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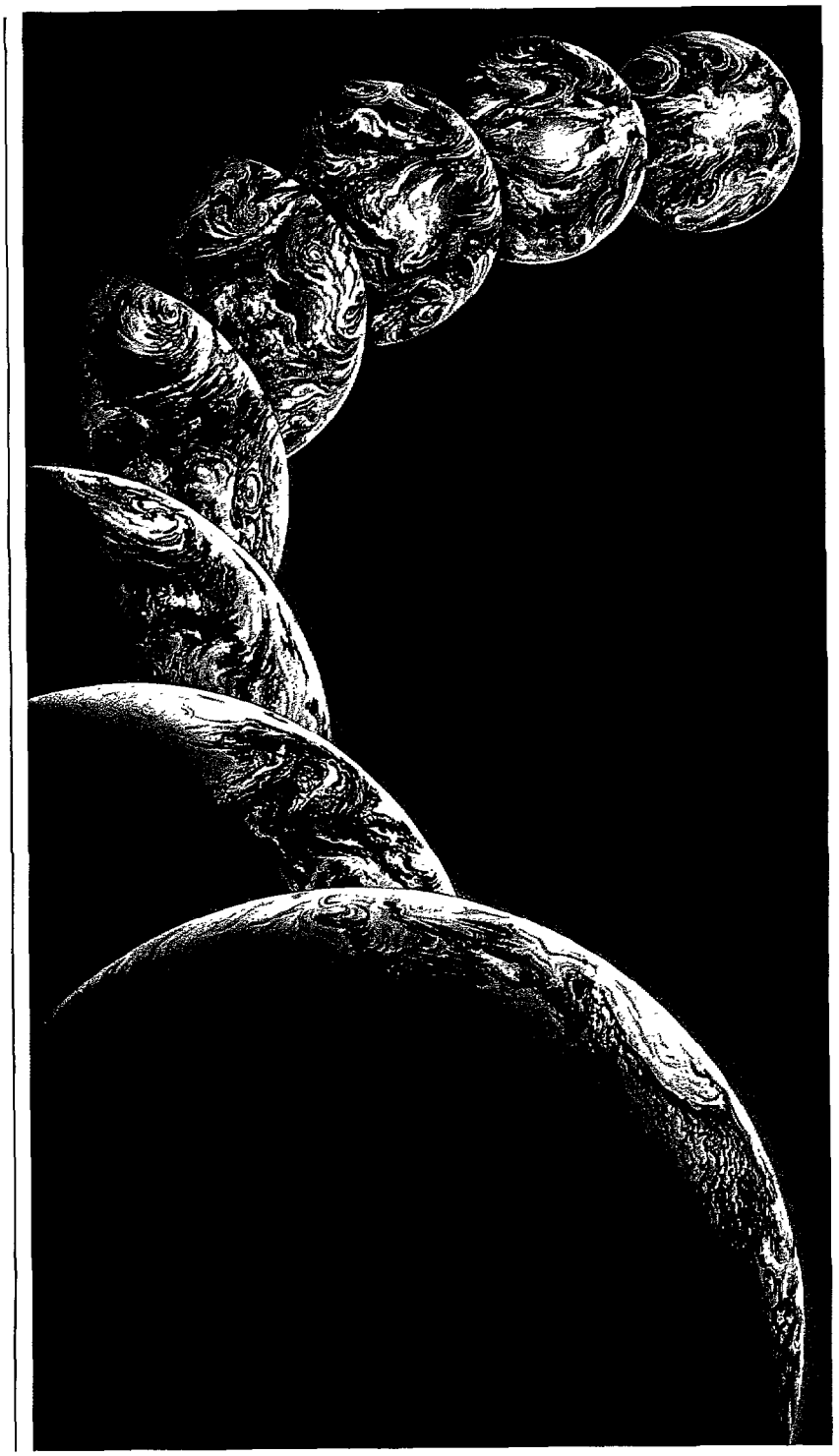

A CHANGING WORLD
George Shultz on the international impact of the Reagan years

GLOBAL CHALLENGE
Government takes on the environment

WASHINGTON AND THE STATES
The new face of intergovernmental relations

NUMBER 6 SUMMER 1989

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FROM THE COMPTROLLER GENERAL

One syndicated columnist recently called our times the most momentous in human history. Certainly they must be among the most fascinating in which to live and participate in public life. Over the past decade, few people have taken part more fully than George Shultz, from July 1982 until January 1989 the 60th U.S. Secretary of State. His insights into our changing world are the highlight of this issue of the *GAO Journal.*

In April, we visited Mr. Shultz at his office in Palo Alto, California, where he is professor of international economics at Stanford University and Honorary Fellow of the Hoover Institution. He recalls the past decade as one of "epochal changes in the economic and political landscape." He cites President Reagan's policies as having "contributed to some of the positive developments," but concedes that he "couldn't say . . . that 'because we did these things, the outcome was such-and-such.'" Instead, he perceives a new, high-tech international environment in which the rapid movement of information makes increased openness almost inevitable.

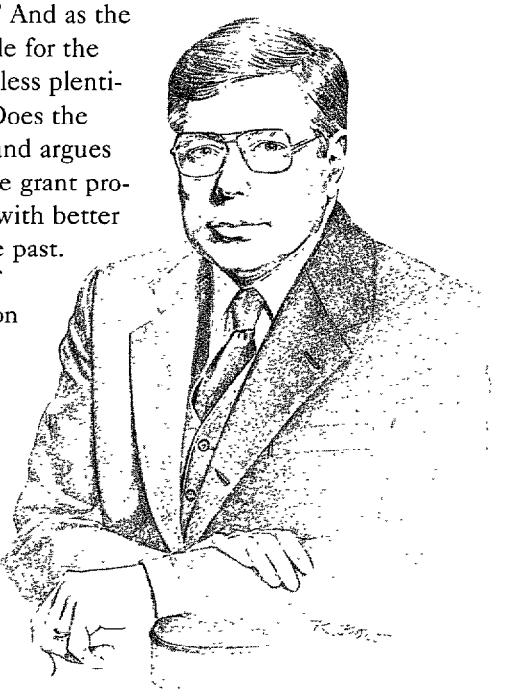
Environment, in the ecological sense of the word, is the subject of our "Focus" this issue. Lee Thomas, Administrator of the EPA during President Reagan's second term, joined us in May for a broad look at the way governments—ours and others working in tandem—have confronted environmental problems whose sources and impacts often extend beyond national boundaries. He also had much to say on the way this nation develops its environmental policies, as well as some thoughts on where our priorities ought to lie.

Two other articles complete our package on the environment. James Gustave Speth, President of the World Resources Institute, portrays the vast scope of the environmental threats we face and argues that the 1990s will be "the juncture whose outcome will make a decisive difference." His approach to worldwide environmental threats such as global warming calls for "a transformation in technology—a shift, unprecedented in scope and pace, to technologies that facilitate economic growth while sharply reducing the pressures on the natural environment."

If the global nature of our environmental problems calls for concerted international action, a recent precedent provides substantial cause for hope. The 1987 Montreal Protocol on Substances that Deplete the Ozone Layer was a landmark in international diplomacy as nations come to grips with the fact that they share many of the same ills and must, therefore, share in solving them. Richard Benedick, who while Deputy Assistant Secretary of State was this nation's principal negotiator for the Montreal Protocol, here documents both the process and its significance in "Diplomacy and the Ozone Crisis."

Another emerging problem among nations in this technological age is the theft of intellectual property rights—what Joseph J. Natalicchio and Michael P. McAtee of GAO call "The Piracy of Ideas." It is theft on a grand scale, accounting for as much as $60 billion in world trade each year and posing dangers not only to commerce but to public health and safety as well. The writers outline the problem and some of the challenges involved in trying to mitigate it.

If our first several articles focus on the need for nations to work together, our last two pieces turn to the same principle at the domestic level. GAO's John M. Kamensky and Jerry C. Fastrup write on the relationship between Washington and the states. Mr. Kamensky's "The New Face of Intergovernmental Relations" argues that the federal budget crunch, among other factors, has led "not just to a more complex 'fend-for-yourself' federalism but to some sorting out of roles among the federal, state, and local sectors." And as the amount of federal aid available for the states and localities becomes less plentiful, Mr. Fastrup asks "Why Does the Money Go Where it Goes?" and argues that, in order to survive, some grant programs may need to come up with better answers than they have in the past.



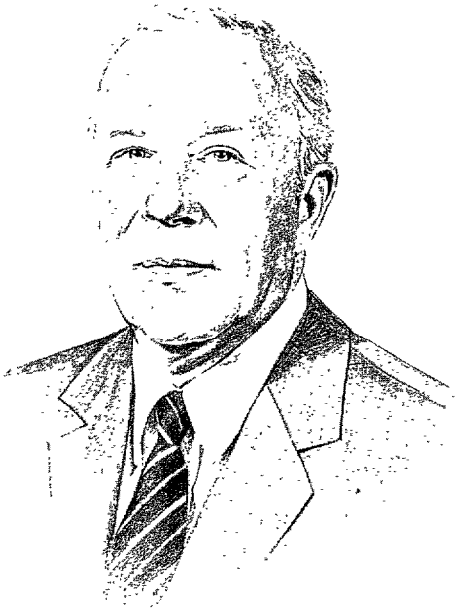
Overall, this is an issue of the *GAO Journal* that dwells on the interconnectedness of governments at every level, and the need to work together to solve problems that do not recognize the boundaries between counties or states or even nations. It is a theme that will gain even more prominence in public affairs as time goes by.

Charles A. Bowsher

ROUND TABLE

A CHANGING WORLD

George Shultz on the International Impact of the Reagan Years



THE POSITION OF the United States in a changing international scene is the stuff of much debate. Until recently, the person most closely identified with American foreign policy was George P. Shultz, from July 1982 until January 1989 the 60th U.S. Secretary of State. In April, Comptroller General Charles A. Bowsher visited Mr. Shultz at Stanford University to ask his perspective on the world economic and political scene following six and one-half years at the heart of American policy-making. Mr. Bowsher was accompanied by Frank C. Conahan, Assistant Comptroller General, National Security and International Affairs Division.

George P. Shultz's education was in economics; his first government position, in 1955, was as senior staff economist on President Eisenhower's Council of Economic Advisers. During the Nixon Administration, he was Secretary of Labor (1969-70), Director of the Office of Management and Budget (1970-72), and Secretary of the Treasury (1972-74). He has been prominent in academe (Dean of the University of Chicago Graduate School of Business, 1962-68) and business (President and Director of Bechtel Group, Inc., 1974-82). Today, he is Jack Steele Parker Professor of International Economics at the Stanford University Graduate School of Business and Honorary Fellow at the Hoover Institution.

BOWSHER—*How would you compare the world situation today with what it was 10 years ago?*

SHULTZ—I think we've seen great changes in the world over the past decade. Two things stand out.

We've seen a revolution in the way information is created and handled, and that is affecting everything, whether it be our diplomacy, the way we do research in the biology labs here at Stanford, the way we organize our financial markets, or the way we operate our manufacturing enterprises. Even the nature of sovereignty itself is changing, with, for example, the flow across national boundaries of information, money, technology, and ideas. In short, the information revolution is producing big shifts.

We've also seen epochal changes in the economic and political landscape, attributable in part to U.S. policies that have been in place since the end of World War II and that were given particular emphasis by the Reagan Administration. We've seen Japan emerge as a mighty economic power, although it has tough political problems just now. We've seen great changes in the Asian-Pacific region in general. And of course, the thing that fascinates everybody right now is the shifting of gears that is under way in the Soviet Union, China, and the countries of eastern Europe, with considerable pain and agony while all of these things are taking place. So the world is changing—big. It's a different era. I think the policies and the actions that President Reagan initiated, and in which I took part, contributed to some of the positive developments. I couldn't say, however, that "because we did these things, the outcome was thus-and-such."

BOWSHER—*You have always been associated with free-market thinking. Do you see that sort of approach coming to the fore now, as opposed to the tight management of economies by governments?*

SHULTZ—Two forces are moving matters in the direction of open and freer markets. One is the ability of people to observe very clear contrasts between what happens when you apply, more or less, the principles of openness and freedom, and when you don't. There is no example I can cite of a Communist, centrally-controlled system really succeeding economically. On the other hand, there are lots of examples of more open and free market countries succeeding.

The sharpest contrasts show up where you have people who are basically the same, such as the North Koreans and the South Koreans or the East Germans and the West Germans. And of course, no one could be more devastating in their analysis of the problems of the Soviet Union than the Soviets themselves. I am almost tempted to think that, to a degree, the Soviet leaders are seeking to emphasize the critical nature of their problems even more than others, for the sake of attracting people's attention and to achieve reform out of a sense of crisis. Whether individual Soviets agree or disagree with Mr. Gorbachev's prescriptions, none seems to dissent from his analysis or description of what has taken place economically.

So that's one factor: People just see what works and what doesn't.

The other factor is the information revolution that I spoke about. This is a revolution that, in effect, pulls the world together. People know everywhere

what happens anywhere—and very fast. This favors societies, economies, and countries that are comfortable with openness and freedom. It is hard for countries that depend on restricting information or compartmentalizing it to really thrive in this kind of environment.

So, these two very powerful influences act together, and I think they support the notion that more openness economically and more openness politically are in our future. Obviously, countries vary tremendously in their history and culture; exactly how they adapt to these influences will vary. What people will legitimately think of "democracy" will therefore vary quite a lot.

BOWSHER—*Some have worried about the European Community (EC) in 1992 imposing new cultural or economic barriers both to ourselves and to the Asian nations. Do you think that will happen?*

SHULTZ—I hope the European Community members will avoid putting up new barriers to the outside as they eliminate old ones on the inside. We are right in examining carefully what they do and in making clear to them our views and concerns. I do think the basic thrust of EC 1992 is toward more openness, and on the whole this is a positive development.

CONAHAN—*As you saw these changes occurring during your tenure as Secretary of State, what did you and the rest of the administration think needed to be done to respond to both the openness and the changing economic environment? I would suspect you arrived at one answer vis-a-vis the Soviets and another vis-a-vis a nation such as Japan.*

SHULTZ—I think that the basic ideas involved are the same. As you advocate the principles you believe in, that you think work, you just keep hammering away. The things that President Reagan emphasized so strongly and so effectively are not, in a sense, new ideas; they are fundamental and traditional ideas that we take right from our Declaration of Independence, our Constitution, and our nation's experiences about what works. President Reagan has advocated these ideas more clearly and more unabashedly than anyone has done for a while, and that made a difference.

Obviously, though, dealing with friends such as Japan presents a different set of challenges from those of dealing with the Soviets. Among the questions we have to discuss with Japan are the opening of markets, the nature of their high-savings economy and what that implies, and the way their economy interacts with the rest of the world economy. Insofar as the Japanese military effort is concerned, we are of two minds about it. We want them to put their oar in a little deeper, which is to say, spend more on mutual defense. But if you go around to China, Korea, Indonesia, the Philippines, Singapore, and all those places, they're not so sure they want the Japanese to become a great military power. In fact, they're sure they *don't* want to see that. And the Japanese themselves are very uneasy about this.

So there is a sense that a more stable situation is one in which the Japanese are tied in with others and are not tempted to go it alone and develop this, that, and the other thing, but are integrated with the United States. That's better for them, better for us, and better for the Asian-Pacific region than the Japanese going off on their own. Personally, I think there's a great deal of validity to that line of thinking.

With the Soviets, of course, it's a different proposition because, after all, they can blow us to smithereens. It's a very powerful military machine. We have a major defense problem with the Soviets. We have to be alert to it and remain strong. In the Reagan Administration, we developed a very clear agenda of issues and objectives that we felt were in our interest, and we pursued that agenda. I guess the moment of truth comes when the Soviets finally say "yes," and then, can you take "yes" for an answer? It sometimes takes as much courage to say "yes" as it does to say "no."

BOWSHER—*Someone said recently that Gorbachev is in charge of a country that is in about the same shape as Eastern Airlines. Do you find some truth in that?*

SHULTZ—To begin with, the Soviet Union is probably the most inherently diverse nation in the world. It has over a hundred languages. For a long time, its government has tried to impose a common regime over that diversity through very repressive measures. Today, however, it is beginning to let up and to allow people to find their own way a little bit more. The increased openness will produce problems of its own. As you loosen up and give people more scope, it leads inevitably to explosions. A tea kettle that's been boiling with the lid on—and the lid blows off—isn't a bad analogy.

Some people are saying, "Well, maybe Gorbachev can't manage it." That remains to be seen. We do understand, though, more clearly now than before, that the Soviet economy and society are in bad shape. They certainly are not as strong as our intelligence once said they were. It's likely that the Soviets themselves don't know with real clarity the size of their economy or, for that matter, the full scope of their defense spending. They have made such an effort to conceal things from others that they have probably fooled themselves.

To some extent in the past we had a tendency to see the Soviets as ten feet tall. Today, as we experience a recalibration of what the facts are, we have a tendency to see them as four feet tall. They are neither. I don't think we should view the Soviet Union as a country that is about to collapse or go bankrupt. We have a different reading on the Soviets; we shouldn't extrapolate that what we see now represents a trend or a deterioration. They have their problems, but they remain a formidable adversary. Given the task ahead of him, Gorbachev is going to need all the capability he can muster, as well as subtlety and sophistication. It is a difficult hand to play. But he has proven himself to be quite a manager of this kind of immense political change. He has also consolidated his power faster than any previous Soviet leader.

At the same time, we must realize that these changes taking place present a remarkably fluid situation in which important opportunities exist for us to help structure a safer and more stable world. When there are times of big change, critical change, people who are ready and know what they are doing will find these moments of opportunity.

CONAHAN—*What do you see as the source of our deficit with Japan, and what remedy would you advise?*

SHULTZ—I think our fundamental problem is a mirror image of theirs. They save too much, they don't invest enough in themselves, and they don't consume enough. The result is that in order to maintain high employment, they have to maintain a big surplus of exports over imports.

Our problem is just the reverse. We don't save enough and we consume too much. We don't generate the savings necessary to serve the nation's investment needs, and the result is this trade deficit of ours. The way to cure it is by changing the incentives in our society that lead to such high consumption and by getting rid of the federal budget deficit, which is a huge claim against the private savings that are generated.

What we ought to do, in other words, is not to blame someone else for our trade and budget deficits but to blame ourselves and to do something about it.

CONAHAN—*How do we convince the business community that these macroeconomic considerations are really the key to the trade imbalance when, on a day-to-day basis, they are faced with administrative and other barriers to Japanese markets?*

SHULTZ—The barriers are certainly part of the problem, so it's in our interest—and for that matter, in the interests of the people in the other countries—to try to break these barriers down. But I don't think we should deceive ourselves into thinking that if we eliminated all these barriers, we would eliminate the trade deficit. The barriers, after all, have been in place a long time, while the trade deficit is relatively new. We cannot explain what has happened by a change in the trade barriers. They haven't gone up; in fact, in Japan's case, trade barriers have gone down—although they are still substantial.

In terms of exports, U.S. business is doing quite well right now. We are very competitive around the world at this point. Not that we can't do better, or that we shouldn't reflect on such fundamental things as our educational system, and work to revitalize it. The future of our country depends on it.

BOWSHER—*Regarding the federal budget deficit, a lot of people are relying on Gramm-Rudman to bring it down, but Gramm-Rudman is not doing the job. If you subtract the Social Security surplus and some of the other trust funds, we're not making a lot of progress in reducing the budget deficit. How would you do it?*

SHULTZ—First of all, I'm a believer in the unified budget concept; that is, what we should be trying to measure as best we can is the financial impact of federal operations. So what you do is take *all* the government's revenues and put them in one pile, and take *all* the government's outlays and you put them in another pile, and then you compare the two to get some idea of their magnitudes.

One problem is that we are always looking for ways to slip outside the budget—to spend money but call it off-budget, as if it had no impact on overall outlays. In the end, we are going to have to get federal expenditures down to the lowest level the political system will stand, keeping in mind that there are

things for which the government should legitimately expend money. Then we'll have to pay for them. I don't think there's any other way.

On the revenue side, in a very broad sense it seems to me that back in the 1930s, the United States—probably more wholeheartedly than any other country—adopted the Keynesian idea that the reason for the unemployment was that savings exceeded investment. Since then, the trend has been to encourage consumption rather than savings. Our credit system is very indulgent as far as consumers are concerned. Our public policies and our tax system are oriented toward consumption. In addition to trying to balance the give and take of the federal government, we ought to be trying to structure the tax system so that it encourages savings and discourages consumption a little bit more. As part of this, we'll need to look at tax changes and taxes on consumption.

Personally, I think we're riding for a fall in the energy business. I don't know why, for example, we don't have a gigantic increase in the tax on gasoline. We price gasoline far more cheaply than practically any other nation; the result is that we are very profligate in its use. It's clear that we're slipping right back into the precarious position we used to be in before the explosion in oil prices in 1973 and 1974.

BOWSHER—*Would you care to see imported oil taxed differently from domestic oil?*

SHULTZ—No. I'm not in favor of an oil import tax. I think that gasoline is the area of vulnerability, so that's where the tax should go.

BOWSHER—*What's your thinking on the status of the Third World debt problem?*

SHULTZ—I think it's been coped with reasonably well under the circumstances. As I see it, it has gone through two phases. Phase one was what one might call the "IMF Austerity Approach," which was followed by a way of thinking that still stressed austerity but also encouraged growth—the essence of what was called the Baker Plan. I think that combining austerity and growth was basically sound. The situation has been successfully nursed along. There has been a change in thinking around the world during this period about what economic policies will work and what won't work, and in the meantime, private financial organizations have had time to put their houses in order. By and large, they have made a lot of headway.

Nevertheless, the fact remains that for the countries involved, servicing a lot of these debts is very difficult, if not impossible. Yet the true nature of the problem is apparent in the flight of capital from many of these same nations—the fact that their own nationals invest elsewhere. Basically, until a country can manage to lure its own capital back, there's not a lot outside capital can do to help. The direction in which capital is flowing naturally is a good test of the internal management of the country. When the country can pass this test, then I think constructive things can be done.

The Third World debts are owed mainly to private commercial organizations. And while I think our government should try to be helpful, it seems to me that the place to leave it is with them. They are the ones who made the loans, and they and the countries or the components within countries who received the loans have to figure out what they're going to do about the problem.

BOWSHER—*What brought about the problem to begin with?*

SHULTZ—I think it grew out of a misjudgment of trends that showed up in the 1970s. It was a time, you will remember, when inflation was rising practically everywhere. The financial markets, though, were still conditioned to a time in which inflation was not a big problem. In a way, they didn't believe what they were seeing. The result was that real rates of interest during much of the 1970s were very, very low—even negative. That's point one.

Point two: A lot of the Third World nations that ran up these debts are commodity-producing nations. Commodity prices were soaring, so these countries took a flyer and borrowed big on the assumption that the trend in commodity prices would continue. It's also plain that some governments made ill-considered investments and our banks financed them. Just as we in the United States saw speculation in the oil patch, speculation in land values, speculation in farmland, and so on—all of which brought about critical situations—so some Third World nations made financial moves on the assumption that real rates of interest would remain very low, inflation would continue (and thereby wipe out the meaning of the principal of the debt), and commodity prices would keep heading out of sight.

How many meetings did you sit in on where people talked about $40-a-barrel oil, even $100-a-barrel oil? That was the way people talked. So these investors put their money down, and then all the trends they'd been watching came to a screeching halt and started heading in the other direction. Suddenly, the financial markets became very concerned about inflation; even now they are not convinced that governments will stand strongly against it. The result is that real interest rates these days are high in comparison with inflation rates. And of course, the prices of oil and other commodities have taken a dive. So all at once, the basis for servicing these big debts doesn't exist.

We can fault the people who made the loans and the people who incurred them. But also there was a common misjudgment of the situation. A lot of people made a lot of money during this period, but it turned out that a lot of the basic assumptions people were making were wrong. That's at least part of the explanation for why this happened.

Another part involves an old principle that people ought to keep in mind: the debt-equity ratio. I remember our finance courses back at the University of Chicago; we used to say that if you let your organization get too highly leveraged, it will be very vulnerable if anything goes wrong. With some Third World countries, I think the debt-equity ratio got out of kilter; too much was financed by debt and not enough by equity.

People talk about the need now for *more* loans to those same countries. It's hard for me to see how the answer for a country that has too much debt is *more* debt. The answer is more equity—a change in the thinking about how they finance things.

Here in the United States, we are experiencing leveraged buyouts at a great rate, and one of the reasons for this must be that our tax system favors debt over equity. What we're seeing, to some extent, is a changeover to this sort of corporate financial structure in response to the tax system. Even so, I personally think the debt-equity problem is ignored in a lot of what is now called corporate restructuring. I would favor tax changes that treat debt and equity more equally.

BOWSHER—*And this sort of corporate restructuring could get these highly leveraged companies into this same trouble as well?*

SHULTZ—Exactly the same trouble.

CONAHAN—*These are difficult problems—trade and budget deficits, Third World debt, the S&Ls, leveraged buyouts—is the overall picture pretty foreboding?*

SHULTZ—No. In fact, I think the future looks pretty good. For one thing, the threat of nuclear war appears much decreased. Many of the regional hot spots that reflected East-West tensions are cooling off: Afghanistan, Angola/Namibia, Cambodia. And the trends we talked about earlier are taking hold—trends that are favorable to our way of thinking and mode of behavior.

CONAHAN—*Getting back to Gorbachev for a moment: If there were no Gorbachev, do you think the Soviets would continue to move in the direction they have taken under his leadership?*

SHULTZ—Well, if they don't—if they abandon the attempt at a more open society—their condition will gradually deteriorate. That's their alternative. And it's not really an alternative at all. For them, the problem is to acknowledge that the way things have been run is not working and that they've got to do something different. It's no easy task to change things around. An example: In my conversations with Soviet leaders about economic matters and international trade, we agreed that until you have an internal market economy and a convertible currency, you can't expect to have flourishing international trade. Lacking these two things, you're more or less consigned to barter, and barter is a very inefficient medium of exchange. You need a money system in order to flourish. The Soviets are a long way from that.

CONAHAN—*I suppose one of the things we have to figure out is whether it's Gorbachev that's driving the changes or history that's driving the changes.*

SHULTZ—I think that Gorbachev is a tremendously able man, very intelligent and energetic. He's an impressive guy. But he has his hands full; being successful in his situation will take some doing.

Speaking hypothetically, I suppose it would be possible for a country to close itself off and turn inward, but in doing so it would be making the choice not to participate in a set of global trends that are very strong and positive. To a degree, a nation as large as the Soviet Union doesn't have that choice; it is practically forced to take part. The Soviet people are going to know how they stand in comparison with people in other countries. That puts a great deal of pressure on their government.

CONAHAN—*What should we do to prepare for U.S.-Soviet political and trade relations in the years to come?*

SHULTZ—Whether you're a country or a company, the first thing to determine is what your interests and objectives are. If we see the opportunity to make agreements with the Soviets that serve *our* interests (let *them* judge *their* interests), then we ought to be ready to do so—to take "yes" for an answer. We should also be ready, if we go back and forth on something and don't find agreement, to say "no." But I would be opposed to doing things—whether I were involved in running a country or a company—in which we said, "Well, here's this agreement. It's not a particularly good one from our standpoint, but it will keep this process going." I don't think that's the way to go. In the end, I don't think it would even help the Soviets very much if we made bad deals, because bad deals, almost by definition, have a way of eventually blowing up.

CONAHAN—*Given that companies may tend to focus on the short term rather than the long term, should the government get more involved in the area of Soviet trade?*

SHULTZ—Well, first, it's been my experience that business management puts a great deal of effort into looking out over the horizon. Immediate concerns are important, of course, because you have to stay in business. But companies are forced to think of the long term because that is the nature of investing. An oil company, for instance, has to think about where its crude is going to come from, and that's a long-term proposition.

One thing companies have to look at is the environment in the Soviet Union in which their activities will be taking place. They expect the Soviet government to have an impact on that environment and they look to our government for some guidance about what its policies are going to be. In fact, one of the problems companies face is that governments are so changeable. The more governments can do to set out ground rules and provide some assurances of what the environment is going to be, the better.

Governments have a legitimate role in exploring arrangements that may improve the ability of companies to operate effectively. When I was Secretary of the Treasury, for instance, I was Chairman of the American side of the U.S.-U.S.S.R. Economic Commission. The Commission fell into disuse after the Soviet invasion of Afghanistan, but these days it's up and running again.

BOWSHER—*Regarding our troops in Europe, I understand you are against unilaterally reducing their numbers, and would rather see what kind of deal can be worked out through negotiations with the Soviets.*

SHULTZ—Our troops in Europe are part of the NATO commitment to deterrence of aggression against us. From our standpoint, they are part of our forward defense, and they are a way that we defend ourselves, as well as work with our allies to help them defend themselves. Even after the unilateral reductions that Mr. Gorbachev announced at the U.N. become effective—and they are significant—they will still leave the Soviets far outdistancing us on key elements. So I think we should not be making unilateral changes. We should negotiate with them and go with whatever emerges from the negotiations.

BOWSHER—*Would you speculate that 10 years from now we will have the same level of troops in Europe?*

SHULTZ—I don't think I'd bet that anything anywhere will stay the same. But again, it's hard to predict. We have to remember that East-West relations have gone through severe ups and downs. One of the challenges in managing this relationship is to avoid both the gloom that accompanies the downs and the euphoria that seems to accompany the ups, and to maintain a steady course.

I hope we will arrive at a world in which the amount of tension and the level of armaments have been reduced—but the way to get there is carefully. At the same time, we must be ready to take advantage of opportunities that exist—or may be created—in such a remarkably fluid world situation. As President Reagan said, "Play the game, but cut the cards."

CONAHAN—*What about the notion of burden-sharing with our European allies? We seem to talk a lot about the cost factor.*

SHULTZ—There are differing ways of measuring costs. One is to point to actual dollars spent as a share of GNP. The Germans, though, will be quick to point out that NATO has all these troops on their soil—troops involved in maneuvers and, among other things, air exercises. These air exercises have led to some accidents recently, and that's certainly a burden if yours is the country in which the accidents are occurring. The Danes, whose defense expenditures don't rank very high as a share of GNP, will point out the essential role that Greenland plays. And the Icelanders—who don't have a formal armed force—are also a part of NATO; their base at Reykjavik is essential. So they make their contribution.

There are many ways of defining these things, many ways of putting these differing factors into the equation. I'm not saying that everybody—or for that matter, anybody—is doing all they should, but it is a complex problem. When you have an alliance of democracies, it's natural that people feel that everyone ought to carry their share of the load. Since the United States is the biggest partner, we carry a bigger share than anybody else, although not necessarily in proportion to our GNP.

But we also see a historical process going on. Again, it's a different era. In the early days of the alliance, we were much more able than anyone else to contribute. In the wake of World War II, our allies were busy recovering. Now, as we can see, they have recovered. Their GNP per capita is way up there—as high as ours in some cases—so that what may have been an appropriate burden for them 25 years ago or 20 years ago may be inappropriate now. At the same time, I think we are now facing this problem in a context in which we can have at least some expectation of seeing the general level of armaments come down. There is always a temptation to reach out over the negotiations and do things unilaterally. But that can only undercut the negotiations, and we ought to be careful about that.

If we have a fresh example to look at, it's the experience with the INF treaty. You'll recall that in 1983, we had numerous demonstrations, the peace movement, the freeze movement, all of them saying, "Don't deploy those missiles." In the end, we got the treaty on intermediate-range nuclear missiles in Europe, *not* as the result of a peace movement or a freeze movement, but as the result of a hard-headed determination to do the things necessary to defend our-

selves, and by having shown the Soviets we *could* and *would* do that politically. When the Soviets became convinced of that, then we were able to strike a good deal with them. The experience is so recent and so clear that you would think everyone would have learned from it.

The value of this sort of resolve cannot be overestimated: You can see it, in fact, just by looking at the Great Seal of the Republic, especially at today's version of the Great Seal as compared with that on display a couple of hundred years ago. I remember seeing the earlier version rendered on the furniture in the State Department Diplomatic Reception Rooms and on plates at the White House and in other artifacts of earlier times. Then as now, the Great Seal featured our national symbol, the eagle. And then as now, the eagle carried arrows in one claw and an olive branch in the other. But in the older version, the eagle is looking at the arrows. I suppose that if the British were burning the White House, that's what you would think of as fundamental to emphasize. After World War II, however, President Truman noticed which way the eagle was looking and issued an Executive order that, henceforward, in any official rending of the Great Seal, the eagle would look away from the arrows and toward the olive branch. The Great Seal would convey the fact that the United States always seeks peace. At the same time, though, the eagle would keep a grip on those arrows to show that the United States understands that to seek peace—to negotiate successfully for peace—you must remain strong. The message is right there. It is clear; it is basic. It applied then; it applies now; and it will apply just as much in the future. •

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GOVERNMENT AND THE ENVIRONMENT

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LEE M. THOMAS, Administrator of the Environmental Protection Agency (EPA) during President Reagan's second term, visited Comptroller General Charles A. Bowsher this May to discuss the progress of the United States and of the international community in dealing with environmental issues. Mr. Thomas is presently Chairman and Chief Executive Officer of Law Environmental, Inc., in Kennesaw, Georgia.

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BOWSHER—Let's begin by looking back for a moment. The federal government has been involved in environmental regulation for some 20 years now, spending hundreds of billions of dollars as a society over that period. But the perception, at least, is that our environmental problems are just as bad as ever. Is this perception correct? And if it is, what accounts for the phenomenon?

THOMAS—I think we have to put the problems we face into the context of the progress we've made. First, there are the administrative accomplishments: setting up a network of environmental statutes, regulations, monitoring systems, and regulatory and compliance agencies. It's a network that no other nation has

in place; not only is it set up to protect the environment across all media, but to monitor whether that's being done, and to uncover new problems that may crop up. This network now exists at the federal and state levels of government and, in some cases, even at the local level.

Beyond the administrative accomplishments, though, we've made real progress in curtailing basic pollutants in the air and water. Twenty years ago, we had gross pollution. We've made real progress against that. We've got a cradle-to-grave system now in place to manage hazardous waste; eventually, we'll minimize the creation of hazardous waste, which will make management that much more effective. We've got the world's greatest clean-up program under way—a massive commitment to remediation.

So, before we acknowledge the problems that still remain, we should take encouragement from the fact that a foundation has already been laid.

As for problems that still face us, there are plenty. We still have to make more progress against the basic pollutants that we first targeted 20 years ago—some of which still haven't been dealt with. Then, there are the pollutants we've just learned about during those 20 years. We've come to understand a good deal more about chemical pollutants and where they show up, and we've found out they're a lot more difficult to deal with than we thought. We've learned that some of the things we did, and the systems we put in place, weren't very effective; we move a lot of pollution from one place to another and pay a lot to do it.

And finally, we've picked up a whole new sense of the global scale of some environmental problems. It's partly a function of the monitoring systems we have in place—we know more about what's going on. But it's also a function of the global marketplace; we're beginning to see much more worldwide interaction among products and processes, and therefore, more shared experiences as far as environmental problems go.

PEACH—Regarding the network that has grown up to deal with environmental issues: Is that network all you'd want it to be?

THOMAS—No. For one thing, we're headed in the wrong direction in the way we craft our environmental statutes. EPA needs more flexibility in deciding how to deal with environmental problems; the Congress has given it less flexibility.

At EPA, I found that the way you use your resources is driven by three things. First, you have the statutes that say what you have to do. Second, you have the courts, which get involved more and more these days because each statute is prescriptive and each one has a citizen suit provision—so if somebody believes you're not meeting the prescriptions, you get taken to court and then the court applies its own prescription. Third—and only third—you have your own priorities.

The fact that statutes and court prescriptions are driving the majority of EPA's actions would be fine if we had a rational process in place for setting environmental priorities in this country. But we don't. We do an awful job of deciding which problems are the most important; instead of ranking our priorities as one, two, three, and four, we rank them as one, one, one, and one. It's also very difficult to craft the specific solutions to environmental problems into the law, because at the time a statute's being put together, the necessary scien-

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HEMBRA—Would it help to streamline the whole framework in which EPA must operate—the statutes, the congressional committees?

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PEACH—Say you could wipe the slate entirely clean of environmental legislation. What sort of legislative mandate would you devise for EPA?

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BOWSHER—Would you build cost-benefit considerations into the process of setting priorities?

THOMAS—I think you'd have to. It's a controversial consideration for many people, but when I was Administrator it made no sense to me that in some cases I was being called upon to set standards and couldn't be told what the cost would be. There was nobody who could tell me, "Look, it's nuts to try and set the standard at this particular level." It seems to me that sooner or later both government and society are going to have to balance their resources. We can't just keep ratcheting down the standards until such time—who knows when?—as we figure we've done enough. It's not just a matter of calculating federal budget resources; it's also a matter of calculating society's resources.

GUERRERO—Assume EPA had an organic act and a lot of flexibility for decision-making and a framework for setting priorities. Would there ever be enough resources to really tackle the problems of the environment? The public will always get caught up in an ALAR scare, or a Love Canal scare. The priorities at EPA might not be those of the public it's supposed to serve.

THOMAS—That's right. And to a large extent, the Congress's response to environmental issues has been based on the public's perceptions of what the problems are. Perhaps that's just as it should be. Then again, I think part of the problem is that we haven't been very effective at communicating to the public what the real environmental risks are. In other words, if risk is a function of hazard plus outrage, then maybe outrage is driving the process more than it should. Maybe we haven't communicated well enough what the actual hazards are.

GUERRERO—How would you go about doing that?

THOMAS—I think a two-pronged effort is required. The first part should be directed at the general public. We should make a systematic attempt to communicate to the public what the problems are and what degree of success we're having in dealing with them. Progress in educating the public will come slow at best, but I think it's important if we're ever going to get some rational, long-term planning in place.

The second part of the approach would be aimed at the people who have to make the decisions. They've got to know what the real risks are, what the costs are going to be in trying to attain certain standards, and what problems are involved in how we set our priorities.

I'll give you an example. One of the things we did at EPA was a study of

the economic impacts of EPA's programs on different sectors. One of the major sectors is local government, which is where a lot of the requirements EPA is now developing will eventually have to be implemented. Now, instead of just waiting for local governments to say, "Hell, no, we won't pay what these programs are going to cost. It's just too much," I think we need to bring local officials to the table with the Congress and the administration, and begin talking through what these problems are, how we are going to deal with them, how we can get things done most effectively, and how we can rank what we'd like to do. Right now we don't have this kind of educational and consensus-building process in place. I think we'll need one if we're going to make further progress.

I've become convinced that eventually we are just going to have a train wreck on some of these things. For instance, when I was dealing with the Clean Air Act debate last year, we were talking about adding another $30 billion to $35 billion for clean air efforts to the $80 billion we're already spending on environmental protection. My question was this: Do we really want to add 50 percent to our environmental expenditures to deal with this set of pollutants, as opposed to all the other environmental problems we've got out there—or as opposed to all the other societal issues we've got out there? Is this really the *best use* of our resources? Now, I thought we needed to spend some more money in some areas, but we didn't even educate the people who were going to be spending the money so they'd know what it was all about and could participate in the process more effectively.

BOWSHER—I've heard that you're in favor of establishing an Environmental Information Agency.

THOMAS—That's right, either as a part of EPA or as a separate entity—something like the Bureau of Labor Statistics. Its job would be to supply us with reliable, unbiased data, not just on the status of environmental problems and our progress in dealing with them, but on the costs involved. Should we be spending 3 percent of GNP on environmental problems? That's a lot of money. Should we increase it to 4 percent? That's what we're talking about doing under the Clean Air Act. Right now, there's nobody whose job it is to collect the kind of information necessary to measure progress on one side and costs on the other. I think this sort of information would add tremendously to the public's ability to reach educated decisions.

PEACH—Would you also advocate elevating EPA to cabinet status?

THOMAS—Yes, but primarily because it might help get EPA the mandate to do more comprehensive and long-term planning. One of the things you've got to recognize is that, within the federal government, the environmental issue is a lot broader than EPA. You've got a big environmental responsibility at the Department of Commerce, at the Department of the Interior, at Defense, at Energy, at a lot of other places. So there's a great need for a body whose mandate it would be to provide an overview, that is, a comprehensive look at the environment within the framework of other issues as well.

PEACH—How well equipped are we to deal with the international aspects of environmental protection?

THOMAS—Depends on which aspect you're talking about. First, we've got issues concerning the countries with which we share borders: Canada and Mexico. Then, we've got issues, such as ozone depletion and global warming, that clearly are worldwide in scope. Finally, we've got what I call "harmonization of standards" problems stemming from the world marketplace. These include such things as exports of hazardous wastes, world commerce in pesticides and chemical products, and duplication in the testing of new chemicals. Right now, of the three kinds of international issues I mentioned, we're probably only dealing effectively with the first. We've got systematic processes in place with Canada and Mexico; they may not always work perfectly, but they're in place.

The others are kind of ad hoc. If you look at how we approached ozone depletion and are now approaching global warming, it's plain that the process is based on personal persuasion among leaders. There is really not any kind of international body in place to provide a global perspective. The closest we've come is the United Nations Environment Programme (UNEP), which helped so much in advancing the ozone accord. But UNEP is not in any sense regulatory. It has no authority, but functions instead as a sort of facilitator.

If there's cause for optimism in the international area, it's the fact that great strides have been made over a very short period. In controlling the chlorofluorocarbons that have caused ozone depletion, it took just three years to go from saying "We've got a problem" to having the Montreal Protocol in place [see the accompanying article by Richard Benedick, "Diplomacy and the Ozone Crisis"], complete with commitments to implement its provisions and also to review them every four years to determine if they're tight enough. That's a tremendous achievement.

Global warming, though, will be tougher to handle. The complexities are greater in terms of the options you have to choose from, the East-West issues, the developing-nations issues. And the whole matter of global warming strikes such an emotional chord with the public that you have to beware of it getting out of hand politically.

HEMBRA—You're saying, then, that while an appreciation of the global nature of environmental problems is growing, the structures aren't in place to deal with them systematically on an international basis.

THOMAS—That's right. These aren't just environmental problems; they're trade and economic problems. It's interesting that while the United States goes into these negotiations to negotiate an environmental agreement, many other countries come in to negotiate a trade agreement. At Montreal during the ozone negotiations, several countries had sent representatives from their environment directorates—but they had also sent industry representatives. Other nations recognize that talks such as these are about trade as well as the environment.

and they look at these sorts of talks as an opportunity to secure trading advantages and improve market share. For my part, I found the most valuable members of my delegation were from the U.S. Trade Representative and the Department of Commerce.

GUERRERO—Where does this leave the State Department in the process, now that EPA's involvement in international environmental issues is growing?

THOMAS—EPA and State have got to take a partnership approach. The guys at State see the big foreign policy picture, but can't take the lead in environmental issues. For one thing, they don't have the technical capability. For another, they can't put a given environmental issue into the context of overall environmental policy. And finally, they're not the ones who are going to have to implement whatever agreement is signed, so they don't have a strong sense of the operational side of things.

To know what we were getting into with the ozone accord, for instance, an American representative had to have an operational sense of how the treaty would be implemented domestically. When I was involved in the negotiations, I knew we could only accept provisions that could be implemented here at home. I had to have a knowledge of what laws would have to be changed and I had to know what sort of time frames would be required to get that done.

The State Department, though, clearly can provide negotiators. That's what they're trained to do. But you don't want them to get out front as the environmental standard-bearers. If you look worldwide at who participates in these conferences, it's generally the environmental ministers. So the environmental minister from the United States has got to be the senior person, particularly when it comes down to the final negotiations.

HEMBRA—Looking at environmental problems as a whole, where would your priorities lie?

THOMAS—Well, the global problems—especially ozone depletion and global warming—deserve very high priority. A lot more attention needs to be given to gathering information about them.

Here at home: coastal pollution. At EPA, I became convinced that the agency has moved too far away from one of its mandates, which is environmental protection in an ecological sense. Tremendous growth is taking place in coastal areas and a lot of very sensitive ecological systems are being degraded. The effects on estuaries—fishery productivity and food chain issues, for example—can be very significant and very difficult to reverse. We've seen it on the Chesapeake Bay, where after 10 years of work we're still trying to characterize the problems and still talking about what to do about them. We don't even know if the problems there have finally bottomed out. So I think growth control and land use management in coastal areas are going to have to be a big priority.

Waste management is another. Hazardous wastes and solid wastes are both important from a public policy point of view. I'm not sure they would rank terribly high with me as human health risks, but as public policy issues they do pose problems that the government has got to sort through. The capacity issue, the siting of new facilities, treatment approaches, systems approaches for solid wastes, an enhanced focus on front-end approaches in addition to disposal approaches—all of these are fundamental questions to be answered in the next few years.

Another priority should be air pollution issues—three in particular. First, sulfur dioxide, which causes acid rain. I think we ought to keep working on reducing sulfur dioxide emissions into the atmosphere. Second, the urban nonattainment issue. If for various reasons cities aren't meeting their targets for cleaning up local air pollution, we've got to decide just how urgent it is that they do, and how much we're willing to pay for them to do it. Third, toxic air pollutants. I'd like to see an air pollution strategy emerge to cover all three issues.

Finally, we're going to hear a lot about groundwater protection. I'd give more attention to prevention and less to the level of remediation than we do now. I'm in favor of cleaning up these waste storage sites, but I think we're trying to clean up too much in some places. Toward the close of my tenure I heard a couple of Senators say, for the first time, "We can't spend this much money. We don't need to clean these things up to the level people have been aiming at." And I said, "That's what we've been saying for the past eight years."

We're faced today with thousands of waste storage facilities that have been leaching contaminants into the soil for decades. I think that's enough to make the case for emphasizing prevention. I'm all for remediation, but I don't want to see clean-ups absorb all the resources that might be devoted to prevention. As usual, it's a matter of finding the right balance. •

FOCUS

THE ENVIRONMENTAL CHALLENGE

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I'll give you an example. One of the things we did at EPA was a study of

the economic impacts of EPA's programs on different sectors. One of the major sectors is local government, which is where a lot of the requirements EPA is now developing will eventually have to be implemented. Now, instead of just waiting for local governments to say, "Hell, no, we won't pay what these programs are going to cost. It's just too much," I think we need to bring local officials to the table with the Congress and the administration, and begin talking through what these problems are, how we are going to deal with them, how we can get things done most effectively, and how we can rank what we'd like to do. Right now we don't have this kind of educational and consensus-building process in place. I think we'll need one if we're going to make further progress.

I've become convinced that eventually we are just going to have a train wreck on some of these things. For instance, when I was dealing with the Clean Air Act debate last year, we were talking about adding another $30 billion to $35 billion for clean air efforts to the $80 billion we're already spending on environmental protection. My question was this: Do we really want to add 50 percent to our environmental expenditures to deal with this set of pollutants, as opposed to all the other environmental problems we've got out there—or as opposed to all the other societal issues we've got out there? Is this really the *best use* of our resources? Now, I thought we needed to spend some more money in some areas, but we didn't even educate the people who were going to be spending the money so they'd know what it was all about and could participate in the process more effectively.

BOWSHER—I've heard that you're in favor of establishing an Environmental Information Agency.

THOMAS—That's right, either as a part of EPA or as a separate entity—something like the Bureau of Labor Statistics. Its job would be to supply us with reliable, unbiased data, not just on the status of environmental problems and our progress in dealing with them, but on the costs involved. Should we be spending 3 percent of GNP on environmental problems? That's a lot of money. Should we increase it to 4 percent? That's what we're talking about doing under the Clean Air Act. Right now, there's nobody whose job it is to collect the kind of information necessary to measure progress on one side and costs on the other. I think this sort of information would add tremendously to the public's ability to reach educated decisions.

PEACH—Would you also advocate elevating EPA to cabinet status?

THOMAS—Yes, but primarily because it might help get EPA the mandate to do more comprehensive and long-term planning. One of the things you've got to recognize is that, within the federal government, the environmental issue is a lot broader than EPA. You've got a big environmental responsibility at the Department of Commerce, at the Department of the Interior, at Defense, at Energy, at a lot of other places. So there's a great need for a body whose mandate it would be to provide an overview, that is, a comprehensive look at the environment within the framework of other issues as well.

PEACH—How well equipped are we to deal with the international aspects of environmental protection?

THOMAS—Depends on which aspect you're talking about. First, we've got issues concerning the countries with which we share borders: Canada and Mexico. Then, we've got issues, such as ozone depletion and global warming, that clearly are worldwide in scope. Finally, we've got what I call "harmonization of standards" problems stemming from the world marketplace. These include such things as exports of hazardous wastes, world commerce in pesticides and chemical products, and duplication in the testing of new chemicals. Right now, of the three kinds of international issues I mentioned, we're probably only dealing effectively with the first. We've got systematic processes in place with Canada and Mexico; they may not always work perfectly, but they're in place.

The others are kind of ad hoc. If you look at how we approached ozone depletion and are now approaching global warming, it's plain that the process is based on personal persuasion among leaders. There is really not any kind of international body in place to provide a global perspective. The closest we've come is the United Nations Environment Programme (UNEP), which helped so much in advancing the ozone accord. But UNEP is not in any sense regulatory. It has no authority, but functions instead as a sort of facilitator.

If there's cause for optimism in the international area, it's the fact that great strides have been made over a very short period. In controlling the chlorofluorocarbons that have caused ozone depletion, it took just three years to go from saying "We've got a problem" to having the Montreal Protocol in place [see the accompanying article by Richard Benedick, "Diplomacy and the Ozone Crisis"], complete with commitments to implement its provisions and also to review them every four years to determine if they're tight enough. That's a tremendous achievement.

Global warming, though, will be tougher to handle. The complexities are greater in terms of the options you have to choose from, the East-West issues, the developing-nations issues. And the whole matter of global warming strikes such an emotional chord with the public that you have to beware of it getting out of hand politically.

HEMBRA—You're saying, then, that while an appreciation of the global nature of environmental problems is growing, the structures aren't in place to deal with them systematically on an international basis.

THOMAS—That's right. These aren't just environmental problems; they're trade and economic problems. It's interesting that while the United States goes into these negotiations to negotiate an environmental agreement, many other countries come in to negotiate a trade agreement. At Montreal during the ozone negotiations, several countries had sent representatives from their environment directorates—but they had also sent industry representatives. Other nations recognize that talks such as these are about trade as well as the environment,

and they look at these sorts of talks as an opportunity to secure trading advantages and improve market share. For my part, I found the most valuable members of my delegation were from the U.S. Trade Representative and the Department of Commerce.

GUERRERO—Where does this leave the State Department in the process, now that EPA's involvement in international environmental issues is growing?

THOMAS—EPA and State have got to take a partnership approach. The guys at State see the big foreign policy picture, but can't take the lead in environmental issues. For one thing, they don't have the technical capability. For another, they can't put a given environmental issue into the context of overall environmental policy. And finally, they're not the ones who are going to have to implement whatever agreement is signed, so they don't have a strong sense of the operational side of things.

To know what we were getting into with the ozone accord, for instance, an American representative had to have an operational sense of how the treaty would be implemented domestically. When I was involved in the negotiations, I knew we could only accept provisions that could be implemented here at home. I had to have a knowledge of what laws would have to be changed and I had to know what sort of time frames would be required to get that done.

The State Department, though, clearly can provide negotiators. That's what they're trained to do. But you don't want them to get out front as the environmental standard-bearers. If you look worldwide at who participates in these conferences, it's generally the environmental ministers. So the environmental minister from the United States has got to be the senior person, particularly when it comes down to the final negotiations.

HEMBRA—Looking at environmental problems as a whole, where would your priorities lie?

THOMAS—Well, the global problems—especially ozone depletion and global warming—deserve very high priority. A lot more attention needs to be given to gathering information about them.

Here at home: coastal pollution. At EPA, I became convinced that the agency has moved too far away from one of its mandates, which is environmental protection in an ecological sense. Tremendous growth is taking place in coastal areas and a lot of very sensitive ecological systems are being degraded. The effects on estuaries—fishery productivity and food chain issues, for example—can be very significant and very difficult to reverse. We've seen it on the Chesapeake Bay, where after 10 years of work we're still trying to characterize the problems and still talking about what to do about them. We don't even know if the problems there have finally bottomed out. So I think growth control and land use management in coastal areas are going to have to be a big priority.

Waste management is another. Hazardous wastes and solid wastes are both important from a public policy point of view. I'm not sure they would rank terribly high with me as human health risks, but as public policy issues they do pose problems that the government has got to sort through. The capacity issue, the siting of new facilities, treatment approaches, systems approaches for solid wastes, an enhanced focus on front-end approaches in addition to disposal approaches—all of these are fundamental questions to be answered in the next few years.

Another priority should be air pollution issues—three in particular. First, sulfur dioxide, which causes acid rain. I think we ought to keep working on reducing sulfur dioxide emissions into the atmosphere. Second, the urban nonattainment issue. If for various reasons cities aren't meeting their targets for cleaning up local air pollution, we've got to decide just how urgent it is that they do, and how much we're willing to pay for them to do it. Third, toxic air pollutants. I'd like to see an air pollution strategy emerge to cover all three issues.

Finally, we're going to hear a lot about groundwater protection. I'd give more attention to prevention and less to the level of remediation than we do now. I'm in favor of cleaning up these waste storage sites, but I think we're trying to clean up too much in some places. Toward the close of my tenure I heard a couple of Senators say, for the first time, "We can't spend this much money. We don't need to clean these things up to the level people have been aiming at." And I said, "That's what we've been saying for the past eight years."

We're faced today with thousands of waste storage facilities that have been leaching contaminants into the soil for decades. I think that's enough to make the case for emphasizing prevention. I'm all for remediation, but I don't want to see clean-ups absorb all the resources that might be devoted to prevention. As usual, it's a matter of finding the right balance. •

James Gustave Speth

TURNING POINT FOR THE EARTH

The deterioration of the atmosphere reflects the globalization of our environmental woes.

TWENTY YEARS AGO, the United States responded vigorously to what was then commonly referred to as "the environmental crisis." New national policies were declared, new agencies created, and major pollution clean-up and resource management initiatives launched. Today, as we enter the 1990s, we are confronted with a new list of environmental concerns that seem even more serious and challenging than the problems of the 1970s.

First and perhaps foremost, the buildup of carbon dioxide and other gases in the atmosphere threatens far-reaching climate changes. One class of these gases—the chlorofluorocarbons—is also depleting the Earth's ozone layer, which shields us from the sun's ultraviolet radiation. Here at home, air pollutants are escaping our urban-industrial areas and invading the countryside, damaging aquatic life, forests, and crops.

IF WE DO NOT ACT OVER THE COMING DECADE, MAJOR AND IRREPARABLE DAMAGE WILL BE DONE TO THE GLOBAL ENVIRONMENT, AND THE PROBLEMS OF THE FUTURE WILL PROVE INCREASINGLY INTRACTABLE, EXPENSIVE, AND DOMINATED BY CRISIS.

In the developing world, pressures on natural resources intensify daily. The deserts expand. The forests, with their immense wealth of life forms, retreat. Hundreds of millions of people live in absolute poverty, destroying the resources on which their future depends because no alternative is open to them.

Just as it did 20 years ago, the word "crisis" comes to mind. As used today in the media and much popular speech, "crisis" seems to cover any emergency situation needing urgent corrective action. In the dictionary, though, the word refers to "the crucial time or the juncture whose outcome will make a decisive difference, for good or ill." Its roots lie in the Greek *krisis* meaning "decision" or "turning point." The medical usage is instructive: "the turning point in a disease where the outcome is either recovery or death."

Following that last usage, it is clear that the word "crisis" does, indeed, apply today. The Earth, under observation, has been found to be very ill and getting worse; as we know her, she is sliding away. Survival at some level may not be at stake, but the quality of life on Earth certainly is. This is not a case, though, where the patient is in the hands of the Lord. We are the cause of the Earth's deterioration, and with decisive intervention we can provide the cure. The coming decade (scarcely a moment in geologic time) is the crucial period—the juncture whose outcome will make a decisive difference. If we make concerted efforts, we can put the planet on the road to recovery. But if we do not act, major and irreparable damage will be done to the global environment, and the problems of the future will prove increasingly intractable, expensive, and dominated by emergencies.

JAMES GUSTAVE SPETH is President of the World Resources Institute.

Regional air pollution

Nothing better illustrates the global environmental crisis than the deterioration of the Earth's atmosphere. The view that air pollution is primarily a local, urban problem was challenged first by acid rain and other regional air pollution. The atmosphere transports many air pollutants hundreds of miles before returning them to the Earth's surface. During this long-distance transport, the atmosphere acts as a complex chemical reactor, transforming the pollutants as they interact with other substances, moisture, and solar energy. Under the right conditions, emissions of sulfur dioxide and nitrogen oxides from fossil fuel combustion are transformed chemically in the atmosphere into sulfuric and nitric acids.

The resulting acid deposition is undeniably a major problem. Thousands of lakes have "gone acid" and, in effect, died as a result of widespread acid deposition in northern Europe and North America. In the United States, a recent government survey found that about 10 percent of the lakes in the Adirondack region and the Upper Peninsula of Michigan were acidic (below pH5) and about 5 percent of the lakes in other sensitive regions were acidic. As sobering as these numbers are, some scientists have argued that using the pH5 standard to define acidic surface waters grossly minimizes the effects of acid deposition.

Moreover, the dimensions of the regional air pollution problem have changed significantly in the past few years. Although acid deposition is still seen as the primary atmospheric agent damaging aquatic ecosystems, many other air pollutants, including ozone and other oxidants, are important in agricultural crop damage and in the widespread forest declines observed in Europe and North America over the past several years. Also, the geographic area now perceived as threatened by acid rain and the other airborne pollutants has expanded far beyond Scandinavia, central Europe, and eastern North America. It now encompasses nearly the whole of Europe, parts of the western United States and Canada, and some industrialized areas of the Third World.

THE GEOGRAPHIC AREA NOW PERCEIVED TO BE THREATENED BY ACID RAIN AND OTHER AIRBORNE POLLUTANTS HAS EXPANDED FAR BEYOND THE INITIAL BOUNDARIES.

As of the end of 1985, at least 15 million acres of forest lands in 15 European countries had been affected by the process of *Waldsterben* (forest death). North America's higher-elevation eastern coniferous forests have experienced a rapid and severe decline in recent years with serious, visible damage appearing in the Appalachian Mountains from Georgia to New England.

In North Carolina, the spruce-fir forest atop Mount Mitchell is undergoing rapid defoliation and decline. High levels of ozone, acidity, and even heavy metals have been detected, transported long distances in the atmosphere. While the exact cause-and-effect relationships remain unclear, the evidence is compelling that chemical pollutants are important in the process of forest destruction already widespread in Europe and now appearing in North America.

Ozone depletion

The second major international atmospheric concern is the depletion of the Earth's ozone layer. Ozone, a variant of oxygen, is present throughout the atmosphere but is concentrated in a belt around the Earth in the stratosphere. Although ozone in the troposphere (the layer of atmosphere nearest the Earth's

surface) adversely affects human health and plant life, it is a valuable component of the upper atmosphere, where it acts as a filter, absorbing harmful wavelengths of ultraviolet radiation (UV). Without this radiation shield, more UV radiation would reach the surface of the earth, damaging plant and animal life and greatly increasing the risk of skin cancers and eye disease.

In 1974, two scientists, Mario Molina and F. S. Rowland of the University of California, postulated that the widespread use of chlorofluorocarbons (CFCs)—highly stable compounds used in aerosol propellants, refrigeration, foam-blowing, and industrial solvents—could damage the world's ozone shield. They hypothesized that CFC gases could reduce the amount of stratospheric ozone, allowing more harmful UV radiation to reach the Earth's surface.

This hypothesis profoundly affected both the CFC industry and national governments. The United States, Canada, and Sweden first banned the inessential uses of CFC propellants in spray products, and several other Nordic countries followed suit. As a result, world production and emissions of the two major chlorofluorocarbons—CFC-11 and CFC-12—decreased in the late 1970s. However, emissions of CFCs began climbing again in the early 1980s, leading to renewed international concern.

In 1985, when British scientists monitoring ozone over Antarctica reported a dramatic seasonal thinning of the ozone shield—the now-famous "hole" in the ozone layer—the debate switched into high gear. The hole has reached the size of

the continental United States. In this hole, Antarctic springtime ozone levels fall about 50 percent below mid-1970s levels. Recent evidence suggests that CFCs bear ultimate responsibility for the ozone hole, with the stratospheric ice clouds over the polar region facilitating the chemical reaction that destroys the ozone.

The response to the ozone depletion problem has been a precedent-setting international agreement, the 1985 Convention for the Protection of the Ozone Layer. (See the accompanying article by Richard Elliot Benedick, "Diplomacy and the Ozone Crisis.") The first major step toward implementing this convention occurred with the 1987 adoption of the Montreal Protocol, in which governments agreed to a 50-percent rollback in CFC use in industrial countries by 1999. In light of the ozone hole and other findings, however, an international consensus has emerged in both scientific and policy-making circles that the Montreal Protocol is too weak and that a complete phase-out of offending CFCs is required by the end of this century.

The greenhouse effect

However disturbing we may find the phenomenon of ozone depletion, the most serious atmospheric challenge is almost certainly the global warming and climate change brought on by the greenhouse effect. For the past several years, atmospheric scientists have been issuing unusual warning signals. Earth's climate, they say—the climate that has sustained life throughout human history—is now seriously threatened by atmospheric pollution.

IF THE GREENHOUSE EFFECT TURNS OUT TO BE AS GREAT AS PREDICTED BY TODAY'S CLIMATE MODELS, OUR WORLD WILL SOON DIFFER RADICALLY FROM ANYTHING IN HUMAN EXPERIENCE.

Perhaps the most notable warning came in October 1985, toward the close of a conference sponsored by the International Council of Scientific Unions, the World Meteorological Organization, and the United Nations Environment Programme, in Villach, Austria. "As a result of the increasing concentrations of greenhouse gases," the conference statement began, "it is now believed that in the first half of the next century, a rise of global mean temperature could occur which is greater than any in man's history."

Through such activities as burning fossil fuels, leveling forests, and producing certain synthetic chemicals, humankind is releasing large quantities of "greenhouse" gases into the atmosphere. These gases absorb Earth's infrared radiation, preventing it from escaping into space. This process traps heat close to the surface and raises global temperatures.

Excess carbon dioxide is the main offender. Prior to the Industrial Revolution, the concentration of carbon dioxide in the atmosphere was about 280 parts per million. At this concentration, carbon dioxide (and water vapor) warmed Earth's surface by about 33 degrees Centigrade and made Earth habitable. But, since then, especially since 1900 or so, the accelerating use of fossil fuels and vegetation loss over large areas of the planet have caused carbon dioxide in the atmosphere to increase by about 25 percent.

Carbon dioxide buildup is not the only problem, however. Much of the new urgency on this issue stems from the realization that other gases released through human activity—including CFCs, methane, nitrous oxide, and ozone—now contribute about as much to the greenhouse effect as carbon dioxide does.

According to one estimate, past emissions of greenhouse gases have already committed Earth to an average warming of one to two degrees Centigrade over the

preindustrial era, though only a fraction of this warming has been felt to date because of the inertia of the oceans. Several models project that if current trends in greenhouse gas buildup continue, human activity will have committed Earth to a warming of 1.5 to 4.5 degrees Centigrade by around the year 2030, the upper end of this range being the more probable.

To find conditions like those projected for the middle of next century, we must go back millions of years. If the greenhouse effect turns out to be as great as predicted by today's climate models, and if current emission trends continue, our world will soon differ radically from anything in human experience.

While the regional impacts of global warming are uncertain and difficult to predict, many of the anticipated changes are both far-reaching and disturbing. Rainfall and soil moisture patterns could shift dramatically, upsetting agricultural activities worldwide. Sea levels could rise from one to four feet, flooding coastal areas. Ocean currents could shift, altering the climate of many areas and disrupting fisheries. The ranges of plant and animal species could change regionally, endangering protected areas and many species whose habitats are now few and confined. Record heat waves and other weather anomalies could harm susceptible people, crops, and forests.

With the buildup of greenhouse gases proceeding apace, a great planetary experiment is under way. Before the results are fully known, future generations may have been irrevocably committed to an altered world—one that may be better in some respects but that also involves truly unprecedented risks.

Linked issues

These atmospheric issues are linked in ways that scientists are still discovering—and the scientists are far ahead of policymakers. First, the atmospheric issues are linked in time. The still commonly held view that we should address local air pollution first, then regional issues such as acid rain, and then, eventually, the global issue of greenhouse gases, is no longer adequate to the dangers we face. Although efforts to improve urban air quality have gone on for two decades, the old problem lingers, while the new global threats close in.

THE TIME TO ADDRESS ALL OUR ATMOSPHERIC PROBLEMS—LOCAL, REGIONAL, GLOBAL—IS NOW. THE WAY TO ADDRESS ALL THESE PROBLEMS IS TOGETHER. AND ONE KEY TO ALL THESE PROBLEMS IS ENERGY POLICY BECAUSE OF THE LINK TO FOSSIL FUELS.

Second, atmospheric issues are also linked in the vast chemical reactor that is the atmosphere, where pollutants react with each other, other substances, and solar energy in a fiendishly complex set of circular interactions. Touch one problem and you may touch them all.

Third, atmospheric issues are linked in their effects on people and on plant and animal life. What are the consequences of multiple stresses—a variety of pollutants, heat waves and climate changes, increased ultraviolet radiation—when realized together? We simply have no idea.

Finally, atmospheric issues are linked through the sources of the pollutants involved. CFCs, for example, contribute both to greenhouse warming and ozone layer destruction. But the largest source of these problems is the use of fossil fuels. Fossil fuel use accounts for 80 percent of the global carbon dioxide emissions and almost all sulfur and nitrogen oxide emissions.

In short, the time to address all these atmospheric problems—local, regional, global—is now. The way to address all these problems is together. And one key to all these problems is energy policy because of the link to fossil fuels.

Two goals to reconcile

Before turning to what might be done about these linked atmospheric challenges, and particularly the greenhouse effect, it may be worth pausing to consider what the future holds. The scale and momentum of economic activity on the planet today are difficult to comprehend. It took all of human history to grow to the $600-billion world economy of 1900. Today the world economy grows by more than this amount every two years. Each year's global economic expansion is almost the size of the economy of South America.

By the middle of the next century, a scant lifetime away, our world of 5 billion people must make room for another 5 billion, and our global economy of $14 trillion could be five times as large as today.

Worldwide, many societies have set two long-term goals for themselves: improving environmental quality (in part by reducing current pollution levels) and achieving large increases in economic activity. Reconciling these goals is likely to be one of the dominant challenges facing political leaders on all continents in the 1990s and beyond. It will require continuing attention at the highest levels of government, and it will require international cooperation on a scale seldom seen except in wartime.

WHAT IS NEEDED IS A TRANSFORMATION IN TECHNOLOGY—A SHIFT, UNPRECEDENTED IN SCOPE AND PACE, TO TECHNOLOGIES THAT FACILITATE ECONOMIC GROWTH WHILE SHARPLY REDUCING THE PRESSURES ON THE NATURAL ENVIRONMENT.

Technology transformation is the key

What will this reconciliation entail, in practical terms? We need only imagine what will happen if greenhouse gases, fossil fuel use, and wastes and pollutants increase proportionately with the fivefold expansion in world economic activity projected for the middle of the next century. But this is what will occur if economic growth merely replicates, again and again, today's prevailing technologies. Reconciling the economic and environmental goals that societies have set for themselves will be possible only if there is a *transformation in technology*—a shift, unprecedented in scope and pace, to technologies that facilitate economic growth while sharply reducing the pressures on the natural environment.

In this limited sense, at least, one might say that only technology can save us. The importance of life-style changes should not be undervalued—some go hand-in-hand with technological change—and we should applaud the spread of more voluntary conservation in our wasteful society. But economic growth has its imperatives; for much of the world it is the imperative of meeting basic human needs. The key question is: With what technologies will growth occur? Only the population explosion rivals this question in fundamental importance to the planetary environment.

Technology transformation is the biggest part of the answer to the linked challenges of atmospheric pollution. We can see this by focusing on what needs to be done to address the greenhouse effect. If we deal effectively with the greenhouse effect, we will also save the earth's stratospheric ozone shield and greatly reduce ground level air pollution as well.

The steps that can be taken to contain global warming can be stated simply but will be implemented only with great difficulty. In a nutshell:

- Increase sharply the efficiency with which fossil fuels are used. The technology to do this is available today.
- Introduce nonfossil energy technologies on a priority basis. The available candidates are renewable energy sources and nuclear power; the choice between them is sure to be hotly debated.
- Phase out CFCs completely; we need to introduce new, benign technologies to do what CFCs do.
- Promote a large-scale international effort to halt deforestation in the tropics and move to net forest growth globally.
- Stabilize world population, before it doubles again, to a level as close to eight billion to nine billion people as possible.

Other steps are also needed. For example, natural gas is preferable to coal as a transitional fossil fuel (provided methane leakage is prevented), and traditional pollution control measures can reduce sulfur and nitrogen oxide emissions.

IN SEEKING INTERNATIONAL AGREEMENTS AND SETTING AN EXAMPLE FOR OTHER NATIONS, U.S. LEADERSHIP COULD NOT BE MORE IMPORTANT. THE WORLD IS NOT EXACTLY WAITING ON US, BUT NEITHER WILL IT GET VERY FAR WITHOUT US.

What is required, then, is nothing less than a transformation in energy technology, with increased energy efficiency at the center. The potential for energy efficiency gains is enormous, particularly in this gas-guzzler nation that is only half as energy-efficient as West Germany, Japan, and many other industrial countries. A recent energy study of the United States, sponsored in part by the World Resources Institute and carried out at Princeton University, concluded that we could reduce total energy use and fossil fuel use in the United States by about 40 percent by the year 2020, while still allowing per capita GNP to double during this period, if we promote the aggressive introduction of available energy-efficient technologies such as super-efficient automobiles, well-insulated homes and buildings, and energy-efficient industrial processes. The rate of energy-efficiency improvement needed to reach this result is not unprecedented; it is the same rate of decline in energy use per capita that the United States achieved between 1973 and 1985.

On the supply side, renewable energy of many varieties remains by far the best hope for the future—solar electric devices and heat collectors, small-scale hydropower, wind power, biomass energy. Although the major breakthrough into commercial applications is still some years away, photovoltaic technologies are undergoing impressive cost reductions. By the end of this century, they should be competitive with conventional fuels.

In all these areas—in seeking international agreements and setting an example for other nations—U.S. leadership could not be more important. The world is not exactly waiting on us, but neither will it get very far without us. •

Richard Elliot Benedick

DIPLOMACY AND THE OZONE CRISIS

At Montreal, a new mode of international cooperation emerged that may be crucial to the health of the planet.

THE MONTREAL PROTOCOL WAS A BREAKTHROUGH IN THAT NATIONS AGREED FOR THE FIRST TIME ON A WORLDWIDE REGIME FOR SPECIFIC REDUCTIONS IN SUBSTANCES WHOSE DAMAGE TO THE ENVIRONMENT WILL NOT BE FULLY MEASURABLE FOR DECADES.

ON SEPTEMBER 16, 1987, representatives of countries from every region of the world signed an agreement that was a milestone in the history of international diplomacy. The Montreal Protocol on Substances that Deplete the Ozone Layer established controls on certain chemicals that can destroy the stratospheric ozone layer (which protects life on earth from harmful radiation) and that can also change the global climate. In its farsightedness, its worldwide scope, and its resolution of conflicting economic interests, the agreement suggests the type of global diplomacy that must be practiced in the future to ensure the health and stability of the planet.

At Montreal, nations agreed for the first time on a worldwide regime for specific reductions in substances whose damage to the environment will not be fully measurable for decades. The protocol was not a response to an environmental disaster, such as Chernobyl or Bhopal, but *preventive* action on a global scale. Such action, based not on measurable evidence of ozone depletion or increased radiation but on scientific hypothesis, required an unprecedented amount of foresight. The link between events was not obvious: A spray perfume in Paris helps to destroy an invisible gas six to 30 miles above the earth, thereby contributing to deaths from skin cancer and the extinction of entire species half a world away and several decades in the future.

Another remarkable aspect of the Montreal Protocol was the negotiators' decision not to take the timid path of controlling dangerous substances through "best available technology"—the traditional accommodation to economic interests. Rather, the negotiators established firm target dates for reducing emissions, even though the technologies for accomplishing these goals did not yet exist.

In doing so, the negotiators sounded a death knell for an important part of the international chemical industry, with implications for billions of dollars in investment and hundreds of thousands of jobs in such sectors as food, plastics, transportation, electronics, cosmetics, fire prevention, and health care. Here, as in many other areas, the imperatives of economic competition conflicted with the need for international environmental cooperation, but eventually concerns about the environment prevailed.

Similar conflicts between economic and environmental imperatives are bound to arise in the future, as more and more environmental problems cross national boundaries and require international solutions. Furthermore, there will be a growing number of threats to the environment that, although not obvious or immediate, pose serious long-term dangers. So it is worth considering what factors contributed to the Montreal Protocol's success and what lessons the negotiations might hold for future attempts to deal with similar situations.

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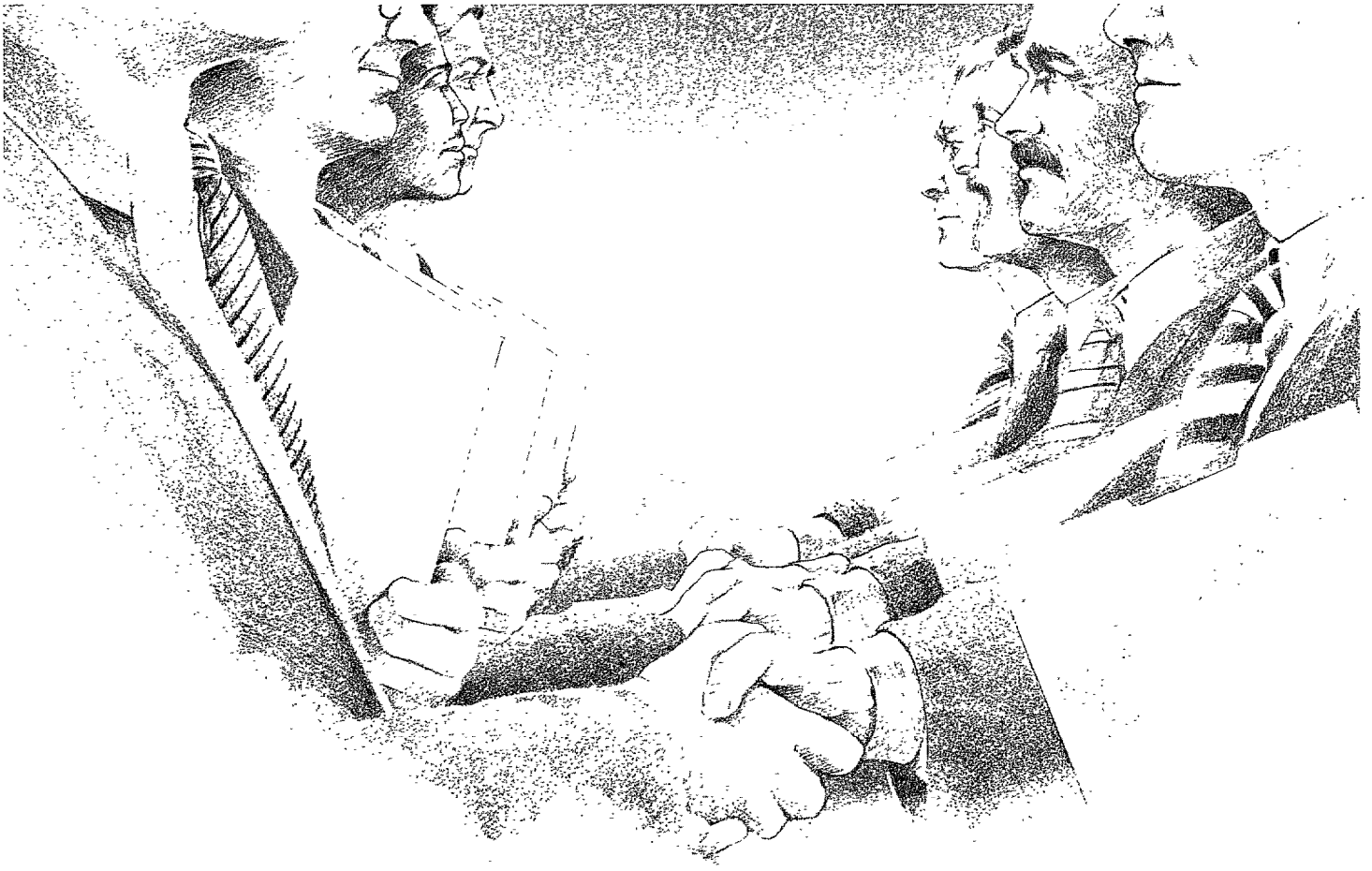

Science and policy

The ozone protocol was, first and foremost, a result of close collaboration between scientists and policymakers. Based as it was on continually evolving theories of atmospheric processes, on state-of-the-art computer models simulating chemical and physical reactions for decades into the future, and on satellite-, land-, and rocket-based monitoring of minuscule amounts of remote gases, the ozone treaty could not have been concluded at any earlier point in history. The consensus finally reached (after much travail) depended to a large extent on the development of a commonly accepted body of scientific data and analysis and on the narrowing of the ranges of uncertainty.

Ozone is perhaps the most important chemically active trace gas in the earth's atmosphere, since it absorbs a kind of ultraviolet radiation—biologically active ultraviolet, or UV-B—that is especially damaging to animal and plant cell structure. Furthermore, the vertical distribution of ozone throughout the atmosphere has a major effect on global climate. The ozone layer is therefore essential to life.

In 1974, two theories were advanced by American scientists that suggested potentially grave damage to the ozone layer. According to one of the theories, chlorine in the atmosphere could trigger a process that would continually destroy ozone over a period of decades; through a catalytic chain reaction, a single chlorine atom could eliminate tens of thousands of ozone molecules. The other theory postulated that man-made chlorofluorocarbons (CFCs) would, upon exposure to radiation in the stratosphere, break down and release dangerously large quantities of chlorine.

Together, these hypotheses had a staggering

impact, since production of CFCs had soared from 150,000 metric tons in 1960 to more than 800,000 metric tons in 1974. This production reflects CFCs' broad usefulness: They vaporize at low temperatures, which makes them perfect as coolants in refrigerators and propellant gases in spray cans; they are good insulators and so have become standard ingredients in plastic-foam materials such as Styrofoam; and they are inexpensive to manufacture.

But CFCs are also chemically very stable, so they are not destroyed or rained out in the lower atmosphere (like most other man-made chemicals) but instead migrate slowly upward, remaining intact for up to a century. This means that millions of tons of previously produced CFCs are still making their way toward the ozone layer. Even if CFC emissions were to level off or decline, chlorine would continue to accumulate in the stratosphere for decades, making some future depletion of the ozone layer inevitable.

THE UNITED STATES AND THE EUROPEAN COMMUNITY ACCOUNTED FOR 84 PERCENT OF CHLOROFLUOROCARBON (CFC) OUTPUT IN 1974, BUT DESPITE THEIR SHARED POLITICAL, ECONOMIC, AND ENVIRONMENTAL ORIENTATION, BY THE MID-1980S THEY DIFFERED ON ALMOST EVERY ISSUE PERTAINING TO POTENTIAL CONTROLS OF CFCS.

These new hypotheses about the ozone layer, chlorine, and CFCs stirred up tremendous activity in scientific and industrial circles. Although the chemical industry on both sides of the Atlantic vigorously denied any link between ozone depletion and CFCs, U.S. scientists, later joined by colleagues in many other countries, mounted a major research campaign involving the National Academy of Sciences and a growing number of eminent chemists, meteorologists, physicists, and space scientists. Through complex measurements and research, these scientists confirmed the chlorine-ozone theory as a valid hypothesis, even though it had not yet been proved.

In 1986, an assessment sponsored by the United Nations Environment Programme, the World Meteorological Association, and five other agencies concluded that if CFC emissions continued at the 1980 rate, average concentrations of stratospheric ozone would be reduced by about 9 percent by the second half of the next century. Seasonal and latitudinal variations would make for much greater decreases at certain times in certain places; high levels of UV-B radiation would reach heavily populated regions of the Northern Hemisphere. New measurements also indicated that accumulations of CFCs in the atmosphere had nearly doubled between 1975 and 1985, even though production of these chemicals had stayed level over the same period. At this point, there was still no clear indication of increased levels of UV-B radiation reaching the earth's surface. But on the basis of predicted ozone depletion, the Environmental Protection Agency estimated that, in the United States alone, future increased UV-B radiation could cause more than 150 million new cases of skin cancer by the year 2075, resulting in more than 3 million deaths. Other possible effects of CFC emissions included major damage to agriculture and fisheries, increased formation of urban smog, and warming of the global climate.

Spray cans and politics

These predictions were not yet firm, however. Although it was generally accepted that alterations in the ozone layer would create risks to human health and the environment, there was still disagreement over what should be done to provide a reasonable degree of protection from ozone depletion. This dispute became particularly severe between the United States and the European Community (EC). Together, they accounted for 84 percent of world CFC output in 1974; but despite their shared political, economic, and environmental orientation, by the mid-1980s they differed on almost every issue pertaining to potential controls on CFCs.

In part, their disagreement sprang from differences in domestic public opinion. In the 1970s, the ozone depletion theory captured the American imagination. Millions of consumers boycotted aerosol sprays containing CFCs, and environmental groups helped keep the ozone issue before the public and the Congress by publishing studies, holding press conferences, and funding research. In Europe, on the other hand, there was no significant domestic opposition to the chemical industry. The West European public was not less sensitive than the American public to environmental concerns. But for a long time Europeans remained preoccupied with problems of more obviously pressing importance, such as acid rain, chemical industry accidents, and the Chernobyl disaster.

A similar distinction held true between the European and U.S. legislatures. Except for the German Bundestag, European parliaments showed scant interest in CFCs, whereas the U.S. Congress held formal hearings on ozone depletion soon after the theory was publicized. As early as 1978, the United States prohibited the use of CFCs as aerosol propellants in all but "essential applications." This ban rapidly reduced U.S. production of CFCs for aerosols by 95 percent, and affected nearly $3 billion worth of sales in a wide range of household and cosmetic products, from hair spray to furniture polish. (Similar steps were taken by Canada, a small producer, and by Sweden, Norway, Denmark, and Finland—all nonproducing, CFC-importing countries.) In 1986, shortly after protocol negotiations opened, both Houses of the U.S. Congress passed resolutions supporting the U.S. position, and legislation was introduced that called for unilateral U.S. controls in the event that the negotiations failed.

By contrast, the EC instituted only ineffectual regulations. In 1980, the EC enacted a requirement that CFC aerosol use be cut back by 30 percent from 1976 levels—an easy goal, since European sales of CFCs for aerosols had already declined by 28 percent from their 1976 peak. At the same time, the EC decided not to increase production capacity for certain CFCs, yet two years later, it defined capacity in a way that would allow current output to increase by more than 60 percent. These were painless moves, supported by European industry, that gave the appearance of control while actually permitting continued expansion for at least two more decades.

Parallel with these divergent government courses were the two sides' economic interests. By the mid-1980s, U.S. production of the major ozone-threatening chemicals eventually covered by the Montreal Protocol had dropped steeply, largely in response to the boycotts and the protests of consumers concerned about the environment. In 1986, the United States produced about 30 percent of world output of these substances, whereas the EC produced 43 to 45 percent. Relative to gross national product, the EC's production of certain CFCs was more than 50 percent higher than America's. Moreover, the EC supplied CFCs to the rest of the world, particularly to the growing markets in developing countries. EC exports had risen 43 percent from 1976 to 1985 and averaged almost one-third of total production, while the United States consumed virtually all it produced.

As these numbers suggest, the chemical industries on the two sides of the Atlantic had widely different attitudes toward CFCs. Shaken by the public outcry over the threat to the ozone layer, U.S. producers had quickly developed substitutes for CFCs in spray cans. U.S. chemical companies were highly aware of the vulnerability of their long-term reputations and took care to issue statements that, although ultimately noncommittal, at least acknowledged that the ozone problem was potentially serious. They were also concerned about the possibility of a patchwork of state regulations on CFCs and favored federal controls as being uniform and therefore less disruptive.

U.S. producers also resented their European rivals' avoidance of any meaningful controls and wanted to make sure that the international playing field was level. In September 1986, three months before the start of the negotiations that led to the Montreal Protocol, U.S. industry made an unexpected move: A coalition of about 500 U.S. producer and user companies issued a statement that, after the obligatory remarks about the lack of imminent threat from CFC use, announced U.S. industry support for new international controls on CFCs.

This statement contributed to overt tensions between American and European industrialists over the next few months. Europeans suspected that their American rivals had opted for international controls on CFCs because they had substitute products on the shelf with which to enter the profitable export markets the EC now supplied. For its part, European industry hoped to preserve its market dominance and to avoid the costly switch to alternate products for as long as possible. Taking advantage of public indifference and political skepticism, European industry was able to persuade most EC governments that substitutes for CFCs were neither feasible (despite U.S. companies' success in marketing alternative spray propellants) nor necessary. Official EC pronouncements echoed industry statements, emphasizing the scientific uncertainties still surrounding the ozone depletion hypothesis, the

difficulty of finding effective substitutes, and the adverse effects that regulations would have on European living standards.

The U.N. Environment Programme

Although the United States and the EC are the major CFC producers, the ozone problem affects the entire world and therefore can be solved only by international agreement. The necessary setting for such an agreement was provided by a hitherto little-known United Nations agency, the U.N. Environment Programme (UNEP). Under the dynamic leadership of its executive director, Mostafa Tolba, an Egyptian scientist, UNEP's involvement was crucial to the events that led up to the Montreal Protocol. UNEP worked to inform governments and world public opinion about the ozone depletion issue, it provided a nonpoliticized international forum for the negotiations, and it was a driving force behind the consensus that was eventually reached.

THE U.N. ENVIRONMENT PROGRAMME WORKED TO INFORM GOVERNMENTS AND WORLD PUBLIC OPINION ABOUT THE OZONE DEPLETION ISSUE, PROVIDED A NONPOLITICIZED INTERNATIONAL FORUM FOR THE NEGOTIATIONS, AND WAS A DRIVING FORCE BEHIND THE CONSENSUS THAT WAS EVENTUALLY REACHED.

UNEP took an early lead in raising the issue of ozone depletion. In September 1975, UNEP funded the first international forum to examine the implications of the American research on the ozone layer; this meeting issued an official statement of international scientific concern over CFCs. At a meeting of UNEP's Governing Council in 1977, the United States, Canada, and the Nordic countries sought to expand UNEP's mandate beyond research to include consideration of international regulations. Their proposal was opposed by Great Britain, France, the Soviet Union, Japan, and other countries on the grounds that it was premature.

Despite such resistance, however, over the next few years UNEP's Governing Council worked toward an agreement to impose international controls. In 1982, representatives of 24 countries began to meet under UNEP auspices to decide on a "Global Framework Convention for the Protection of the Ozone Layer." The following year, a group of countries, including the United States, Canada, the Nordic nations, and Switzerland, proposed a worldwide ban on "nonessential" uses of CFCs in spray cans, pointing out that it had already been demonstrated that alternatives to CFC sprays were economically and technically feasible. In late 1984, the EC countered with an alternate proposal to prohibit new additions to CFC production capacity.

Whatever the intrinsic logic of their proposals, it was evident that each side was backing a protocol that would require no new controls for itself but considerable adjustment for the other. The ban on "nonessential" uses in spray cans would have been no hardship on the United States, which had already imposed such a restriction on itself. The cap on production capacity, on the other hand, would have hit the United States hard, since U.S. chemical companies were already operating close to capacity, whereas their European counterparts had substantial unused capacity that would allow them to expand CFC production at current rates for another 20 years before hitting the cap.

Despite these disagreements, by March 1985 the negotiators had drafted all elements of a protocol for CFC reductions except the crucial provisions on controls. Meeting in Vienna, all major producers (with the exception of Japan) signed an interim agreement—the Vienna Convention on Protection of the Ozone Layer.

The convention served an important function at this stage, and might serve as a model for those negotiating similar issues in future. By allowing nations to agree that a problem existed without immediately deciding how to deal with it, the convention paved the way for further negotiations. Essentially, the convention is an agreement to promote international monitoring, research, and exchange of data on stratospheric ozone and on CFCs and other relevant chemicals. It also established a general obligation for nations to take "appropriate measures" to protect the ozone layer, and, most importantly, it provided the framework for eventual protocols to restrict ozone-depleting substances. Also, over strong objections from European industry, the convention passed a separate resolution that called upon UNEP to continue work on a CFC protocol, with a targeted adoption date in 1987.

The major players

As formal negotiations on a CFC protocol began in December 1986, governments were divided into three camps. Even though it faced growing internal strains, the EC still acted as a bloc, following the European industry line and the views of Great Britain, France, and Italy. The EC continued to advocate the kind of production capacity cap it had favored during the meetings that led up to the Vienna Convention. Because scientific models showed that no significant ozone depletion would occur for at least two decades, EC negotiators argued that there was time to delay production cuts and wait for more evidence. This perspective was shared initially by the Soviet Union and Japan.

IT IS IMPORTANT NOT TO OVERLOOK THE U.S. CONTRIBUTION. AMERICA'S MANY SCIENTIFIC AND DIPLOMATIC INITIATIVES—REINFORCED BY THE ACTIONS OF U.S. ENVIRONMENTAL GROUPS AND U.S. INDUSTRY—WERE CRUCIAL TO THE ULTIMATE SUCCESS OF THE MONTREAL ACCORD.

Opposing this view were the United States, Canada, Norway, Sweden, Finland, Switzerland, and New Zealand, all of which favored stronger new controls on CFCs and other ozone-depleting substances. They argued that action should be taken well before critical levels of chlorine accumulated, since the long atmospheric lifetime of these substances meant that past and present production would inevitably result in substantial future ozone depletion: The process could not suddenly be turned off like a faucet. Even though scientific knowledge was still incomplete, these countries were concerned about health and environmental risks, and maintained that postponing meaningful action now could necessitate future measures that would be draconian and therefore more costly.

A third group of participants, including Austria, Australia, and a number of Third World countries, were initially on the fence. But as the arguments developed, they moved toward favoring more stringent regulations.

Complicating the entire process was the fact that the EC, comprising 12 sovereign nations, had to achieve internal consensus before (and during) international negotiations, which tended to make it a difficult and inflexible negotiating partner. In reality, the EC was deeply divided on the ozone issue. West Germany, the Netherlands, Belgium, and Denmark were increasingly disposed toward strong CFC controls; but of these, only Germany was a major producer. Great Britain, supported by France and Italy—all large producers—resisted every step of the way. Greece, Spain, Ireland, and Portugal did not even participate in most of the negotiations.

Another key factor was the EC presidency, which automatically rotates every six months. Progress in the protocol negotiations occurred only after Belgium replaced Great Britain in the presidency in January 1987. Britain remained in the EC "troika" (past, present, and future presidents) that participated in closed meetings of key delegation heads during the negotiations—but only until the presidency rotated again in July 1987. At that point, the troika included Belgium, Denmark, and Germany, all of which favored stringent controls. This particular constellation may well have influenced ultimate EC acceptance of much stronger measures than it had originally endorsed.

It is also important not to overlook the U.S. contribution. America's many scientific and diplomatic initiatives—reinforced by the actions of U.S. environmental groups and U.S. industry—were crucial to the ultimate success of the Montreal accord.

The protocol negotiations

One key question negotiators had to grapple with was whether restrictions would be placed on the production or the consumption of the substances covered by the agreement. While this seems like an arcane issue, it was in fact one of the most important and most difficult to resolve.

The EC pushed for controls on production, arguing that it was simpler to control output since there were only a small number of producing countries, whereas there were thousands of consuming industries and countless points of consumption. Those who favored a consumption-related formula pointed out, however, that production controls would confer disproportionate benefits on the EC and impose disproportionate penalties on importing nations, especially the developing countries. Since about

one-third of EC output was exported and there were no other exporters, a production limit would essentially lock in the EC's export position. The only way the United States could supply those markets would be to decrease its domestic consumption. The EC, therefore, would have a virtual monopoly. If European domestic demand should rise, the EC could scale back its exports in order to satisfy it. Current importing countries would then have no recourse to other suppliers and would have to bear the brunt of CFC reductions on their own—a prospect that would encourage CFC importers to remain outside the treaty and to build their own CFC production plants.

The EC did, however, have a valid argument about the difficulty of controlling multiple consumption points. To meet it, the United States and its allies came up with an ingenious alternative to either a production or a consumption cap: A limit would be placed on production *plus* imports *minus* exports to other Montreal Protocol signatories. This "adjusted production" formula satisfied the EC's concern about the difficulty of controlling consumption, since all three of its components were easy to measure. It also eliminated any monopoly that a strict production cap might confer. An importing country whose traditional supplier raised prices excessively or refused to export could meet the shortfall either by producing on its own or by importing from another producing country among the protocol signatories. Producing countries could raise production to meet such needs without cutting into domestic consumption. Only exports to those countries not party to the Montreal Protocol would have to come out of domestic consumption; this would serve as added incentive for importing countries to join the protocol, lest they lose access to supplies.

Another crucial question—perhaps the single most contentious issue in the entire negotiations—was the timing and the extent of reductions. Again, the EC and the United States were the principal opponents. The United States originally called for a freeze to be followed by three phases of progressively more stringent reductions, all the way to a 95-percent cut. But the EC was reluctant to consider reductions beyond a 10- to 20-percent cut.

At this point, West Germany—the largest CFC producer in Europe—began to assert its environmental concerns more directly, making urgent appeals to the EC to accept deeper reductions. In addition, new scientific research showed that *any* of the control strategies under consideration would still allow some degree of ozone depletion and climate change, and that the extent of these effects would depend on the stringency of international regulations. Perhaps the real turning point came when Mostafa Tolba, head of UNEP, began to intervene forcefully. He issued a personal proposal for deep cuts and held informal consultations with several heads of delegations; all the while, he continued to press for major reductions.

Ultimately, a 50-percent cut was agreed upon—even by the EC, the Soviet Union, and Japan. The final treaty text stipulated that CFCs be reduced from 1986 levels first by 20 percent and subsequently by 30 percent. These reductions were to be made on specific dates regardless of when the treaty should enter into force. This provision removed any temptation to stall the protocol's enactment in the hope of delaying cuts, and also provided industry with dates upon which to base its planning.

Another major issue the negotiators faced was the need to encourage low-consuming developing countries to sign the protocol. Per capita consumption of CFCs in these countries was only a tiny fraction of consumption in the industrialized world. But their domestic needs for CFCs—for example, in refrigeration—were growing, and CFC technology is relatively easy to obtain. Accordingly, the protocol needed to allow developing countries to meet their needs during a transition phase, while substitutes for CFCs were being developed, and at the same time to discourage them from becoming major new sources of CFC emissions.

Under the formula that was settled upon, de-

THE UNITED STATES, THE 12 NATIONS OF THE EUROPEAN COMMUNITY, AND SEVERAL OTHER COUNTRIES HAVE RECENTLY ANNOUNCED PLANS TO GO BEYOND THE MONTREAL PROTOCOL AND TOTALLY PHASE OUT CFCS BY THE YEAR 2000.

veloping countries whose per capita annual consumption of CFCs was less than 0.3 kilograms would be allowed a 10-year grace period before they had to comply with the control provisions. During this time, they could increase their consumption up to the 0.3-kilogram-per-capita annual level (which was about one-third of consumption in industrialized countries). The negotiators felt that developing countries were in fact not likely to increase CFC use even to this level, as they would not want to invest in technology that would soon be obsolete.

A new diplomacy

THE MONTREAL PROTOCOL MAY SERVE AS A PROTOTYPE FOR AN EVOLVING SYSTEM OF GLOBAL DIPLOMACY UNDER WHICH SOVEREIGN NATIONS, SHARING RESPONSIBILITY FOR STEWARDSHIP OF THE PLANET, FIND WAYS TO UNDERTAKE COMPLICATED COOPERATIVE ACTION IN THE REAL WORLD OF AMBIGUITY AND IMPERFECT KNOWLEDGE.

Twenty-four countries, plus the EC Commission, signed the Montreal Protocol on Substances that Deplete the Ozone Layer in September 1987; many others signed over the ensuing months. Six months later, in a rare display of unanimity, the U.S. Senate approved the protocol by a vote of eighty-three to zero, and President Ronald Reagan promptly signed the ratification instrument, making the United States the second nation to ratify (after Mexico). The treaty entered into force on January 1, 1989. By the First Meeting of Parties, held in Helsinki in May 1989, 36 countries—accounting for nearly 90 percent of global consumption of the controlled chemicals—had ratified. Also, the United States, the 12 nations of the EC, and several other countries have recently announced plans to totally phase out CFCs by the year 2000, thus going beyond the 50-percent cut mandated by the Montreal Protocol.

Whatever further international reductions may be implemented, the Montreal Protocol itself stands as a landmark—a symbol of the fundamental changes both in the kinds of problems facing the modern world and in the way the international community addresses them. Overall, the protocol was not a radical treaty: It tried to distribute economic burdens fairly and it was sensitive to special situations. It also established periodic scientific, economic, and technical assessments so that specific provisions can be adapted to evolving conditions. There are even provisions for emergency meetings of signatories in case of unexpected and fast-breaking developments. The Protocol is not a static solution but an ongoing process—which has proved to be a key factor in its success.

Science is demonstrating that this planet is more vulnerable than had previously been thought; activities of modern industrial societies can alter fragile natural balances that are not necessarily self-correcting. The hole in the ozone layer above the Antarctic that was discovered in 1985 made it clear that Earth's atmosphere is capable of surprises—that there is a potential for large, unexpected changes as well as incremental ones. The international community can no longer pretend that Earth will somehow automatically adjust itself to the billions of tons of man-made pollutants being inflicted upon it.

Mostafa Tolba has described the Montreal Protocol as "the beginning of a new era of environmental statesmanship."[1] But the Protocol may also have relevance for other common dangers, including national rivalries and war. For it reflects a growing awareness that nations must work together in the face of global threats; that if some actors do not participate, the efforts of others will be hindered; and that it is not always wise to delay action until all the facts are known with absolute certainty. The Montreal Protocol may serve as a prototype for an evolving system of global diplomacy under which sovereign nations, sharing responsibility for stewardship of the planet, find ways to undertake complicated cooperative action in the real world of ambiguity and imperfect knowledge. •

1. M. K. Tolba, "The Ozone Agreement—And Beyond," *Environmental Conservation*, vol. 14, no. 4 (Winter 1987), p. 290.

Joseph J. Natalicchio & Michael P. McAtee

THE PIRACY OF IDEAS

For victims of intellectual property theft, imitation is the costliest form of flattery.

WORLD COMMERCE IS once again threatened by pirates. But unlike those of 300 years ago, these modern-day pirates do not prey on ships at sea. Instead, they steal sales, profits, and employment by mass-producing goods on which other companies and individuals hold intellectual property rights, such as copyrights, patents, and trademarks. Examples of these violations include counterfeit watches and handbags, fake auto parts, pirated videocassettes of movies, and inferior copies of birth control pills and other pharmaceuticals. Such products not only can threaten world commerce but in some instances can also endanger public health and safety.

There has been an upsurge of such piracy during the 1980s. The U.S. Customs Service does attempt to halt the import of pirated goods, but it is not possible to check every product entering the country. And even it if were, there would still be the problem of the worldwide sale of goods produced in violation of intellectual property rights held by Americans. These pirates—as they have come to be known—do not always have to act outside international law; sometimes they hide behind the laws of nations that condone or at least accept their activities. For U.S. government agencies charged with protecting U.S. commercial interests in international trade, detecting and stopping this type of international piracy has become a major challenge.[1]

Intellectual property

The three primary forms of intellectual property rights are patents, trademarks, and copyrights. They encourage the introduction of innovative products and creative works by guaranteeing their originators a limited exclusive right to whatever economic reward the market may provide for their creations.

Patents give inventors the right to exclude others for a specified period from making, using, or selling a new, useful, innovative product or process. In exchange

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for this opportunity to profit from their discoveries, inventors submit the details of their inventions for placement on the public record, to be used by others to advance the "state of the art."

Trademarks are words, names, symbols, devices—or a combination thereof—that manufacturers or merchants use to identify their goods and distinguish them from others. Trademarks are generally renewable for as long as their owners want to retain them; they help consumers identify products known to be of a certain quality and thus enable manufacturers to profit from their products' reputations.

Copyrights protect literary and artistic expression. They grant the exclusive right to reproduce, publish, display, perform, or sell copies of an original expression of an idea in any tangible medium. Copyrighted materials commonly include literary, musical, and artistic works (books, records, movies, posters) and, in a growing number of countries, computer programs.

Other types of intellectual property rights include trade secrets, "mask works" (the patterns on the surfaces of semiconductor chips), and industrial designs (the ornamental aspects of useful articles).

The impact on U.S. business

This decade's dramatic increase in international piracy of intellectual property rights has resulted largely from the economic development of such newly industrialized countries as Brazil, South Korea, and Taiwan. Many businesses in these countries have become capable of mass production and distribution but, since they lack the research capability and brand-name recognition of established firms, find it difficult to compete. Therefore, they often resort to reproducing goods already well-known in the world marketplace. The unauthorized reproduction of copyrighted material in these countries has been greatly facilitated by technological advances of the past 20 years, such as audio- and videocassettes and increasingly sophisticated printing techniques.

Protection for intellectual property is a relatively recent concept in many newly industrialized countries, which often do not have important domestic constituencies that would benefit from strong laws.

Pirates can often produce illegitimate copies at a fraction of the cost of the originals, since they do not incur research and development expenses, pay royalties, or meet the quality standards that legitimate producers do, and since they often have access to cheap labor. Pirated products cover a spectrum from toys through consumer electronics to chemicals and high-technology goods. In addition to being sold in local markets, these products are exported, many of them to the United States. Pirated goods sold in this country range from phony Rolex and Cartier watches to counterfeit auto parts to illegally copied electronic circuit boards for video games.

Often, pirates need not concern themselves about the legality of their activities. Protection for intellectual property is a relatively recent concept in many newly industrialized countries, which often do not have important domestic constituencies—inventors, authors, or firms with brand-name recognition—that

would benefit from strong laws. Many such countries see piracy of intellectual property rights as generating domestic production and employment and thereby enhancing economic development. Accordingly, they have not felt the need to develop adequate protection laws or to devote already scarce government resources to enforcing those that exist.

Piracy poses a serious threat to health and safety. In recent years, pirated, defective copies of automobile, airplane, and helicopter parts, agricultural chemicals, and pharmaceuticals and other health care products have caused considerable harm.

The available evidence, although not definitive, suggests that counterfeiting and infringing operations are widespread. According to estimates by the International Anticounterfeiting Coalition and the London-based Counterfeiting Intelligence Bureau, piracy of intellectual property rights accounts for as much as $60 billion in world trade annually. A U.S. International Trade Commission report estimates that American firms alone may be losing from $43 billion to $61 billion annually through foreign piracy.

Lost profits are not the only issue: Piracy ultimately can also undermine the effectiveness of the intellectual property rights system. Anticipating competition from intellectual property pirates, firms have forgone patent protection, which requires public disclosure of the innovation being patented, and instead kept their inventions a trade secret; as a result, their discoveries have not added to the store of public knowledge. Individuals may be discouraged even from trying to create new copyrighted works for fear that piracy will substantially reduce the return on their investment. Piracy also can diminish the usefulness of trademarks, since consumers, unaware that they are buying inferior counterfeit goods, may lose confidence in specific trademarks—or in trademarks generally—as indicators of quality.

A more serious threat is posed to public health and safety. In recent years, pirated, defective copies of automobile, airplane, and helicopter parts, agricultural chemicals, and pharmaceuticals and other health care products have caused considerable harm. The use of a bogus fungicide in Kenya, for example, resulted in the loss of 15 percent of the country's coffee crop. Deaths and cases of paralysis have been attributed to counterfeit amphetamines and tranquilizers, and a counterfeit part was found in intra-aortic pumps used to keep hearts beating during open-heart surgery. G. D. Searle & Co. issued a warning that more than 1 million counterfeit birth control pills were ineffective and might cause unexpected heavy bleeding. Counterfeit parts reportedly have also been found in sensitive military weapon systems such as Bell helicopters.

Stopping piracy

Legitimate businesses, working alone and in groups, have devoted substantial resources to combating foreign counterfeiting and infringement. Particularly over the past decade, these businesses have pressed the Congress and the executive branch to take a tougher stand on this issue. Recognizing piracy as a major problem that affects U.S. trade in the same way as other activities more traditionally viewed as unfair practices, the U.S. government has strengthened long-standing efforts to

stop counterfeit and infringing goods from entering the country and has also made new attempts to encourage foreign governments to strengthen their own protection of intellectual property rights.

Halting pirated goods at the border

The U.S. Customs Service has primary responsibility for stopping counterfeit and infringing products from entering the country. During the 1980s, the Congress both increased the Customs Service's authority and improved U.S. firms' access to Customs assistance. The Semiconductor Chip Protection Act of 1984 extended intellectual property protection to "mask works" and initiated Customs Service protection of this new form of intellectual property. More generally, the Omnibus Trade and Competitiveness Act of 1988 increased the effectiveness of the procedures for protecting copyrights, trademarks, and patents under U.S. trade law.

Unlike owners of trademarks and copyrights that are registered with the federal government, who can, for a small fee, record their rights directly with the Customs Service, patent holders who want Customs' assistance must first obtain an exclusion order from the U.S. International Trade Commission. This requires participating in 12- to 18-month proceedings under section 337 of the Tariff Act of 1930, under which patent holders must meet certain statutory criteria. These include showing that their intellectual property rights are valid and have been violated by imports.

Until passage of the 1988 trade bill, patent holders also had to meet certain "economic" tests by demonstrating that there was a domestic industry using the intellectual property right in question, that the industry was efficiently and economically operated, and that infringing imports tended to substantially injure that industry. Because not all firms could meet these tests, many whose intellectual property rights were being violated by imports could not obtain protection. But the 1988 trade act eliminated some of these tests and made others much easier to satisfy. As a result, many more firms, as well as other organizations such as universities and research institutions, have access to Customs' protection for their intellectual property rights.

The Customs Service only has the means to inspect about 2 percent of all imports. Even if the U.S. could totally close the domestic market to intellectual property pirates, they would still be able to sell their goods elsewhere.

Another impediment to effective protection before the 1988 trade act was Customs' inability to take any action stronger than simply excluding shipments of pirated goods covered under section 337. These exclusion orders posed little real risk for those bringing such goods into the country; if caught, they could sell the goods elsewhere or try to bring them into the United States at a later date or through a different port of entry. But the 1988 trade act authorized the International Trade Commission to instruct Customs to seize infringing goods when there is evidence that a firm has more than once tried to bring such goods into the country in knowing violation of exclusion orders. This provision promises to cut down on the importation of products that violate U.S. intellectual property rights.

Multilateral negotiations

The new measures described above, important as they are, do not by any means solve all the problems created by international piracy. The Customs Service only

has enough resources to inspect about 2 percent of all imports. And even if the U.S. government could totally close the domestic market to intellectual property pirates, they would still be able to sell their goods elsewhere. In fact, for certain goods counterfeit and infringing reproductions have virtually monopolized foreign markets. For instance, all but a small percentage of the audiocassettes sold in Nigeria and several Middle Eastern countries are pirated reproductions. Counterfeiters have also monopolized the market for certain trademarked products in a number of countries.

The most effective way to fight piracy is to convince other countries to strengthen their own laws to protect intellectual property rights. How to convince them to do so is the difficult question.

The most effective way for the U.S. government to address these problems is to convince foreign countries from which pirated goods originate to strengthen their own legal protection of intellectual property rights. *How* to convince them to do so is the difficult question. One possibility is through such multilateral bodies as the World Intellectual Property Organization (WIPO) and the General Agreement on Tariffs and Trade (GATT), the primary multilateral trade forum.

WIPO administers a number of agreements on intellectual property rights—most notably the Berne Convention for the Protection of Literary and Artistic Works, the preeminent worldwide copyright agreement (to which the United States recently adhered); and the Paris Convention on Industrial Property, the foremost convention on protecting patents and trademarks. But throughout the 1980s, WIPO's possible role as a forum for strengthening international protection standards has been limited by developing country opposition. In fact, these countries have worked within WIPO to *weaken* existing standards embodied in the Paris Convention. Accordingly, the United States has focused on supporting other aspects of WIPO's work—particularly its legal-technical assistance program to improve developing country intellectual property laws and administrative systems. In this and other, more specialized areas, there has been less developing country opposition. Consequently, WIPO's efforts have met with some success; for example, it has provided considerable assistance to China's ongoing development of a Western-style intellectual property protection system.

The U.S. government has also turned to GATT to strengthen international protection of intellectual property rights, but progress has been slow. After years of negotiations, the United States and other proponents of a GATT intellectual property agreement have obtained a consensus that the GATT can have jurisdiction over intellectual property protection. The next step is to prepare a framework of proposed international regulations for policing trade-related intellectual property violations. These regulations would include standards of protection, means for enforcing these standards, and procedures for settling disputes among countries.

Bilateral consultations

In the meantime, the U.S. government has achieved some results through intensive bilateral consultations with a small number of "problem" countries. Foreign intellectual property protection practices that have an adverse impact on U.S. business have been identified and ranked for corrective action. Washington's preferred approach has been to point out to these countries that they have an economic self-interest in protecting intellectual property, because doing so will

encourage direct foreign investment and the development of domestic creative industries. (Local music businesses in Southeast Asia and Africa, for example, have been severely damaged by the mass availability of pirated American and European music at bargain prices.)

These arguments work most effectively with countries whose economies have already developed to a point where increased foreign investment and growth in creative domestic industries are reasonable expectations. But countries just beginning their economic development have little capacity to attract such investment or to generate such industries. Consequently, production that involves counterfeiting or infringing on others' intellectual property rights often seems to offer more immediate economic benefits.

When persuasion proves ineffective, as it may when a government's responses are limited by politically powerful domestic pirate industries, the executive branch of the U.S. government can take unilateral trade actions. The Trade and Tariff Act of 1984 clarified and emphasized the President's ability to take retaliatory measures—such as suspending trade agreements and imposing duties—against countries that inadequately protect U.S. intellectual property rights. The 1984 trade act also amended the statute governing the Generalized System of Preferences—the system under which imports from less developed countries are granted preferential tariff treatment—so that it is possible to make eligibility for such treatment contingent on adequate intellectual property protection. Also, the Caribbean Basin Economic Recovery Act predicates eligibility for Caribbean Basin Initiative economic benefits on adequate efforts to protect U.S. intellectual property rights.

Using bilateral negotiations, the United States has had some success encouraging foreign governments to strengthen their protection of intellectual property rights. For example, Singapore, which had been known as the tape piracy capital of the world, enacted an improved copyright law in 1987, partly in response to international pressure and partly because its government wants to restructure the economy to emphasize high-technology industries, such as computer software.

ET AND THE PIRATES

Citing the motion picture industry's massive financial losses from film and video piracy—as much as $1 billion a year—Motion Picture Association of America President Jack Valenti has characterized piracy as "the toxic waste of the film industry." Piracy's impact was demonstrated by the unauthorized reproduction and distribution in the United Kingdom of the movie *ET—The Extraterrestrial*, which reportedly was pirated throughout the world. Although *ET* was released in the United States in the summer of 1982, distributors in the United Kingdom waited until the Christmas season. During the period between the U.S. and U.K. releases, a pirate operation obtained a copy of the movie, reproduced it on videocassettes, and sold them in the United Kingdom. A nationwide poll conducted there in October showed that, although the U.K. release was not scheduled to occur for two more months, *ET* was already the most popular film in the country.

Taiwan, after extensive consultations with the U.S. government, amended its copyright law to provide for more stringent penalties for infringement, to clarify U.S. firms' legal standing in copyright cases, and to extend protection to new media, including software. A section 301 unfair trade practices investigation against South Korea led to that country's agreeing to make several improvements in its intellectual property protection practices. (In response to complaints from American businesses that the South Korean government has not fully implemented these improvements, the United States is continuing to pursue this matter.)

Long-term efforts

Much remains to be done. Several countries that harbor major pirating operations—Brazil, for example—have been reluctant to improve their record. And even if the major problem countries in the Far East and Latin America were to strengthen their intellectual property protection, other countries, particularly in Africa and the Middle East, could easily serve as bases for increased piracy. In addition, the intellectual property protection policies of some advanced industrialized countries, such as Canada and Japan, tend to discriminate against American and other foreign concerns. The United States also needs to deal with countries harboring piracy that greatly affects particular industries but does not pose problems for U.S. business as a whole and consequently has not yet been the target of U.S. government efforts.

Although some progress has been achieved, the challenge presented by intellectual property piracy will require a consistent long-term effort in which business and government must work together.

As American industry becomes increasingly technology-intensive, intellectual property protection will take on even greater importance. The United States has taken important steps to stop counterfeit and infringing goods from entering the country and to stop the production of these goods at their source. But although the groundwork has been laid and some progress has been achieved, the challenge presented by this problem will require a consistent long-term effort in which business and government must work together. •

1. For further information, see the following GAO reports: *International Trade: U.S. Firms' Views on Customs' Protection of Intellectual Property Rights* (GAO/NSIAD-86-96, May 14, 1986); *International Trade: Strengthening Trade Law Protection of Intellectual Property Rights* (GAO/NSIAD-86-150, Aug. 23, 1986); *International Trade: Strengthening Worldwide Protection of Intellectual Property Rights* (GAO/NSIAD-87-65, Apr. 15, 1987).

John M. Kamensky

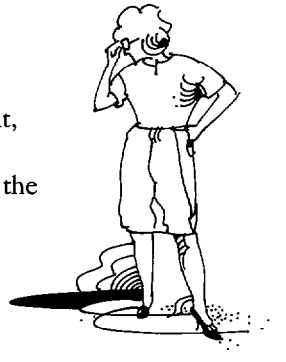
THE NEW FACE OF INTERGOVERNMENTAL RELATIONS

Politics, court decisions, and budget deficits have made the system more complex than ever.

MORE THAN MOST presidents, Ronald Reagan came into office with a clearly articulated set of principles of how government, and the intergovernmental system, should be arranged. His aims were threefold:

- To shrink the role of government relative to that of the private sector. (Witness his efforts to privatize governmental functions and reduce federal aid to states and localities.)
- To devolve responsibilities to the lowest possible level of government. (Hence, his successful efforts to end federal involvement in many regional cooperation programs within and between states; his efforts to deregulate industries or functional areas, such as environmental protection and occupational safety, and allow the states to step in; and his unsuccessful 1982 welfare swap proposal, which would have removed the federal government from several significant income security programs.)
- To retreat from cooperative federalism—the pattern of relationships that had developed over the past half-century—and return to the "separate but equal" dual federal-state form of federalism. (The intent could be seen in Reagan's emphasis on increasing the states' roles, reducing the federal presence through the creation of the block grants, and allowing the states to use the same processes to manage their federal grants as they use to manage their own programs.)

While these goals portended potentially significant changes in intergovernmental relations, President Reagan was not the only cause of the shifts that occurred in this area during his tenure. Other events—the growth of the deficit, the passage of Gramm-Rudman-Hollings, and the



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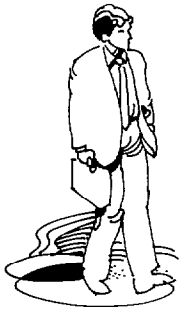
Supreme Court's *Garcia* and *South Carolina* decisions—probably had greater effects on the intergovernmental system than did block grants and deregulation.[1] But however numerous the sources of change, they have unquestionably made the intergovernmental agenda much more complex for policymakers to understand and work with.



A more complex agenda

The challenges are not limited to the federal side. At the state and local levels, for instance, grant design is no longer the key intergovernmental issue it was during the 1970s; for many in the 1980s, the key issue has been grant *survival.* But the game has changed even beyond that. Whereas it used to be one of obtaining and managing grants, it now also includes assessing and responding to federal regulatory and tax policy initiatives. Another new wrinkle is that as new intergovernmental responses to problems are developed, the trend has been to blur the distinction between public and private sectors. In some communities, for example, local developers must now provide day care centers and space for urban grocery stores in their downtown developments in order to receive favorable tax or zoning treatment.

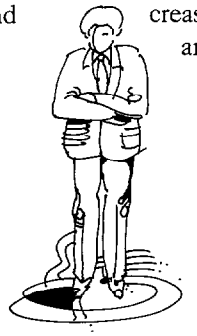
Tim Conlan, formerly with the Intergovernmental Relations Subcommittee[2] of the Senate Governmental Affairs Committee, notes that the blur also extends to the growth of state and local influence on federal policies—a change from the traditional top-down, hierarchical relationship between the federal government and the states and localities.[3] Governors, for example, have challenged the Defense Department on stationing National Guard troops in Honduras; states have involved themselves in international trade issues (there are more state employees in some countries than there are Foreign Service officers); states and localities have developed antiapartheid pension investment policies; and several localities have declared themelves "nuclear-free zones." These certainly are not among the more traditional considerations of intergovernmental relations. On the federal side, one response has been the creation of an intergovernmental liaison office in the State Department. Imagine, an "ambassador" to our own states and localities!

The driving force behind these changes has been the drop-off in federal funding; states and localities must now focus on more creative approaches. In education, for example, conservatives say we need to focus on better leadership, parental involvement, teacher accountability, and local autonomy. In welfare, bipartisan efforts by the nation's governors resulted in last year's welfare reform bill, which focused on workfare and training rather than benefit levels. In the war against illegal drugs, the focus is shifting from interdicting the supply of drugs to an emphasis on demand reduction and treatment. As John Kincaid, executive director of the U.S. Advisory Commission on Intergovernmental Relations (ACIR), has said, we can no longer rely on governmental intervention to solve social problems; we must include other institutions and the private sector.[4]

Key trends

Four major trends account for the greater complexity of the intergovernmental system today:

- First, the overwhelming effects of "budget-driven federalism";
- Second, the states' growing prominence in forming policy initiatives;
- Third, the expanding number of federal tax policy changes affecting states and localities; and
- Fourth, the federal government's increasing reliance on regulations, preemptions, and mandates to achieve its policy goals.



Budget-driven federalism

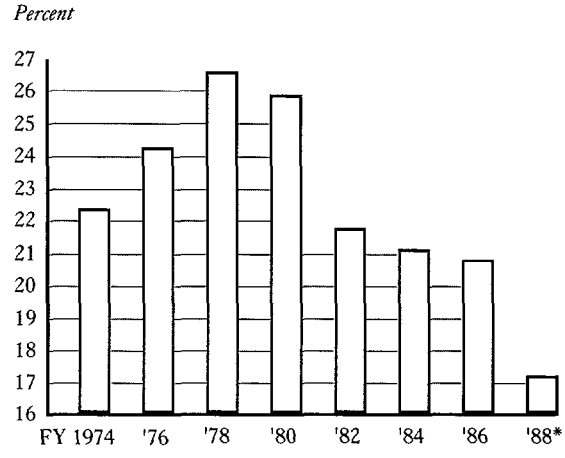
State and local expectations and behavior have changed significantly. Localities are no longer waiting for federal grants before building their wastewater treatment plants; they are raising the money and doing it themselves. And states are now getting involved in providing affordable housing—something almost unheard-of a decade ago. Some observers, such as former ACIR executive director Bill Coleman, see today's climate as one of broader local fiscal flexibility rather than one of tighter fiscal constraints.[5] Certainly it is one of greater innovation. There is, for example, an unprecedented mixing of public and private moneys in various ventures. As mentioned earlier, private money is being channeled into public projects through such devices as "developer extractions," through which local governments approve developers' projects in exchange for specific actions that benefit their communities. San Francisco, for one, has begun requiring some developers to include day-care facilities in their new office buildings. New York City has some developers agreeing to include low-income housing in their projects. Another former ACIR executive director, John Shannon, has called this sort of thing "fend-for-yourself" federalism.[6]

If changes like these are due to the drop-off in available federal funds, that drop-off is due to the federal budget deficit. The states and localities are now fairly certain that the 1960s are gone—that the federal government is not likely to return soon to its role as a vigorous agent for change. Instead, they see what has been described as a "plateauing effect" in the federal role[7]: The federal government, under great financial pressure, will be able only to nibble at the edges of pressing national problems.

After all, as figure 1 shows, federal aid, in real terms, peaked in 1978. As a share of state and local spending, federal aid has decreased since then by a third—from 27 percent to 17 percent. This decline has led not just to a more complex "fend-for-yourself" federalism but to some sorting out of roles among the federal, state, and local sectors. This is certainly not happening, however, along any predetermined paths.

Figure 1

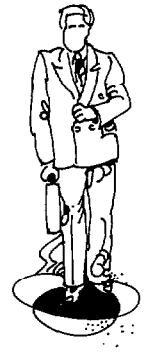
FEDERAL GRANTS
AS A PERCENT SHARE OF TOTAL
STATE-LOCAL SPENDING (1974-88)

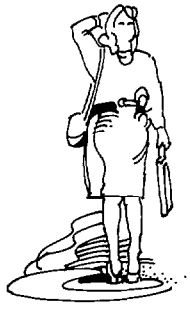


Source: U.S. Advisory Commission on Intergovernmental Relations, *Significant Features of Fiscal Federalism*, 1988 edition, vol. 1, p. 115.

*Estimate

This is partly because the Congress is not interested in intergovernmental relations, *per se*. It is interested in solving the deficit. Legislative decisions are being driven by the deficit, not by the appropriateness of roles and responsibilities.





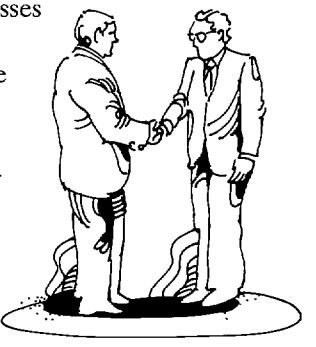
But as the Congress has gone about trimming federal domestic spending, some patterns have emerged that are redefining intergovernmental roles. This can most easily be seen by looking at which programs were protected from automatic cuts under Gramm-Rudman-Hollings. The act clearly implies that aid to people is more important than aid to places; accordingly, it protected "safety net" programs from automatic cuts. As a result, entitlement programs have grown while other programs have languished. Since the states administer most federal entitlement programs (such as Medicaid), and localities largely administer federal urban aid programs (such as the Urban Development Action Grant and revenue sharing), there has been a gradual shift away from direct federal-local programs and toward stronger federal-state ties. ACIR recently noted one indicator of the shift: In 1987, there were 177 federal-state grant programs but only 16 direct federal-local ones.[8]

Increased state prominence

Governor Gerald Baliles of Virginia recently remarked that "federalism by budget constraint" will produce opportunities for the states.[9] Governor Michael Castle of Delaware recently boasted that states have higher expectations, better management, and a wealth of talent—all of which combine to give states a competitive advantage in governing.[10] Both governors seem to see a silver lining in the federal deficit cloud.

There is some validity to their view. In a recent book on the nation's governors, David Osbourne sees the governors as entrepreneurs, catalysts, partners, and brokers in the intergovernmental system.[11] States are important actors in areas traditionally belonging to the federal sphere, such as international trade and regulation of the environment and commerce. It was the states, after all—not the Justice Department—that put reins on corporate takeovers. It has been the state courts—not the Supreme Court—that have extended civil rights in the past decade. It has been the state legislatures—not the Congress—that have created new revenue-sharing programs.

The vitality of the states has been made possible in no small measure by a stable national economy that has allowed for stable state budgets. But bets are off on how the states will respond to social problems when a recession hits. Hal Hovey, a former state budget director, estimates that a mild recession in 1990 could cost the states about $11 billion in lost revenues—more than double the amount of the cuts proposed by President Reagan in his final budget.[12]



One hint of how the states might respond to such losses may be found in their unemployment insurance programs. During the 1982 recession, many states facing deficits substantially cut unemployment insurance benefits and tightened eligibility. As a result, during the next recession, a smaller proportion of the unemployed will qualify for benefits. In the hard-hit oil states, where economies have been in a recession for the past few years, similar cuts have been made. Louisiana, for example, reduced the period for which benefits could be received, tightened monetary eligibility standards by including severance pay as a disqualifying standard, and froze the maximum weekly benefit amount. Similar changes were made in Texas and Oklahoma.[13]

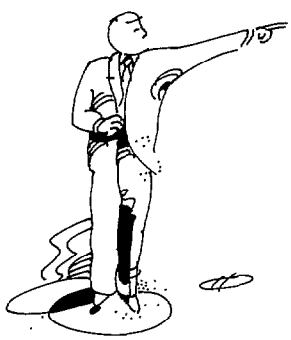
So, while the states have largely defined the domestic agenda for the past eight years, it is not clear whether this is a trend or just part of a cycle.

For one thing, the states have yet to find out how the federal government will ultimately choose to respond to the deficit. If the federal government begins to preempt state tax sources or further restrict federal tax policies that benefit the states, this could affect them as seriously as a downturn in the economy.

Changes in federal tax policies

Federal tax policy is, in fact, a matter of increasing concern to the states and localities. Three areas make them uneasy:

- First, hiccups in federal tax laws have had serious ramifications on state revenue systems. Massachusetts and California, for example, have faced budget crises as they tried to adjust to the effects of the 1986 Tax Reform Act. Because of the interlocking relationships between the federal tax code and those of many states, federal tax changes often trigger varied and unpredictable financial effects on state finances.
- Second, the federal government is beginning to put a damper on the growth of "tax expenditures," or subsidies. Tax expenditures grew steadily in the early 1980s while grants were being cut. But beginning with the Tax Reform Act of 1986, tax expenditures began to decline. The federal deduction for state sales taxes, for example, was removed, and limitations were placed on the tax-exempt status of some forms of municipal revenue bonds. With the Supreme Court's declaration in *South Carolina v. Baker* that the tax-exempt nature of municipal bonds was not constitutionally protected, and with the Congress eyeing the deduction for state income taxes, the states and localities are sensing the threat to their own revenue-raising abilities.

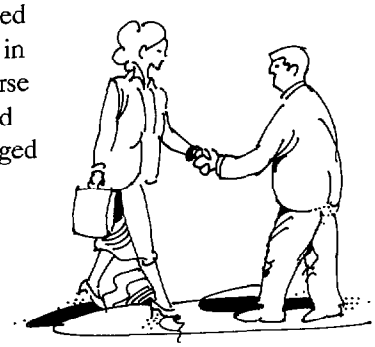


- Third, in searching for new revenue sources to reduce the deficit, the federal government might move beyond cutting tax expenditures to engaging in actual tax competition with the states and localities. The major source of concern is the growing talk of a national sales tax, which would make state and local uses of that tax base more difficult.

Regulations, mandates, and preemptions

Other worries—mostly offshoots, again, of the deficit problem—stem from the failure to reduce burdensome federal regulations, the growing tendency of the federal government simply to mandate state or local actions while failing to provide the necessary funds, and the increased use of federal preemption of state and local laws.

While cutting red tape was high on President Reagan's agenda, too often it conflicted with other goals of his administration. His push for deregulation at the federal level caused the states to step in and develop diverse approaches toward controlling leveraged buyouts, setting



environmental standards, and improving transportation. But the variety of state responses led to a backlash from businesses, which claimed that the lack of uniform regulations handicapped them in international trade.

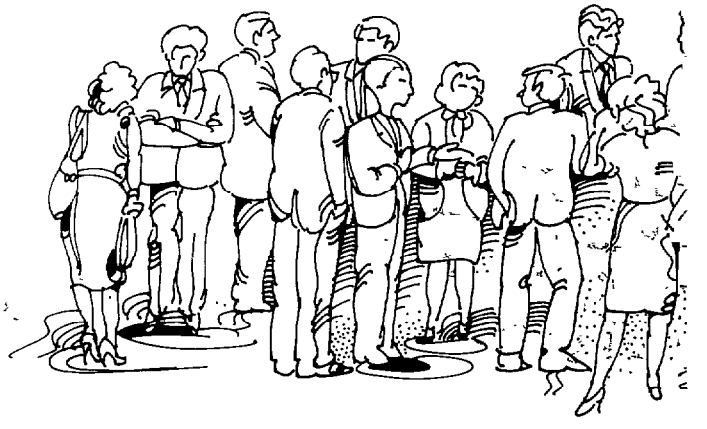
Deregulation can be expensive, too; reducing welfare regulations, for example, may increase federal costs. So President Reagan's drive to reduce the regulatory burden often lost out to the need to control the deficit. When the National Governors' Association identified 240 onerous federal regulations, the administration responded promptly with changes—but only ones with no cost implications. Granted, perception counts for something in intergovernmental relations, but in the end, federal regulations during the Reagan years actually *increased*.

The Congress still wants to make policy, but it can no longer afford to put its money where its mouth is—hence the 1986 federal mandate that localities develop strategies to remove asbestos from all public schools, and the 1988 catastrophic health act requirement that states pay the new Medicare catastrophic insurance premiums of elderly, poverty-stricken program participants. Two mandates, no funding. As Delaware's Governor Castle has noted, the Congress, by imposing such mandates, is shifting the tax burden for its decisions to the states, forcing them to collect the taxes for federally mandated programs.[14]

Another tack being taken by the Congress (and, to some extent, by the executive branch and the courts) is the opposite of mandates. Instead of requiring the states and localities to do something, the approach is to preempt—that is, prohibit—state or local action in certain areas. The classic example of preemption was the prohibition, enacted in 1956, of any activity in the area of atomic energy. For 150 years, preemptions were generally rare, but their use has exploded recently; an unpublished ACIR study says that over one-quarter of all existing preemptions have been created since 1980, mainly in the areas of health and safety.

The Congress and the courts, however, have limited or prohibited state and local control in other areas as well, among them cable television franchising, setting standards for truck sizes and weights, taxing multinational corporations, and managing state and local pension plans. Future battles loom in such areas as insurance regulation, education standards, and the state banking system.

Given—again—the federal deficit, and given the Supreme Court's stance as shown in *Garcia* and *South Carolina* (which concluded that the states must defend themselves before the Congress through the political process and cannot appeal to the courts for protection under the Tenth Amendment[15]), the states and localities have cause for concern. Some of the states believe they need a protective device, such as a new constitutional amendment, to more clearly define their role versus that of the national government in the federal system. In August 1988, the National



Governors' Association took the first step in this direction by asking the Congress for a clarifying amendment. The Council of State Governments and the National Conference of State Legislatures are also moving in this direction. So far, no word from Capitol Hill.

The bottom line

The Reagan administration's intergovernmental agenda and many events of the past eight years have led to a more complex intergovernmental system. For the short term, at least, it is alive and healthy, but its rapid change requires that we try to understand it better, and that federal policymakers pay greater attention to long-term intergovernmental issues.

The problem is that most federal policymakers are barraged by immediate problems, such as funding decisions for specific programs, that seem always to push the more low-key, long-term issues of intergovernmental relations to the back burner. As a result, policymakers seldom confront issues of federalism directly. Instead, they tend to make decisions affecting the relationships between the federal, state, and local governments on the basis of social, economic, regional, and philosophical factors, with federalism as a secondary concern.[16] So far, this incremental approach to intergovernmental issues hasn't been a problem in a practical sense. But as in any marriage, an effort to communicate and better understand the broader implications of the relationship is the key to success. You can't take your partner for granted. •

1. These two cases effectively resulted in a reduced role of the courts in arbitrating disputes over federalism principles and directed states and localities to seek protection from federal intervention through the political process and the Congress. In *Garcia v. San Antonio Transit Authority* (1985), the U.S. Supreme Court ruled that state and local employees can be covered by the Fair Labor Standards Act, and that the Congress has the power to regulate state and local employees' wages and hours. In *South Carolina v. Baker, Secretary of the Treasury* (1988), the Court ruled that the tax exempt status of municipal bonds is not guaranteed by the Constitution.

2. In 1986, the subcommittee was renamed the Subcommittee on Government Efficiency, Federalism, and the District of Columbia.

3. Timothy Conlan, *New Federalism: Intergovernmental Reform from Nixon to Reagan* (Washington, D.C.: The Brookings Institution, 1988), p. 235.

4. John Kincaid, keynote speech, Region IV Conference of the American Society for Public Administration, Harrisburg, Pennsylvania, Oct. 5, 1988.

5. William Coleman, "County Fiscal, Service Options Examined," *County News*, National Association of Counties (Apr. 18, 1988), p. 10.

6. John Shannon, "The Return to Fend-for-Yourself Federalism," *Intergovernmental Perspective* (Summer/Fall 1987), p. 35.

7. Richard P. Nathan, "Institutional Change Under Reagan," *Perspectives on the Reagan Years*, ed. John Palmer et al. (Washington, D.C.: Urban Institute, 1988), p. 140.

8. Robert Gleason, "Federalism 1986-87: Signals of a New Era," *Intergovernmental Perspective* (Winter 1988), p. 9.

9. National Governors' Association, *Restoring the Balance: State Leadership for America's Future* (Washington, D.C.: 1988), p. 8.

10. National Governors' Association, p. 38.

11. David Osbourne, *Laboratories of Democracy: A New Breed of Governor Creates Models for National Growth* (Boston, Massachusetts: Harvard Business School Press, 1988).

12. Hal Hovey, "State Fiscal Conditions and Prospects," *State Policy Report*, vol. 7, no. 1, p. 9.

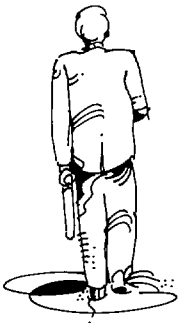
13. *Unemployment Insurance: Trust Fund Reserves Inadequate* (GAO/HRD-88-55, Sept. 26, 1988), pp. 102-105.

14. National Governors' Association, p. 39.

15. The Tenth Amendment states that "The powers not delegated to the United States by the Constitution, nor prohibited by it to the States, are reserved to the States respectively, or to the people."

16. Sandra Osbourn, "The Congress: Guardian of Federalism," *Congressional Research Service Review*, vol. 9, no. 1, pp. 24-26.

Jerry C. Fastrup



WHY DOES THE MONEY GO WHERE IT GOES?

Federal grant targeting needs a better means of ensuring equity and effectiveness.

FACED WITH "more will than wallet," today's Congress must strive to curb domestic spending without sacrificing national objectives. The money squeeze is helping to sharpen the debate over whether the $124 billion in federal grants to state and local governments is targeted appropriately—whether the outlay reflects our national objectives and whether it is used to pursue them effectively.

"Targeting" is a term used to describe the way federal grants are distributed geographically. Targeting has always been the source of some tension; seats in the Congress, after all, are also distributed geographically, and among legislators the considerations involved in targeting include not just the national interest but the voters back home. Some would argue that local considerations sometimes distort national priorities, even lead to the simple waste of funds. But our current fiscal environment discourages that sort of luxury, and the very survival of some federal aid programs may require their targeting formulas to be changed in order to establish a clearer link with national goals and objectives. At the same time, the process of revising grant formulas is fraught with the sort of obstacles that have helped bring about the termination of some programs, and will likely contribute to the demise of others, if ways cannot be found to make the necessary changes without significant political conflict.

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National versus local benefits

A legislator who is deciding whether to support or oppose a particular grant program must evaluate its potential benefits at two levels: national and local. National benefits are those of value to most Americans regardless of where they live. Programs to assist the homeless, for instance, are perceived to be of national benefit because voters everywhere support helping others in need. But national programs may also produce local benefits—in this case, to those who supply food, clothing, and shelter in the communities where homeless assistance funds are spent.

In varying degrees, considerations of national and local benefits come into play in almost every intergovernmental grant decision. Programs in support of medical research, for example, can expect widespread political backing due to the perceived national benefit of improved health care, regardless of whether the research is done in New York City or Houston. By contrast, congressional support for a program to assist state and local mental health programs may be influenced more by the spending legislators can anticipate in their states and districts.

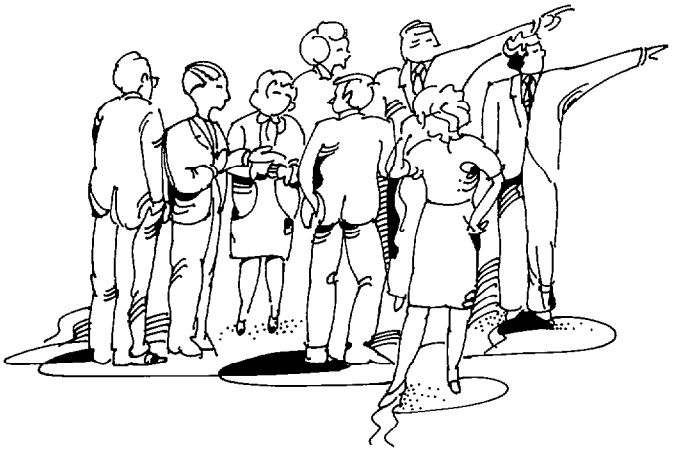
The recently expired General Revenue Sharing program was a case in point: one in which the provision of local benefits won the program its initial support, but could not continue to sustain it in today's climate. The program dispensed federal funds to local governments—especially those with weak tax bases and high costs—to help defray the costs of providing public services. The wide geographic distribution of grants—as well as that of the benefits to both local public officials and their constituents—was critical to the program's passage. It ensured General Revenue Sharing the widespread backing reflected by the universal support of organizations representing state and local elected officials and public employees.

But note that the General Revenue Sharing program is dead. The reasons—more on these later—stem from the fact that the government is now strapped for funds, and that programs must now do a better job of justifying their existence in national terms.

Principles of grant targeting

Increasingly, the question for congressional decisionmakers is this: How do we ensure that federal aid is targeted across 50 states and thousands of localities so as best to achieve its national objectives?

Generally, grant targeting can draw upon two broad approaches, the "political" and the "merit-based." Basically, "political" targeting follows the geographic representation of elected officials in the Congress. On the House side, this usually translates into the principle of "one man, one vote, one dollar"—a simple per capita distribution. In the Senate, where small states have the same number of Senators as do large states, the principle



is usually modified by guaranteeing each small state a minimum dollar allocation.

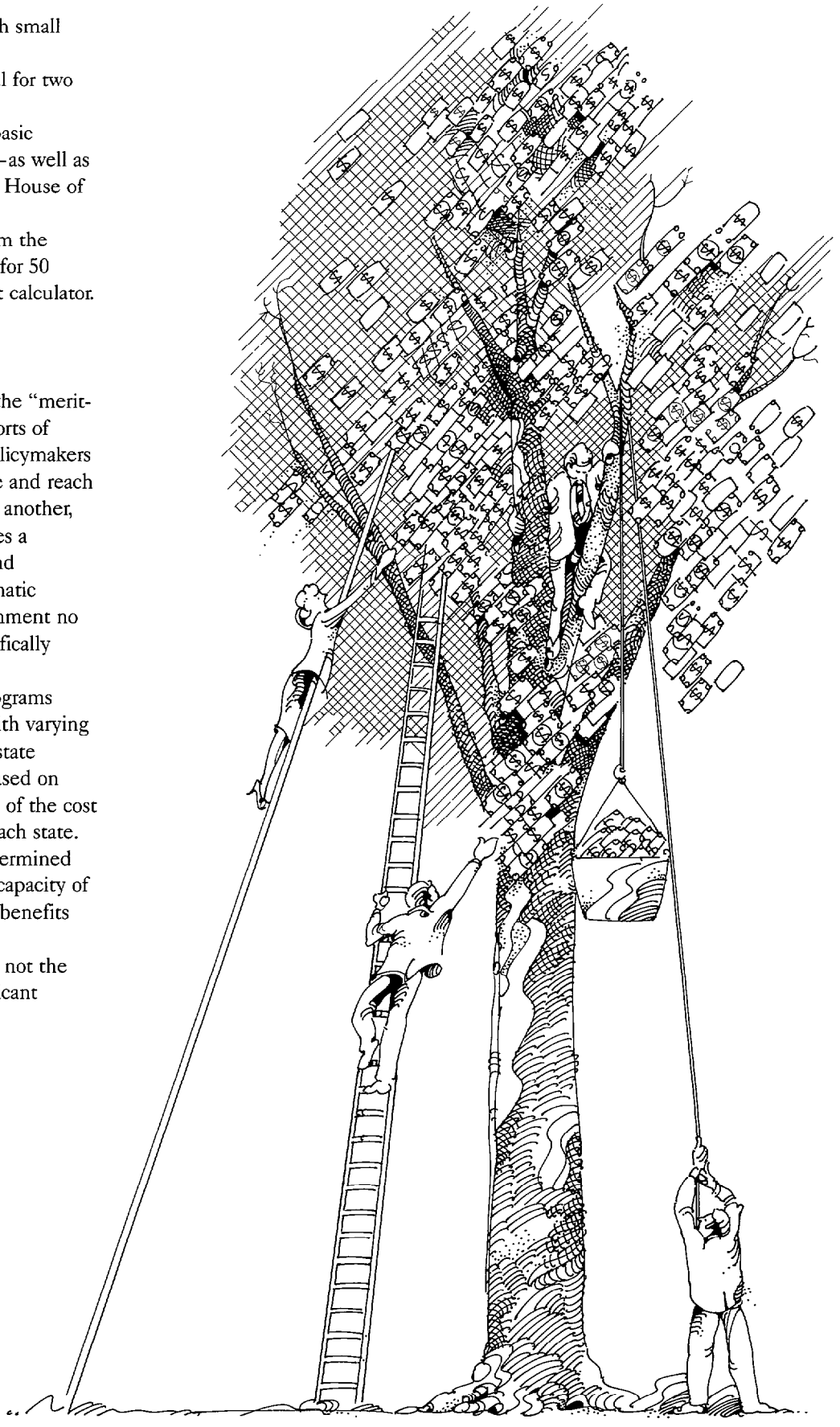
Political targeting has a strong appeal for two reasons. First, in the absence of merit considerations it is consistent with the basic principles of representative democracy—as well as with the geographic constituency of the House of Representatives. Second, it is simple to implement. With population figures from the Bureau of the Census, grant allotments for 50 states can be determined using a pocket calculator.

Merit criteria

In contrast with the political approach, the "merit-based" approach to targeting poses all sorts of challenges. For one thing, it requires policymakers to invest the time and skills to negotiate and reach agreement upon acceptable criteria. For another, developing merit-based formulas requires a knowledge of mathematics, statistics, and economics, as well as detailed programmatic expertise. There is in the federal government no focal point at which such skills are specifically brought together for this purpose.

Nevertheless, most federal grant programs employ the merit approach, although with varying degrees of success. Federal aid for interstate highway construction, for example, is based on Department of Transportation estimates of the cost of completing the interstate system in each state. Similarly, federal aid for Medicaid is determined by the number of caseloads and by the capacity of each state to finance Medicaid program benefits with its own resources.

While purely political allocations are not the rule, political considerations are a significant



element in many federal grant formulas. The Hazardous Waste Management program, for instance, bases the allocation of 80 percent of its available funds on the amount of hazardous waste each state generates, along with its complement of treatment, storage, and disposal facilities. But 20 percent of the program's funds are allocated according to state population counts, and the smallest states are guaranteed minimum allocations. Merit criteria do not play a role in this part of the formula.

Which leads one to ask: Just what do merit criteria consist of? After all, federal grant formulas differ not so much by whether they rely wholly on merit criteria or wholly on political considerations, but rather according to the merit criteria they employ. There are essentially three merit criteria that are reflected, to varying degrees, in federal grant programs:

- Concentrating funding in areas of greatest need, that is, states or localities that must serve disproportionately large numbers of program beneficiaries or that face especially high costs in delivering services to those eligible;
- Concentrating funding in areas lacking in local resources and, therefore, the financial capability to meet program needs; and
- Concentrating funding in states and localities that make a greater financial effort in pursuit of the program's national goals.

All three of these criteria carry some moral or ethical weight. Most people, for instance, would agree that aid for the homeless or for drug abusers should be greater in communities with more people in need. Similarly, most would agree that some states and localities that fail to meet the needs of intended beneficiaries do so, not for lack of will, but for lack of local resources. And finally, most would also agree that states and localities making a significant financial effort in furtherance of nationally defined objectives ought to be rewarded in some way for their greater sacrifices.

Weighting merit criteria

While all three merit criteria have some appeal, it is unlikely that congressional decisionmakers will share the same measure of enthusiasm of each. For example, conservatives would probably give greater weight to rewarding financial effort, while liberals might prefer an approach based on need or relative ability to pay. There is no innately superior merit standard; the political process determines the "best" weighting of these criteria.

It should be remembered, as well, that the philosophical inclinations of legislators may clash with—and in some cases, yield to—the practical realities of where the local benefits will accrue. Suppose, for instance, that a legislator prefers, philosophically, to reward states and localities that demonstrate greater financial effort. The states and localities most able to do that, however, are usually the ones with the lowest needs and the greatest financial resources. Choosing to reward financial effort, then, may mean shortchanging those states and localities with greater needs and fewer resources. A legislator may have to think twice about that.

Budget deficits, local benefits, and merit targeting

The large federal budget deficits of recent years have changed the balance of political support for

many grant programs. Those whose national benefits are unclear have borne the brunt of the cutbacks in federal domestic spending. Those that expect to endure may need not only to make their national benefits more apparent, but to alter the formulas by which their resources are distributed. Merit targeting—particularly based on criteria of need and relative ability to pay rather than on financial effort—may be an important key to program survival. General Revenue Sharing and Urban Development Action Grants, two programs now extinct, provide clear lessons in this regard.

General Revenue Sharing

General Revenue Sharing was a program of "no-strings" general financial assistance to states and localities, originally adopted in 1972 as part of the Nixon administration's "New Federalism" initiatives. The case for General Revenue Sharing was that it helped decentralize decision-making to the local level; it represented a federal response to the administrative burden placed on local governments by the proliferation of federal categorical programs under the "Great Society."

The formulas used to target Revenue Sharing funds reflected all three merit criteria but downplayed need and ability to pay in favor of effort. Because the program offered "no-strings" assistance, simple population totals were considered an appropriate indicator of need. But also, because urban problems had come to the fore in the 1960s and early 1970s, a larger proportion of funds was targeted to states with large cities or to those cities themselves. There was, in addition, a strong consensus that efforts to meet local needs with local resources should help determine the most deserving grantees. The emphasis on rewarding local financial effort, of course, had the effect of routing a disproportionate amount of money to wealthy states and localities. Therefore, a per capita income factor was included in the targeting formula to enhance assistance to states and localities with fewer resources.

But the per capita income factor had little effect on the final allocation of assistance among the states (although it was somewhat more effective at the local level).[1] Demonstrated financial effort was by far the dominant factor in targeting. Meanwhile, the use of population figures ensured that General Revenue Sharing funds would be broadly distributed and that the program would enjoy wide congressional support.

But when the deficit crunch arrived in the early 1980s, the need for federal revenue sharing came under increasing scrutiny. The movement to consolidate grants during President Reagan's first term substantially undercut the rationale for the program and it became a prime target for budget cutters. In addition, General Revenue Sharing's broad distribution of funds now became a liability. Its targeting of aid based on population and its policy of rewarding states and localities that demonstrated financial effort (which, once again, tended to direct funds away from low-income states and localities) contributed to the perception that aid was being diverted from the distressed communities where it was needed most.

Government officials in more affluent jurisdictions, where the funds were needed less, were willing to sacrifice their General Revenue Sharing grants in the cause of deficit reduction. The program was allowed to expire at the end of fiscal year 1986.

Urban Development Action Grants

The demise of Urban Development Action Grants (UDAGs) followed the same pattern as that of General Revenue Sharing. UDAGs were first authorized in 1977 to promote economic development in large, distressed cities. Targeting was based on both need and financial effort. The indicators of need included old housing; high concentrations of poverty; and lagging growth in jobs, population, and income. While few argued against the validity of these indicators, the standard for eligibility among potential grantees was set too low. Large cities, for example, were required to meet only three of seven distress criteria to become eligible. And a city had only to score below the median of all cities in order to qualify under each indicator. The result was that approximately half of all cities were classified as distressed—this under a program that had less than a billion dollars a year to distribute ($216 million, for instance, in fiscal year 1988). The limited funds were spread too wide. Thirty percent of the project selection criteria under UDAGs was based on project-specific factors, the most important of which was the volume of private funding that would be committed in conjunction with UDAG funds. The application of this criterion was intended to reward jurisdictions that made greater financial efforts, but as with General Revenue Sharing, it tended to benefit better-off cities that were already attractive investment sites. Local effort was emphasized at the expense of local needs. The national benefits of UDAGs were supposed to stem from assisting cities with underutilized resources and thereby boosting national productivity. But the overly wide distribution of UDAG funds weakened the validity of this rationale, and the program failed to receive funding in fiscal year 1989.

Lessons for the survivors

While the elimination of General Revenue Sharing and UDAGs stemmed at least indirectly from congressional efforts to cut the federal deficit, the targeting provisions of these programs made them especially vulnerable. Their targeting, that is, reinforced their local rather than their national benefits. In the case of General Revenue Sharing, most legislators were unwilling to consider deemphasizing the effort criterion as a means of strengthening the program's national-goals dimension. In the case of the UDAGs, a few legislators even attempted to increase the weight given local financial efforts, which would have directed even more funds away from the most distressed cities.

Why were these programs allowed to expire rather than have their grant formulas changed to bring their distribution of aid more in line with their national purposes? Two closely related reasons stand out: First, merit-based targeting is much more difficult to implement than politically

based targeting because it requires more diverse skills and expertise. Second, there is no formal process within our federal system to integrate this expertise into congressional decision-making. As a result, efforts to revise formulas under major federal aid programs often lead to major political battles. For example, major formula revisions under the Community Development Block Grant program and the Low-Income Energy Assistance program were accomplished only after particularly acrimonious political debates. Because this sort of exercise can be difficult and politically costly, congressional decisionmakers are often reluctant to make the attempt. Therefore, formula revisions are infrequent and often heavily influenced by political rather than merit considerations.

Most other countries with federal systems do things differently. Australia and Canada, for example, both have permanent governmental commissions that systematically provide the national legislature with merit-based approaches for reforming provincial grants. As a result, public policy debates related to the targeting of federal grants in these countries appear to involve more mathematics than politics.

Here in the United States, there is room for improving the institutional means to bring about the necessary reforms. A fate similar to that of General Revenue Sharing and UDAGs may lie in store for other federal programs whose benefits are primarily local: for example, the Appalachian Regional Commission, the Economic Development Administration, and Community Development Block Grants. There is a need to examine such programs to ensure that they support a set of definable national goals. Otherwise, although the "will" persists, they may lose whatever "wallet" still remains. •

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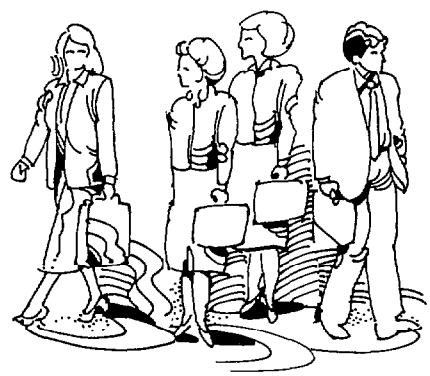
1. A more detailed analysis of the targeting of federal revenue sharing among the states can be found in Jerry C. Fastrup, "Fiscal Equalization and the Design of Federal Grant Allocation Formulas: An Application to General Revenue Sharing," *Federal, State, Local Fiscal Relation: Technical Papers* (Washington, D.C.: U.S. Department of the Treasury, September 1986), vol. 1, pp. 829-854. Targeting to local governments is evaluated in *Local Governments: Targeting General Fiscal Assistance Reduces Fiscal Disparities* (GAO/HRD-86-113, July 24, 1986).



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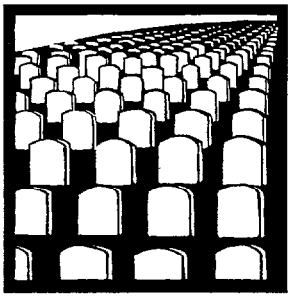

PARALLELS

Neil Sheehan

A BRIGHT SHINING LIE: JOHN PAUL VANN AND AMERICA IN VIETNAM

New York: Random House, 1988. 790 pp.

By Janet Shikles

Neil Sheehan's book, which received the Pulitzer Prize for nonfiction last year, is an epic biography of both John Paul Vann and the war in which he died. In a sense, Vann's life was a metaphor for the war itself; in Sheehan's portrayal, Vann's life encompassed many of the same contradictions and failures as American policy.

Vann arrived in Saigon in March 1962 as a military adviser to a South Vietnamese division. Frustrated with what he saw, he resigned from the Army in 1963, but returned to Vietnam two years later in a low-level position with the U.S. Agency for International Development (AID). It was an environment in which a man of his energy and forcefulness would thrive. He rose through the system to become the top U.S. adviser in central Vietnam and the only American civilian; according to Sheehan, ever to command American troops in combat. Along the way he became a major influence on such young American journalists as Sheehan and David Halberstam.

Reporters who covered Vann's resignation from the Army in 1963 considered it an act of moral heroism. After the battle of Ap Bac in January of that year, in which the outnumbered Viet Cong humiliated the South Vietnamese army, Vann railed against the corruption of the Saigon regime and argued that the United States should take charge of the war. He asserted that the U.S. government was covering up the deficiencies of the South Vietnamese government and armed forces.

But, as Sheehan now reveals, Vann was risking nothing when he went public on the dangers of losing the war. He had no future with the Army. Unknown to the admiring reporters with whom he shared his views, Vann had been involved in a sexual scandal of which there was no public record, but with which Army promotion panel members were very familiar. As a result, Vann would never make general.

The AID job was Vann's way back into the war. By now it was 1965; two years had passed since his resignation from the Army and Vann noted the changes, not just in the escalation of U.S. military involvement, but in the level of horror. It was plain that a quick end to the conflict would be best for the ordinary Vietnamese, but Vann and his colleagues opposed any U.S. withdrawal. They did not question the validity or the necessity of American involvement; they felt all that was needed was a winning strategy. "While they were concerned with reducing pain and suffering as much as possible," Sheehan writes, "they believed with equal firmness that there was no choice but to sacrifice the Vietnamese peasants for the higher strategic needs of the United States."

It is here most clearly that Sheehan sees the parallel between John Paul Vann and American policy in Vietnam. In the early 1960s, Vann believed the United States could achieve its objectives in Vietnam by reforming the Saigon government and winning over the hearts and minds of the people. He had opposed General William Westmoreland's war of attrition because it led to unnecessary casualties and spurred support for the Viet Cong. But by the early 1970s, Sheehan says, Vann "lost his compass." He began commanding U.S. troops and personally directing B-52 air strikes. By now he had invested so much of himself in the war that he was convinced the United States must be winning it; he could no

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longer admit the hopelessness of trying to prop up the Saigon regime. Vann did not live to see the outcome of this line of thought; he died in a helicopter crash in 1972.

Sheehan, first as a young wire service reporter in Vietnam and then as the man who obtained the Pentagon Papers for *The New York Times,* found his own views taking a different path. He felt Vann's proposed reforms were as doomed as Westmoreland's approach. He questioned not just America's strategy, but whether America should be in Vietnam at all. And he came to see in Vann's personal bankruptcy and self-deception a parallel with American policy. It was a tragedy of human and of national dimensions—and one that is still worth remembering.

THE NEED TO LISTEN

Daniel Yankelovich and Sidney Harman

STARTING WITH THE PEOPLE

Boston: Houghton Mifflin, 1988. 285 pp.

By Ken Hunter

Daniel Yankelovich and Sidney Harman believe it is time for America to reverse its patterns of policy-making and management. *Starting with the People* is in many respects a lecture to the nation's leaders, urging them to listen not just to the technical experts who presently dominate policy-making, but instead to pay much greater attention to what the American people have to say. By doing so, the authors claim, U.S. leaders will find a basic framework of values, supported by a new national consensus, on which to build dynamic strategies for dealing with the central issues now confronting the United States—the military and political competition with the Soviets and the economic competition with the Japanese.

The implication of Yankelovich and Harman's prescription is that public policy and the people's values have drifted apart. How did this happen? The authors argue that current public policies are rooted in the paradigms that made sense from the late 1940s to the early 1960s, while major changes that occurred in the late 1960s and early 1970s have undermined the political consensus that formerly supported those policies. In other words, the politicians have been gridlocked at the same time that the people's values have been shifting.

In America's competition with the Soviet Union, the major geopolitical changes of the past two decades include: "the Soviet achievement of nuclear parity ('parity shock'); a change in the locus and nature of the Soviet threat, from Western Europe to the Third World and from a political challenge to a military one; a worldwide surge of nationalism; the failure of Marxist-Leninist command economies to create the kind of growth and economic development most nations want; changes in Soviet attitudes and policies introduced by Secretary-General Gorbachev; and the need to make a better transition from zero-sum security to the principle of common security."

Despite these momentous shifts, the U.S. approach toward the Soviet Union has been essentially the same for 40 years: containment of Soviet influence and nuclear deterrence. These policies, according to the authors, are out of step both with geopolitical events and with the public's values.

To substantiate their claims about the American people's values, Yankelovich and Harman cite numerous public opinion surveys. These surveys show that the public is well aware of America's loss of nuclear superiority and of the mutual vulnerability that has existed for more than a decade. Furthermore, the American people have reached a consensus on four key principles that they think should guide policy-making: reducing vulnerability to nuclear war, negotiating with the Soviet Union in good faith, not depending on the Soviet Union's good will, and maintaining U.S. military strength. To win long-term public support, U.S. foreign

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policy would have to adhere to these principles.

But none of the major policy approaches advocated today meet all four. The current strategy of containment and deterrence includes the U.S. and NATO policy of the possible first use of nuclear weapons; the American people are not generally aware of this policy, but if they were they would oppose it because it increases vulnerability to nuclear war. The most conservative version of the Reagan Doctrine satisfies two of the public's criteria by emphasizing U.S. military strength and by not depending on a naive trust of the Soviets, but its go-it-alone aspects violate the public's principles of negotiating in good faith and of reducing the threat of nuclear war. Other policy approaches—arms control, a nuclear freeze, detente, the Strategic Defense Initiative—fail on other counts; unilateral disarmament fails on every count.

The authors, on the other hand, propose an approach that would satisfy all four of the public's principles. They call this approach "MAS, not MAD"—mutually assured security, not mutually assured destruction. MAS would entail radically reducing the number of nuclear warheads and delivery systems in such a way as to eliminate the threat of a first strike, adding a nonprovocative defense capability to the U.S. military posture, and boosting NATO's conventional forces in a nonprovocative fashion. On the political and psychological side, MAS has a comprehensive, well-developed agenda that covers competition in the Third World and in Eastern Europe as well as the problem of U.S.-Soviet mistrust.

The other major area that Yankelovich and Harman cover is America's economic competition with Japan and other East Asian countries such as South Korea, Singapore, Hong Kong, and Taiwan. The key turning point in economic events came in the early 1970s. The U.S. trade surplus ended. Japan developed a national consensus to become the leader in the commercialization of new technologies. The energies of the Japanese people were mobilized behind this goal, and emphasis was placed on gaining market share, manufacturing quality products, and working hard while waiting patiently for results.

By the early 1980s, American leaders still had not responded to the growing economic challenge posed by Japan. Instead, they "were absorbed in an irrelevant debate over which of two outmoded ideologies, traditional liberalism and Reagan conservatism, should guide the nation's economic policies." But, according to the authors, the world has changed so much that this " 'big government' versus 'less government intervention' " argument simply interferes with clear thinking about forging a vital new government role.

The business response has also been inadequate to the current economic challenge, as it tends to concentrate on getting "lean and mean" and on further centralizing power in a few people at the top who seek short-term profits rather than long-term growth, who down-size rather than build, who buy rather than make, and who reshuffle players rather than develop new talent.

Meanwhile, the American public's values regarding issues of economic competitiveness have shifted. Those values are now based on four fundamental principles: "protecting American job opportunities; meeting consumer demands for quality products at competitive prices; stringently applying the principle of fairness; and mobilizing the will to win."

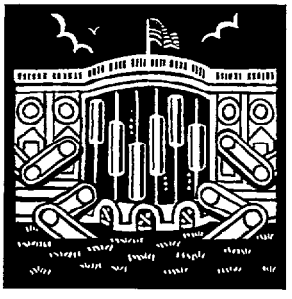
Yankelovich and Harman propose an economic strategy that incorporates these values. As they see it, new technologies have helped transform the American workplace "from a low-discretion to a high-discretion environment, in which the individual's control over his or her own effort and over production quality and costs has vastly increased." Accordingly, the authors propose a new economic strategy called "More for More": the entire American work force would make a consistently greater effort in order to achieve and sustain a higher standard of living.

The new strategy would involve more flexible management techniques and a set of tactics for integrating technology, training, and human resource policies in the workplace. Renewed emphasis would be placed on manufacturing. The government would take a more activist and "visible hand" role in the economy. And organized labor, education, and other American institutions would increase their participation as well. Making such a major shift would require building a new political consensus on the role of government in the economy and on the rules governing the workplace—basically, a new social contract.

Yankelovich and Harman point out that, because U.S. policy has been essentially paralyzed since these fundamental economic and geopolitical changes started some two decades ago, America is already at least 15 years into a major global transition without having begun to make the necessary adjustments. In other words, the heavy lifting is just starting. The 1990s will be the time to change

the country's ways in order to enter the 21st century in a healthier condition.

As important as the U.S.-Soviet military and political competition and the U.S.-Japanese economic competition are, other complex policy issues have followed the same pattern and are in the same state of gridlock. These issues include the environment, energy, natural resources, and development; families, women, children, and the elderly; the Third World; and the social, political, and economic implications of science and technology. The analysis presented in *Starting with the People* makes an important contribution to the debate, but Yankelovich and Harman could not, of course, cover all these issues. More work is needed. I hope that these two writers—and others—will take up the challenge.



PRESIDENTIAL MACHINERY

Bradley H. Patterson, Jr.

THE RING OF POWER

New York: Basic Books, 1988. 382 pp.

By Mark V. Nadel

Bradley Patterson is an unabashed fan of increased presidential power. In *The Ring of Power,* his first-rate, comprehensive examination of the White House staff, he argues that the development of this staff has helped enhance the authority of the presidency by strengthening the President's ability to balance conflicting forces and to forge coherent policy and action.

Much of the classic literature on the U.S. presidency has focused on the President as an individual. Clinton Rossiter's *The American Presidency* (published in 1960) analyzed the office in terms of the President's various roles—chief statesman, head of party, and so on. In *Presidential Power* (also published in 1960, and consulted heavily by John F. Kennedy), Richard Neustadt portrayed the President as a political animal who could achieve his ends only through political dexterity. Patterson's *The Ring of Power* represents the next step in writing about the presidency—an approach that stresses institutional and managerial issues over individual issues.

Patterson cites a well-known remark made by Harry Truman just after Dwight Eisenhower's election as his successor: "He'll sit here and he'll say, 'Do this! Do that!' And nothing will happen. Poor Ike—it won't be a bit like the Army. He'll find it very frustrating." But even in Truman's time, that concern was exaggerated. Using examples from the Truman presidency onward, Patterson describes how the White House bureaucracy has been used to initiate, coordinate, and implement policy—in short, how the *presidency* translates the will of the President into action. Despite incoming Presidents' occasional calls for government by cabinet and for curtailing the growth and power of the White House staff, every President quickly realizes one of the basic realities of the office—that only the White House staff can be counted on to pursue the President's agenda in a universe of centrifugal political forces.

Patterson discusses the work of the White House staff largely in terms of specific staff groups—the domestic policy staff, the National Security Council, and so on—rather than in terms of the overall functions the whole staff fulfills. This emphasis weakens the book's analysis by obscuring some broad, important themes. Nevertheless, the attentive reader can trace the outlines of the staff's key functions. For example:

Handling cross-departmental issues. Patterson relates one episode of Jimmy Carter's initial infatuation with the idea of cabinet government. Early in his administration, Carter charged *six* departments to come up with a new urban and regional development initiative. Although the effort was to be led by the Department of Housing and Urban

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Development and White House staff members were to help coordinate the various departments' work, the initiative quickly stalled. It was salvaged (just barely) only when White House domestic policy staff chief Stuart Eizenstat took charge.

Framing issues. The terms in which issues are defined substantially affect the outcome of debate. It is therefore essential that the White House staff frame issues and options for the President in a way that transcends the sometimes parochial perspective of the departments.

Resolving conflicting views. On any issue worth the President's attention, there will be conflicting viewpoints. But, as one Reagan advisor put it, "Cabinet members are not in a position to make the *trade-offs* which have to be made in drawing up priorities . . . you need creative policy people to do this."

Reporting and following up on decisions. Once contending parties reach agreement on a decision, the deal must be reported in writing and followed up on quickly lest it come unstuck. It is up to the White House staff to make clear what compromise has been reached and to ensure that it gets translated into action.

Of course, the White House is not simply a large organization like any other—it is also a political institution. A major contribution Patterson makes in this book is to discuss the myriad offices that are required to manage this unique organization. He discusses in detail not only such well-known bodies as the National Security Council, but also more operational offices—for example, the Advance Office and the Staff Secretary.

One of the author's most provocative points is that the staff almost always speaks for the President. Department heads and other key actors in the executive branch sometimes believe that they could change the President's mind on some issue if they could only get around the staff. This belief, Patterson asserts, is an illusion. Moreover, although the President may appear to be in the dark regarding certain staff actions, the appearance of ignorance is in fact merely a useful cover. The implications for the Iran-Contra affair are obvious, and Patterson draws them explicitly—another instance in which this book's institutional approach yields useful insights into even the stormiest political issues. •

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