawyers. NIH should withdraw its application. This time, Congress and the rest of us should decide what we want to do with a powerful new technology before we do it.

The writer, vice president of World Resources Institute, writes this column independently for The Post.

Jessica Mathews

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Oh, Give Me a Home Where the Subsidies Roam

The loud noises emanating from the West are not the battle cries of a newly aggressive environmentalism but the overdue death throes of an era that began more than a century ago. The conflicts raging over salmon vs. hydro-power, forests and wildlife vs. timber, mining rights, grazing fees, and water are all fundamentally the same. On the surface, each looks different. Underneath, they are all about natural resource use that is heavily subsidized or given away free under anachronistic federal policies.

Though he would never, in his worst dreams, have intended it, Ronald Reagan inadvertently provided environmentalists' text. The marketplace allocates resources more efficiently than government, he said—get government out of the way, and let the market work. That focused a spotlight on federal subsidies that distort markets, costing taxpayer dollars and encouraging wasteful resource use. Americans suddenly discovered that the same policies they condemn in the Brazilian Amazon were flourishing at home, left over from the 19th century.

Beginning with the Homestead Act, the government lured settlers to the West with promises of free land and access to its abundant resources. The

mining law of 1872 gave a property right to mining claims, and charged no royalties. The Bureau of Reclamation provided cheap water to struggling farmers. The National Forest Service built roads to allow timber production. The Bureau of Land Management encouraged cattle grazing. Later, the Bureau of Reclamation and the Corps of Engineers built and operated dams to provide cheap electricity and irrigation in the Northwest.

Over the years, settlers turned into vested interests, while policies stayed the same. Homesteads became profitable corporate farms, still using federally supplied water sold by the government at a fraction of its cost. The Forest Service built a network of logging roads nine times as long as the interstate highway system, servicing a now mature timber industry. It sells timber below cost more often than not, costing taxpayers millions of dollars. By the government's own assessment, federally owned grazing lands are badly degraded from overuse, but grazing fees remain far below those on private lands, and substantially less than the government's cost of managing the range. Giveaways under the unchanged Mining Law cost the government nearly \$1 billion per year, sometimes fi-

nancing vacation homes masquerading as mining claims for a few dollars an acre. And the Northwest is booming on electricity that costs 40 percent less than the national average.

Policies that made economic sense when the West was a harsh and empty frontier would be hard to justify today under any circumstances. When they also damage the wildlife and landscape westerners prize, and deepen a crippling federal deficit, they become untenable. But ending the subsidies, though inevitable, will be a lengthy and bitter fight.

What began as inducements long ago became a way of life for ranchers, miners, farmers and loggers. Paying market prices for the resources they use will lower profits for some, force others to change long accustomed practice, and put some genuinely uneconomic enterprises out of business. Some people know they have a good thing going and will battle to keep it. For others the adjustments will cause economic hardship. For them, some of the federal savings can and should be used to ease the transition.

Ironically, the toughest battles may be for the hearts and minds of government bureaucracies that often behave

as though they have forgotten whose interest they are intended to serve. The Forest Service first promised that its timber program would become self-supporting 85 years ago. Seven years ago, at wit's end, Congress ordered it to develop an accounting system that would pinpoint below-cost sales. The new system showed losses from logging in almost two-thirds of the national forests, but even this turned out to be an underestimate. To arrive at its figures, the Forest Service had resorted to tortured accounting practices which counted revenues that never appear in the Treasury and amortized investments in temporary logging roads over more than 2,000 years.

The solutions are uncontroversial in theory and explosive in practice (something worth remembering when dispensing free advice to shaky developing-country governments). Congress could ban below-cost timber sales—if it could ever reach agreement on what to count—or simply reduce its appropriations for building logging roads. New federal water contracts should charge the full cost of delivering the water. Federal grazing fees should reflect the full price of maintaining a healthy rangeland. A small increase in hydro-

power rates (if made soon enough) could save the salmon from extinction. And 1992, the 120th anniversary of the Mining Law, would be the right time to rewrite this flagrant federal giveaway.

One other valuable natural resource would still remain underpriced. Recreation in national parks and forests does not cover its costs either. Nearly 300 million visits will be made to sites run by the Park Service this year. Demand is growing so rapidly that visits are expected to double in 15 years. All this use puts enormous strain on the parks, yet the minimal fees collected by the government do not cover its costs or allow for the repair of accumulating damage. The same equation, heavy use at very low cost, holds true for hunting, fishing and camping in the national forests.

Environmental groups, sensitive to their members' interests, have generally shied away from this issue, but should no longer. Charging a realistic price for the use of scarce resources is sound policy whether the use is mining, grazing, logging—or hiking.

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Jessica Mathews

Labs In Limbo

The end of the Cold War is pushing defense and intelligence agencies into a frenzied search for survival strategies. Some of them would be funny if so much money were not at stake. Cold warrior Edward Teller argues, for example, that SDI would be terrific for environmental monitoring. Proposals that the CIA should build its strength in economic intelligence and industrial counter-espionage are more serious, though still highly debatable. So far, however, little attention has been spared for the future of what may be the most valuable legacy of the Cold War, the country's eight national laboratories.

Los Alamos was the first. There J. Robert Oppenheimer collected the team that, in 27 months, turned an idea into the first nuclear weapon. Now the group includes Oak Ridge, Livermore, Brookhaven and others whose names rightfully evoke scientific excellence. For nearly five decades, money has been poured into building unmatched technical facilities, recruiting individual talent and nurturing scientific and engineering teams that can tackle the most difficult mission.

Today the labs are foundering, managing decline while trying to reinvent a future. They must find enough bits and pieces of work to support huge budgets whose central rationale, the design and support of nuclear weapons, is eroding. The unaddressed public concern is how to effectively use the talent in which so much has been invested, while avoiding both the danger that large sums will be wasted in misguided makework and the risk that this national asset will slowly dissolve as morale falls and the best people drift away.

There is no shortage of post-Cold War technological needs—computing, energy, transportation, materials science, education, environmental management and so on. A popular notion is that the labs' undisputed expertise could be harnessed in pursuit of civilian technology in such fields. But it is not at all clear that such an effort would help make the country more competitive.

Of necessity, the labs operate with much secrecy, a substantial hindrance in civilian research. By choice, they are physically and culturally remote from the marketplace. They excel in engineering, but know almost nothing about cost control, high-volume production, ease of use or consumer preference in the domestic, let alone the international, market. Many of the innovative small businesses to whom their services are being offered have nothing but a technology. These businesses don't need help with research and development, but with financing and marketing. As one skeptical CEO put it, "It's just hard to find a profit-driven attitude there."

Ways may be found around these liabilities, but for now the labs' future is hostage to the national schizophrenia over central economic planning. There are those who want the United States to emulate Japan and Europe in investing in research and development that has long-term public value but whose payoffs are too remote for the private sector. For others, the traditional American distrust of centralized economic decision-making runs too deep.

For the time being, it has been agreed that a national industrial policy that would single out and promote particular industries is out of bounds. Technology policy, on the other hand, is politically correct, even though, once choices are made about particular technologies, it can amount to much the same thing. Inside the White House, it is acceptable to talk only of supporting "pre-competitive generic technology," which is technology policy with a smile and a wink. At bottom, there is no consensus behind federal support for technology save that related to national defense. In this limbo, the national laboratories have been left dangling.

A blue ribbon national commission is needed to reexamine their role, beginning with whether the national laboratories should continue to serve a single master, the Department of Energy. Without a continuing Soviet nuclear threat one weapons design lab, rather than three, may be enough. Perhaps that one should be managed by the Pentagon, whose needs it serves and to whom its budget should logically be charged.

The remaining labs might function better without the uneasy internal competition between military and civilian interests and be more able to collaborate with the private sector. If some of the labs seem well suited to a new focus in areas such as biotechnology, advanced materials or transportation, they might be better served by working in whole or in part for other Cabinet departments. The commission would have to figure out how such transformations could be achieved without turning the laboratories into job shops or sacrificing their strengths in basic research. The commission might even make a contribution on the broader question of the appropriate federal role in promoting civilian technology.

As the Cold War ended, this country was devoting 70 percent of its public R&D funds to defense, dwarfing the global average of 25 percent and Japan's 4 percent. Inevitably, there is a long and difficult transition to be navigated. Without an effort to consider what should be done with this unneeded scientific capacity, it is likely that the country's total research effort will shrink just when it needs to rise.

In 18 months the Los Alamos laboratory will be 50 years old. It would be nice to mark that anniversary with a clear vision of what it and the others should be doing for the next 50.

The writer, vice president of World Resources Institute, writes this column independently for The Post.

Jessica Mathews

Superfund Boondoggle

Is your community facing a military base closing that will slash employment? Are you a weapons manufacturer confronting falling Pentagon budgets? Or a lawyer or engineer looking for lucrative new fields of work? Whether it's pain relief or profits you need, the answer these days is too often the same: Don't take two aspirin; get into hazardous waste cleanup.

Cleaning up the country's tens of thousands of chemical and radioactive waste sites is threatening to become an exorbitant boondoggle. After Love Canal, Valley of the Drums and Times Beach, hazardous waste removal became a national crusade. By ill luck, it began just in time to help take the sting out of military budget cuts.

Neither the civilian nor the military cleanup efforts have a clear idea of how clean and safe the sites should be made. This snarls already tangled litigation and provides a convenient cover for bloated budgets. The whole endeavor could end up devouring resources out of all proportion to the health and environmental risks involved.

The sums at stake are enormous. The likely cost for the Pentagon's 11,000 potential sites is \$100 billion to \$200 billion. The estimated bill for the Department of Energy's nuclear weapons production facilities and national laboratories is \$300 billion. One site alone, the Hanford Nuclear Reservation in Washington, is projected to cost \$30 billion to \$50 billion. The military cleanup is costing \$7 billion this year—considerably more than EPA's entire budget.

The eventual cost of the civilian Superfund program is unknown. Ignore the frequently quoted estimate of \$750 billion or more. It has no foundation and is almost certainly much more than what will be spent.

But the cost will surely be great. In the past decade \$20 billion has been spent on emergency measures at 400 sites and full cleanup of 60. Twelve hundred sites remain on the priority list, and more than 30,000 others are considered potentially hazardous. Unless the rules are changed, by the end of the decade perhaps 500 sites will have been cleaned up, but the priority list will have grown—at a public and private cost of \$20 billion per year.

Too much of this money is being wasted. To date, more has been spent on legal briefs than bulldozers. For each site, the federal government identifies a group of responsible businesses and sues them for the cleanup costs. The relevant state government does likewise. These corporations then identify and sue whatever other parties they can find—businesses, banks and municipalities—to share the costs. Five hundred or more parties can end up litigating over one small site. Eventually, legal costs for Superfund could top \$200 billion.

On the military side, there are all the familiar incentives to inflate costs, and few to control them. Cleanups of closed plants and bases can employ more people than the facility did when it was operating. And what congressman these days wants to vote to cut environmental cleanup funds? Inside the Pentagon, the project is seen as at best a necessary diversion from the military's mission—a natural attitude, but one that does little to encourage enthusiastic management or tight supervision of contractors. With so much money sloshing around, there's an invitation to waste and abuse.

Excesses extend to present practices as well as past. Visiting a national laboratory this summer, I watched a researcher toss a tissue that had been moistened with a few drops of acetone into a hazardous waste container. He knew that the acetone had evaporated and the tissue was no more hazardous than a piece of used Kleenex, but he was following new Energy Department regulations enforced by visiting "tiger teams" as fanatical in their cause as Ayatollah Khomeini's morals police.

A year ago Congress reauthorized Superfund without debate. No one had the stomach to look too closely at a program so popular at home that had so little to show for all the money being spent. But now a useful discussion of how to remedy the program's shortcomings is beginning. It promises to be political dynamite.

Liability has to be reexamined. Superfund rests on the popular notion that the polluter should pay. But continued homage to a theory is less important than the reality that indirectly everyone is paying, and no one has money to burn. Fairness can be served and egregious wrongdoers punished without spending half, or even one-fifth, of a cleanup program's costs in the courts.

Even tougher questions surround the program's undefined goal. The aim should not be to make a cleaned-up site free of risk. Congress will have to decide how safe is safe enough and change the rules accordingly. Cost should count much more than it does now. Some sites are not worth \$1 million or more per acre either in terms of the danger posed or likely future use. In some cases, containment measures that isolate a site, preventing entry and offsite pollution, should be allowed instead of cleanup. And some sites should be left for later treatment when new technologies might dramatically lower costs.

Comparable standards should apply to the military cleanup. True, \$7 billion is barely visible in the combined Pentagon-DOE budget. But in a year or two it will be \$10 billion, and if just a fifth of that is wasted it could enable Head Start to enroll half instead of a quarter of eligible children. Waste cleanup is a priority, but it must not become a sacred cow. Other needs are too compelling.

The writer, vice president of World Resources Institute, writes this column independently for The Post.

Jessica Mathews

Thinking Ahead

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World population will double by the middle of the next century. Energy use will at least triple, and economic output is likely to increase fivefold. Only a rapid transformation of technology can allow that kind of growth without acute damage to the environment.

Such new technology would follow nature's example in which materials are used with high efficiency, little if any waste is produced and every byproduct is used as the starting point in another process. A glance in a biochemistry text shows that all of nature's designs are circular. Nothing is linear, as most man-made processes are.

Such change is entirely feasible. With only a modest effort, present practices could be made to look primitive. Dozens of studies suggest that the United States could cut its energy use in half with available technologies, and there is no telling what could be achieved through a determined research effort. Of the billion pounds of pesticides used here each year, less than one percent reaches a target pest. It's not too much to expect that number to increase five- or tenfold. With biotechnology it may be possible to engineer pest protection into crops' own genes so that no chemicals

are needed at all. The transportation system uses marginal improvements on 50- and 100-year-old technologies. Light rail, the hottest thing in mass transit, is basically the trolley car, a technology introduced in the 1880s. The revolutionary power of information and communications technologies has barely been applied to this creaky sector.

Experience suggests that cost will not be the limiting factor. The economy is built on heavily polluting and resource-intensive technologies because environmental criteria have seldom influenced design. When they do, alternatives blossom. A decade ago, experts believed alternatives for some uses of ozone-depleting chlorofluorocarbons could not be found at any price. Yet within months of the signing of a treaty requiring that CFCs be phased out, the marketplace exploded with new products and ideas. Now the Environmental Protection Agency believes that CFC replacement could prove to be a net economic bonus because many of the substitutes save energy. CFC replacement only looked hopeless because there had never been a reason to develop alternatives.

Industrial policies that hope to ac-

celerate technological development by trying to pick likely winners won't work. Technology forecasts reliably produce comic results. In 1955, for example, John von Neumann, one of the century's towering scientific figures and a trained engineer, was asked to predict technological developments over the next quarter-century. Von Neumann expected that ways other than fission (or fusion) would be developed to tap nuclear energy and that alternatives to generators would be developed for making electricity so that by 1980, "energy may be free—just like the unmetered air—with coal and oil used mainly as raw materials for organic chemical synthesis." Though well aware of the dangers, he also expected that "intervention in . . . climatic matters will come in a few decades" so that such "temporary disturbances" as northern winters and tropical hurricanes "might be corrected or at least depressed."

Even when new technologies are already on the scene, efforts to judge their impact can be wildly off the mark. In 1959, according to the National Academy of Engineering, "it was believed that 5,000 Xerox machines would saturate the U.S. market."

Fortunately, general policy reforms can both accelerate technological development and channel it in desired directions. Economic incentives—not subsidies but pricing that reflects the entire social and environmental cost of products and activities—are the most promising. The gas tax is a familiar example. Industrial pollution charges based on monitoring each pipe and factory are another. Newer ideas gaining in popularity include paying for waste disposal through individual charges rather than general tax revenues. Since the charge is based on the amount of trash from each household, individuals have a reason to adjust their behavior, and new technologies have a market. Electronic license plates allow time-of-day pricing of highway use, providing a powerful incentive to reduce congestion.

Ironically, however, just as environmentalists have begun to worship at the pillar of economic efficiency, urging the use of such market mechanisms in place of government regulation, polls show that the public much prefers regulation, no matter how inefficient, to taxes.

Getting rid of barriers to innovation is another fruitful approach. Regulations

that prescribe the use of particular "best available" technology raise present standards at the expense of innovation. So, unintentionally, do health, safety and environmental laws that establish higher standards for new products than for ones already on the market or that make it extremely expensive to get a permit for a new technology, particularly since so many innovators are small firms.

More far-reaching ideas may be needed. Robert Ayres, a noted materials and energy expert at Carnegie-Mellon University, believes that eventually it will be necessary to discard the custom that when a manufacturer sells a product it is then owned by the consumer. If, instead, the manufacturer retained ownership and responsibility for reuse, recycling and waste disposal, there would be a dramatic impact on product design.

Technological innovation is the fastest horse on the environmental sustainability track. The trick is figuring out how to steer it without slowing it down.

The writer, vice president of World Resources Institute, writes this column independently for The Post.

Jessica Mathews

Gorilla in the Greenhouse

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Up and down the East Coast, gardeners are baffled by flowers blooming two months and more ahead of schedule. In my own garden, October chrysanthemums were in bloom on the Fourth of July. Greenhouse warming leaps, unbidden, to mind. One cannot help wondering whether the plants are sensing a climate pattern ahead of human temperature measurements.

Measurements also show a warming trend, but not quite so dramatically. Globally, 1990 was the warmest year since measuring began in the 1850s. The 1980s were the warmest decade in that period—about half a degree warmer than the preceding 40 years. The six warmest years in the last 140 were '90, '88, '87, '83, '89 and '81. The snow is melting earlier in Alaska, and Arctic sea ice is retreating.

These are some of the reasons Europe is impatient to begin controlling greenhouse gas emissions. There are still many puzzles and uncertainties, but the science of global warming is far more robust than most Americans, including the president, have been led to believe.

Bush has allowed John Sununu to overpower conflicting views within the administration. The chief of staff's obsession with the subject is by now well-known. It is so strong that several top officials have decided that there is no point in contesting the issue. Secretary of State James A. Baker III took the extraordinary step of opting out by legally recusing himself on the grounds of a conflict of interest due to his personal oil and gas holdings. (He has never

explained why such a conflict would not extend to Middle Eastern diplomacy.)

At the G-7 summit last week, the United States was alone in preferring environmental rhetoric to action. The strength of European annoyance was revealed by unusual on-the-record complaints about the U.S. posture. "The U.S. wants to avoid anything other than generalization. Everybody else wants to make a commitment," was how one European official, quoted in the Los Angeles Times, put it.

Heretofore, Britain has always acceded to U.S. pressure to block international greenhouse commitments, but it has served notice that it will no longer. After being rebuffed in a recent effort to find a compromise between the United States and the European positions, British Environment Secretary Michael Heseltine learned that Sununu had dismissed him as a freelancer who did not reflect his government's views.

Heseltine fired back a letter to the White House described by British government sources as "unusually tough and personal," enclosing a speech just delivered by Prime Minister John Major. Apparently unconcerned by the possibility of a direct conflict with the United States one week before the summit, Major made clear that the rest of the world views the United States as the 800-pound gorilla of global carbon dioxide emissions, responsible for a quarter of the world's total, as compared with the European Community's 13 percent. In several not-so-subtle references to the United States, Major em-

phasized Britain's intention to control its emissions "if others do their part."

Without Britain or Japan in its corner, the United States' principal allies in resisting greenhouse commitments in the broader global negotiations are Saudi Arabia and the Soviet Union. Saudi Arabia opposes any plan that might lower consumption of its only product. The Soviet Union cannot cope with additional requirements of any kind, though improved energy efficiency would greatly benefit its economy. The rest of the world finds it hard to see why the United States belongs in this company. The consensus view held by Europe, Japan, Canada and a growing number of developing countries is to ready a treaty, including emission-control goals, for signing at next June's U.N. Conference on Environment and Development, the so-called "Earth Summit."

This last of the major U.N. conferences of the century could pose a problem for Bush if the climate negotiations continue to make progress despite U.S. opposition. The Brazil meeting would provide an unparalleled photo opportunity on the brink of the presidential campaign if several agreements are ready for signing and most of the world's leaders attend. Or the president could be forced to stay home to avoid embracing a treaty he has resolutely opposed, offering his Democratic opponent a powerful argument that the "environment president" turned out not to be one.

There is not much time left to adjust the U.S. stance. It was just six years ago that scientists

first suggested that global warming warranted international action. Three years later, in 1988, a meeting of governments in Toronto called for a 20 percent cut in carbon dioxide emissions by 2000 and completion of a climate convention by 1992. At the time, both goals seemed wildly optimistic, targets purposely set to exceed governments' grasp rather than achievable aims.

In 1991 the Toronto goals no longer seem fanciful. Six countries, including Germany, have pledged to meet the emissions goal. The rest of Europe, Japan and Canada have committed to stabilizing their emissions at approximately 1990 levels. There is a realistic chance of a finished treaty by 1992, despite the unprecedented complexity of an undertaking that involves all countries and touches on energy use, economic policy, north-south equity, the accounting for long past emissions, future population growth and other equally thorny issues, all once solely domestic affairs.

The treaty would be a beginning and not an end. But even so, the pace of events so far is meteoric. Nothing in the history of diplomacy would have suggested a few years ago that progress could be so rapid. Noting the strength of international readiness to begin slowing greenhouse emissions, and the degree of American isolation, Bush should realize that it's high time he heard more than Sununu's views on the matter.

The writer, vice president of World Resources Institute, writes this column independently for The Post.

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Earth Is the First Priority

The space station can wait.

As a mental experiment, imagine asking 100 people in the street which they care more about—the future of mankind on Earth, or a possible new start elsewhere, on the moon perhaps, or Mars.

Then sharpen the question. Postulate limited funds for the next decade or so. Ask the same 100 people (include yourself) their choice between an urgent effort to understand Earth's workings and to measure and diagnose man's accelerating impact on the environment, on the one hand, or taking the first step toward colonization of other planets. Would you expect the vote to be closer than 100-0?

Congress just faced this choice in deciding whether to continue funding for Space Station Freedom. In a measure of the degree to which it can sometimes lose sight of the public's priorities, and under heavy arm twisting from the administration, it cast the only vote that counts on the other side.

The choice between Earth and space is forced by spending caps agreed to by all sides in the effort to control the budget deficit. Because of these necessary limits, funding for the space station will force large cuts, beginning next year, in NASA's Earth sciences program. Over a decade, the station will likely devour nearly a third of the top priority homeward looking program, the Earth Observing System (EOS).

The space station will cost \$2 billion next year, and nearly 100 times

that if it were to be built and operated for 30 years. But the full bill will probably never come due, for this is transparently a program in search of a mission, a terminal condition for an expensive engineering project.

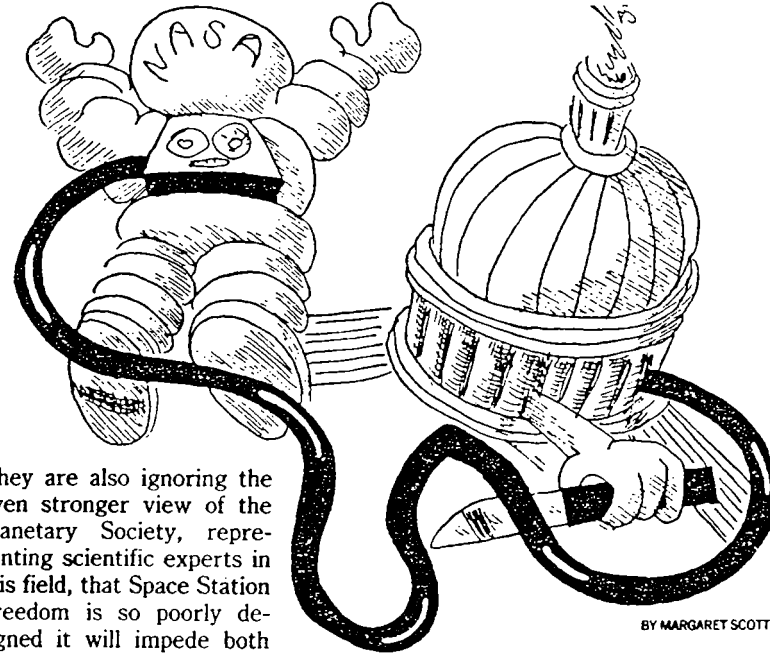
The space station loses missions faster than commissions can be gathered to propose new ones. Interest in microgravity materials research, once high, has dwindled. Plans for going to the moon and Mars sidestep this platform. The station's only real remaining purpose is to study the effects on the human body of prolonged exposure to space, and even for that mission, many scientists argue, there are cheaper and better alternatives.

Despite the cost, the painful trade-offs, the lack of commercial interest and the station's irrelevance to trips to the moon and Mars, Richard G. Darman, the president's green eyeshade man, calls the fate of this troubled platform nothing less than "a defining test of our civilization." That's because, in his eyes, no Space Station Freedom means no manned space exploration, and no manned space exploration means a society that has lost its greatness and technological daring. Eventually, no manned space program means no space program at all because taxpayers will only support the adventure of people in space.

Even if you buy the questionable premise that bold technological feats are any kind of fitness test of civilization, none of the links in this chain of unreasoning bears scrutiny. The pub-

lic hasn't pinned its hopes for manned space exploration on this particular project. In fact, nothing is as likely to drain public support as a project so flawed that it just barely stays in business year after year. And there's no way of knowing that the public can only be excited by manned missions. That's been true until now because manned missions are what NASA has marketed. Whether it would be true if NASA marketed the grandeur of its scientific ambition remains to be seen. For myself, an orbiting space telescope that can peer back to the birth of the universe has a second space station (the Russians have had one up for years) beat hands down on the excitement meter.

The space station debate brims with irony. There is the spectacle of a Republican budget man forcing a huge spending project down the throat of a reluctant Democratic Congress. There is an administration that rejects calls for a national industrial or technology policy on the grounds that the government is sure to pick losers, pushing a project for which there is little if any enthusiasm in the private sector. And there are policy makers, at both ends of Pennsylvania Avenue, who regularly criticize scientists for failing to establish funding priorities, brushing aside an unprecedented joint statement from 14 scientific societies (representing physics, chemistry and mathematics, among others) that the space station will crowd out more valuable science.



BY MARGARET SCOTT

They are also ignoring the even stronger view of the Planetary Society, representing scientific experts in this field, that Space Station Freedom is so poorly designed it will impede both manned and unmanned space exploration for decades.

The bitterest irony, however, is the notion being bandied about that if a choice must be made between looking homeward and reaching further out to space, the future belongs to space. (Those who insist that a choice isn't necessary are kidding no one—next year's budget numbers make it plain.) Those who put Earth first, so this view has it, are timid and guilty of a cramped vision. Those who chose space are bold, daring and destined for economic greatness. As Charles Krauthammer put it [op-ed, June 14], "Leave Earth to the near-sighted. Give our children the moon."

This is dangerous bunkum. There are 5 billion people on this planet, soon to be 9 billion or 10 billion. How

many would ever live on the moon or Mars? How many would ever want to—unless Earth becomes unlivable? Here, Mr. Darman, is a defining test of civilization: Can the human species learn in time how to create sufficient wealth for this many people on this planet without destroying the physical environment that supports life?

That is as bold, as great a scientific and technological challenge as mankind has ever faced. It is one at which we cannot afford to fail. The first step is to understand how the Earth works and what man is doing to it. Space can wait. Earth is the first priority.

The writer, vice president of World Resources Institute, writes this column independently for The Post.

Iraq's Nuclear Warning

Iraq's acknowledgment of its nuclear weapons program shakes the international nonproliferation regime to its core. Saddam Hussein's wholesale violation of the Non-Proliferation Treaty does not mean that controlling the spread of nuclear weapons is a lost cause. It does strip bare a veneer of effectiveness that has concealed long-known weaknesses in the system, which must now, at last, be confronted.

If these failings are decisively addressed, international security could emerge strengthened. If they are not, the likelihood of controlling chemical weapons, ballistic missiles and high-technology conventional arms, as well as nuclear weapons, will suffer.

That Iraq has for a long time been determined to become a nuclear weapons state is not news. In 1976 Iraq bought a research reactor far too large for its purported peaceful purpose. Four years later it tried to purchase material whose only possible use was to be irradiated in that reactor and thereby produce weapons-usable plutonium. Nonetheless, Iraq remained a member in good standing of the NPT for more than a decade.

This was possible because the treaty allows members legally to get much too close to weapons capability. Countries may possess weapons grade material (as long as it is occasionally inspected); may have a weapons-related research and development program; and may even—as in this case—reveal an ambition to make weapons, all without technically violating the treaty. In short, states may do everything but assemble a weapon before . . . well, actually, before nothing. The treaty contains not a word about the consequences of its violation.

Iraq has admitted to pursuing three different illegal routes to making weapons grade uranium. (The statement says nothing about a plutonium program—there may be more revelations to come.) Only one of these covert programs, which requires imported parts, was apparently known to intelligence agencies. The shattering fact of the Iraqi disclosure is that the other two projects went completely undetected.

According to administration sources, one of these programs, which depends on simple, unclassified World War II-era devices, succeeded in producing about two bombs' worth of nuclear fuel. Nonproliferation expert Leonard Spector notes that it has been assumed that in a world of pinpoint spy satellites, covert weapons programs would be detected before this point. That comforting reliance on technology now must be discarded. Institutional reform on many fronts—strengthening the International Atomic Energy Agency, amending the Non-Proliferation Treaty and tightening export controls—is essential.

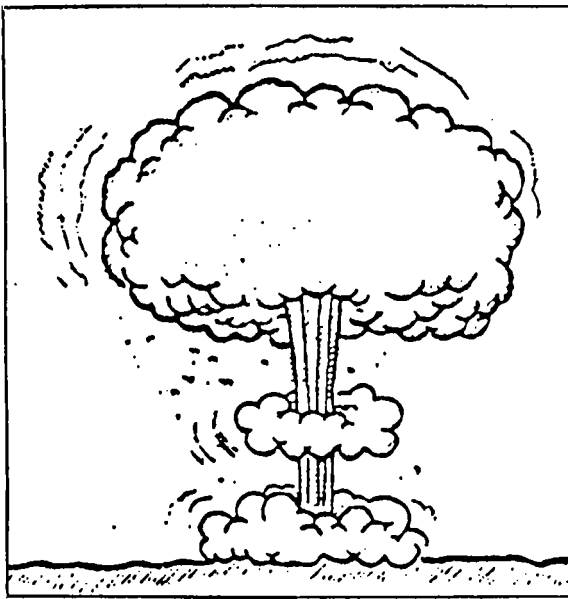
The Iraqi experience suggests that it is impossible to effectively safeguard weapons-grade material. International rules should therefore focus on eliminating the need for such material in civilian nuclear programs. The Nuclear Control Institute, a Washington-based group, has been urging this

approach for years, pointing out that the highly enriched uranium in the 100-odd research reactors in 35 countries around the world—most of them supplied by the United States—could be replaced with nonthreatening material at a minuscule cost. In an inexplicably shortsighted effort to save a few bucks, the administration's current budget cuts the funding to produce this alternative fuel. Congress should restore it.

The IAEA needs the power to inspect facilities in member countries anytime, anywhere. Twice yearly inspections announced weeks in advance are little more than a nuisance to a determined proliferator. The agency's director general must also have the authority to apply escalating pressure on suspicious programs, including early re-

course to the U.N. Security Council. If the IAEA's politicized board of governors continues to hinder effective action, it should be reconstituted or bypassed.

The Security Council should formally announce that nuclear proliferation, a clear and present danger to international peace, will henceforth be its concern. Continuing pressure on Iraq until all its nuclear facilities and materials are discovered and destroyed is the first



BY WICKS

step. The next is to develop economic and political sanctions applicable to other potential proliferators, whether they have signed the NPT or not. North Korea, Iran and Algeria are high on the watch list right now.

Penalties against countries that transfer dangerous technologies to others are just as important. China is a perennial bad actor. Pakistan is also a major concern. Incentives are also needed to draw more countries into the fold, and to recognize and reward steps like South Africa's recent decision to join the IAEA. These steps will have to be reinforced through the major powers' individual diplomacy. The United States, for one, has not had a serious nonproliferation policy since the Soviet invasion of Afghanistan removed U.S. opposition to Pakistan's bomb project. Later, the Reagan administration treated nuclear commerce as though it were a benign expression of the free market. Now it should be clear: Consistent nonproliferation policies that recognize the inherent security threat, steadily applied, can obviate heavy military and intelligence expenditures later. China's nuclear exports, to take an obvious present case, should be a factor in deciding its trade status.

Ironically, Iraq's mortal challenge to the nonproliferation regime comes at a moment of great possibility, as the superpower arsenals begin to come down and as countries like South Africa, Brazil and Argentina take positive steps. Long-term success in stopping the spread of nuclear weapons is still possible, but not without a major effort.

The writer, vice president of World Resources Institute, writes this column independently for The Post.

Jessica Mathews

Balkanizing The Budget

This time of year, House Budget Committee Chairman Leon Panetta (D-Wis.) usually spends 18-hour days in last minute efforts to avert a budget crisis. This summer, with the unaccustomed luxury of a budget hammered out last year, he is taking the unusual step of looking ahead at the long-term trends affecting the state of the union.

The view is not reassuring. The budget agreement notwithstanding, huge deficits stretch as far as the analysts can calculate. Spending needs—for health care, infrastructure, education and nonmilitary research, at least—are growing. Yet the country seems flatly unwilling to pay more taxes.

Panetta sees two conventional ways out: crisis or presidential leadership. The former is to be avoided, and the latter is unforthcoming. The only alternative some budget committee members see is that people may be willing to pay more taxes if, as Rep. Tony Beilenson (D-Calif.) says, "you can promise them you are going to spend that money on something they want."

The premise of a democracy is surely that its elected leaders will spend the people's money on things the people, collectively, want. But distrust, in the congressmen's view, is now so great that the only option is to short-circuit the government's role by channeling money directly from people to a predetermined need.

Instead of Congress and the president deciding each year what the country's needs are and allocating money from a general fund supplied by a universal income tax, Panetta thinks we may be heading toward a federal budget composed of an array of trust funds drawn from earmarked taxes that can instead be called user fees.

"What I see happening now is that members are taking the pay-as-you-go principle seriously and saying, okay, we want to pay for highways or for mass transit, we want to pay for space, we want to pay for education, we want to pay for whatever we care about. Then, you translate that into a way to say to the American people, yes, we are going to increase your tax, but it is going to go for this specific purpose."

Trust funds may produce the needed dollars, but at a price that outweighs the benefit. It is nearly impossible to design a fund that for years and years into the future will match needs and revenues. Trust funds are a quintessentially static tool in a society where technology and demographics are changing rapidly. They lock in a particular means of meeting a need and remove the economic incentive to look for ways to meet the need at lower cost.

The highway and airport trust funds, for example, have produced money to build excellent highways and airports. But the long-term result has been perverse. The more highways and airports we have, the more we use them. The more we do so, the more the funds grow and the more we build etc. The effect has been to chain ourselves to the least energy-efficient ways of moving people and freight while the alternatives—rail, mass transit, pedestrian and bicycle options, urban redesign and other forms of demand management—starve. The product is unbalanced and, therefore, overburdened. We have highways, albeit potholed, and airports, but we do not have a transportation system.

The highway trust fund could be transformed into a transportation trust fund supplied by a variety of fees, but the broader it becomes the less it may meet individuals' definitions of "something they want," and the more difficult it becomes to devise an automatic formula for allocating the money. Eventually, coming full circle, you'd need people, preferably elected, to decide how the funds should be spent.

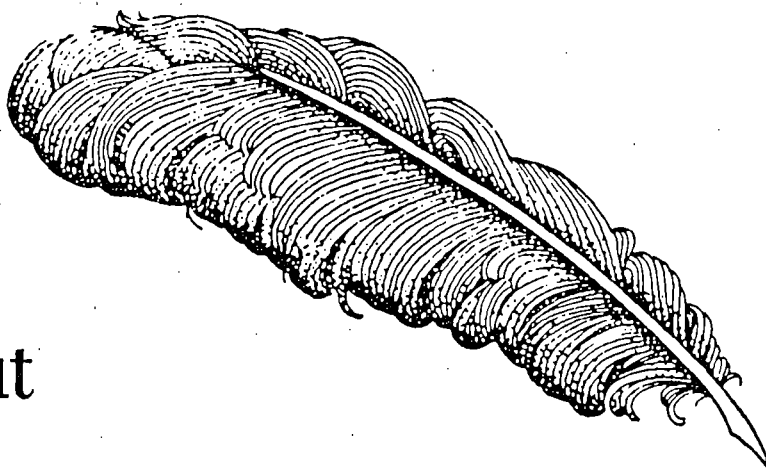
Panetta expects trust fund proposals for education, health care and infrastructure. He worries because user taxes are regressive and because together the trust funds would be so constraining that future presidents and congresses could not respond to changing circumstances.

There is a subtler reason to fear proliferating trust funds. They would Balkanize the federal budget, transforming it from a rough approximation of the national interest, in which each citizen is an equal shareholder, to a collection of independent, separately funded enterprises in which each individual and ethnic, racial or regional group might or might not feel a part. Every American will benefit from better schools. Should those without children contribute to an education trust fund? Trust fund by trust fund, the natural question would be, "What's in it for me?" States would wrangle, as the Senate recently did over the highway fund, to see that each gets back from every fund as much as its citizens paid in. The notion that every American's welfare ultimately derives from the common good would recede still further.

Congressional budget committee members have for years been on the front lines of a losing battle to cage the budget deficit. Few know better than they what more is possible. If Chairman Panetta and his like-minded colleagues are correct in believing that Americans may only be willing to pay for federal services they directly consume, the implications are deeply alarming.

The writer, vice president of World Resources Institute, writes this column independently for The Post.

Our Leaders Used to Care About Posterity



What would the Founders think of our short-term mentality?

Not so long ago, Americans were collectively the most forward-thinking people in the world. The wisdom of the Founding Fathers was rooted in their obsession with the future. These "wisest men politically in recorded history," in the words of Henry Steele Commager, "couldn't give a speech or write a letter without talking about posterity."

George Washington used the word "posterity" nine times in one speech, Commager notes. Thomas Jefferson talked about the "thousandth and thousandth generation" in his first inaugural address. After signing the Declaration of Independence, John Adams wrote Abigail, "I do not know what will be the outcome of this. We may pay a very high price. But it is certain that posterity will profit from our sacrifice."

Today, public policy does not take seriously our children's welfare, much less our great-grandchildren's. Ten years is about the longest we can plan for. George Bush exhorts us to turn a nation of schoolchildren who do not understand fractions or percentages into "the best in the world" in science and math by the year 2000. The goal is so manifestly unrealistic that its only explanation must be the belief that anything longer would seem too distant to command attention.

Have we changed permanently, and if so when did it happen and why? Or is our present delusion that the future can take care of itself a temporary blindness from which we will recover? We owe ourselves some answers.

Whatever the causes, the time scale of what constitutes long-term thinking has certainly shrunk. Corporations, preoccupied with money games and the next required quarterly report, have contracted their planning horizons and research agendas. In the public sphere, we cannot mobilize a durable consensus for national investments whose payoffs appear over decades. A Marshall Plan would be unlikely now for more reasons than the

sense that we couldn't afford it. We are getting more and more used to thinking short-term. At the bottom of this slippery slope, the future gets discounted completely. Deficits don't cause concern—or enough concern to make a difference. Savings and investment lose their primacy. Consumption is king. Eventually, the present is all that matters.

This is an American, not a modern, condition. Months after being elected on a "no new taxes" pledge, German Chancellor Helmut Kohl proposed an immediate 67-cent-per-gallon increase in the gasoline tax to cover the unanticipated costs of reunification and the gulf war. And in Japan, MITI (the Ministry of International Trade and Industry) is at work on a 100-year plan to combat global warming. Neither step is imaginable in the present U.S. context.

The "New Earth 21 Action Program," as the MITI draft plan is called, intends to devote "the next one hundred years to the recovery of this planet from two hundred years of the accumulation of carbon dioxide and other greenhouse gases." The first 50 years are to be "the transition period, when environment-friendly technologies are developed and introduced." In the next half-century "future generations will draw on the results of the first half to recreate a green planet." Beyond this broad conception, there is a decade-by-decade plan of technological goals for the first 50 years.

The significance of the MITI plan is not its specifics—which will almost certainly prove inaccurate—but that it is being drawn up. Long-term goals excite and motivate, create a sense of dynamism, and channel energies in certain directions, so there will be economic rewards. More important, a 100-year plan reflects a society that knows its own well-being lies in building its future.

In fact, the future matters now more than it ever has. In the past 40 years, while the industrialized

world was largely occupied with avoiding nuclear war, the human species caused more change to the planet than it had in the previous 10,000 years. Population growth, economic growth and technological advance have combined to precipitate us into the midst of faster and more extensive global change than any the planet has experienced, at least since our arrival on it.

This is the central, staggering finding of a monumental just-published study, "The Earth as Transformed by Human Action," organized by scientists at Clark University (and in which I played a minor role). Nearly all of the measures of human-induced environmental change about which we know enough to allow estimation, from human population growth to water use to emissions of trace gases, show greater change since 1950 than in the preceding 10,000 years.

Our understanding of these physical trends is sketchy. The data are full of holes. We have no reliable measures of trends as basic as soil loss or water quality. Many fundamental processes—how climate works, for example—remain mysterious. And there is every reason to believe there are shifts underway that we are not even aware of, just as we were unaware of the ozone hole until it had reached continental proportions.

Based on the rapidity of change, we can only say with confidence that the future will be upon us more quickly than ever before. That puts a greater than usual premium on nations' abilities to discern and respond to long-term imperatives—whether they be a highly educated work force or an economy that can grow with a lighter footprint on the biosphere.

It would be nice to have a Jefferson writing the next inaugural address.

The writer, a vice president of World Resources Institute, writes this column independently for The Post.

Jessica T. Mathews

May 6, 1991 THE WASHINGTON POST

'A Desperate Game of Catch-Up'

From ridiculed scare story in the early '70s to precedent-setting international regulation in the late '80s, the ozone layer seemed—until a few weeks ago—a clear-cut success story, proving that global environmental threats could be surmounted despite uncertain science, powerful commercial interests and deep international divisions.

But the recent finding that ozone loss over the Northern Hemisphere is twice as great as predicted means that protection of the Earth's life-giving stratospheric ozone must now be considered unfinished business, the outcome very much in doubt.

While the story has seemed to shift from crisis to problem and back again, underneath there has been a consistent trend. And though the final act is not yet written, there is a clear moral to be drawn.

Reduced to its essentials, here is what has happened so far:

The likelihood that chlorofluorocarbons (CFCs) destroy stratospheric ozone was suggested in 1973. By 1978 the United States had banned the use of CFCs in aerosols, though no other CFC-producing countries were prepared to follow suit. Potential substitutes for CFCs' many other

uses did not seem available at any price.

International discussions moved slowly. By 1985 a treaty framework was agreed to, but without actual controls on emissions. Then two stunning events rescued the negotiations from failure. British scientists discovered a completely unexpected ozone "hole" over Antarctica, and DuPont, the world's largest CFC producer, announced that it could develop substitutes within five years.

Less than two years later, the Montreal Protocol required a 50 percent cut in emissions. Within months the marketplace began to explode with CFC substitutes. Projected costs plummeted.

One year after that, CFCs were conclusively fingered as the cause of both Antarctic and global ozone loss. Exploration in the Arctic suggested that a hole might develop there. Global loss, greater than the models had predicted, was detected for the first time. By June 1990, the protocol was revised, now requiring a complete phaseout of CFC production in industrialized countries by 2000. Computer models predicted that if the treaty terms were met, ozone loss would

eventually climb to 3-4 percent per decade, then decline.

Now scientists have discovered that depletion in the latitudes over the United States has already reached 4-5 percent. According to the models, peak loss will therefore reach 10 percent per decade, and skin cancer deaths will rise dramatically. Since the models underestimate depletion, actual loss will likely be greater, though how much greater or what the eventual consequences will be no one knows. The treaty will have to be tightened yet again.

What this story tells us is that mankind is engaged in a desperate game of catch-up ball—against itself—without knowing how much time is left on the clock. By every measure, we have caused greater change to the planet in the last four decades than in the previous 10,000 years combined. Scientists are scrambling to unravel the secrets of enormously complex systems, while the systems themselves are changing due to rapidly growing human influence. It's a contest between our ability to understand the natural systems that sustain life on the planet and our capacity to change damaging activi-

ties, on the one hand, and the impacts of those activities, on the other.

Though the ozone treaty was achieved with blinding speed compared with most international negotiations, and was in many ways a tremendous achievement, we cannot draw too much comfort from the experience. Too much depended on the shock of the Antarctic hole. There will not be a relatively painless crisis each time we need quick international cooperation.

Even with the hole, the fate of the ozone layer now looks as though it could prove to be another of those situations where for a long time it is too soon to act because of too much uncertainty and then, almost overnight, it is suddenly too late. We need much better guides for making policy when science is uncertain and risks are irreversible.

Quicker ways of reaching international agreements are also essential. Weapons development moved faster than bilateral arms control talks for decades. We survived the resulting nuclear arms race, but multilateral talks are much tougher. We may not survive—or have greater cause for regret—if human-caused damage to the environment continues to outpace our ability to control it.

Countries' willingness to act in advance of an international consensus will make a great deal of difference. Without the U.S. aerosol ban in 1978, atmospheric concentrations of CFCs today would be more than double what they are. What once seemed to some an unwise unilateral response to a multilateral problem now looks like crucial leadership.

The choice often appears to be a tradeoff between short-term costs—the competitive disadvantage of acting alone—and the long-term costs of environmental damage. Usually, the former look large and solid while the latter are uncertain. The ozone experience demonstrates once again that the short-term costs are also unknown. Industry's natural habit is to resist change and to inflate its expected costs: CFCs seemed irreplaceable only because there had never been a need to develop substitutes. As the ozone treaty goes back to the drawing board, institutional changes that will enable governments and industry to respond more quickly to the next such problem ought to become a top priority.

The writer, vice president of World Resources Institute, writes this column independently for The Post.

Jessica Mathews

Bomb Now, Kill Later

What does a bombed city look like? Relief workers returning from Iraq say that from now on our mental image should look more like Baghdad than Dresden.

The buildings are standing, hardly anyone was killed by blast or fire, but now that the war is over the dying is beginning.

The International Committee of the Red Cross, which normally expresses itself in the most understated language it can devise, warned last week of the seeds of a "public health catastrophe of immense proportions." It was referring not to the plight of the 1.5 million Kurds but to that of the other 14 million Iraqis.

The principal threat is contaminated water and lack of sanitation. The country's electrical system was wiped out by the bombing. That means water treatment plants are silent and water pipes empty. Sewage cannot be pumped either, or treated. Backed-up pipes are draining into canals and rivers out of which people are now, perforce, drinking.

The most immediate consequence is diarrhea which, according to the ICRC, "often" kills the children "within a few hours." There are reported outbreaks of other infectious diseases, but without chemical reagents or power to run lab incubators, they have not been identified.

Without telephones, mail service, or gasoline, it is impossible to get an accurate count of the sick and dying. Dr. Jack H. Geiger, President of Physicians for Human Rights, who has just returned from Iraq, says he would not be surprised if the nationwide toll could soon run to "many tens of thousands."

Hospitals, the remnants of what was once an excellent health care system, are superficially intact, but hardly functioning. Most have no antibiotics, anesthetics, IVs etc. Geiger describes burn wards where little can be done other than flapping towels to keep away the flies. Drugs can be shipped in. But sporadic power for a few hours a day, no water above the first floor and no sanitation are far more serious. Patients may be better off staying away. Without gasoline, most people are not faced with the choice.

Food is scarce. The government ration has been cut three times. It now provides, for example, three loaves of bread per person, per month. Milk powder is available only to sick children with a doctor's prescription. Prices are astronomical. A large fish costs two weeks wages. But for the 70-90 percent of the work force that is unemployed, anything beyond the government ration is out of reach.

We are beginning to be able to attach some meaning to that macabre new phrase: to bomb a country "back to the preindustrial age." If it meant that destructive technology could be smashed with little loss of innocent life, most Americans seemed to feel that was just, though harsh. Now what should have been obvious from the start will become inescapable.

Reducing a country overnight to preindustrial conditions is not an antiseptic

exercise involving merely infrastructure but an individual human experience as horrible as it sounds. The real meaning of high-technology warfare, says Geiger, is "bomb now, die later."

Iraqis are worse off now than if Iraq had been a typical developing country before the war. Their intestinal systems are unaccustomed to untreated water. They have few emergency generators. Their high-tech systems require expensive, complex and time consuming repairs and replacements. Improvisation is difficult. Above all, everything depends on energy. "The energy vacuum," says the report of the U.N. secretary general's envoy, "is an omnipresent obstacle to the success of even a short-term, massive effort to maintain life-sustaining conditions."

Conditions will worsen. As the Kurds freeze in the mountains, summer is nearing in Baghdad and the south. As the temperature rises—in a few weeks it will be 110-120 degrees—so does the risk of epidemics and people's need for water. The June harvest is questionable with no electricity to run irrigation pumps and no gasoline to fuel harvesting combines. Food now available cannot be stored because of the lack of refrigeration. Seeds for next season's crop were destroyed. Famine is an imminent prospect.

Public and private agencies are making heroic efforts to provide some relief. All agree that together they amount to a drop in an ocean. The ICRC warns that unless governments urgently muster a massive effort, the situation will become "a long-term disaster." The secretary general's mission expects "a catastrophe . . . at any time." Needed are imports of not only food, medicine and other items allowed under the cease-fire agreement, but all kinds of spare parts, agricultural machinery, pesticides, a communications system, chemicals, generators, repairs for power plants and refineries and—irony of ironies—oil.

This time there can be no improvised policy-making between fishing trips. The extent of present and anticipated human suffering demands some clear answers to these questions.

With whom were we at war, Saddam Hussein or all Iraqis? If not all Iraqis, which? If the goal of getting rid of Saddam Hussein has failed, at least for the time being, should geopolitical or humanitarian concerns take precedence? Specifically, if epidemics and starvation take hold before the terms of the cease-fire's 120 day schedule are met, which is more important? How far does our and other coalition members' responsibility extend for Iraqis' suffering? If Iraq cannot pay for what its people need while also paying reparations, what should be done?

Finally, unavoidably, was it worth it?

The writer, vice president of World Resources Institute, writes this column independently for The Post.

Jessica Mathews

THE WASHINGTON POST April 8, 1991

Acts of War and the Environment

Saddam Hussein did not commit ecoterrorism. Whoever in the White House coined the phrase deserves a pat on the back for propaganda impact, but not for accuracy. If the phrase stays in use, it should be reserved for appropriate occasions, imaginable but not yet experienced.

Terrorism consists of acts of violence committed against innocent individuals chosen to represent a broad class of people. This broader group is intended to be so frightened that they will force their government to change its policies.

Random violence without a political purpose is not terrorism. Nor are acts of war between combatants. Nor, especially, is wholesale environmental destruction, which is an ancient tool of war and perhaps its inevitable consequence.

In 146 B.C., the Romans destroyed the Carthaginians' fields by spreading them with salt. Genghis Khan wrecked Mesopotamia's irrigation system. Medieval armies hurled the corpses of diseased animals over the walls of besieged towns to pollute their water supply. The Chinese flooded vast areas in order to stop the advance of Japanese armies, as did the Dutch to slow the Germans in 1940. And the United States sprayed poisonous herbicides over Vietnam with arguably greater impact on crops and civilians than on the Viet Cong. Civil War Union general Philip Sheridan, who knew whereof he spoke, explained the strategy: "Reduction to poverty brings prayers for peace more surely and more quickly than does the destruction of human life."

Iraq's intentional oil spills and its bombing of Kuwait's oil wells fall squarely within this long tradition. Moreover, these acts could have had direct military utility. Had the ground war lasted and had the wind and tides quickly carried the oil to Saudi desalinization plants, the spill could have affected U.S. troops' water supply. Iraq may also have been contemplating setting fire to the spill as a defense against an amphibious attack. Winston Churchill considered such a tactic as a defense against a possible German invasion of Britain.

President Bush's comment at the time, "It doesn't measure up to any military doctrine of any kind. It's kind of sick," helped to demonize Saddam Hussein, but did not reflect the Pentagon's concern about Iraq's threats. Smoke has often been used to obscure battlefields. Presumably, heat-seeking devices on smart weapons could be confounded by billowing fires. Months before the war began, the Department of Defense commissioned a then-secret study to evaluate such impacts, as well as broader effects on climate and the regional environment.

Those and subsequent analyses suggest that global climate probably will not be affected. The smoke and soot are not rising high enough into the atmosphere. But locally and regionally, the lasting effects may be catastrophic.

The tiny particles of soot pouring down on Kuwait and parts of Iraq and Iran lodge in the respiratory system, where they damage tissue and efficiently deliver toxic gases to the body. One class of these, a type of hydrocarbon likely to be produced by the fires, is known to be carcinogenic. High levels of sulfur dioxide, a precursor of acid rain whose impact could reach as far as Pakistan, is another likely result.

These and other possibilities are still in the realm of expert speculation. The bottom line is that for a long time to come people in the region will be breathing higher levels of air pollution than in anyone's prior experience. Monitoring is drastically inadequate, including the effort by a U.S. team whose preliminary results were released last week. No one knows

what the direct consequences for people, livestock and other species will be, or the indirect ones through drinking contaminated water. But given what is known about long-term exposure to much milder pollution, there is every reason to fear that the effects could be awful—especially for children.

All of these horrors are among the crimes for which Saddam Hussein must answer. They are awful enough; they do not need an inflammatory label to be fully appreciated. Nor did the Pentagon need to exaggerate the size of the oil spill by four- to tenfold. It too was awful enough, even if not the largest ever.

The suggestion that something new—ecoterrorism—has been practiced obscures the truth that war is usually terrible for the environment.

Modern war can be more terrible, just as it can be more destructive of people and everything else. The risk warfare poses to the environment, and through it to civilians in warring states, to people in noncombatant states and to global systems on which everyone depends, could have been and should have been among the factors weighed in deciding whether to go to war. Military assessments needed to remain secret, but the estimates the administration possessed of environmental risk belonged in the public debate: this time—and next.

Environmental risk also belongs in military planning. For all the care that was exercised to avoid civilian deaths during the bombing, one wonders whether there was a compelling military reason for the United States to attack

Iraq's sanitation and waste-water facilities. Their destruction will cause needless environmental damage, disease and death to those same civilians. Though these deaths are not immediate, they are no less certainly by our hand.

The war may have been an environmental nightmare. Those costs will have to be counted in the final reckoning. Saddam Hussein bears the blame, but the United States shares responsibility, as it does for refugees' suffering. At a minimum, that means an honest effort—not the minimalist one made so far—to find out exactly what harm has been done.

The writer, vice president of World Resources Institute, writes this column independently for The Post.

Jessica Mathews

The Myth of The American Car Cult

I am often asked how I can be optimistic about the chances of healing our various environmental ills when so many trends are discouraging. My answer is that so many policies are so bad that one can't but be struck by the possibilities of rather easy improvement. Policies that are both environmentally and economically counterproductive litter the landscape.

Nowhere is this more evident than in how we invest in transportation. We pour money into the most energy-consumptive ways of moving people and freight and then deplore our oil import dependence. We build highways and starve transit systems for decades, ignoring irrefutable evidence that this produces more, not less, traffic congestion. We spend more and more to control the pollution caused by cars locked in stop-and-go traffic without assigning the costs to the cause. Then we look at this tangled knot of consequences—pollution, congestion, neighborhood-destroying sprawl and a society at risk economically and politically from excessive oil imports—and sigh that regrettably we Americans will never, after all, leave our automobiles.

We have sold ourselves a myth. Americans, says Energy Secretary James Watkins, "love to drive on the open plains." Perhaps so; but 90 percent of our automobile trips are less than 10 miles long, and most are made between rows of concrete, not waving grasses. The myth is no more connected to people's everyday choices than are the bucolic country roads of the television auto commercials or the Marlboro man's horse and lariat. We drive and drive not because of a collective national memory of the Western frontier, but because we have piled subsidy on top of subsidy to encourage the use of automobiles over every other form of transportation.

We are not irrationally in love with our cars. Just the reverse. We are behaving like the most rational possible economic beings. Offered generous bonuses—hidden and direct—to drive, that's exactly what we do.

Perhaps the most powerful of these inducements is the parking subsidy. Ninety percent of Americans who drive to work park free. The reason is that the federal tax code allows employers to provide free parking as an untaxed fringe benefit. Employers can therefore provide more benefit to their employees by spending money on free parking than on higher salaries.

The average value of an employer-provided free parking space is \$696 per year. For an employee in the top tax bracket (33 percent), that is equivalent to a salary increase of \$1044. In downtown business districts where parking costs are about \$7

Offered generous bonuses to drive, that's exactly what we do.

per day, the value of the parking benefit rises to \$2,758 or even higher.

However, the law only allows a tax-free transit subsidy of up to \$15 per month. If the subsidy rises one penny more, the entire amount becomes taxable. Thus the maximum value of the benefit is \$268 per year, one-quarter of the average parking benefit and one-tenth its size in the most congested areas.

The combined effect of these two tax provisions is socially, environmentally and economically undesirable in every respect. Since parking is by far the largest cost of driving to work, the subsidy is a powerful inducement to solo commuting. Experiments in both urban and suburban areas show that when market rates are charged, the number of drivers drops by at least 20 percent. Experience also shows that free parking nullifies the effect of the \$10 billion that is being spent each year to increase the use of public transit. Nothing can compete economically or psychologically with free parking.

Since rush hour (a misnomer if ever there was one) traffic contributes disproportionately to congestion, pollution and wasted oil, the parking subsidy—itself a \$5 billion drain on the Treasury—causes environmental damage and energy insecurity we are spending tens of billions of public and private dollars to correct.

And finally, because the value of the benefit rises with income, and since free parking is generally allocated to higher-paid employees, the parking subsidy amounts to a regressive tax. Thus, unlike other work-related tax exemptions—such as for health insurance or retirement savings, which raise employment and productivity and improve public well-being—the parking subsidy does the reverse.

During the past decade, federal spending on highways grew by 85 percent while transit investment dropped by 5 percent. Correcting that vast imbalance, and the similar legacy of preceding decades, would require billions the federal government doesn't have. Moreover, so long as the tax code lures us to drive, increased transit spending won't work. For the same reason, simply raising the tax-free limit for transit subsidies from \$15 to \$50 or more per month, the currently popular option in Congress, won't work either.

There is, however, a simple, cost-free corrective. It is to allow a tax-free travel allowance of a certain amount per month for all forms of transportation to and from work. Any employer-provided subsidy above that amount, whether for parking, van pools or transit, would be taxed just as other fringe benefits are. The taxable threshold could be set so that there would be no net impact on the Treasury, with the lessened drain from parking offsetting the added costs of subsidies for other travel modes.

The tax subsidy for parking at work looks like a minor detail of the tax code. It isn't. Its costs, measured in environmental damage, energy insecurity, enveloping congestion and productivity loss, are enormous—vastly more than the subsidy is worth. Fixing this one is a winner on all counts.

The writer, vice president of World Resources Institute, writes this column independently for The Post.

Jessica Mathews

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The Union of Soviet Socialist Pollution

Participants from the United States, the Soviet Union and Britain met this week in the quiet halls of the National War College for an annual discussion of security concerns. Most of the topics were the expected fare: military reform in the Soviet Union, security implications of the struggle between the union and the republics and strategies for converting the defense establishment to the civilian economy.

Sandwiched among these was one surprise—a session devoted to “The Environmental Dimension of Security.” The subject was introduced a trifle apologetically by the American chairman, who feared his colleagues might find the subject “soft.”

The Americans did seem to find the topic, if not uninteresting, at least far removed from their concerns. They had little to contribute. The Russians, on the other hand, leapt to the discussion with enthusiasm. Though they have more immediate worries—their country’s survival and the role of its military being more than a little uncertain—they have no difficulty accepting direct linkage of the words “environment” and “security.”

For more than 40 years, national security for our two countries was defined strictly in terms of the other’s military capability and intentions. The term has since broadened. Reflecting the importance of economic strength, the United States created the post of undersecretary of state for economic affairs and a comparable office on the National Security Council staff in the 1970s. Much more recently, the

contribution of environmental trends has begun to be discussed outside—but not inside—the national security establishment. In this respect, thinking (though not management) in the Soviet Union has progressed farther than it has here.

One reason is that environmental conditions in the Soviet Union’s one-sixth of the planet are so appalling that no one needs to explain the nature of the threats or the national interests that are at stake. Some of them were described at the War College by Boris Porfiriev of the Soviet Academy of Sciences.

Nuclear contamination figures prominently, beginning with the still mysterious accident at Kyshtym. Unknown in the West for 20 years, the explosion’s cause and consequences are still unclear, though large amounts of radioactivity were released, thousands evacuated and land permanently removed from production. Much worse was the chronic dumping of radioactive waste in nearby Chelyabinsk at the site of the U.S.S.R.’s first plutonium production facility. Over the years, vast amounts of radioactivity—more than 1 billion curies—were released directly into surrounding rivers and lakes. These connect with the Ob River basin, whose waters may be spreading an environmental disaster over a much larger territory. And then, of course, there is Chernobyl.

Even for this Gorbachev-era, non-military accident, the facts are elusive. Porfiriev puts the number of those living in contaminated areas at 4 million, much more than previous surveys. Five years later,

the toll in polluted land, cancers and radiation disease is still rising. Evacuations of more than 100,000 additional people are expected, and more than half a million people are under permanent medical observation. At the meeting, Maj. Gen. I. Danilenko described visiting the village where he grew up, which lies just outside the 30-kilometer evacuated radius around the plant. Villagers receive what the bureaucrats call an “economic incentive” to stay there. They call it “graveyard money.”

Even so, radioactivity is probably the least of the Soviet Union’s environmental woes. Industrial pollution is endemic. The distinguished biologist A. V. Yablokov classifies 15 to 20 regions, in which more than half of the U.S.S.R.’s population lives, as environmental crisis areas. “Every third man in those regions has a cancer . . . and the average life expectancy is four to eight years shorter than in the developed countries.”

Worst of all in long-term economic costs may be the mismanagement and destruction of agricultural soils. The country’s richest prairie-like soils have lost half of their natural productivity. Erosion is rampant. Grandiose irrigation schemes undertaken without regard to environmental consequences have turned fertile arid lands into useless, salty, permanent deserts.

Major fisheries in lakes and inland seas have been destroyed. Pesticide poisoning is widespread. The list goes on and on, and all of today’s sketchy statistics are probably underestimates. That said, Porfiriev calculates

that the cost of pollution and natural resource degradation, including health costs but not victim compensation, amounts to 15 to 17 percent of GNP. This is roughly equal to, or perhaps greater than, the Soviet Union’s disputed defense budget. (The United States spends 12 percent of its GNP on health and 13 percent on energy.) While I found Porfiriev’s estimate to be staggering, none of the Russians seemed surprised by it. Those I asked guessed it was too low.

Russians also have had more direct exposure than we to the transnational and global environmental ills that cross militarily defended borders with impunity. Because of how the winds blow, the Soviet Union is on the receiving end of more air pollution than it exports. As any Canadian will tell you, in the United States it is the reverse. Russians also know firsthand the destabilizing effects of too rapid population growth in some of their eastern republics.

Redefining American national security without the Soviet threat as its organizing principle, is proving to be difficult. We have no consensus yet on what our essential interests are, and threats without enemies behind them don’t seem very threatening. As the national debate proceeds, we may find that we have something to learn from the Russians, though it comes at a tragic cost to them and possibly to the world.

The writer, vice president of World Resources Institute, writes this column independently for The Post.

FRIDAY, MARCH 15, 1991 A23

Jessica Mathews

Green, Inc.

When the government first required U.S. tuna fishermen to use dolphin-safe nets, the industry went on strike and burned the chief regulator in effigy in San Diego Harbor. Last year tuna canners voluntarily adopted even stricter practices. Now advertisements compare dolphin-purity. What the industry insisted was impossible a few years ago is the only way to do business today.

The shift symbolizes the recent birth of corporate environmentalism in the United States. It is a cultural change in mid-process, evolving rapidly though unevenly. Many companies have changed little: Business is business-as-usual, perhaps with a phony veneer of greenness. In others the changes in outlook and practice are profound. Environmentalists, put off by the former, too often fail to recognize the latter. Governments, which have to deal with both the ostriches and the eagles, have a tough job keeping pace, but there are a few innovative examples of appeals to enlightened self-interest in lieu of regulation.

Herewith a rough guide to the environmental evolution of American corporate culture.

Level 1—Exploit the Green Fad While It Lasts. These are the folk who rush to slap on green labels whether the product deserves it or not. "Biodegradable" and "recyclable" are the most frequently abused. Internally, these companies appoint environmental officers who have neither access to executives above them nor clout with plant managers, but whose appointments are featured prominently in the annual report.

Level 2—Environmentalism Can Sometimes Be Good Business. These companies may not have changed their basic attitudes, but under pressure to satisfy customers or critics have discovered that pollution reduction or improved environmental management can often buy valuable bragging rights at little or no cost. A lot of change in this category comes from businesses that know new laws and regulations are coming and see greater gain in getting out ahead of the new requirements than in paying lobbyists to fight them as they once would have done. The impetus still comes from external pressures, but the changes in practice are real.

Management style emphasizes scrupulous compliance with existing laws. Environmental audits are a favored tool. There is little inclination to go beyond the letter of the law. The motive is defensive, but it's a good defense.

Level 3—Environmentalism Is Here to Stay. A still small number of companies see environmental concerns as a permanent feature of the business landscape. They figure that businesses that do the most to adapt to the new conditions will in the long run fare best. They believe that surprisingly often pollution prevention pays. Many set specific performance targets that go well beyond legal requirements. Environmental needs are integrated into R&D strategies, and process redesign replaces end-of-the-pipe controls.

Inside these firms, new policies are changing old attitudes. The chief environmental officer has direct access to top management. Employee performance reviews and bonuses include environmental criteria. Nearly always one individual—a highly committed CEO—is behind all of this change.

Level 4—The Environment Is a Strategic Business Opportunity. Beyond those whose business is directly environmental (pollution equipment vendors, for example) I don't know of any major American firm which believes that over the long run environmentalism will open as many doors as it closes and conducts strategic planning accordingly. Yet this belief is second nature to many Japanese and increasingly common in Europe. Japan, for example, has plunged headlong into the design of products and technologies that minimize greenhouse gas emissions despite scientific uncertainties about global warming.

There are at least two reasons for this difference between American companies and their principal competitors: low U.S. energy prices and the residue of 20 years of almost exclusively adversarial environmental policy making. Plenty of businessmen and environmentalists would still rather flog old enemies than see the other side as it exists today. Environmentalists who are pushing businesses to sign a code of conduct called the Valdez Principles must be aware that the name they have chosen asks businessmen to make an implicit admission of guilt by association.

The best place to find the same attitude on the other side is on the editorial page of *The Wall Street Journal*. My favorite recent example was a letter accusing environmental leaders of favoring "totalitarian regimes" because there was no "mass picketing of the Iraqi embassies" or "any expression of outrage" over Iraq's intentional oil spill. Such stuff would be merely ridiculous if a steady diet of it did not strengthen the worst myths. The *Journal's* editorial that day called for an end to western water subsidies. It included the requisite slap at the "environmental left" but conspicuously failed to acknowledge that environmentalists have been waging a lonely battle against water subsidies for a decade.

Fortunately, these are the extremes. The good news is that the constructive middle is expanding steadily. The Environmental Protection Agency's voluntary Green Lights program suggests what a less adversarial future might look like. Green Lights aims to make companies feel like heroes by making an investment that cuts their electricity use, lowers pollution and returns a quick, low-risk profit. (Yes, Virginia, there is a free lunch.) EPA expects to save more energy this way—perhaps as much as 10 percent of national electricity demand—than it could through regulation.

Businessmen and environmentalists will continue to disagree, but the changes now underway in the corporate world are of great potential import. Neither legislation nor litigation, essential as each is, can achieve what a heavy dose of cooperation and corporate initiative might produce.

The writer, vice president of World Resources Institute, writes this column independently for The Post.

Newsclips
3-15-91
Happy St. Patrick's Day too!

Jessica Mathews

High Mileage and the 'Safety Excuse'

Twenty years ago, the average new American car traveled 13 miles on a gallon of gas. In the process it emitted 4 grams of hydrocarbons, 34 grams of carbon monoxide and 3 grams of nitrogen oxides. For every 100 million miles traveled, 4.28 Americans died in accidents. Today fuel efficiency is up to about 27 mpg, and emissions are down to 0.4, 3.4 and 1 gram per mile, respectively. Traffic fatalities have fallen to 2.25 per 100 million miles.

A solid record of improvement, yes. But one achieved at a high cost in acrimony, foot-dragging and political conflict. At every step of the way, Detroit has insisted either that all cost-effective improvements have already been made and further improvement is impossible or that pursuing efficiency, cleanliness or safety requires sacrificing the others.

Here, for example, is the Ford Motor Comp. in 1974 on the subject of proposed mileage requirements: "This proposal would require a Ford product line consisting of either all sub-Pinto-sized vehicles or some mix of vehicles ranging from a sub-sub-compact to perhaps a Maverick." Sixteen years later, after those very standards were achieved with little effect on the size mix of the fleet, nothing but the facts and the model names have changed. Now Ford chairman Harold Poling says that under the new mileage standards proposed by Sen. Richard Bryan (D-Nev.) the company's largest car would likely be no larger than the compact Tempo.

But this year the "it's impossible" argument isn't doing very well. A raft of studies including, embarrassingly, by the Department of Energy's own consultants, all show a long list of cost-effective technological improvements. Experts can argue indefinitely about how much each one would cost and whether they add up to 35 or 40 mpg and how soon they could be achieved, but there's little doubt that they exist. With the Gulf War providing an unforgettable demonstration of just how sophisticated and effective American technology can be when we try, the argument that 27 mpg is the best we can do sounds a little lame even to Detroit's ear.

So this year the argument of choice is that we can't have both higher mileage and adequate safety, a view enthusiastically embraced by the administration. Defending the absence of a mileage increase in the National Energy Strategy, Energy Secretary James Watkins, usually a judicious fellow, has gone so far as to call Bryan's bill the "National Highway Death Act."

If such a tradeoff between efficiency and safety were necessary, it would be reason enough to find some other way to reduce oil consumption. Forty-seven thousand traffic deaths and hundreds of thousands of injuries each year are more than enough. The supposed relationship has not held up in the past: new-car mileage doubled in the past 16 years, while fatalities per mile dropped by a hefty 40

percent. But perhaps we've at last pushed auto technology as far as it can safely go.

Safety concerns rest on the assumptions that future efficiency improvements will be achieved by making cars lighter or smaller and that doing so will make them less safe. In fact, neither reducing weight nor reducing size necessarily makes a car less safe. There is a relationship between both weight and size and fatalities, but it is a murky one complicated by many factors such as driver age and behavior, number of miles traveled and types of crash, all related to the type of car.

Moreover, some smaller, lighter cars are safer than some very large ones. In some cases, safety differences within the same size class are larger than differences between size classes. Taking all the available data together, it appears that safety is primarily a matter of design and secondarily a matter of size or weight.

Nor is it clear that automakers will try to meet a higher mileage standard by cutting weight. This was what happened in the 1970s, but in the '80s Detroit used technology improvements, not weight reduction, to raise mileage. There are many remaining options that are either not in use or available only in a few cars. These include improved transmissions, reduced aerodynamic drag, multivalve cylinders and fuel injection, among others.

Most damning to Detroit's credibility on safety is

its 20-year resistance to air bags. The safety bonus from air bags swamps the most pessimistic projections of increased fatalities from smaller cars. Yet even now, after that battle has finally been won, it is impossible to buy an American compact car with two front-seat air bags in it. Today's consumer does indeed face a choice between fuel efficiency and safety, but it is not of any legislator's making.

Safety shows up as a top consumer priority on every poll. So here's how to save oil and improve safety together. Raise the mileage standards, set up an automobile safety rating system, require that the safety rating be displayed on the sticker alongside the mileage rating, then let the competition begin. High-mileage cars with air bags would be just the beginning.

Mileage standards are not a panacea. They are a crippled tool when gasoline prices are low, and they do nothing to reduce over-reliance on the automobile. But they can save more oil than any other single step, slow global warming and help keep American auto technology competitive with the rest of the world's, where gas prices are high. Worries about safety are no reason not to reap those benefits. We can have safety too.

The writer, vice president of World Resources Institute, writes this column independently for The Post.

THE WASHINGTON POST
March 8, 1991

Jessica Mathews

Still on An Energy Binge

In 1978, soon-to-be budget director David Stockman defined a successful energy strategy, with typically misplaced conviction, as requiring "only two policies—strategic reserves and strategic forces." That approach, together with reliance on a hypothetical free market, produced the drift of the Reagan years and a spectacular 65 percent increase in oil imports during the second term.

What remains of this administration's energy plan after Darman, Boskin and Sununu removed all offending taxes, regulations and expenditures of fiscal or political capital is not at its core far removed from that policy. It continues a professed commitment to the power of the marketplace above all else, though anything less like a free market than the present world energy market is hard to imagine.

Fundamentally, our country has only two options. We can continue to have low-cost energy—in which case we must accept high levels of energy use, rising oil imports and a persistent trade deficit, pressure to produce energy from all domestic sources and growing difficulty in achieving cleaner air and a workable transportation system. Or we can use price—that is, energy taxes—to reduce demand.

The former strategy keeps us at economic and competitive odds with a world in which every other major economy except the Soviet Union has chosen to tax energy heavily. The latter requires a heavy dose of presidential leadership backed up by political courage in Congress, neither of which appears to be forthcoming.

The president's non-strategy ducks the choice; it does not even acknowledge its existence. It flatly refuses either to use the marketplace by raising prices or to allow regulations that conflict with present low prices. What this amounts to, after two years of work, is a ringing commitment to the status quo.

That we cannot have it both ways—cheap energy, ample supply and no intrusive regulation—is evident in the contradictions that riddle the administration's plan. In bold type it promises to leave oil prices as they now are at historic lows. Deep in the fine print, one discovers that the large increases projected for domestic oil production assume an oil price of \$30 per barrel!

The low-price strategy can be partially, but only partially, pursued by substituting government regulations for higher prices. That is, one can attempt to marry low prices and high efficiency in the same economy by relying on efficiency standards. The difficulty is that to the extent that a regulatory signal conflicts with the price signal, the regulation becomes unpopular, economically inefficient and politically vulnerable. As a strategy, therefore, it contains

the seeds of its own demise: the more successful regulations are in reducing demand through improved efficiency, the softer becomes energy price and the greater the gap between the regulation and the market. This is precisely what happened to the most effective energy standard yet adopted, the automobile mileage requirement known as CAFE. After oil prices collapsed in 1986, the Reagan administration was finally able to reverse that popular measure.

Because President Bush declined to address the central issue of price increases, the extent to which regulations should be used in this way is what the forthcoming debate will be reduced to. Describing a different administration proposal, Budget Director Richard Darman called it an effort to "begin the debate at the margin." This energy debate promises to both begin and end there.

Even so, some important steps can be taken. Many efficiency improvements, especially in the production and use of electricity, are economically competitive at today's prices. The most important of these would require all states to follow the lead of New York and California in allowing utilities to earn an equal or greater profit on investments to reduce demand as they do on investments to build new plants. Increasing the use of natural gas by easing the requirements for new pipeline construction is another improvement that should be relatively non-controversial—though natural gas production will still be constrained by too low a price.

Eventually, though, we will have to face the price issue. Gasoline taxes in Europe and Japan are 10 times what they are here—and climbing. On the same day that House and Senate committees began energy hearings, where the dirty T-word was never uttered, German Chancellor Helmut Kohl, who ran three months ago on a "no new taxes" pledge, proposed a gasoline tax increase of 67 cents per gallon to pay for unification and Germany's role in the Gulf War. That brings the fuel pump price to more than \$4 per gallon. France's and Italy's prices are even higher, Japan's is almost as much.

Energy prices like these have two effects on us. They keep these economies moving steadily in the direction of greater energy efficiency, developing technologies with which ours cannot compete. And they will keep global oil demand soft. Combined with the Gulf states' need to keep production high in order to recoup their war losses, the likely outlook is for low prices.

That means that unless we decide to do otherwise, the United States will stay on its energy binge, building in long-lasting structural energy waste with every unneeded power plant, inefficient building and automobile-dependent suburb.

There is never a good time to raise taxes. Now, with oil prices low and the president able to call on a huge fund of popular support, is as easy a time as there ever will be to make the switch.

The writer, vice president of World Resources Institute, writes this column independently for The Post.

Jessica Mathews

Talk About a New World Order!

Implications of the new science of geophysics.

Charles Darwin wrote in his autobiography "I rejoice that I have avoided controversies." So much for informed prediction.

Forewarned, I nevertheless offer another. The revolutionary sciences of our time, just as astronomy was in the 16th Century century and physics has been in the 20th, will be ecology and the study of Earth as a living whole.

One could see the signs a few months ago when *The Economist* carried a long story—sandwiched between reports on the collapse of trade talks and the Persian Gulf crisis—on the subject of Gaia. Gaia was the ancient Greek Earth goddess. It is also the name given by British scientist James Lovelock and his American collaborator, microbiologist Lynn Margulis, to a theory that sees Earth as a living system in which the nonliving realm is continuously shaped by the presence of life.

Not just species evolve in the Gaian view but species and their living and nonliving environment together. The theory's most controversial postulate is that life actively influences the physical environment in order to maintain conditions favorable to itself. Thus the apparent planning and sense of purpose that Darwinian natural selection produces—and which has always been so hard to grasp—is broadened to include the entire planet.

To Lovelock, Earth's living and nonliving matter are not as distinct as they seem. Consider, he says, a mature tree. When it is alive, nearly all of it is dead. It is a vast mass of dead wood surrounded by a thin living skin that is in turn protected by another dead layer, the bark. "The Earth is very much like that; you have the middle, molten, dead, . . . that same thin skin of living tissue and beyond it the atmosphere which is just like a bark of a tree, therefore not formally alive . . . but still a protective layer against the rigours of the environment, which for the Earth is space."

Gaia also means that the reductionist approach of most of modern science—breaking down systems into smaller and smaller parts and studying each one by one—cannot reveal what has happened on this planet since life began 3.8 billion years ago. During these years external conditions, especially the intensity of the sun, have changed dramatically. Yet physical conditions such as climate, the salinity of the oceans and the composition of gases in the atmosphere have stayed within narrow ranges conducive to life. According to Gaia, this remarkable stability, which leaves Earth still the sole spot in the universe known to support life, is because of life's self-regulating mechanisms.

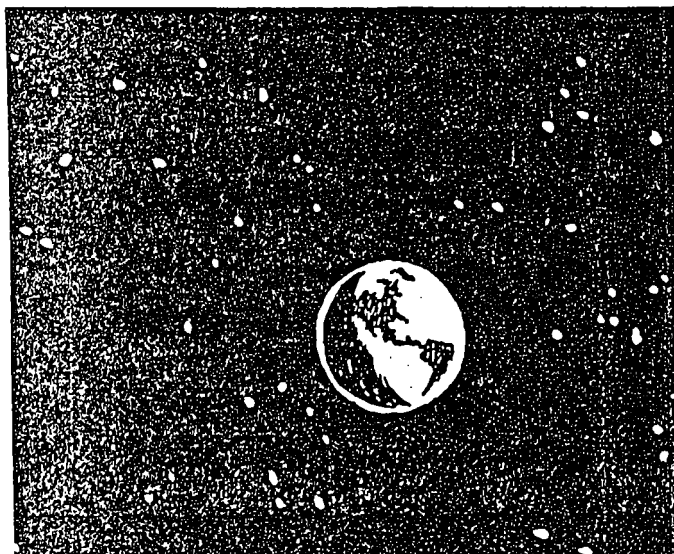
These mechanisms are akin to those of the body, which maintains a stable internal environment (a temperature of 98.6 degrees Fahrenheit, for example), in the face of large external changes. Such responses require no conscious intervention, for they are built in. The study of such systems in the body is physiology, a science that perforce looks at whole systems, not pieces. Hence the right approach to the study of Earth, according to Lovelock and Margulis is the new science of geophysics.

Until a few years ago, the word geophysics would have been dismissed as a contradiction in terms, an incomprehensible jumble of

rocks and living systems. But in the last few years, Gaia has moved from crackpot to mainstream science. There is still fervid debate, and Gaia's supporters are a minority, but the best single indicator of the power of a new idea in science is that it opens up new areas of research, and this Gaia is unquestionably doing. Moreover, research published two weeks ago revealed experimental evidence of one of the theory's major predictions. This is a climate-regulating mechanism involving plankton in the sea, a sulfur gas the plankton emit and clouds that form around the sulfur, cool the climate and thereby depress plankton growth.

Whether or not the Gaia theory proves correct in its present form, it has changed the course of science not only by spawning new kinds of research but by changing the way people think—even those who think the theory is wrong. The traditional view of life as something that passively adapts itself to an externally imposed physical environment is giving way to a recognition of closer coupling between the living and nonliving realms.

Gaia's most important implications, however, reach far beyond science. If it is in the main correct (still a big if) it would, I think, demolish the prevailing world view that humankind is not only above but separate from nature. That view is embedded in economics, law and political science as well as in most of



BY SCHORR

the major religions, which teach that we are to exercise dominion over nature, which exists largely to serve our purposes.

Those whose faith leads them in that direction could continue to view humanity as the peak of creation, but Gaia would likely force us all to discard that sense of separateness. As powerful as modern technology makes us, our one species (among perhaps 10 million) looks, in a Gaian perspective, like a small cog in a very large machine.

Moreover, the machine may be far more intricate than we have dreamed. Whether this would make it more or less vulnerable to human interventions—like species extinction, greenhouse gas emissions, or large-scale soil erosion—is unpredictable, but a greater sense of caution might well seem warranted. Ultimately, Gaia could force a transforming shift from a narrow conception of the welfare of our own species to an overriding concern for that of the planet as a whole.

The writer, vice president of World Resources Institute, writes this column independently for The Post.

Jessica Mathews

The Costs of Unplanned Urban Sprawl

Back in the early '70s, Congress struggled to pass a national land-use planning law. Each year the bill would fail, caught between boredom on the one hand (who can get excited about planning?) and vitriolic opposition from the John Birch Society (who else?) on the other. The Birchers' letter-writing campaign featured the threat that if the bill passed, the government would one day tell Americans where they could put barbecues in their backyards.

If you happen to live in Southern California, that day has more or less arrived. It has come not because of land-use planning, but because of its absence. Unplanned sprawl has created such terrible traffic, which has in turn produced such awful air, that Southern California is now regulating aspects of daily life that would have seemed Orwellian 20 years ago.

Los Angeles is not alone. Other cities have worse congestion. And anyone contemplating a move to the Sunbelt should note that the Federal Highway Administration says that in 10 years Los Angeles and New York won't even be in the Traffic Top Ten. Dallas, San Antonio, Miami and Charlotte, N.C., will.

Los Angeles didn't even invent self-defeating transportation construction projects. New York did. In "The Power Broker," his masterful biography of Robert Moses, New York's all-

Portland's investment in transit and in land-use planning has been a stunning success.

powerful highway czar, Robert Caro describes planners' frustration. "Watching Moses open the Triborough Bridge to ease congestion on the Queensborough Bridge, open the Bronx-Whitestone Bridge to ease congestion on the Triborough Bridge and then watching traffic counts on all three bridges mount until all three were as congested as one had been before, planners could hardly avoid the conclusion that "traffic generation" was no longer a theory but a proven fact: the more highways were built to alleviate congestion, the more automobiles would pour onto them and . . . force the building of more highways—which would generate more traffic and become congested in their turn in an inexorably widening spiral that contained the most awesome implications for the future of New York and of all urban areas. . . . Pour public investment into the improvement of highways while doing nothing to improve mass transit lines, and there could be only one outcome. . . . Moses' immense new highway

construction proposal . . . could only make congestion, already intolerable, progressively worse. His program . . . was doomed to failure before it began."

The sequence of events is now commonplace. What makes this passage extraordinary is that it describes the 1930s. In a society as innovative and responsive to change as ours generally is, it seems little short of incredible that for half a century we have watched this scenario unfold in city after city and been unable to make this simple mental connection, between where we put houses and where we put jobs, between where we put our public funds and how we will choose to travel.

Left to themselves, developers put new subdivisions where land is cheap, i.e. far from jobs, shopping and where people already are. Then, transportation agencies must build roads to serve them. Spread out, low density development not only depends on highways, it can only be served by them. It not only starts

the roads-congestion-more roads treadmill, it makes alternatives in the future vastly more difficult.

There is at least one American city that has untangled this knot. When Portland, Ore. designed its new light rail transit system, it was as part of an explicit strategy to shape metropolitan growth. Oregon had a land-use planning law which made that possible. The investment has been a stunning success. In its first year, the light rail line carried twice the passengers originally projected. Combined with good bus service and aided by limits on downtown parking, the system now carries the equivalent of two new lanes on every road entering downtown. Downtown has added 30,000 jobs without any increase in the number of cars, its share of the regional retail market has grown from 7 percent to nearly 30 percent and the number of days in which air quality exceeds health standards has dropped from about 100 per year to none.

Ask anyone in Portland, and they will tell you that what made this possible was the combination of land-use planning and the transit investment. Transit alone, no matter how well designed or how big the subsidy, is insufficient. They will also tell you that the people in Portland are no different from other

Americans. They are Westerners who love wide open spaces as much as the rest of us. They are not more European or less enamored of their cars. In the 1960s Portland was, per capita, more committed to freeways than any other American city. What Portlanders have is a vision of how they want their community to grow, and the means—a state planning law—to make it happen that way.

Perhaps Congress never will pass a national land-use law. It may not need to. In the last five years, six states (Maine, Vermont, Rhode Island, New Jersey, Georgia and Florida) have passed laws similar to Oregon's. Other places like Los Angeles and Phoenix that are trying to direct growth without a state law find the competition among local jurisdictions almost impossible to surmount.

Land-use laws are not a quick fix. A new road makes a more immediate impact. But their fate in the remaining 40-odd state legislatures will in significant measure determine most Americans' future quality of life. More roads will just mean more of the same.

The writer, a vice president of the World Resources Institute, writes this column independently for The Post.

Jessica Mathews

The New Dogma of Environmentalism

It is the kind, not the amount, of economic growth that makes the difference.

Some years ago, biologists coined a phrase they called the Central Dogma. Its few words (which describe the flow of genetic information inside a cell) became the indispensable mental map by which a torrent of new information was organized and understood. In the 1980s the study of environmental trends went through a period of similar ferment and acquired a central dogma of its own. It holds that the solution to the planet's environmental problems lies in something called sustainable development.

The phrase was popularized by a United Nations commission whose 1987 report "Our Common Future" was a surprise international bestseller, though not in the United States. The Brundtland Report, as it is also known, changed the terms of international debate by persuasively demonstrating to a broad audience that environmental degradation is not merely a consequence of industrialization but a "survival issue," especially for developing countries. Although individuals and commissions had been making the same case for years, "Our Common Future" succeeded where others had failed in illuminating the environmental aspects of poverty, hunger, disease, debt and economic growth.

The report provided a bare-bones definition of sustainable development as economic activity that "meets the

needs of the present without compromising the ability of future generations to meet their own needs." While that is accurate as far as it goes, it has proven to be surprisingly difficult to expand the definition in terms useful to policy makers.

Sustainable development assumes that economic growth is essential to environmental solutions. Thus it leaves behind sterile growth/no growth debates. It also implies that there are limits to economic growth. The general view today, however, is that these are not the absolute limits whose existence was so hotly debated in the 1970s. Nor are the limits likely to be imposed by a dwindling, finite supply of resources. Instead, the limiting factor is likely to be, as the report put it, "the ability of the biosphere to absorb the effects of human activities." While these effects are obviously related to the number of people on the planet and to aggregate economic activity, the limits are highly elastic. They are determined by the state of technology and social organization, by political will and capital investment. It is the kind, not the amount, of economic growth that determines environmental stress.

In practice, the difficulty lies in distinguishing growth that is sustainable from growth that is not. Doing so requires a long time frame, detailed

knowledge of subtle biological relationships and a broad geographic view. Growth that depends, for example, on the export of pollution may look sustainable as long as only the exporters are considered. Growth that rains acid precipitation on Swedish forests may look fine to the Poles, the Czechs or the Germans, but not to the Swedes.

Finding the appropriate time scale is much harder. It turns up, for example, in the controversy about Northern Pacific old-growth forests and the spotted owl. It is possible to grow old trees in these forests in 200 years. But more than old trees are necessary for sustainable old-growth forests. They also require large, hollow logs on the forest floor. Why? Because the trees depend on fungi that live in their roots, the fungi depend on rodents for their reproduction and the rodents need the logs to survive. It takes much longer than 200 years for a tree to grow old enough to fall, and so a sustainable cutting cycle in these forests must also be much longer than 200 years.

While societies wrestle with these sorts of problems, environmental historians are confirming that the choices are not merely theoretical. The evidence extends back to the beginning of literate civilization. For 1,200 years the history of ancient Sumer hinged on its ability to produce an agricultural

surplus, which, in the Mesopotamian valley, meant irrigation. Over time, irrigation caused salinization, as it does today. After 600 years, as the soil grew saltier and the supply of fresh land was exhausted, Sumer's crop yields, and its fortunes, began to fall. By the time of the Babylonian conquest, yields had dropped to one-third what they had once been.

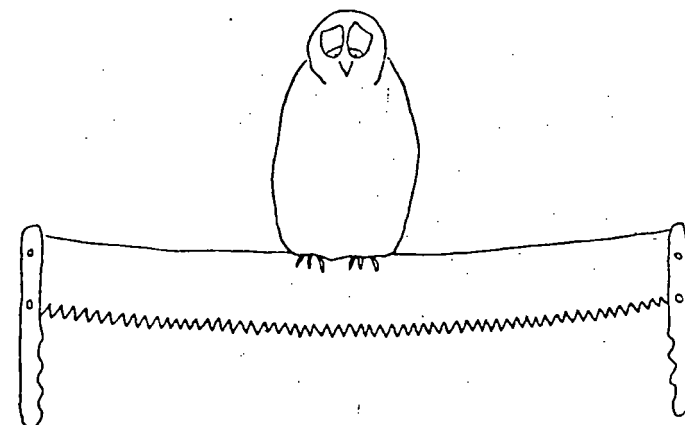
The same story is being pieced together in Mexican jungles where Mayan civilization flourished for 400 years and then collapsed. There deforestation and soil erosion, rather than salinization, apparently did the damage.

The beginning of the last decade of the millennium is a natural moment to glance backward. Clive Ponting, a British environmental historian, points out that an accurate account of human history in 30 minutes would devote 29 minutes and 51 seconds to hunter-gatherers, more than 8 seconds to settled agricultural society and a fraction of the last second to the

modern, fossil fuel-fired industrial world. "Viewed over the long term," Ponting writes, "human history has been a story of rising numbers and greater pressures on the environment." A crucial difference is that what were once local pressures are now global ones. "Is humanity too confident about its ability to avoid ecological disaster?"

The Brundtland Commission thought it saw an answer. "We came to see that a new development path was required, one that sustained human progress not just in a few places for a few years, but for the entire planet into the distant future." The notion of sustainable development has defined the goal. Figuring out how to achieve it remains a monumental task.

The writer, a vice president of the World Resources Institute, writes this column independently for The Post.



BY T. GIBSON

Jessica Mathews

A Wager On the State of The World

Julian Simon and Paul Ehrlich, economist and biologist, represent the two poles of thought on the planet's future. According to Simon, the outlook is rosy. Technology will outpace resource scarcity indefinitely, he thinks. Even explosive population growth is no problem because more people means more Einsteins and Mozarts: on balance their contributions will outweigh their needs. (Caricaturing Simon is difficult; like Ehrlich, he often does it to himself.)

Ehrlich, a noted scientist and author of many bestsellers beginning with "The Population Bomb" in 1968, sees doom around every corner. Even the good news that food production in the 1980s rose rather than plummeted as he predicted becomes bad news: "I underestimated how badly we'd keep on depleting our topsoil and ground water."

Ten years ago, these two gentlemen laid their respective convictions on the line in a \$1,000 wager proposed by Simon. Any taker could choose any five natural resources, whose prices should rise if resource shortages are indeed a problem. Simon bet that the prices would fall. Ehrlich took the bet. Oddly, for a biologist, he chose five metals—copper, chrome, nickel, tin and tungsten. This fall he mailed Simon a check. The prices of all of them had dropped.

The most obvious of Ehrlich's mistakes was to ignore the fact that commodity prices have been declining for decades. He clearly believed that a turning point was at hand. It wasn't. Of 55 renewable and nonrenewable resources charted each year in the "World Resources" report, for example, only three rose in price in the '80s. Also, 1980 was a peak year for commodity prices, a fact that is admittedly much easier to see in hindsight. But Ehrlich didn't need to be an economist, to have seen how long the odds were against winning.

The wager's significance lies in the lessons being drawn from it. To my knowledge The Wall Street Journal's editorial board hasn't gotten to it yet; but you can imagine what they will say when they do. In fact, the bet sheds no light on the chasm dividing these two incompatible world views or on which man's beliefs are farther from the truth. The chief reason is that prices, Simon's indicator, don't now reflect stress and scarcity of most of the resources Ehrlich is concerned about.

In some cases that is because the resource isn't measured. Ehrlich might have made a safe bet that the supply of healthy air worldwide would decline, or the availability of potable water, but he couldn't have proved it. Or it may be because the resource never enters a commercial market. Fuel wood in developing countries is free in that sense, but even a casual tourist can testify to its rising scarcity in many parts of the world.

Some resources are not priced because they are still officially viewed as infinite, even though everyone knows better. The supply of natural systems for use as waste receptacles is an obvious example. In still other cases, economics does not yet provide the methodological tools for measuring value. No one, for example, can calculate the worth of a standing tropical forest or of biological diversity.

Setting aside the extremes to which both Simon and Ehrlich push their arguments, a rationalist would say that bridging the gap between them is merely a matter of what economists call "getting the prices right." Calculate the value of the services ecosystems provide, and all will be well. Progress is being made in that direction, but it is not, as it sounds, a straightforward exercise in mathematics. It requires changing gut-level understandings—the kind that are shaped early and change slowly; the kind that differ profoundly between biologists and economists.

Consider the paradox of renewable and nonrenewable resources. The latter—oil, minerals, metals—are in fact inexhaustible, whereas renewable resources can be finite. As a nonrenewable resource becomes scarce, it gets expensive. Demand falls and substitutes and alternative technologies appear. No one will ever pump the last barrel of oil or mine the last ton of iron ore. But a species driven to extinction will not reappear, eroded topsoil cannot be replaced, and the Antarctic ozone hole will take 300 years to heal.

Such threshold effects are common in natural systems. Biologists see them every day, and most are skeptical that technology can repair the damage after an important natural threshold has been passed. Economists, on the other hand, generally expect all resources to behave like nonrenewable ones. They see less likelihood of irreversible change and are more confident that whatever happens, technology can find a solution. They see mankind as a unique species, operating independently on the planet. Biologists see us dependent on natural systems and entangled in their fate.

Simon's wager is still open. Reportedly the ante is now \$20,000. A smart bettor might wait until the middle of the coming recession and take him up on it. I won't. But not because he's right that the planet's resources are infinite (palpable nonsense) or that environmental trends are nothing to worry about. If he's interested in betting on more meaningful measures than today's prices, though, I'd consider it.

One last word. Don't bet on Ehrlich either. There's much that needs changing, some of it urgently, but environmental disaster isn't imminent.

Jessica Mathews

Pay as You Drive

This country is choking, metaphorically as well as literally, on the automobile. Buttressed by huge hidden subsidies and a 50-year low gasoline price, the car has distorted our land-use choices and pushed other transportation options into near oblivion. The individual cost of driving is so low that the societal costs—of oil imports, air pollution, congestion and land use—have become enormous. Just about everyone believes the country would benefit from a transportation system that offered alternatives. But how do we get there from here?

The obvious first step—a hefty gasoline tax—seems out of the question for now. Like all taxes, it is anathema. The United States is undertaxed relative to the services we want and need government to provide. But that's not what Americans believe, and it may be years before opinions change. On the other hand, regulations that ignore the price signal (which right now says that driving is cheap) won't work either.

This suggests that we should be searching for new ideas, measures that are neither taxes (direct or disguised) nor economically inefficient, bureaucratically burdensome regulations. Energy analyst Mohamed El-Gasseir has proposed one such exciting idea to the California Energy Commission called Pay as You Drive insurance.

The basic notion is simple. Automobile insurance premiums would be divided into two components, one that continues to be paid directly to an insurance company and another that is purchased gallon-by-gallon at the fuel pump. The latter payment—about 70 percent of the total—would cover insurance companies' costs of meeting claims for driving-related risks, namely liability, collision and medical insurance. The direct payment would pay for companies' overhead, commissions and profit and allow adjustments for age and gender differences in risk.

Gas stations would collect the premium payments and pass these along to the state government just as they now handle state gasoline taxes. The state government would pass the money through to the insurance companies based on each company's client share in the state. Insurance companies would continue to compete as they do now through differences in the direct payment component.

To see how this might work, consider California in 1987. In that year the average vehicle consumed 753 gallons of gasoline, and the average insurance premium was \$554. Seventy percent of that amount, \$390, purchased at the pump would mean that the *apparent* cost of a gallon of gas would rise by 52 cents. The real cost to an average driver would not change at all, but the economic signal would change dramatically. Drivers would have a much clearer sense of the true cost of driving and—most important—would be able to choose to lower those costs if they wanted to.

The apparent price increase would be a powerful inducement to reduce the number of miles driven. There would be more car pooling, van pooling, combining errands, using public transit and other means. People would consider buying a more efficient automobile when the time came. Doing either or both would lower the individual's cost and society's as well by reducing energy use, oil imports, air pollution and congestion. Over time this would mean less revenue to the insurance companies, but fewer miles driven would also mean fewer claims to cover. A state agency would periodically adjust the pump payment to keep the funds in balance and allow insurance companies a fair profit.

The benefits don't end there. The present auto insurance system almost ignores the fact that the risk of having an accident is directly related to miles driven. Drivers are not rewarded, as they would be under Pay as You Drive, for lowering their risk to the company by driving less. Indeed, having already paid for the full cost of insurance up front, there is even a subtle economic incentive to drive more.

In addition, the change would reduce the number of uninsured motorists, since few people would choose to pay 70 percent of the cost of insurance without any benefits when only 30 percent more would bring full coverage. It could also reduce or eliminate the cost of taxpayer-subsidized assigned risk pools in states where these exist. Thus in several different ways Pay as You Drive would improve both the equity and the economic efficiency of providing automobile insurance.

In most of America the cards are so stacked in favor of the automobile that nothing else can compete, even when congestion approaches the intolerable. When one or two of those cards are flipped, however, the results put the lie to those who gloomily insist that Americans will never leave their automobiles. Portland, Ore., for example, discovered this happy truth when it put a lid on downtown parking, thereby opening the way for its extremely successful light rail system. Given realistic choices, Americans are more flexible than we give ourselves credit for.

Our reliance on the automobile has grown so heavy that we are beset by paradox: cleaner cars but more pollution, higher fuel efficiency but rapidly growing oil use, more roads but greater congestion. Pay as You Drive insurance might be a clever way to escape this bind. On paper, at least, it offers motorists a choice and opens the market to other transportation options without taking on the vastly more difficult political task of asking motorists to pay more of the full social costs of automobile use.

Jessica Mathews

A Tale Of Two Crises

Those pictures are about to reappear—African children whose staring eyes and matchstick limbs remind us of the depths of pain that is death by starvation.

The rains haven't come for two years in a row, so 13 million people are at risk of famine in Sudan, Ethiopia and a half dozen other Sahelian countries. That's about the population of New England's six states.

Drought is nothing new in those parts of Africa. The defining characteristic of all arid regions is that rainfall is not just scarce, but wildly variable. What is new is massive, recurring famine. It is the result of an imported—or more accurately, an externally imposed—way of life combined with rapid population growth. Together these have caused the swift collapse of a fragile and unforgiving environment and, in turn, a human tragedy.

Africans once knew how to wrest a dependable, albeit poor, living from their arid landscape. Allowing land to recover after a few years of cultivation and taking livestock to the rains when the rains didn't come to them, were aspects of a semi-nomadic culture tuned to the limitations of its environment.

Then came the European colonists, and later the well-meaning development specialists. In their eyes, the shifting, pastoral system seemed messy, hard to control and the cause of Africans' poverty. Accustomed to rich soils and reliable rainfall, they drew borders on maps, built infrastructure, sank wells and induced people to settle in one place. By unlucky chance, two decades of abnormally wet weather in the 1950s and '60s made it look for a while as though their policies were working.

What was really happening was that as population grew, fallow land had to be reused before it could recover. Larger livestock herds around the new wells overgrazed the land. The gradual disappearance of fuel wood forced farmers to burn crop residues and manure instead of using these as fertilizer. As the land lost its green cover, it could no longer nourish crops or absorb what rain did fall. As its vulnerability grew, agriculture declined and in dry years collapsed completely.

What is most ominous about this sequence is how *fast* it has happened. As recently as 1960, sub-Saharan Africa was a food exporter. Today it has the world's heaviest reliance on imports. Children under 5, the most susceptible to malnutrition, account for 50 percent to 80 percent of total mortality, compared to 3 percent for the same age group in Europe. In a well-studied region of Mali, the desert has moved 220 miles south in two decades. Trees have all but disappeared from much of Ethiopia.

There are plenty of economic policy failures to blame for these woes. Over

“Human and environmental calamities are indivisible.”

the years, everything from food subsidies and price controls to overvalued currencies has been cited, and correctly so. But until very recently, the experts ignored the environmental constraints that were undoing their best efforts.

A few thousand miles to the north and east, an eerily similar crisis is unfolding in Soviet Asia on the arid plains surrounding the Aral Sea. Thirty years ago, large scale irrigation projects were started there, principally to grow cotton for hard currency exports. The rivers that were tapped for their water also feed the landlocked sea. Today they have dried to a trickle. Some years they deliver no water at all. The land has taken a savage revenge.

The Aral Sea itself has lost half of its volume. Once a fishing town, Muynak is now 30 miles from the shore. In between, fishing boats lie abandoned and rusting in the drying mud. In the saltier waters only a few fish survive. There are plans to ship fish 1,000 miles from the Baltic Sea to supply the town's processing plant.

From the air one can see traces of older irrigation systems beneath sand dunes on land that is now irreclaimable desert. In 20 years, 4,000 square miles of agricultural land has been lost. The land that is still cultivated is so salty that yields are meager. The region's natural dust storms are now also salt storms, and the rain is not acid, but salt. The drinking water, brackish and contaminated with pesticides, is deadly. Mortality has skyrocketed in a decade.

The Aral's colonists were Moscow bureaucrats who exploited the region for what it could ship west. As in Africa, population growth has been among the world's fastest. And, as in Africa, the length and depth of the drought of the past 20 years makes experts suspect a man-made cause. More dust in the atmosphere, the greater reflectance of devegetated earth and less moisture in the air due to the loss of moisture from vegetation, may all be creating a self-reinforcing downward spiral of less and less rainfall. Global warming may also be a culprit.

Arid lands magnify the consequences of environmental mistakes. But what happens in these regions is not fundamentally different from what happens when humans put too much stress on any environment, either because of mismanagement, too many people or both. The unraveling is just faster and in human terms, harsher. The rest of the world sees Africa's famine as a human tragedy, not an environmental one. The dying Aral Sea is painted as an environmental horror; its human costs are largely ignored. The lesson of both is that human and environmental calamities are indivisible.

Jessica Mathews

The Greenhouse Holdout

The surprise announcement this week that Europe had committed itself to putting a lid on emissions of the global warming gas carbon dioxide completes the diplomatic isolation of the United States on greenhouse policy.

Between them, the European Community and the European Free Trade Association represent all 17 countries of Western Europe (except Malta). Their decision means that members will aim to hold their emissions of carbon dioxide in the year 2000 to the same level as in 1990, but does not interfere with more ambitious targets set by Germany, Denmark, the Netherlands and others, which call for cuts ranging up to 25 percent.

In the Pacific, New Zealand also plans a 25 percent CO₂ cut. Within the past few weeks Australia (which, like the United States, is large, thinly populated and heavily reliant on coal), set a goal of a 20 percent cut, and Japan abandoned its prior support for the U.S. position. Japan's goal holds per-capita emissions steady, but allows for expected population growth.

Canada also plans to stabilize its emissions. This leaves the United States as the only developed country arguing that it is too soon to begin slowing these emissions. In stark contrast to the others, its yearly CO₂ outputs will likely grow by about 15 percent by 2000, unless policies change.

The split between the United States and the rest of the developed world has nothing to do with science. The just-completed World Climate Conference issued another in a long string of international consensus documents on the scientific aspects of greenhouse warming. American scientists have played the leading role in all of them.

Rather, it lies in the chancy leap from science to policy. In this disorienting twilight zone, it is revealed that the best scientists, being mortal, rely on hunch and intuition like the rest of us, and policy makers effortlessly cloak their ideological, political or personal predilections in the folds of scientific uncertainty.

Administration officials are more than a little patronizing in their dismissal of other countries' greenhouse control targets. The goals, they say, are unsupported by serious analysis showing how they will be achieved and at what cost. On alternate days of the week they say the goals are cheap rhetoric and that these countries are actually secretly relying on the United States to hold the line and save them from themselves. All of these apparently grown-up countries, in this view, either don't know what they're talking about or don't believe what they are saying.

But how accurate the studies are—whether Germany ultimately cuts its emissions by 25 percent or half of that—is not what matters. The goals are meaningful for precisely the reason the administration opposes them: they shape policy, they commit a government to try.

Nor can domestic political pressure explain why so many countries would adopt phony goals. Many of these countries harbor vocal and growing Green parties, but in no case is greenhouse warming such a priority public issue as to drive governments to adopt challenging policies they don't believe in. Quite the contrary, governments are ahead of public opinion on this issue.

Why, then, would governments choose—as the administration sees it—self-inflicted economic wounds? Here is the nub. They don't share the United States' assessment that there will be a high economic cost. Many, including Japan, Germany and the Netherlands, are saying that they expect a net profit from energy efficiency gains and through eventual market dominance of innovative high-efficiency technologies and alternative energy sources. Interestingly, the most ambitious CO₂ targets have been adopted by countries that are already among the most energy efficient (measured either by energy use per person or per dollar of GNP). This would not be the first time those who are first to explore a technological frontier are the first to see its full potential.

With a government hamstrung between two political parties, each of them internally divided, and a public fearful of recession and scornful of its government, the United States right now is poorly equipped to contemplate, much less embrace, change. Wholesale cuts in CO₂ emissions may well yield net economic benefits, but every step in that direction will hurt someone. When whale oil gave way to kerosene, the economy saw the change as a big plus. Not so the whaling industry. In modern terms, those who could be hurt are powerful industries with friends at both ends of Pennsylvania Avenue.

But the real key to the U.S. position is White House Chief of Staff John Sununu. He has a simple version of the climate models that run on supercomputers at places like the National Center for Atmospheric Research set up in his office, as if in his spare time he could uncover some flaw in the scientists' reasoning. His fierce personal interest and opposition to dealing with the energy-related greenhouse gases has cleared the field of potential opposing voices in the Cabinet. Secretary of State James Baker has gone so far as to have a formal legal recusal drafted, removing himself from the debate on the grounds it could affect his oil and gas holdings. (Whereas managing the Mideast crisis does not?)

Being a minority of one does not make the U.S. position wrong. But, given the lineup of governments taking the opposite view, it should give us pause. There's reason to be questioning not their analysis but our own.

Jessica Mathews

Still Hazy After All These Years

Only one snag slowed the negotiations over my first maternity leave: who would be responsible for following the Clean Air Act while I was gone. I was then on The Post's editorial staff, and President-elect Reagan had made clear that the air bill would be the first in line in what was to be a sweeping undoing of federal environmental regulation. As it turned out, the Great Communicator had drastically misread public opinion on the environment. That soon-to-be baby now does long division and is planning his 10th birthday. The clean air rewrite is still being worked on.

Twenty years after the federal air pollution law was first passed, the two new versions now mired in a House-Senate conference are revised, expanded and toughened, but still clearly its lineal descendants. They deal with issues not then recognized as such—acid rain, getting rid of CFCs—and use new incentives in place of pure command-and-control regulation. But they both still suffer from the same fatal flaw: in a country where the vast majority of air pollution comes from energy use, much of that from transportation, we are trying to achieve clean air through a law that has little say over how much energy we use or how we get around.

To the limited extent that the country has had an articulated energy and transportation strategy during these 20 years, it has been: Burn more fossil fuels, build more roads. The only path available for improving the air has been to ratchet down allowed emissions for each ton of fuel burned and each mile driven. Much has been achieved this way, but there is an inevitable collision with economic growth. Eventually, the cost of the next step downward becomes too high.

By now it has become difficult even to define progress. Without doubt the nation's air is vastly cleaner than it would have been without a federal air pollution law. Yet more than 130 million people—about half the population—live in areas that do not meet the basic health standards for ozone and carbon monoxide. Automobiles produce far less pollution, but motor vehicle use is growing so fast it soon overtakes the effect of cleaner cars. Congress has spent untold hours fighting over how many grams per mile of which pollutant may emerge from an automobile tailpipe by what year. The dirty little secret is that the number of vehicle miles traveled is expected to double in most cities in 20 years. At that rate, these bitterly fought new standards will merely offset the added emissions.

The political process reflects the strains of this debate as well as the general political breakdown in Washington. Through 14 weeks of this House-Senate conference, the legislators themselves have met only four times. Rather than make publicly understandable big-picture choices, they are writing a bill that is technical detail piled on detail, special provision on top of special provision, most of it hammered out in staff negotiations behind closed doors. The process is tailor-made to accommodate the interests that provide the



BY OHLSSON

PAC money our appalling campaign finance arrangements require. The deals and tradeoffs are so numerous and so painful that the principal reason to hope a final agreement can be still be reached in the remaining few days of the session is the level of sheer desperation members feel to get the process over with.

The administration has been no help. President Bush made an enormous contribution when he introduced his version of the bill a year ago, and broke the decade-long stalemate over whether and how to control acid rain. Having thereby met, at least to his own satisfaction, his campaign pledge to be the "environment president," Bush turned his back on the issue. (Leon Billings, staff director to the Clean Air Act's principal author, former senator Ed Muskie, calls this the "Read my clips" presidency.) Since then, the administration has ignored any number of opportunities to contribute constructively, relying instead on its all-purpose legislative strategy, the veto threat.

An added complication is the belief in many state capitals that the federal government won't move aggressively enough to ensure adequately clean air. After 10 years of federal backpedaling on the environment, several states—notably California and New York—intend to take matters into their own hands. Industry understandably shudders at the prospect of different state standards requiring, for example, different automobile fleets state by state. Like land mines in an old battlefield, bits of the Reagan legacy keep turning up to threaten the present.

The compromise whose outlines are slowly emerging is worth having, though perhaps unworthy of the 10-year wait. The bill sets the country on a long march in the right direction—more slowly than environmentalists believe is needed, more aggressively than affected industries would like. Decisions yet to be made could make a substantial difference, especially provisions that would finally make local transportation planners responsible for the air quality consequences of their decisions, and allow governors to use federal highway money for programs that reduce, rather than increase, motor vehicle pollution.

The country badly needs to get this bill passed and signed. The real challenge, once Washington is up to it, will then be to craft a new approach, one that deals with energy, transportation, clean air—and greenhouse warming—in one coherent package.

The writer is vice president of the World Resources Institute.

President Affirms Biodiversity Stance

Citing Jobs, Bush Firmly Rejects Treaty

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By Ann Devroy
Washington Post Staff Writer

President Bush, ending a week-end meeting with British Prime Minister John Major, said yesterday he would not budge in his refusal to join the leaders of most nations in signing a biodiversity treaty at the Earth Summit later this week.

"I'm not going to change," he said.

Although Britain had some problems with the financial conditions imposed by the treaty, which is aimed at preserving the diversity of plant and animal life worldwide, Major said he believed most concerns could be solved. The United States stands virtually alone in rejecting the treaty, primarily because the administration wants to protect the U.S. biotechnology industry, which it feels would be hurt by some technology transfer requirements, and is unwilling to make "open-ended" financial commitments to help poorer nations protect their animal and plant life.

Bush and Major made their comments about the Earth Summit, which is being held in Rio de Janeiro, during a news conference concluding two days of talks at the presidential retreat at Camp David. The two also pledged to maintain strong sanctions against Yugoslavia for now as the only possible way to help end the civil war there.

Concerning Rio, Bush said the biodiversity treaty demands outlays that could exceed U.S. capabilities and he would not make a commitment the United States was unable to keep. "We do not have an open pocketbook," he said.

The United States announced last week that it would not sign the treaty, one of two major accords to be signed in Rio. The signing nations will pledge to preserve the diversity of their native species. It would require richer nations to give financial and other assistance to the poorer ones to help them preserve their species.

The United States objects to treaty language giving poorer nations some special access to biotechnology developments in the industrialized nations. Despite efforts by senior administration officials, led by Environmental Protection Agency administrator William K. Reilly, to work out a compromise, the White House has been unmoved in the last week in the face of strenuous criticism by other nations. "I have nothing to be apologetic for. I also have to be the one at this conference that is responsible for jobs and people being at work," Bush said.

Major leaves for the Rio conference on Tuesday and Bush arrives there Thursday night for a short stay. The president said his message in Rio would be that the Unit-

See PRESIDENT, A16, Col. 5



WILLIAM K. REILLY
... says he was "undercut"

'Outsider' EPA Chief Being Tested

By Michael Weisskopf
Washington Post Staff Writer

RIO DE JANEIRO, June 7

—As the consummate outsider, William K. Reilly is undergoing a test of agility at the U.N. Earth Summit. Chosen to lead the U.S. delegation here, he has had to represent pro-business positions of the Bush administration that he often opposes in his job as chief of the U.S. Environmental Protection Agency.

But in doing the administration's diplomatic bidding last week, Reilly was cast as the outsider again—this time, not by his own choosing. A confidential cable that he sent to the White House was leaked to the press in Washington, spotlighting his failure to reverse U.S. opposition to a forest biodiversity treaty.

The incident infuriated Reilly and underlined the deep divisions within the administration over environmental policy. Reilly said last night that the leak was an effort by conservatives in the White House to "undercut" him and the summit. Although he vented his anger in telephone calls to President Bush and domestic policy counselor Clayton Yeutter, Reilly said, he never considered quitting because "I don't want to give my adversaries the satisfaction."

See REILLY, A16, Col. 1

'Outsider' EPA Chief Learns Role's Downside

REILLY, From A1

In Washington's folkways, the leak cost Reilly points in political one-upmanship. But in diplomatic circles here, the main casualty was U.S. prestige. Less than a week before Bush is scheduled to arrive, he is being accused of obstructing primary goals of the summit—treaties on biodiversity and global warming.

"People are wondering what the hell is going on in Washington," said Jamsheed Marker, Pakistan's ambassador to the United Nations. "The perception of the U.S. is not one of leadership, but that of blocking" the summit's progress.

A senior European official said the leak "confirms what many people have suspected—that Bill Reilly is a fig leaf for a not very committed government."

Reilly is accustomed to being the odd man out. In a Republican administration inherently suspicious of business regulations, he has spent the past 3½ years battling almost single-handedly for environmental causes. A tough in-fighter, he gets support wherever he can, publicizing reports to highlight problems or lining up GOP politicians and even foreign leaders to lobby the president.

Most of Reilly's victories came early in his tenure. Holding the president to campaign promises, he helped to strengthen clean air laws and accelerate the phaseout of ozone-depleting chemicals. But each success was hard-won and sharpened his rivalry with conservative White House aides who consider him self-serving and too liberal.

Reilly knew the risks of leading the U.S. delegation here. The White House is swept up in an anti-regulatory crusade that, officials say, is inspired by fears of political fallout from the recession and by the early primary success of GOP challenger Patrick J. Buchanan. Buchanan called on Bush to boycott the summit, and the president delayed his travel plans until U.S. negotiators managed to water down the treaty on global warming controls.

"If Rio turns out to be a complete fiasco, there are lots of people at the

White House who would love to blame Reilly for leading the president down the wrong path," an administration official said.

But Reilly was determined to go. The first professional conservationist to head the EPA—he was president of the World Wildlife Federation—he is forced to balance his environmental ideals against his loyalty to a president whom he considers a friend, mentor and kindred soul, albeit a quiet one. "I understand my role," he said. "I am the president's man."

Reilly, 53, also is a man at home in the diplomatic world. Dapper, well-traveled and fluent in four languages, the Yale-educated lawyer is the rare celebrity among government officials, and was invited to dine with the king of Sweden and Bianca Jagger on this trip.

That image is cause for disdain by political foes, who consider Reilly elitist and shallow. Budget director Richard G. Darman once called him a "global rock star." But to the diplomats he meets increasingly as international environmental issues rise to the fore, his easy manner is seen as a negotiating asset.

In Rio, Reilly sees his mission as "damage control," a U.S. official said. Washington was isolated even before the summit opened. The weekend before, the White House decided not to sign the biodiversity treaty to preserve plants and wildlife. Only the United States, among industrialized nations, had opposed scheduled limits on "greenhouse" gases a month earlier, creating major loopholes in the other main treaty of the conference.

"Getting down here and finding the degree of anger and hostility was pretty discouraging," Reilly said in an interview.

Meeting with Brazilian hosts the day of his arrival, Reilly agreed to let them try to work out compromises on biodiversity in the hope of gaining U.S. approval in time for the treaty's unveiling Friday. It was a diplomatic gamble for Brazil, which wants to make the summit as successful as possible but not be seen as a pawn of the United States.

Reilly gave the Brazilians a list of changes he considered necessary for



EPA Administrator William Reilly takes a ride through Rio's botanical gardens.

U.S. concurrence. He cabled the suggested items to Yeutter for clearance Wednesday, reporting the role of the Brazilians.

According to administration sources in Washington, Yeutter rejected the last-minute bid Thursday after consulting with White House counsel C. Boyden Gray III and the staff of Vice President Quayle's Council on Competitiveness, a group set up to undo onerous business regulation. The council had opposed the treaty while it was being negotiated.

By Friday, the confidential cable had been leaked to the New York Times. When a reporter presented a copy to Reilly and sought comment, the usually unflappable EPA chief angrily ended the interview.

"I was furious," Reilly recalled. "I was personally embarrassed just to be handed the goddamn thing. For a government like Brazil to help us was a major advance, and the leak of that memo just blew it away. It compromises our policy here and sows distrust among your counterparts."

"It was an obvious effort to undercut the treaty, me personally and the whole summit," he said.

To many diplomats, however, greater damage was done to the image of Bush, whose perceived ambivalence toward the summit is blamed for encouraging the person who leaked the memo.

"There needs to be some positive statement by the U.S. before Bush arrives, or he will not receive an enthusiastic reception," said Ros Kelly, Australia's environment minister and top negotiator here.

To American observers here, the flap was an unfortunate spillover of domestic politics. "If you want to show you have control over your EPA administrator and can knock him down to size, maybe you're accomplishing something politically," said Scott Hajost, international counsel of the Environmental Defense Fund. "But from an international point of view, you're further tarnishing the president and the U.S. image."

Bush Affirms Rejection Of Biodiversity Treaty

PRESIDENT, From A1

ed States will be a leader in protecting the world's forests to maintain biodiversity. The White House announced last week it would more than double its aid to poorer countries to help them preserve their forests and called on other industrialized countries to do the same.

"We think that a good forestry program will take care of a lot of the . . . biodiversity needs," Bush said. "And so though I will not sign that treaty as it sits on the table now, we will continue to be the leader, or a leader, in terms of forests and in terms of environmental technology."

The president also reacted angrily to last week's leak to the New York Times of a Reilly memo outlining possible compromises on the treaty that the White House rejected. Bush said he would fire the government worker who leaked the memo if he could find him. "Help me find him," Bush told reporters, "He'll be gainfully unemployed."

On Yugoslavia, Bush and Major both said they would not consider further action to stop the fighting until the week-old United Nations sanctions have more time to work.

Bush said world leaders have a "wide array of options" on the humanitarian concerns—such as providing food and medicine to the thousands under siege and the more than one million homeless in Bosnia. "We didn't settle on any new course of action," Bush said.

Major said for the short term, "We stick with the sanctions and we make them tough."

The president was again pressed,



Bush and Major arrive in golf cart for the Camp David news conference.

as he has been frequently in the last two weeks, to discuss the rising stature of independent presidential candidate Ross Perot and what he intends to do to improve his deteriorated political position. On Perot, Bush said, "I cannot tell a lie. His name came up" in the discussions with Major, who survived lagging polls to win a come-from-behind victory for the Conservative Party in the British elections this year.

Bush said Major gave him "a lot of good advice. Just stay with it." Bush later said he told Major, "I feel confident of winning. And I do better when I'm fighting. I do better when I'm coming from behind."

THE WASHINGTON POST

MONDAY, JUNE 8, 1992

The Browning Of Ecology

Human Suffering Finds a Home On the Environmental Agenda

By Joel Achenbach
Washington Post Staff Writer

RIO DE JANEIRO—It is the most spectacular of slums, 350,000 people spilling out of brick-and-mortar huts on a mountainside high above the sea. The site affords a panoramic view of the ocean, the lagoons, the fancy hotels and the highway that leads to the Earth Summit.

It's called Rocinha, and it's the largest *favela* on the continent, a teeming micropolis with a narrow, serpentine main street lined with markets and bars and barbershops and nearly hidden stairs that crawl crazily up the hill. Life is dense and giddy, cluttered with dogs in the cafes, kids hanging out of windows, men lugging bricks and shoveling gravel into bags, all oblivious to the occasional city bus squeezing past. Linking it all is a foul liquid navigating the street, trickling toward the sea.

This is where the environmentalists came to get away. To escape what one activist called the "artificial atmosphere" of the other Earth Summit events. To get back to basics, to the *people*. Of course they had no choice but to hold a press conference. Not that anyone demanded one. A business card and a friendly handshake would have been fine! But unfortunately, the Earth Summit and its parasitic happenings have turned into a jabberfest, two weeks of endless yammering in many tongues. If you've got an agenda, or even just an acronym, you are here in Rio and holding a press conference.

This one at Rocinha, held in a samba academy at the

See RIO, C8, Col. 1

Ideology Shift in Rio

RIO, From C1

top of the hill, was more interesting than most—the dramatic setting helped—but it still lasted more than an hour as spokesmen for eight activist organizations politely took turns announcing that they were appalled and consternated and outraged by the events at the official U.N. conference.

The groups issued an ultimatum: If leaders of the U.S., European and Japanese delegations didn't meet with them by noon Monday, they would "raise the stakes considerably," in the ominous words of Tani Adams of Greenpeace. She wouldn't elaborate, other than to say that Greenpeace is committed to nonviolence (a good thing given that the main convention is guarded by armed soldiers and tanks).

Amid the profusion of talk, one line stood out. It came from Pedro Mendonca, an activist with a group called the Federation of Favela Dwellers of the State of Rio de Janeiro. He gave a simple definition of ecology.

"Ecology," he said, "means a home to live in, water to drink, and basic sanitation."

This lone Brazilian had summarized what may be the singular intellectual legacy of this wild meeting in Rio. It can now be officially declared that ecology is no longer about birds and bunnies, about forests and pretty streams, about nice places to take a hike and listen to the voices of nature. Nor is ecology merely about the dangers of nuclear energy or the misbehavior of polluting industries. Now, ecology is about people, poverty, international debt relief, fair trade instead of free trade. It's about slums.

Being "green" will never be the same. Indeed, the hippest ecologists are beyond the green issues, into another hue entirely: brown.

A brown environmental issue is a dirty, grimy, gritty one. It's urban smog, toxic waste, lack of sanitation. It is cooking oil that's not fit to burn. It's human effluent running down a hillside. It is the scuzzy, smelly underside of human existence in all the favelas of the world.

"We've been talking about the



AGENCE FRANCE-PRESSE

About 6,000 people crammed Rio's Copacabana Beach yesterday as part of a rally against U.S. refusal to sign Earth Summit accords. Among the protesters was candidate Jerry Brown, right.

brown agenda, as opposed to the green agenda, which has gotten all the press," says Mary McNeil, spokeswoman for the Urban Division of the World Bank. "It's not about bees and insects, it's about saving the human species."

"Brown" is so new a term that many environmentalists say they've never run across it—but they all agree that the Earth Summit, with its emphasis on the linkage between environment and economics, has fundamentally broadened the ecological agenda.

"I'm certainly never going to look at environmental issues again divorced from social and economic issues," vowed Elizabeth Barratt-Brown, attorney for the Natural Resources Defense Council, as she cabbed through a smog-choked tunnel over the weekend on the road to the summit. But Barratt-Brown herself asked the important follow-up question: "How big is our agenda going to be?"

There's a danger of agenda meltdown. It's hard enough being green without also having to worry about brown and who knows what other denominations. But that's the intellectual climate right now in Rio. Saving the Earth from environmental degradation is no longer the goal. A potent political manifesto has replaced it: The weak must be made strong, the wicked must be made good, the un-



ASSOCIATED PRESS

just must be made fair. (Stay tuned: Press conference at 11.)

Once, no one was "green." There were only "conservationists." Backpackers in flannel shirts from L.L. Bean. These people are still around, but now they're enlightened. Some of them, in fact, pushed ecology to its new realm—men like Jim Bohlen and David Brower, both of whom showed up yesterday for a big, raucous march on Copacabana Beach (the precise subject of the march was fuzzy, but Jerry Brown told this reporter, "It's a protest against the corruption," seconds before disappearing into a crush of humanity, Bianca Jagger hanging on to him for dear life).

Bohlen, one of the founders of Greenpeace in 1969, was there in a Green Party T-shirt. He has a bushy white beard and wore wraparound

shades. He said he knows where the word "green" originated. It was in 1972, when he and some Greenpeace colleagues were in Paris on their way to the first U.N. ecology conference in Stockholm. They held a protest at Notre Dame cathedral, and the police cracked down. An officer confronted Rod Marining, one of the protesters, and asked accusingly, "You red?" As in communist. "No, me green" was the reply. "Green" was born. At least that's Bohlen's story.

Brower was nearby, in his ecology-green shorts, his face a deep red, hair bright white, carriage still perfectly upright despite his 79 years. Brower had been executive director of the Sierra Club for many years before being forced to step down in 1969. The issue was the Diablo Canyon nuclear power plant. Brower's sin wasn't to oppose nuclear power—at the time, conservationists were not yet anti-nuke—but to oppose the siting of the plant on that particular piece of California coastline. Brower then started Friends of the Earth, one of the first ecology groups to go beyond the birds-and-bunnies focus into rough-and-tumble political issues. He later founded the Earth Island Institute and is a member of the Green Party of California.

Today, Brower talks like a classic green, questioning the arrogance of humans in presuming that we have dominion over nature. "In Genesis, it says multiply and replenish the Earth and subdue it. We have overmultiplied, we've oversubdued, and we've forgotten what replenish should mean."

There are some environmentalists with a scientific bent who argue that the planet can only survive as a kind of vast garden, with humans as the gardeners. To make a more unpleasant metaphor: Earth will have to become a kind of zoo. Otherwise, the destruction of habitats will doom most of the larger species of animals. "Biodiversity," a nearly sacred word to most at this summit, might require radical measures of human intervention not only in saving habitat but even in genetic engineering of other species. Naturally this isn't a green way to look at things.

"Being a gardener or a steward is better than being an exploiter, but it still positions yourself as a manager or a bureaucrat," says Tom Hayden, the famous political radical and movie-star ex-husband. He's popping up everywhere in Rio himself. "The last thing nature needs is a steward. It was doing fine before we came along."

The Earth Summit was originally supposed to be about the environment, as was the 1972 U.N. ecology conference in Stockholm, but the development issues got on board with equal footing at the insistence of developing nations. The major discussions at Ri-

ocentro, site of the U.N. Earth Summit, remain centered on ecological issues, such as biodiversity and climate change, but the non-governmental organizations (NGOs) have been wrapped up in social and economic issues.

You could argue that the social-justice crowd, through sheer vociferousness, has stolen the show. It seems as though there's far more talk about the dangers of free trade and the injustice of poverty than there is about, say, air pollution, even though you can't walk outside here without gagging on the emissions of cars that don't have catalytic converters.

Terryn Barill, an environmental consultant from Los Angeles, said she's gotten fed up with the anti-America screeds even though she is herself disappointed with the Bush administration. She said the daily briefing at the

Global Forum about events across town at the main summit have turned into a forum to bash the United States.

"My information link is cut off," she said. "I'm looking at Global Forum going down the tubes, and George Bush isn't doing anything, and I'm wondering, have I wasted my entire life?"

Most people love it, though. They go goo-goo-eyed when asked what it's like to be here in Rio. So much togetherness! So much bonding! It's a whole planet working together! Except for Bush!

Of course, inclusiveness has its quirks. Like the other day, a Xavante Indian of Brazil showed up at the Global Forum. Indigenous people, needless to say, are like saints here—they are the original greens. But this Indian brought a jaguar skin. The pelt of a spotted jaguar! He asked \$600,000 for it. There were no takers at last report.

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The sky is not falling; stop the hand-wringing

There's plenty of good news on the environmental front, particularly in the USA, and most environmental fears are exaggerated.

All the attention given to the Earth Summit may make you think the Earth is on the edge of disaster. You may think that all our forests are dying, the world's natural resources are disappearing and our favorite animals are on the brink of extinction.

Most of these fears are exaggerated.

We have more forest land in the USA today than we did in 1920 — 128 million more acres! Our air is cleaner than it used to be. World food production is rising faster than world population. Animals that approached extinction, such as bald eagles and falcons, are soaring through the skies.

In spite of worries about energy, the world is awash in oil. Non-renewable resources like copper and tungsten are cheaper (when adjusted for inflation) than they were 10 years ago. In fact, no non-renewable material has ever disappeared, even though fears of depletion have been around since the 15th century. (Then, doomsayers predicted that England would run out of wood.)

The world does have environmental problems. Many of them are caused by the policies of the government officials sounding so pious in Rio these days.

In Brazil, for example, government tax and credit incentives for cattle-raising and government requirements that homesteaders clear their land have spurred deforestation.

In Egypt, Pakistan and even the USA, government-subsidized irrigation has made some soil saline and unproductive.

In Africa, governments have dug water holes but haven't allowed private owners to control their use (even though that was the traditional custom). This has led to overgrazing around the water holes, even desertification.

In Eastern Europe and the former Soviet Union, thanks to decades of government planning, air pollution from high-sulfur lignite and water pollution from heavy metals are widespread and severe. A once-giant body of water, the Aral Sea, has diminished 40% in size due to massive irrigation.

RIO

In the USA, we have problems, too, but the good news is that they are being tackled. Often, the most effective people are not government agencies but private individuals and organizations working quietly with little publicity.

In Idaho, for example, Tom Cade's Peregrine Fund has achieved almost complete recovery of the peregrine falcon, which was nearly extinct in the 1970s.

In Wisconsin, Brent Haglund's Sand County Foundation is restoring overused land to its original beauty.

In Denver, Don Stedman has figured out how to reduce auto pollution by pinpointing the most-polluting cars.

International Paper, a large landowner, is growing trees and protecting wildlife habitat as well.

The USA and other developed countries can tackle environmental problems because they have experienced economic growth. People must have food on the table before they become concerned about endangered species or preservation of open space. Concern for the environment comes with higher income. And well-off countries have the technology to solve many environmental problems.

A new report by the World Bank confirms the environmental benefits of economic growth. It notes that 1 billion people in poor countries do not even have access to clean water; 1.7 billion have no sanitation. In contrast, the developed countries have basic water supply and sanitation and have made enormous progress in cutting pollution. Since 1970, the bank says, soot and dust emissions have gone down 60% in industrial countries; lead emissions are down 85% in North America and 50% in most European cities.

Instead of jaw-flapping, hand-wringing and wearing hair shirts during this Earth Summit season, let's thank those devoting their lives to solving these problems. Let's welcome growth because it will improve environmental quality. And let's be proud of the progress we have made so far.

► Earth Summit, 1A



By Jane S. Shaw, a senior associate of the Political Economy Research Center, Bozeman, Mont.

After the Earth Summit, the ones we have to answer to

ELLEN GOODMAN

The children are missing from the streets of Rio de Janeiro. The street urchins, the homeless kids who roam the city by the thousands, were apparently removed like so much debris when the Brazilian government cleaned up for the Earth Summit.

What a shame. Instead of taking them out of the city, the officials should have brought them right to the center of the pomp and circumstance. They should have left them where they belong, smack in the middle of this pin-striped meeting of world leaders.

After all, this summit is about children. No matter how you couch the concerns of this gathering in long words and simultaneously translated speeches, it's about children, generations of them.

Population, poverty, pollution. A changing climate and disappearing species. Some say the conflict in Rio pits one hemisphere against another. A Southern hemisphere damaging the last of the world's natural resources against a Northern hemisphere speicing spoilage from its overconsumption machines.

Some say it's between the economy and the ecology, growth and preservation. The standoff between spotted owls and loggers' jobs multiplied by millions of species and billions of people.

But the deeper conflict is between a long-term and a short-term perspective. It's about how people think about the year 2030 and how we don't think about it.

From my post in the Northern hemisphere, it seems to me that in my lifetime we have not only darkened the natural horizons, we have shortened the human horizons. Our own country, rich by any standard, has somehow stopped paying attention to the future.

How else can we explain the casual neglect and impoverishment of our own children? One of every five children in America is poor. We spend \$11,000 for every senior and \$1,000 for every child. We borrow a billion dollars every day to pay for the national debt which will add to our children's debt.

How else can we explain a business world that thinks only as far ahead as the next quarterly estimate, if that? A year ago, one corporation promised and paid its executives huge bonuses to pump the stock up to \$100 a share for just 10 days.

And how else to explain a president who only thinks as far as November? Or an electorate that has yet to push the future to the top of the agenda.

Nearsightedness is hardly a new or uniquely American condition. Throughout history, people living hand to mouth have never had much time to look ahead. If the children of Rio were invited to the conference, surely they would ask, first of all, for lunch.

But today the comfortable and middle class, the leaders as well as followers, have also had their vision cramped. As Al Gore, the Tennessean heading the Senate delegation to Rio, worries, "We have had the idea that we can exploit the Earth for our own short-term desires and designs."

Gore, a thoughtful leader in environmental politics, says that our attitude to the future has been crippled first by denial and now, by despair. "Denial is a barrier to recognition," he says. "Despair is a barrier to grief and all the related feelings that people have to experience in order to understand the necessity for significant changes."

During the Cold War, it was the nuclear bomb and the doomsday scenario that made people doubt a future. The bomb shifted the

equation between today and tomorrow.

Now we enter the post-Cold War world and The Threat is less from a falling bomb than from a rising thermostat. It's from too many cars and too many babies. The threat grows with each cleared acre of rain forest, at a time. We may suffer less from future shock than future phobia.

Go into any schoolroom, says Gore, who has done it dozens of times. Ask the kids the most important issue and they will say the global environment. Ask them if they care more than their parents and they will say yes. Ask them why and they'll say it's because kids will be around longer and because they know more.

"But, they really do not understand how we could be so paralyzed," says Gore. More adults are also finding it hard to understand.

So, in the midst of all the posturing and wrangling in Rio, there are signs of movement, even if they are only small stretches, careful warm-up exercises. A good antidote to despair.

The children are not to be seen on the streets of Rio these days. Nor are they to be heard in the conference hall. But sooner or later, they're the ones we have to answer to.

Ellen Goodman is a Globe columnist.

Boston Globe 6/7/92 p 87

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NEWSMAKERS

BEHIND THE SCENES WITH PEOPLE IN THE HEADLINES

Treaty for Rio eludes EPA chief

By Paul Hoversten
USA TODAY

EPA Administrator William Reilly — U.S. point man at the Earth Summit in Brazil — again is at odds with the White House over the environment.

His last-ditch efforts to win crucial U.S. backing for a treaty to protect plants and animals was snubbed by the Bush administration last week — after a confidential memo he wrote the White House urging compromise was leaked to *The New York Times*.

The move triggered an immediate rebuke from delegations at the 178-nation U.N. conference.

"There's been a firestorm of criticism for the president and the country," says Sen. Albert Gore, D-Tenn., in Rio de Janeiro. "Once again, the president has overruled his EPA chief. This time, the whole world is watching."

President Bush says he has "nothing to be apologetic for" and expresses confidence in the beleaguered chief of the Environmental Protection Agency.

The administration opposed the treaty on biodiversity on grounds it could harm the U.S. biotechnology industry and force the U.S. to contribute much of the money while spending decisions would be left to developing nations, which have the greatest variety of species.

Reilly's memo detailed ways the White House might change its mind and noted that Brazil had offered to "fix" problem provisions.

Reilly says he has no plans to resign. "That is not in the cards. I do not want to give that satisfaction to my enemies."

Environmentalists and some delegations blame the leak on conservative members of the President's Council on Competitiveness, headed by Vice President Quayle. The Council denies involvement.

Reilly, a former activist for the World Wildlife Fund, has fought — and lost — several key battles with the White House.

He tried and failed last summer to block Quayle's plan to open 50 million acres of wetlands — half the U.S. total — to development.

Reilly also has been unable to



Reuters

REILLY: Memo urging compromise leaked to 'New York Times'

speed implementation of new parts of the 1990 Clean Air Act that the Council on Competitiveness has stalled. He lost another round last week when Bush relaxed air pollution regulations for industry.

Contributing: Linda Kanamine.

USA Today
Monday June 8,
1992

Rio: U.S. watches wallet

By Linda Kanamine
USA TODAY

RIO DE JANEIRO, Brazil — The Earth Summit faces a not-so-grand finale this week if the United States keeps its wallet closed.

Washington is balking at the cost of some of the summit's ambitious goals, including \$625 billion a year for a decade to clean up the global environment.

President Bush, who arrives here Thursday, said Sunday he must not only worry about the environment, but also about "people being at work in this coun-

try. ... We do not have an open pocketbook."

But Rep. James Scheuer, D-N.Y., said that view "will not stand ... once the president sees the outpouring of outrage and anger" in Rio.

Some delegates were reported changing tactics from criticism to wooing U.S. officials into agreeing to help developing nations protect their resources.

"We want them on board," said Brazilian negotiator Marcos Azambuja.

► Reilly on the outside, 2A
► Young activists, 5A
► Commentary, 11A



Cleanup cost is messiest summit issue

By Paul Raeburn
ASSOCIATED PRESS

RIO DE JANEIRO, Brazil — Delegates at the Earth Summit yesterday turned to one of the trickiest issues at the global gathering: Who will pay to clean up the environment and protect it.

The issue underlies nearly all others at the summit and is partly responsible for the U.S. refusal to sign a treaty to protect animal and plant species.

The United States has come under harsh criticism for its stance. Officials said last week that Japan and the 12-member European Community would sign the so-called biodiversity convention, a centerpiece of the summit.

President Bush has adamantly opposed the treaty because the administration claims it would hurt U.S. industry.

At least 116 heads of state, including Mr. Bush, are expected in Rio on Friday for two days of talks aimed at making the environment a central item on the post-Cold War agenda.

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CLEANUP

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But delegates are already busy crafting agreements.

After a weekend break, formal summit sessions were to resume today, with attention shifting to money — who will pay for environmental protection and cleanup, and who will decide how the money is to be spent.

Pre-summit negotiations focused on who would foot the cleanup bill. The summit's chief coordinator, Maurice Strong of Canada, said the cost could top \$125 billion a year.

Developing nations say they are willing to protect their resources if the rich nations are willing to pay for it. They also want more aid to help conquer poverty, which they argue is at the root of environmental degradation.

The United States and other industrialized nations, however, are strapped by tight budgets and are unwilling to give up control over what funds they do provide.

William Reilly, the chief U.S. delegate and head of the Environmental Protection Agency, said last week that Mr. Bush's offer to contribute \$150 million to an international forest protection fund "is all we have in a year of budget problems."

Blame for fouling the environment has focused on the United States, which produces a quarter of the world's carbon dioxide, the main greenhouse gas. It has also been severely criticized for refusing to sign the biodiversity treaty.

Russell Mittermeier, the president of Conservation International and an expert on biodiversity, argued that protecting biodiversity will create jobs, not eliminate them.

"Biodiversity is the new Silicon Valley," he said, referring to the hub of the U.S. computer industry in northern California.

"The same concerns the Japanese have on the details apply to the other industrialized nations as well," he said. "If they sign, there's no question the U.S. should be signing."

Australia is among the countries that have signed on. Ros Kelly, Australia's environmental minister, urged the United States to sign the treaty "if not in the interest of the living things of the planet, then in their own self-interest."

Australia and the United States are the only two developed countries included among the so-called "megadiversity countries" — those with the highest concentrations of unique species.

Japan and England had been among the holdouts on the biodiversity treaty, but officials said last week that both countries will sign.

Sadaaki Numata, the Japanese delegation's spokesman, said Saturday that Japan might complete the process of studying the treaty in time to sign it by the end of the summit.

Laurens Jan Brinkhorst, a spokesman for the European Community, said Britain has not formally announced its intention on the biodiversity convention but that he expected Britain would sign before the summit ends.

Seventeen countries have already signed a companion treaty to curb global warming, which the United States has said it will sign. At U.S. insistence, the treaty recommends but does not require reduced emissions of carbon dioxide and other gases believed to cause global warming.

An additional 60 countries are scheduled to sign the global warming treaty before the Earth Summit ends on Sunday, U.N. officials said.

Both treaties are open for signing until June 1993.

The Washington Times

USA TODAY

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The Grinch of Rio

To much of the world, that's the role Bush will play at the Earth Summit

For months, heads of state, environmental activists and United Nations officials called in every chit and twisted every arm to get George Bush to attend the Earth Summit in Rio de Janeiro. What would be the point of a conference on the future of the planet, after all, if the globe's only superpower stayed home? Rio's partisans got what they wanted. But when Bush shows up this week for a 40-hour appearance, even many of America's allies are going to greet him as the Grinch who stole the eco-summit. First the White House weakened the climate-change pact, angering European countries that wanted an agreement with teeth. Then the administration refused to sign the biodiversity treaty, which is supported by more than 120 nations from Germany to India to Brazil, and publicly snubbed its own delegation chief when he made a last-ditch attempt to get the White House on board. Finally, to cap off the chaos, Washington sprung a June surprise: a forest-preservation proposal that alienated just about everyone. "We believed this [summit] could be a shining example of North-

South cooperation," said Razali Ismail, Malaysia's U.N. ambassador. "[The American actions] go against the whole spirit of what we are trying to do here."

Anger at the United States only strengthened the other summitteers' sense of mission. U.N. Secretary-General Boutros Boutros-Ghali called on the 178 nations represented to divert defense funds to ecological preservation. "Henceforth nature lies within the hands of man," he said. The first thing many of those hands did was sign on the dotted line. President Fernando Collor de Mello of Brazil, in his role as host, was the first to sign the climate-change

convention that would require countries to control emissions of gases that heat up the planet. Because the pact sets no deadlines, the United States will sign it this week: Washington had insisted on a treaty with only the most nebulous of goals. Boutros-Ghali diplomatically offered the hope that the pact's "very modesty will motivate governments and observers to maintain constructive pressure" to strengthen it.

He more than got his wish. Austria, Switzerland and the Netherlands went to work, crafting a declaration that would have gotten the levels of greenhouse-gas emissions down to their 1990 levels by the year 2000.

PHOTOS BY ALLAN TANNENBAUM—SYGMA



Sense of mission: Rio chair Maurice Strong with Brazilian aborigine (top), Collor (center) signing climate convention as the United Nations' Boutros-Ghali applauds

But with the official climate treaty well on its way toward the 50 signatures required to put it into effect, the Europeans' move fizzled.

America squeezed by on that one but had even fewer allies on the biodiversity pact, which became the focus of the most heated controversy in Rio last week. Although climate change has gotten more attention and ink, the health of the planet probably depends more on biodiversity, the sum total of all species on the planet. The treaty would force signer nations to protect species within their borders: plants that serve as the planet's lungs, bugs that eat oil and toxic chemicals and contain substances that treat cancer, microbes that support the soils that feed 5.4 billion people. While few delegates know a fungus from a mold, they do know the most important thing about biodiversity: the rich North needs it, the poor South has it. The North wants

the South to develop in a way that protects species vital to life on earth (some 50 to 100 species become extinct every day). The South, however, often needs to chop its forests to fuel immediate development and feed a growing population. The South wants royalties and property rights in return for supplying pharmaceutical companies with the genetic treasures of their forests. So the pact would require a company that developed a drug from, say, snake venom—as Bristol-Myers Squibb did—to share profits with the nation that saved the snake by preserving its habitat. This demand derailed the treaty.

Paying nations to save their forests is one of the few ways to promote sustainable development, in which resources are extracted but not exhausted. It is also a sure-fire way to make business see red. In an internal memo, the executive director of the Council on Competitiveness, chaired by Vice President Dan Quayle, blasted the biodiversity treaty, partly because it would "facilitate access to genetic material for environmentally sound uses, [and] promote fair and equitable sharing of... benefits arising from the use of genetic materials." Japan and Britain squirmed over the financing provisions, too, but seemed willing to sign, as did Germany, France, Canada and India. Britain's environment secretary, David Maclean, told NEWSWEEK that "we'll sign and leave the U.S. on its own."

The mystery was why the United States didn't engage in the time-honored practice of signing a treaty and working out the

details later. "The specifics are a lot less important than the will to have an international understanding on the subject," said Russell Mittermeier, president of Conservation International. But when William Reilly, head of the Environmental Protection Agency and chief of the U.S. delegation to Rio, tried to divorce the problematic financing mechanism from the rest of the pact late last week, the move backfired. Senior White House officials leaked Reilly's cable to The New York Times, praised him for "trying to present an option" and then landed the knockout punch: "We'll just have to give him more guidance."

The White House had its own image-sprucing plan. Two days before the earth-fest began, Bush proposed increasing funds for international forest programs, from \$1.35 billion to \$2.7 billion, and upping the U.S. commitment from \$150 million a year to \$270 million. The logic was right: be-

cause forests store carbon, saving them holds down the carbon dioxide that causes global warming. And if forests are saved, so are the species that inhabit them. Said a high-ranking administration official, "This is a better way to deal with biodiversity." But no one in the administration could say exactly what the money would go for. Would it address so-called root causes of deforestation, such as the poverty that forces people to chop trees for fuel? Or would it buy more Jeeps for foresters to drive around Malaysian clear-cuts? Previous international forestry plans have left environmentalists skeptical; for example,

the World Bank has funded "forestry" projects that contributed to deforestation.

Still, Bush might have won praise for the substance of his forestry plan had his style of presenting it been different. The current plan was slapped together in less than a week, according to members of the U.S. delegation. Bush sent letters about it to leaders of the G-7 the day before his announcement. "We had no indication this was coming," said Britain's David Maclean. Although a draft had been presented to European environmental ministers in mid-May, and the idea had been floating around since a G-7 meeting in 1990, the response was cool because of "a fear that the proposal was meant to compensate for very, very weak language in the [climate change] agreement," said a German diplomat. The week before the summit, high-ranking State Department officials called some of their European counterparts, ar-

Most delegates don't know a fungus from a mold, but they know the most important thing about biodiversity: the rich North needs it, and the poor South has it



JOHN FICARA—NEWSWEEK

guing that support for the forests proposal would help Bush politically. But so far no allies have signed on. Even countries that would get some of the new aid were miffed. "Initiatives done at the eleventh hour are suspect," said Malaysia's Ismail.

The last-minute mode was hardly surprising, given that the White House didn't commit to Rio until last month. Reilly did not know he would head the delegation until a few days before the opening ceremonies. And the 47 members were not notified of their confirmation until last week, forcing some to scramble for the next flight to Rio. "This whole operation has been very clumsy," admitted one U.S. delegate. Reilly gamely played the hand he was dealt. He shrugged off anti-American press coverage and corridor insults as a "character-building experience." He played down the importance of the conference, calling it "a

mistake to characterize this as a major moment of North-South commitments." In private, he told colleagues that Germany, France and Britain were secretly happy that the United States had taken a stand against the biodiversity pact—and taken the hit.

It's ironic that the United States has become the black knight of the green movement. America created an environmental protection agency as early as 1970, passed a tough clean air act 22 years ago and a tougher one in 1990, got lead out of gasoline and spent \$800 billion over the last 10 years cleaning up its land, water and air. But Bush is walking a tightrope in Rio. By showing up, he appeases ecologically minded voters. By not signing anything binding, he mollifies big industry and the Republican right, which he desperately needs to hold in November. At a press conference

last week, the president angrily vowed that he would "not sign a treaty that in my view throws too many Americans out of work. I refuse to accept that kind of criticism from . . . the extremes in the environmental movement."

It is a mark of how far America has drifted from environmental leadership that those "extremes" include Britain and Germany. This week more than 100 heads of state or government will attend the last two days of the extravaganza. The climate-control and biodiversity treaties will get enough signatures to go into effect, and the would-be architect of the new world order will have had little to do with it. Bush had put his own twist on the adage "Think globally, act unilaterally."

SHARON BEGLEY with BROOK LARMER and
MAC MARGOLIS in Rio de Janeiro and
DANIEL GLICK in Washington

Earth II: Tune In, Turn On and Tap Out

What to do when the Earth Summit just gets too boring? When the byzantine politics and manic debates over convoluted treaties become too much to bear? For the multinational hordes who have descended on Rio, escape is just a cab ride away in Flamengo Park, site of the Global Forum—a harmonic convergence of nearly 1,000 nongovernmental organizations (NGOs) from 160 countries. Here the ecologically correct share space and vibes with Boy Scouts and Bhagwan wanna-bes, wing-nut scientists and holistic healers, the dance troupe Up With People and the PLO. "Who's not here?" asks Bill Bushbacher, director of the Tropical Forestry Program for the Worldwide Fund for Nature.

Every one of the 13,000 participants, it seems, has a new idea for cleaning up the planet. At one booth, bespectacled professor Ruben Metcalf boils an egg in his cardboard-and-aluminum "solar-box cooker"—ideal for developing nations where families spend so much time scavenging for firewood. A few booths down, Victor Sygen explains how his patented waste-water filter system uses the duckweed plant to gobble up sewage. At



Relax. Converge. Meditators at Rio's other Earth Summit

one end of the park, not far from where Garry Davis, a ponytailed 70-year-old, is selling "World Passports" for his ideal, nationless planet, nine people seem to be caught in a trance. Orlando Peixoto rushes up to a perplexed visitor to explain that they are practicing the ancient Japanese art of *Mahikari*. "We transmit the purest light in the universe with our hands, focusing on one part of your head," he says. What's the ecological angle? "We grow plants this way, too," he says. "No fertilizer needed."

The fertilizer of conven-

tions—cash—is already in short supply. Last week countersummit organizers called a press conference to announce they were out of money and unable to pay the 86 contractors who provided sound, lights, food, security and trash collection. The forum owes more than \$2 million, they said—then they passed a hat for contributions. It wasn't the first time the forum had faced extinction: two weeks ago the Brazilian government bailed it out with a \$1 million gift.

Bad financial karma back home haunts venerable en-

vironmental groups whose work over the last 20 years paved the way for the Earth Summit. The Sierra Club, World Wildlife Fund and Greenpeace all cut staff and programs in the last year, victims of global recession and "green fatigue." The shortage of capital has forced some groups to rely increasingly on the largesse of the erstwhile enemy—government and industry. "They hand down stone tablets about what they will do to limit their damage to the environment," laments Clifton Curtis, a legal adviser for Greenpeace. "But there's no real participation or accountability."

He should try the crowd across the bay. In the chandelied salon in the Copacabana Palace, folks in dresses and suits listen to former U.S. Atomic Energy Commission chairwoman Dixy Lee Ray argue that global warming and the greenhouse effect are nonsense. The same point is explained in a pamphlet comparing the ruthless ambitions of environmentalists to those of Genghis Khan and Hitler. "The Earth Summit," says a blurb from Citizen Outlook, "is their boldest attempt yet to create a global Green Empire." Come on, guys, lighten up. Sounds like you could use some *Mahikari* in the park.

BROOK LARMER in Rio de Janeiro

Why Rio Will Make History

Showing that economics and the environment can coexist

BY GREGG EASTERBROOK

Heads of state gather to exchange windy speeches and sign nonbinding treaties. The United States insists the paperwork contain certain clauses that serve mainly to infuriate other nations. The event is widely ridiculed as falling somewhere between bad performance art and a disastrous sellout.

A description of the Earth Summit in Rio? No, these words apply to the Helsinki Summit of 1975. There, the Western powers formally accepted the Soviet reality in Eastern Europe while, to scant public notice, inserting the U.S.-favored phrase "human rights" into international law. Less than two decades later the reality of Eastern Europe was utterly transformed: the simple words human rights, a rallying cry of the Eastern-bloc democracy movement, had proved more powerful than all the Politburo's tanks and terror. Lately analysts have begun to speak of Helsinki as among the great moments of the 20th century.

A similar shift in perceptions awaits the Earth Summit. Major players came to the conference programmed to decree it a farce and are cleaving faithfully to their scripts. Yet eventually Rio will be seen as a triumph of enlightened diplomacy. Even the U.S. position will someday be praised.

As the principal achievement of Helsinki was overlooked at the time, so the principal achievement of Rio is slipping by unseen: to invoke a relevant cliché, we are missing the forest for the trees.

Most of the gloomy commentary on the primary Rio agreement, the global-warming treaty, has focused on negligible questions like what standard will be used for statistical measurements. Missed in the rush to express on-camera despair is this: the treaty incorporates into international law the notion that nations must consider the global environmental consequences of internal economic decisions. This "has the potential of forcing governments to change domestic policies to a greater degree than any international agreement I can think of," says Jessica Tuchman Mathews, vice president of the World Resources Institute.

Legal precedents often start small but grow to instruments of great power. The human-rights premise was that universal freedoms have standing regardless of what a country's internal legal system says. Soviet officials resisted that notion for decades; once it was on the books, the logic of reform became impossible to stop. In ecology, governments and economists have long resisted the notion that nature has a standing independent of national law. Now George Bush, John Major, Helmut Kohl and the other capitalist leaders will sanctify that idea, creating a new logic of "green rights" they will find increasingly difficult to oppose.

Rio is also proclaimed a failure because conventions on biodiver-

sity and forest protection may falter. But if these treaties are worth doing today, they will be worth doing in the months to come. Throughout the 1980s Washington and Moscow held a series of failed summits on nuclear-arms reductions. After each, wise observers declared that hope for arms control was irrevocably lost. Yet eventually the treaty not only happened but was more sweeping than expected. Observers then declared it inevitable all along.

There are valid reasons the White House has resisted the biodiversity treaty. It can be read as granting southern nations royalties for genetic materials found on their soils but not protecting the patents of biotechnology developed in the northern countries. That kind of snag often arises in negotiations, and gets worked out. If the biodiversity agreement isn't finished in Rio, it will be soon.

On the proposed forestry treaty, Bush is guilty of double-talk, offering new money for tropical-forest protection while he continues to permit logging of old-growth forests in the Pacific Northwest. But at other levels the U.S. position sets a better example than given credit for.

Balancing act: Though the level of logging in the Northwest should be reduced, it need not be halted altogether,

even for preservation of the spotted owl and similar species. After all, some of the forest tracts environmentalists now fight to preserve were themselves clear-cut in the 19th century and have recovered. Tight environmental regulation has brought to the industrial North a rapid recovery of forests; today the United States has more trees standing than at the turn of the century. Since the Third World must balance preservation with development, this is exactly the kind of news it needs to hear.

Finally, consider that traditional environmental regulation operates as the adversary of industry, an approach that guarantees that preservationists will lose important battles. At Rio, the emphasis has been on finding ways to fuse environmentalism and economics into a single constructive force called sustainable development. This isn't an empty slogan. It is a new philosophy of lasting significance. Control of greenhouse gases, for example, will be accomplished mainly by energy efficiency—an economic positive—not by job losses. Achieving the Rio consensus on sustainable development has required environmental advocates to admit that material production is a necessity; business leaders, to admit they have been irresponsible with nature. Ideological breakthroughs like these, where each side surrenders a cherished shibboleth, often precede phases of social progress.

Some people like to think that sustainable development means no growth. It does not and should not: it means growth we can live with. This is the next wave of economics, and someday Rio will be seen as the happy moment when the leaders of the world awoke to this inevitability. Too bad we can't see it now. ■



VINCENT LELOUP—JB PICTURES

Looking for growth we can live with: An ink factory in polluted Romania

WBJ 6-8-92

The Outlook

An Alternative Agenda For the Rio Summit

WASHINGTON

This week's unprecedented gathering of 100 world leaders in Rio de Janeiro—complete with thousands of security guards and serenading by Placido Domingo—has catapulted the issue of "global warming" to the top of the global agenda. But are the summiteers talking about the wrong things?

The evidence that a buildup in "greenhouse" gases in the atmosphere is causing the earth's temperature to rise is impressive, and serious—although fears of a Sahara-like desert popping up in Saskatchewan are wildly exaggerated.

But imagine if such a summit could be assembled to deal with more immediate—and more immediately manageable—problems. Given the limited attention that the world's leaders can spare for global issues, others seem deserving.

Consider the prosaic problem of dirty water. In its recent report on development, the World Bank said two million people—mostly children—die each year as a consequence of polluted water. And yet the solutions to the problem are simple sanitary procedures commonplace in every developed country. Providing sanitation and clean water to the world's poor "would be the single most effective means of alleviating human distress," the World Bank said.

Or disarmament. The collapse of the Soviet Union has thrown a sudden new threat into the outlook for nuclear war. At stake is not only the fate of thousands of former Soviet nuclear weapons, but also people and materials that could feed nuclear programs in other countries. "The risk of a large-scale nuclear war has certainly not been eliminated," says Spurgeon Keeny, president of the Arms Control Association, "and it is a more frightening prospect for civilization" than global warming.

In fact, such a high-powered summit could conceivably take on an issue that, if solved, could help provide the resources to address many environmental problems. The issue: the faltering post-War global trading system.

The rapid growth in international trade that helped propel world growth in the 1950s and 1960s has slowed in the '70s and '80s. Lawrence Summers, chief economist of the World Bank, says that while many developing nations have been reducing trade barriers in recent years, most developed nations now have more protectionist policies than they did a decade ago. The reason: "a loss of political momentum," Mr. Summers says.

By the World Bank's reckoning, a 50% reduction in trade barriers by the European Community, the U.S. and Japan would raise exports from developing countries by \$50 billion a year. That's roughly equal to the total flow of foreign aid to the poor countries last year. And it would provide critical resources to address environmental and other problems.

An attempt to revive the faltering international trade talks being held under the auspices of the General Agreements on Tariffs and Trade will be made at this summer's meeting of the heads of the seven leading industrialized nations in Munich. But the developing nations, who have so much at stake, won't be at the Munich bargaining table. Highlighting the trade issue at a global conference like that in Rio might help restart stalled trade talks.

Why aren't these issues being discussed in Rio? The reason is politics: None of them commands the wide political appeal of global warming.

The end of the Cold War has seen the developed nations turn inward; they are no longer interested in massive aid programs to deal with problems like dirty water in the Third World. And getting the developed countries to talk about opening their markets to Third World imports has become increasingly difficult in the face of slow growth or recession. Disarmament likewise generates too much controversy, with those who don't have weapons fearing those who do.

Even the central problem of population growth, which contributes to global warming as well as a host of other global concerns, is a political mine field. The poor countries of the South wanted to avoid the population issue because it is a problem for which they bear the "blame"—they have the fastest-growing populations. Moreover, the Vatican interceded to prevent any mention of family planning or contraception in the Rio agreements. Even liberal activist Bella Abzug weighed in during the pre-Rio negotiations, says Sharon Camp of the Population Crisis Committee, arguing that many population control programs are simply genocide plans aimed at the poor.

Global warming, on the other hand, is an issue that caters to the increasingly powerful "green" movements in the rich nations of the North. And it is popular among the poor countries because they aren't to blame; the vast majority of the greenhouse gases thought to cause global warming are spewed out by the industrialized nations.

To be sure, part of what makes global warming a special cause for concern is its apparent irreversibility. Once greenhouse gases build up in the atmosphere, they may well stay there. Moreover, there is the prospect for a calamity. The earth's warming could happen faster than the predictions suggest. And its effects could prove much more serious, resulting in tumultuous changes in weather and ocean patterns.

But for the world to treat climate change as the biggest immediate threat to Planet Earth could be a mistake. Political pressures may put climate change at the top of the agenda, but other problems need to be there.

—ALAN MURRAY