ECSP MEETING SUMMARIES

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Preserving the Atmosphere as a Global Commons

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❑ *The following is a transcript of Marvin Soroos' presentation*

I have devoted most of my career to studying international environmental problems and efforts of the world community to address them. Early on, I became interested in Garrett Hardin's "Tragedy of the Commons" idea and how that might be applied to the international and global scene. Much of the discussion of international commons focuses on fairly small common resource issues. But my contention has been that internationally, we have some very important commons that all peoples of the world share, and they have some of the same problems of overuse and misuse that we see so apparent with commons at other levels. In the global context, we of course have the oceans and the seabed, outer space, Antarctica, and the topic which I will be discussing with you today, the atmosphere, which I contend is also an example of a global commons, one that is overused and misused.

There are two kinds of problems that arise with use of the atmosphere as a sink for many types of pollutants, which humanity has been doing for quite some time. On the one hand, there are what are called transport and deposit problems where pollutants are sent up into the atmosphere in one location, they are carried by wind currents considerable distances over international boundaries, and then the pollutants are deposited somewhere else, creating environmental problems. The other type, on which I will focus today, are ones in which the pollutants human beings send up into the atmosphere actually change the chemical composition of the atmosphere in ways that influences how it moderates the flow of energy coming from outside, primarily from the sun, and also energy radiated from the earth back into the atmosphere. The problems we face with the atmosphere and the threats to our well-being are an important type of security that fits in the general category of environmental security. And so, in my writing, I have not only looked at atmospheric problems from the standpoint of the atmosphere being a commons, but have also looked at them as a security problem that humanity needs to address.

My book, *Preserving the Atmosphere as a Global Commons*, looks at international efforts to deal with a variety of atmospheric problems. There are quite a number of books that deal specifically with ozone depletion or with climate change. I think this is one of the few that deals with a whole gamut of threats to the atmosphere posed by various types of pollutants. What I have tried to do in the book is to look at the whole development of international law, or what are commonly called international regimes, to address atmospheric problems. The thing that struck me quite quickly in getting into this subject is that in contrast to the other global commons that I mentioned earlier—

the oceans, outer space and Antarctica—we do not have an overarching law of the atmosphere. We have an overarching body of international law that has developed so we can talk about a law of the sea, which now is primarily in the form of the Law of the Sea Convention of 1982. We can also talk about a law of the outer atmosphere, which is based on the Outer Space Treaty of 1967, and a law of Antarctica, the foundation of which is the Antarctic Treaty of 1959. But the atmosphere, which is a global commons that we rely on very much, is largely responsible for the type of environment that made it possible for humanity and all the other species to exist on the planet earth. We simply do not have an overarching law [in this case]. There is relatively little mention made of the atmosphere in international law in any treaties. There are few that even mention the atmosphere specifically. Instead, what we have had in the place of an overarching law is what I would call "problem specific regimes." We have dealt with specific problems and created international legal mechanisms that regulate the pollutants that contribute to those problems. We have done this on separate tracks without very much interaction between them. In the book, *The Endangered Atmosphere*, I discuss four regimes and I am going to briefly summarize what we have succeeded in doing with each of them.

Problem-Specific Regimes

The first regime concerns the atmospheric testing of nuclear weapons, which we have addressed with the partial Test Ban Treaty of 1963. The second one concerns transboundary air pollution, which has been primarily a European and North American problem, although it is showing up in other areas such as the Far East now. We do have a regime that is centered in the European region on that subject. The third is the regime that we have created to deal with the protection of the ozone layer. And the fourth is the one that I think is of most concern these days, that is the regime that addresses the issue of global climate change. These are the four regimes that comprise most of what we might call international law pertaining to the atmosphere.

The first of these regimes is a rather interesting one in that it deals with atmospheric testing of nuclear weapons. The primary treaty, the Limited Test Ban Treaty of 1963, is usually categorized as an arms control agreement. But if you look at the impact of the agreement, it did not do much to limit the development of nuclear arms because while it did prohibit the testing of nuclear weapons in the atmosphere, it did nothing to cease the testing of weapons in other environments, such as underground. And so the nuclear arms race continued without much loss in momentum. But as far as impact is concerned, this agreement does make some significant contributions to environmental aspects of atmospheric forms of pollution. What is interesting, looking back at that regime, is that there were over five hundred nuclear tests that were conducted in the atmosphere by the United States, Soviet Union, China, France, and the United Kingdom between 1945 and 1980. There were periods in the middle 1950s and then in 1961 and 1962 when there were multiple tests being conducted many weeks, and some of the tests were huge ones, particularly those conducted by the Soviet Union in 1962. There was concern at that time that these tests were contributing to a problem of radiation in the atmosphere and ultimately radiation that was distributed around the world.

The science, as far as the impacts of these so-called "global doses," was not very definitive. And, in fact, the major impetus for the Test Ban Treaty of 1963 seemed to be more the political context, the political fallout after the Cuban Missile crisis, and the feeling that we needed, at that time, to have a significant agreement with the Soviet Union to try to defuse tensions. But from the standpoint of an environmental treaty, one might say that this has been pretty much an open and close success story. After 1963, the United States, Soviet Union, and United Kingdom conducted no nuclear tests in the atmosphere. France continued to test until 1974—they had just begun testing in 1960 and felt the need to continue doing so. They stopped then, partly as a response then to pressure from New Zealand and Australia to cease their tests in the South Pacific. China, which only began its program in 1964, conducted its last test in 1980. Since 1980, no nuclear tests have taken place in the atmosphere, at least none that are officially acknowledged, although there are some allegations that some perhaps have been [conducted].


Marvin Soroos

The second regime, the one that deals with transboundary air pollution, also had a Cold War origin. We knew for some time that acidification was causing some problems in the European area, particularly in southern Scandinavia. It was only in the late 1960s that Swedish scientist Savant O'Dane presented evidence that conclusively showed that the acidification problem in southern Sweden and Norway was largely not due to pollutants originating in those countries, but rather to pollutants coming from places such as the

United Kingdom, continental Europe, and even areas of Eastern Europe. Strangely, it was the Helsinki Accord of 1975 that gave impetus to the creation of the regime we that we now know as LRTAP, Long Range Transboundary Air Pollution. In the Geneva accord, there is a provision that there should be some concrete forms of cooperation between East and West on subjects such as energy and transportation. Also mentioned was that transboundary pollution could also be a subject of cooperation. Leonid Brezhnev followed up the Helsinki meetings and was quite emphatic that what he wanted was cooperation on this air pollution problem. And so he called for a high level meeting on this subject. One was finally held in 1979, after the West finally said this is something we would be willing to do. Originally, the West resisted this notion. This meeting led to a framework agreement on the problem of pollution that crosses international boundaries as acid, forming pollution such as that which originates from sulfur dioxide and nitrous oxides. That agreement was a very weak one. It did not have any requirements for reducing air pollutants. Six years later, there was a protocol that was appended to this agreement which did provide for a thirty percent reduction in sulfur dioxide emissions in European areas. The agreement also, in theory, could have covered the United States and Canada, but the United States never ratified that particular protocol. So, the emphasis has been in the European region.

This emphasis came after Germany made a significant switch from being an opponent of dealing with transboundary air pollution through treaty responsibilities to a strong proponent. The switch came after they realized that the Black Forest region of their country, and in fact all forests of central Europe, were being significantly harmed by what appeared to be these acid-forming pollutants. The agreement was reached in 1985, and subsequent ones were added on nitrogen oxides and volatile organic chemicals in later years. In 1994, there was a revised sulfur protocol that is quite significant in that it is a much more refined form of international regulation. Rather than having all countries reduce their sulfur dioxide by thirty percent, now we had differentiated reductions that were based on a computer simulation model. The model took into account the extent to which acid deposition in Europe exceeded what were called critical loads: the level at which there would be significant environmental damage. The computer model also took into account where the pollutants that caused excess deposition originated. A target figure was set for each country based on what it contributed to excess pollution in other countries. Some negotiations followed, but basically the agreement follows the guidelines which were established through the computer model known as RAINS. So the agreement developed a quite sophisticated regime, and one that now has, I think, made significant progress in addressing the acidification problem in the European region. It has not so much reduced the pollution as stopped the increasing severity of the problem. There is still quite a ways to go, but in many respects, I think it is a fairly successful regime that has set a pattern for some of the other regimes that we will be talking about in a moment.

Let us turn to the third regime. It addresses the threats to the stratospheric ozone layer. The problem of chlorfluorocarbons (CFCs) getting up into the stratosphere and attacking the ozone molecules was only realized in the early 1970s. At that time, there was something of a scientific theory or hypothesis that this is what happened to CFCs and that this could pose a serious threat to the ozone layer. Over the next ten years, there was a considerable amount of research to try to determine whether this theory, first introduced by two scientists at the University of California, Malina and Roland, in fact described a real problem or not. And by the mid-1980s it seemed as if there was growing evidence that this was the case. Then in 1985 we had the reporting of the Antarctic ozone hole.

With the international regime that has been created, the first step was the framework agreement in 1985 which is known as the Vienna convention, followed up quite quickly by the Montreal Protocol of 1987. Many of us would say that the Montreal Protocol is perhaps the most significant international environmental agreement that has been reached addressing any kind of subject related to the environment. It required a fifty percent reduction in CFC emissions over the next ten years. There was also a freeze on halons that was included in it. But what is also significant here is the scientific evidence that we were already observing a thinning of the ozone layer, not just over Antarctica, but to a lesser extent over other parts of the Earth. The projection suggested that for the future things looked a lot more ominous than we had thought previously. That agreement, the Montreal Protocol, was amended in 1990, 1992, and 1995 so that we have a complete phasing out of most of the chemicals that have been identified as threats to the ozone layer: CFCs, halons, and several others. Originally, with the London amendments of 1990, we set the year 2000 as the date for total phaseout but in Copenhagen, in 1992, we moved deadlines up to 1996 for CFCs, and 1994 for halons.

What, in effect, we have had with the ozone depletion problem is a series of international agreements that

constitute what all of us would say has been a major diplomatic success. We addressed a serious global environmental problem in which a lot of the science was still rather uncertain, and the manifestations of the problem were not particularly overwhelming. Even by the 1990s, one might say these manifestations were rather difficult to observe. But we did have a successful anticipatory response, and many would conclude that this is what we need with climate change. We were able to deal with the ozone depletion problem in a comprehensive manner and one that would seem to bode well for the ozone layer of the future. Maybe by the middle of the twenty-first century or a little later, if we abide by the terms of that agreement we are going to have that layer pretty much back to where it was before we started generating these chemicals that attack it. So, that is a major success story. So, we have two major success stories, you might say, and one partial one. That brings us to the climate change regime.

The Climate Change Regime

For those of you who may not be familiar with all the steps on this, we began the negotiations in 1991. A little over a year later at the Earth Summit [United Nations Conference on Environment and Development, Rio de Janeiro] in 1992, we finalized and put up for signature the Framework Convention on Climate Change, which follows the pattern of the 1979 agreement on the transboundary air pollution in the 1985 Vienna convention on the ozone layer problem. It does go a little bit further than these other sort of foundation agreements in that, in addition to calling attention to the indications that we have a significant problem, it states that we need to cooperate on further research, and we need to cooperate in efforts to address it in a general way. This agreement did set a rather ambitious goal of preventing dangerous, anthropogenic interference with the global climate system. Some would say that we have already done that and perhaps we had already done it by 1992, but the goal was a very high and compelling one and one that, hopefully, we would be able to achieve in large measure. The agreement also suggested that developed countries were largely responsible for this problem, and therefore they should take the first major steps to address it. And finally, it did set a goal (it was officially called an aim, not a mandatory requirement but an aim) that the industrial countries should bring their emissions of greenhouse gases down to 1990 levels by the year 2000. It did not seem like a particularly ambitious goal at the time, as we will see in a moment, but it has proved to be an elusive one.

As with the other regimes we have been talking about, several years went by before we had any further agreements. The nations that ratified this agreement began meeting in what are called Conferences of the Parties (COP) in 1995 in Berlin. At that time, it was decided that we needed to do more than the framework convention. In 1997, the third of these meetings, which was to be held in Kyoto, was set as the one at which we would have some kind of protocol for other type of official agreement which would have binding limitation on the emissions of greenhouse gases for the industrial countries. We of course looked forward to that Kyoto meeting, but as the weeks drew near to it, it appeared as if the differences between the United States and the European countries would perhaps make it impossible to have a very significant agreement.

But, in the final analyses, because of the final night's effort to try to come up with a significant agreement, we had a document called the Kyoto Protocol come into existence. It does provide for binding reductions upon those countries that ratify this agreement. The reductions apply to a package of six greenhouse gases, the primary ones being carbon dioxide, methane, and nitrous oxides. The agreement provided for differentiated agreements, with Europe accepting an eight percent reduction from 1990 levels in the timeframe from 2008 to 2012. The United States surprised the rest of the world and many of us in the United States by agreeing to a seven percent reduction. Japan agreed to a six percent reduction. Some countries were allowed increases, such as Australia, which was allowed an eight percent increase. The average for the industrial countries would be a 5.2 percent reduction. The agreement also included a number of what are called flexibility mechanisms; now we refer to them as Kyoto mechanisms. These were important to the United States in particular, but also to other countries referred to as the "Umbrella Group," including Australia, because they allow us to achieve some of our reductions in other countries through emissions trading, otherwise known as "joint implementation," or with the less developed countries the term is, "through a clean development mechanism." We would invest in projects that would reduce greenhouse gases in those countries.

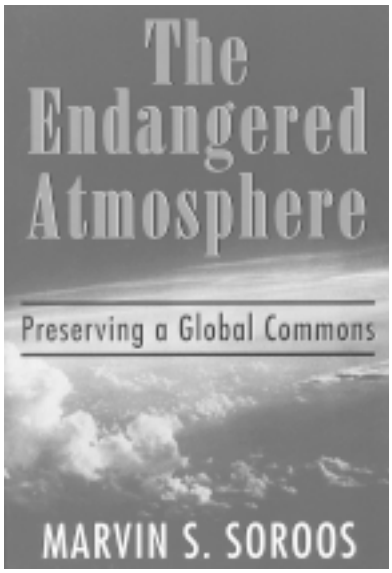
Finally, last year we had the Buenos Aires Convention of the Parties, which addressed many of the issues that were question marks in the Kyoto agreement. There were many issues that were unresolved at Kyoto, and in the final night they were simply left dangling there with the assumption that they would be resolved at future Conferences of the Parties. They involved specific rules about things like joint implementation and clear development mechanism, emissions trading, sequestering carbon in forests, and so forth. In Buenos Aires, rela-

tively little progress was made in answering those questions and spelling out the details of Kyoto, but it was agreed that by the COP in 2000, hopefully, those issues would be resolved.

Critical Questions

What follows are some critical questions that we need to ask about the climate change regime and especially the Kyoto agreement to assess whether we are progressing towards a solution to the problem and can, in any way, achieve this high goal of preventing dangerous anthropogenic interference with the global climate system.

The first question is, does the agreement go far enough? Well, I think the answer to this is quite obvious. I do not think that anyone felt that the Kyoto agreement was the final solution to this problem, but that it was really just a first step in the direction of limiting the flow of greenhouse gases into the atmosphere. But, when you look at the five percent reduction to which the industrial countries have committed themselves, and compare that to the projections that the Intergovernmental Panel on Climate Change has put forward as to the reductions that would be necessary to stabilize the concentrations of greenhouse gases in the atmosphere, there is a large discrepancy. This panel is suggesting that for CO_2 and methane, we should be looking at a fifty to eighty percent reduction. Five percent is just a minor first step in that direction and it only applies to the industrial countries. It does not include, of course, China, India, and all of the developing countries that are rapidly increasing their emissions. Even if we in the industrial world comply with what we said we would at Kyoto, we are still going to see an increase in the amount of greenhouse gases going into the atmosphere.



While spending some time, recently, at the National Center for Atmospheric Research in Boulder, Colorado, and I asked some of the scientists that deal with the subject about their perceptions of the Kyoto Protocol. Their view essentially was that five percent is just a very arbitrary kind of figure. There is no scientific basis for suggesting that it would really significantly address the problem. They also pointed out that if we are reducing the amount of sulfur dioxide going to the atmosphere and simultaneously creating sulfates, which have a cooling effect because they block out a certain amount of radiation, maybe we would just about compensate for reductions in sulfur dioxides that are coming as a result of both the transboundary air pollution regime I was talking about and efforts by the United States and Canada to do likewise in our part of the world. So, their perception is that the Kyoto Protocol does not go very far towards solving the problem.

The second question is, will the Kyoto Protocol ever come into force? And here, I would mention that we are already a year and a half or so from Kyoto. Seven countries have ratified the agreement and under international law you are probably aware that until a nation ratifies an agreement, it is not in any way obliged to comply with the provisions of it. The seven countries that have ratified it are Antigua and Barbuda, El Salvador, Fiji, the Maldives, Panama, Trinidad and Tobago, and Tuvalu—not what you would call very significant contributors to the problem. They are all countries that stand to be seriously impacted by global climate change, particularly sea level rise, so it is understandable that they would be in the forefront of ratifying this agreement. For this agreement to come into force, fifty countries that account for at least fifty-five percent of the carbon dioxide emissions of the industrial countries have to ratify it; they are called "Annex One Countries." The United States accounts for thirty-six percent of those emissions and the chances of the United States ratifying the Kyoto protocol are absolutely nil unless something dramatic occurs to change the atmosphere. The Russian Federation accounts for seventeen percent. So, those two countries already get us beyond the point that if they do not ratify it, then even if all the other countries among the industrial countries ratify it, we are still not going to get to that fifty-five percent level. So, the ratification problem is one that, I think, is a real concern at this point.

A third question is will the Annex One countries, the industrial countries, comply with the commitments that they have made? And I think here, the chances again appear to be very bleak. If you look at the aim set in the framework convention of getting down to 1990 levels by the year 2000, it is quite apparent that that is not going to happen. We do not have a whole lot of time to achieve that aim. The United States is now about sixteen percent above where we were in 1990. The European community is six percent above, Japan is about

five percent above, and Australia is twenty-four percent. Germany has reduced their levels of greenhouse emissions by about eight percent, but this is due to taking over what was formerly East Germany and closing down a lot of the inefficient fossil fuel plants and manufacturing facilities. Some moves have also been made in the United Kingdom, which has changed a lot of its energy generation from coal to natural gas, taking advantage of their North Sea resources. So, the 1990s have not been a period of stabilization, but rather a period of increase. If you look at the case of the United States and the commitments we made at Kyoto, we would have to reduce emissions by seven percent more to achieve those goals. The signs are that that is not realistic at all, especially since we are increasing our emissions each year and there are no indications that we have made any serious efforts to limit them. The European countries would have to reduce by about fourteen percent, and so on. Even in Europe, where several European governments have been the real pushers behind this, there has been a lot of difficulty in getting their act together to agree on, for example, a common carbon tax that many consider is a necessary ingredient in any program for limiting emissions. So, things do not look particularly optimistic on that score. And then the question is, what happens if we fail to comply with the rather modest objectives of the Kyoto Protocol? What does that mean for what we ultimately have to achieve? I am also concerned that, before long, the protocol is going to lose its credibility. It is going to become quite clear that it is not going to be ratified and it is not going to have compliance, and where does that leave us as far as the overall negotiation process? Can we sit down together again in the future and make proposals that others will consider credible? It just seems to me that it is going to take some real diplomatic ingenuity to get the whole process back on track.

Key Factors

There are several factors that complicate the whole process. The first is the indeterminacy of the science of climate change. There is a lot of scientific evidence that would seem to suggest that we have a real problem out there: that greenhouse gases are building up. There seems to be evidence of global average mean temperatures rising. There seems to be evidence of a myriad of types of impacts that could be attributed to these changes. But if you ask the scientists, as I did at the National Center for Atmospheric Research, who have been arguing the seriousness of this problem and the need to start responding to it, if we are really sure about this, they will say no, not really. They will tell you that there are climate systems, there is a tremendous amount of variation in them, and it is hard to say that any one bit of scientific fact is the smoking gun that will prove climate change to those that are skeptical of the whole thing. I think many of us are persuaded that this problem is serious and we do need to do something about it, but as long as there are those out there that can say we have not proven it yet, it seems as if that is a major obstacle, at least in the United States, to taking the kind of action that is necessary to address it.

The second problem is the complexity of the emergent climate change regime. All things being equal, I think we are much better off with fairly simple agreements that do not have a lot of complicated provisions in them that need to be worked out. Unfortunately, with the climate change regime, we have gotten into a situation where we do have a lot of detail, a lot of technical aspects to it that we have been trying to work out since Kyoto. This is an ongoing process, and hopefully, a lot of these issues will be resolved by the year 2000. Timeframes, baselines, monitoring provisions, reporting certification, verification, funding compliance, and so forth. It just goes on and on. I was reading a report on the recent technical workshop on mechanisms under articles six, twelve, and seventeen of the Kyoto Protocol, and it is just amazing all of the issues that each one of these matters involves. It is not just that these are technical questions; there are a lot of issues of national interest that underlie them. You cannot just leave it to the specialists to try to work these things out and hope that they will come up with a politically acceptable solution. We seem bogged down in all of this technical detail while the problem is getting worse and worse, and we need to be moving much more rapidly in the grander scheme to address this problem.

A third difficulty is differentiated commitments. Rather than having an across the board certain percentage reduction for all countries, we have gotten into the game of each country having its own goal. Now, Europe, as a whole, accepted an eight percent reduction, but they have what is called a bubble, and within the European group each country has a different goal. The idea is that they will average an eight percent reduction. But some countries like Spain and Ireland are allowed increases where as others, such as Germany and Denmark, are going to reduce more than eight percent and hopefully counteract that. It would be one thing if these differentiated responsibilities were based on some type of logical criteria that we could all agree upon and would be fair to all countries, but, as it stands now, it is pretty much based on what each country is willing to do. Each country makes the best case it can for limited commitments on their part while maximizing the commitments

of other countries. This is very much the case in Australia, where they seemed to applaud their negotiators at Kyoto for getting an eight percent increase, whereas most of the rest of the developed countries must make decreases. But they say we are a special case. It is not hard for most countries to argue that they are special cases too, and therefore they should have less commitment to reduce greenhouse and other gases.

The final problem that pervades this whole process is what I call the stalemate between the North—particularly the United States—and the Southern countries or developing countries. We have taken the position, at least the Clinton administration has with strong suggestions from Congress, particularly the Senate, that until developing countries are willing to make significant commitments to limit their greenhouse gases, the Clinton administration is not going to put the Kyoto protocol up for ratification before the Senate. The South, of course, is arguing that they are not responsible for the build-up of most of the greenhouse gases that we have seen thus far and that their level of emissions is so much lower than that of the industrial countries. Under the framework convention and other agreements that have come since, the official international position is that we in the industrial countries are going to take the first step. When Argentina made the suggestion that maybe we should include voluntary commitments by developing countries on the agenda for COP-4 in 1998, they were strongly criticized by the Group of Seventy-Seven (G-77) and China for breaking ranks. They are just adamant that until we in the industrial world show that we are serious about dealing with this problem, they are not going to make commitments. I do not know how that stalemate is going to be resolved but it certainly is a major obstacle to the ratification of the agreement in the United States, which is critical to the Kyoto Protocol coming into effect.

4 June 1999

Water: Conflict or Cooperation & Food Security in a Changing World

Steve Lonergan, Professor, University of Victoria and Director, Global Environmental Change and Human Security Project (GECHS)
Aaron T. Wolf, Assistant Professor, Oregon State University
Michael Brklacich, Associate Professor, Carleton University

Shared fresh water resources and food security should be critical development and human security concerns for policymakers today. Three distinguished scholars made the case for the importance of water and food during a recent policy briefing hosted by the Environmental Change and Security Project (ECSP). These presentations marked the first in a series of briefings associated with a new set of policy papers entitled *AVISO*, a joint effort of ECSP and the Global Environmental Change and Human Security Project (GECHS). The effort is supported by the Canadian International Development Agency and the U.S. Agency for International Development through a cooperative agreement with the University of Michigan.


Steve Lonergan

Geographer Aaron Wolf of the University of Oregon highlighted trends in declining water quality and quantity worldwide. Despite common rhetoric around likely water wars in the near future, Wolf finds little evidence for conflict over water between states. On the contrary, shared water resources have been the central component of thousands of international agreements. To address current fresh water quality and quantity challenges, Wolf listed a number of policy recommendations drawn from his *AVISO* paper.

- *Water dispute amelioration is as important, more effective, and less costly, than conflict resolution. Watershed commissions should be developed for those basins which do not have them, and strengthened for those that do.*

- *Water-related assistance needs to be coordinated and focused, relating quality, quantity, groundwater, surface water, and local socio-political settings in an integrated fashion. Funding should be commensurate with the responsibility assistance agencies have for alleviating the global water crisis.*

- *Universities and research agencies can best contribute to alleviation of the water crisis in three major ways: 1) acquire, analyze, and coordinate the primary data necessary for good empirical work; 2) identify indicators of future water disputes and/or insecurity in regions most at risk; and 3) train tomorrow's water managers in an integrated fashion.*

- *Private industry has historically taken the lead in large development projects. As the emphasis in world water shifts to a smaller scale, and from a focus on supply to one on demand management and improved quality, private industry has much to offer.*

Inherent in our recognition that the most serious problems of water security are those at the local level, is the attendant recognition that civil society is among the best suited to address local issues.

Geographer Michael Brklacich of Carleton University outlined troubling trends in food security. Brklacich stressed that food shortages stem from distributional problems where growing populations do not have sufficient

food purchasing power. Absolute food shortages are less critical than this inability of the world's poor to purchase often-available food. Brklacich highlighted a number of research and policy priorities drawn from his *AVISO* paper:

Michael Brklacich

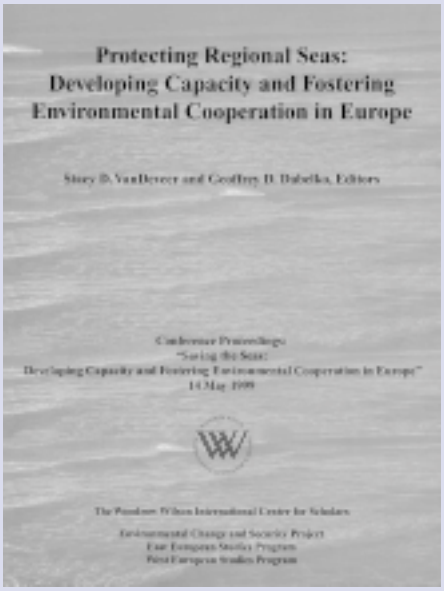
- Food security must be tied to human security.
- Enhanced use of participatory research methods is needed.
- Greater emphasis on urban food security is required.
- A better understanding of differential vulnerability and coping strategies is required.
- Strengthening agricultural research in developing countries is also needed.
- Promoting conservation of land and water resources is another priority.

❑ *For copies of the* AVISO *articles, please contact the Global Environmental Change and Human Security Project at: University of Victoria, P.O Box 3050, Victoria, BC V8W 3P5, CANADA or visit the GECHS web site to download copies at: http://gechs.org/index.htm.*

Protecting Regional Seas: Developing Capacity and Fostering Environmental Cooperation in Europe

Stacy D. VanDeveer and Geoffrey D. Dabelko, Editors

On 14 May 1999, the Woodrow Wilson International Center for Scholars assembled a group of scholars and practitioners to discuss the similar challenges of pollution that undercut the marine ecosystems and the economic potential and health of surrounding human populations of the Baltic, Mediterranean, and Black Seas of Europe. Entitled "Saving the Seas: Developing Capacity and Fostering Environmental Cooperation in Europe," the conference was held at the Center in Washington, D.C. This conference proceedings volume reflects the scholarship and debate featured at that conference and contains chapters that compare and analyze the state of environmental management in each of the three regions including the structure, funding, and effectiveness of each sea's protection program. The goal of the conference and of these proceedings is that scholars and policymakers may draw valuable lessons for replicating success stories and avoiding failed pathways for future environmental management programs.



Generous funding for *Protecting Regional Seas: Developing Capacity and Fostering Environmental Cooperation in Europe* and the May conference was provided by the Woodrow Wilson Center and by the U.S. Agency for International Development's Office of Population through a cooperative agreement with the University of Michigan Population Fellows Programs.

For more information or to obtain a copy of the conference proceedings volume contact the Project at (202) 691-4130 or by email at ecspwwic@wwic.si.edu.

9 June 1999

West Africa: A Briefing on Food Security, Environment, and Population Issues for Under Secretary of State Frank E. Loy

Christine Elias, Director, International Cooperation, World Resources Institute
Pietronella van den Oever, Task Manager, Social Development Training Program, World Bank Institute
Rajul Pandya-Lorch, Director, 2020 Vision Initiative, International Food Policy Research Institute
Mustapha Soumaré, Special Assistant to the Director UNDP Africa, United Nations Development Programme
James Buizer, Director, Research and Applications, Office of Global Programs, National Oceanic and Atmospheric Administration
Jeff Drumtra, Senior Africa Policy Analyst, U.S. Committee for Refugees

On 9 June ECSP hosted a meeting for Under Secretary of State for Global Affairs Frank E. Loy prior to his visit to West Africa in mid-June. The session provided an opportunity for experts from the non-governmental sector to share their knowledge about the region and answer specific questions from the Under Secretary and his staff. The session was structured to give an overview of environmental conditions, population and health trends and food security challenges in the region as a whole before examining more specific situations in several countries.

A high proportion of the economic activity in the Sahel region of West Africa is based on the use of natural resources. The predominance of agriculture and livestock rearing as a livelihood strategy means that human security directly depends on the state of the natural environment and the availability of sufficient natural resources. This region is suffering from widespread land degradation due in part to local land management practices, but more importantly as a result of climatic variability and the exploitation of marginal lands. As soils are degraded and agricultural production is expanded, the biodiversity of the region is reduced, leading to a loss of genetic resources that could contribute to a diverse and sustainable agricultural system. These losses jeopardize the food security of the local populations and ultimately result in high economic and social costs.

Also contributing to the increasing human insecurity of the region is the rising rate of population growth over the past decades. In 1998 the growth rate for West Africa stood at 2.9 percent, at which rate the population of the region will double in approximately twenty-four years. Part of the story behind this growth rate is a positive one: reductions in infant and child mortality following large-scale vaccination campaigns. However, this gain has been slow and life expectancy at birth for the region still remains around fifty.

These high fertility rates are sustained by a combined pattern of: early childbearing, low contraceptive prevalence, and a custom of virtual universal marriage for women starting in their mid-teens. Socio-economic factors continue to be compatible with early and sustained child bearing, and a West African woman is likely to give birth to an average of 6.4 living children during her reproductive life span. As a result of past high fertility, a large population momentum has built up, with forty-six percent of the population in the region under the age of fifteen.

The final general topic outlined in this meeting was that of food security in West Africa and more generally in all of sub-Saharan Africa. Almost two-fifths of the sub-Saharan African population is food insecure, meaning, they do not have consistent access to sufficient food to sustain a healthy and productive life. Insecurity occurs at a variety of levels from household to national and depends on variables including productivity, markets and individual

income. This insecurity is a trend that is expected to accelerate substantially, so that by 2010, thirty-nine percent of the population will face food insecurity. Agricultural sector development is essential to ensuring food security and good nutrition for all, but as outlined above there are additional environmental challenges to achieving this in West Africa.

After looking at overall trends in the region, the focus of the meeting shifted to examine three specific country topics with regional importance, namely desertification in Mali, climate change in Senegal and refugees in Guinea.

Mali, a landlocked country, is dominated by the Sahara desert, which covers two thirds of the country. Only thirty percent of the remaining arable land is cultivated, and a pattern of shifting cultivation and cutting for fuel-wood leads to the deforestation of 50,000 hectares a year. Past interventions aimed at combating desertification have found limited success, primarily because they were aimed at addressing the physical symptoms rather than the socio-economic root causes of unsustainable land use. More recently, integrated approaches aimed at addressing the issue of desertification have found more success. Today, Mali is one of the West African countries most advanced in implementing legal instruments to combat climate change and desertification. Even so, there are still challenges to be met in ensuring active participation and partnership at the regional and local level within Mali. One critical element in this process is that the government must work to create an enabling environment within Mali to ensure an integrated and sustainable development package that addresses not only the symptoms, but also the causes of continued environmental degradation.

Climate change is another element in the complex pattern of environmental degradation in West Africa. Although there is a great deal of debate about the magnitude or type of impact that might occur in West Africa, it is generally accepted that climate change can further stress human and environmental systems that are already under considerable strain. Regional changes in temperature and precipitation will lead to climate variability and more frequent incidents of events such as floods, drought and tropical storms. When these events are combined with human systems unable or unwilling to undertake short-term adaptive measures, as is the case in West Africa, severe losses are inevitable. These changes are particularly relevant for coastal states like Senegal because of the high level of coastal exposure and the high proportion of the population dependent on rain-fed agriculture for their livelihood and human security.

The final specific topic addressed in the meeting was that of refugees in Guinea. Guinea hosts more refugees than any other country in Africa, and is ranked fifth globally in number of refugees. The country is currently home to between 400,000 and 500,000 displaced people, primarily from Sierra Leone but also with significant numbers from Liberia. Since 1989 there have been several waves of refugees from these two countries fleeing the violence in their home states. Ninety percent of these refugees live in the western and eastern forest zones in Guinea—two of the poorest regions of the country. Refugee populations survive by sharecropping, working as laborers and selling firewood. The conditions faced by the refugee populations are similar to conditions elsewhere; poor infrastructure, poorly managed food distribution, poor access to medical care, and personal insecurity. Although Guinea hosts an unusually large number of refugees, the challenges posed in dealing with that population are mirrored across the region in dealing with smaller refugee flows and are reflective of general challenges in all of West Africa.

Frank Loy

This meeting highlighted many of the challenges to improving human security throughout West Africa. In general three of the key issues to be addressed are food security, population trends and environmental degradation. One of the main conclusions to be drawn from all of the speakers was the inter-related nature of these broad topics. All three feed into and influence one another, and it is essential to approach the challenges to sustainable development in West Africa in an integrated manner.

16 June 1999

Building Partnerships to Achieve Food Security: An NGO Consultation

This one day conference was co-sponsored by the Environmental Change and Security Project and ACDI/VOCA to engage broad nongovernmental organization (NGO) leadership in the 1999 World Food Summit continuation process. It also served as a follow-up to the launching of the *U.S. Action Plan for Food Security* that ECSP hosted on 26 March 1999. The participants focused on a review of the U.S. Action Plan and on ways to mobilize broader support for food security. This meeting represented the nongovernmental component of the food security debate, and allowed for deeper interaction between those within the Executive who helped to formulate the Action Plan and those within the private sector who will assist in the implementation phase. Below, please find an agenda of topics and speakers.

Agenda

Welcome
- *Robert Litwak, Director, Division of International Studies, Woodrow Wilson Center*
- *Mike Deegan, President, ACDI/VOCA*

Keynote Speaker:
- *Per Pinstrup-Andersen, Director General, International Food Policy Research Institute*

Panel Discussion I: The U.S. Action Plan Opportunities and Challenges

- *What are its strengths, weaknesses, and omissions?*
- *What does it contribute?*
- *What more is needed?*

- *Christine Vladimiroff, Prioress, Mount St. Benedict Monastery and Co-chair, U.S. Government Food Security Advisory Committee*

- *David Beckmann, President, Bread for the World*

- *Katherine Ozer, Executive Director, National Family Farm Coalition*

Moderator: Mary Ann Keeffe, Assistant Administrator, International Cooperation and Development, U.S. Department of Agriculture/Food Agricultural Service (USDA/FAS)

Panel Discussion II: Community Food Security

The Challenges of Domestic Hunger and Food Insecurity
- *Carol Kramer-LeBlanc, Deputy Executive Director, Center for Nutrition Policy and Promotion, USDA*

The USDA Community Food Security Initiative: What Is It and How Does It Relate to the Action Plan and Community-Based Efforts in the United States?

- *Joel Berg, Coordinator of Community Food Security, USDA*

Community Food Security: A Comprehensive View
- *Kami Pothukuchi, Wayne State University*

Mobilizing Support for Community Food Security
- *Andy Fisher, Community Food Security Coalition*

Moderator: Katherine Ozer

Panel Discussion III: Alternative Routes to Global Food Security

The Challenges of Global Hunger and Food Insecurity
- *Rajul Pandya-Lorch, Head, 2020 Vision, IFPRI*

Sustainable Production and Equitable Access to Re-

sources and Markets
- *Don Crane, Executive Vice President, ACDI/VOCA*

Agricultural Trade, Food Aid, and Food Security
- *Steve Suppan, Director of Research, Institute for Agriculture and Trade Policy*

Women, Gender, and Food Security
- *Hilary Sims Feldstein Training Specialist, International Center for Research on Women*

Moderator: David Beckmann

Breakout Sessions on Next Steps

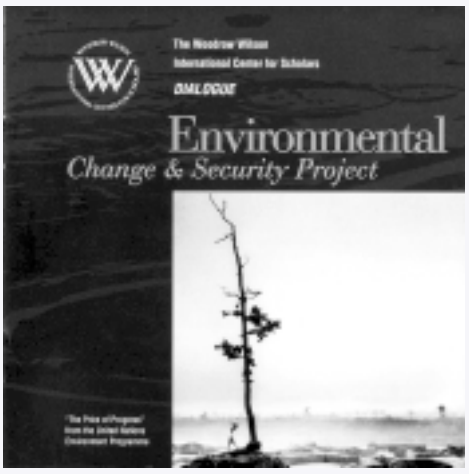
- *The U.S. Action Plan*
- *Community Food Security*
- *Alternative Routes to Global Food Security*

Closing Plenary

- *Rapporteur Reports of Breakout Sessions*
- *Reflections on the Day*
- *Phil Thomas, Assistant Director, International Relations and Trade Issues, General Accounting Office*
- *Closing Comments*

New Compact Disc Compilation from *Dialogue*

A new three compact disc compilation of recent *Dialogue* radio interviews on environmental themes has just been released by the Wilson Center. This set is a product of collaboration between the Wilson Center's Environmental Change and Security Project and *Dialogue*, the broadcast voice of the Wilson Center.



These three CDs features six interviews with scholars and policymakers discussing critical policy challenges such as water scarcity, pesticides, population growth, climate change, and radioactive waste. *Dialogue* host George Liston Seay speaks with:

- Former Senator Paul Simon on water scarcity
- Biographer Linda Lear on ecologist Rachel Carson (Parts I and II)
- Journalist Eugene Linden on causes of future instability
- Scientist Allen Hammond on alternative scenarios for the twenty-first century
- Researcher Geoffrey Dabelko on environment and population challenges

Streaming audio versions of all these programs are available on-line at the Woodrow Wilson Center's website at http://www.wilsoncenter.org/dialogue/index.htm.

To request a copy of the CD, please contact ECSP at 202-691-4130 or by email at ecspwwic@wwic.si.edu.

8 July 1999

United States Southern Command (USSOUTHCOM) Environmental Security Workshop

Colonel Kent Butts, George C. Marshall Chair, Center for Strategic Leadership,
U.S. Army War College
General James Soligan, Director of Strategy, Policy, and Plans;
United States Southern Command, U.S. Air Force
Gary Vest, Principal Assistant Deputy Under Secretary for Environmental Security,
Department of Defense

This one-day conference was co-sponsored by the Environmental Change and Security Project (ECSP), the U.S. Army War College's Center for Strategic Leadership (CSL), the Department of Defense (DoD), and the U.S. Southern Command (USSOUTHCOM). The United States Southern Command is one of nine unified commands located throughout the world. Personnel from the U.S. Air Force, Army, Marine Corps, and Navy are assigned to the command. USSOUTHCOM headquarters are located in Miami, Florida and its area of responsibility includes thirty-two countries and fourteen colonies in Central and South America and the Caribbean, organized into four regional engagement areas. The Commander-in-Chief of the USSOUTHCOM, General Charles E. Wilhelm (U.S.M.C.) considers environmental security issues to be important to USSOUTHCOM's engagement mission and to the stability of the region. To emphasize this, he is creating an Environmental Security Annex to the Theater Engagement Plan (TEP). To assist this process, ECSP was asked to help convene a workshop that would provide CINCSOUTH information on current successful nongovernmental organization and academic environmental programs in USSOUTHCOM's area of responsibility. Representatives from other parts of the Executive branch that are focusing on environmental security issues in the region, such as resource conflicts, natural disasters, energy resources, technological disasters, and population trends also participated in the session.

14September 1999

World Population Beyond Six Billion

John Haaga - Director, MEASURE Communication Project,
Population Reference Bureau
Carl Haub - Conrad Taeuber Chair of Population Information,
Population Reference Bureau

On 12 October, the human population will pass the six billion mark, according to United Nations projections. To mark this milestone, The Environmental Change and Security Project asked two leading demographers to address "World Population Beyond Six Million."

John Haaga outlined trends in fertility, birth rate, death rates and population growth over the last century. From global population of around 1.5 billion at the turn of the last century, we have seen a consistent and rapid growth of total numbers, with the last billion being added within the past twelve years. He was careful to make the distinction between total growth and rates of growth. Globally, rates of growth peaked around the 1970s, but because of population momentum and the number of people in reproductive age groups, total numbers continued to increase. This reduction in rates of growth is one of the often overlooked success stories of the past century. Mr. Haaga cited increasing economic development, greater employment opportunities for and education of women, reduced infant mortality and wider access to modern methods of family planning as the most important contributors to growth rate reductions.

John Haaga

Mr. Haaga also outlined some of the regional differences in growth rates and total growth over the past thirty years, highlighting that the greatest reductions have been in the developed OECD countries. As a corollary to this, the current challenge is within developing countries. Developing country regions are facing demographic change at an unprecedented pace, and are coping with changes in a span of twenty years that occurred in the developed countries over nearly a century. The earth currently supports the largest teenage population ever, a group entering the reproductive cycle. Mr. Haaga concluded that health and planning services will need to expand and adapt to accommodate this next generation.

Carl Haub

Carl Haub looked to the next century and explained the population projections for the next fifty years. He outlined the process of projecting growth with the essential caveats that while we can look at future postulations, it is nearly impossible to accurately predict individual behavior in relation to child bearing. He cited some predictions from previous generations and noted that population growth had actually slowed faster than has been projected. However, unfortunately, much of this trend was due to the onset of the HIV/AIDS pandemic. Mr. Haub outlined several growth rates and what large results even small variations in these would mean to total numbers in fifty years. In the absence of war, famine and abstinence, scenarios either undesirable or unlikely, he pointed to the need to increase both traditional and modern family planning services if the goal is a further reduction in fertility rates.

❑ *To read an excerpt of the text or to order* Population Bulletin *please visit the Population Reference Bureau website at www.prb.org.*

5 October 1999

The GLASS Model: Assessing Environmental Threats to Food and Water Security in Russia

Joseph Alcamo, Director, Center for Environmental Systems Research, University of Kassel, Germany, and Public Policy Scholar, Woodrow Wilson Center

The Global Assessment of Environmental Security (GLASS) model is designed as a tool to screen current and future environmental threats to security and to identify strategies to enhance security, according to Professor Joseph Alcamo, Director of the Center for Environmental Systems Research, University of Kassel. Professor Alcamo was also a Public Policy Scholar at the Wilson Center October 1999 and leads the team developing the GLASS model.

Speaking at a Wilson Center meeting co-sponsored by the Environmental Change and Security Project (ECSP) and the Kennan Institute for Advanced Russian Studies, Alcamo explained the GLASS model and presented preliminary results for Russia and other parts of the world. The the main goal of the model is to link large-scale environmental changes (such as more frequent droughts associated with climate change) with human security. Until now, the model has been used to estimate if water or food crises in different countries will become more or less frequent in the twenty-first century under different scenarios of climate change and economic growth. As an example, Alcamo presented preliminary simulation results of past and future occurrences of water crises in different parts of Russia.

At the core of the model is a proposed relationship between three key concepts—environmental stress, state susceptibility, and crisis. "Environmental stress" is defined as the intensity of an environmental change that involves an undesirable departure from long-term or "normal" conditions, is usually of short duration, is directly or indirectly influenced by society, and is not only the result of natural geologic factors. According to this definition, increased flooding due to climate change would be a type of environmental stress, but damage due to a volcanic eruption would not. Although scientists have yet to agree on the best measure of environmental stress, Alcamo suggested, as examples, that this stress could be proportional to the percentage of area affected by poor crop yield or water shortages.

The second concept is "state susceptibility" which refers to the ability of a state to resist and recover from crises. Although there are various possibilities for quantifying susceptibility using measures such as national political capacity or level of democracy, it is difficult to use these concepts in practice because of the lack of past and future data. There are, however, advantages of using gross domestic product (GDP) per capita as a rough measure of state susceptibility, especially because historical time series and future scenarios exist for these data.

The third key concept is environmentally-related "crisis" defined as "an unstable or crucial time or state of affairs brought about by environmental stress, which requires extraordinary measures to counteract." Alcamo argued that researchers should focus more on the relationship between environmental stress and crisis because the linkage is clearer and more common than the relationship between environmental stress, conflict, and violence. Moreover, the avoidance of crisis is also an important security concern of society, and global databases on the occurrence of these crises are available to researchers. In the discussion it was also pointed out that crisis could lead to either negative impacts on security (conflict and violence) or positive (increased cooperation against a common challenge). Therefore research on the linkage between environmental stress and crisis was useful because it took into account that the result of environmental stress was not always negative.

After estimating environmental stress and susceptibility, the GLASS model is calibrated to international data of crisis events (in the first version of the model these are drought-related water shortages and famines) between 1901 and 1995. Once calibrated, the model is used for scenario analysis of the global potential for environmental crises.

In one example, the GLASS model was used to simulate the past occurrence of water crises in Russia. Alcamo showed that the model "that predicts" the Black Earth region of western Russia had more frequent water crises than other parts of Russia from 1901 to 1995. In another example, the model was used to explore the consequences of changes in climate and national income on food crises in Africa. As an historical baseline, the model estimates that six countries in Africa had a high potential for food crisis during fifty percent or more of the years between 1901 to 1995. If national incomes rise from the year 2000 to the year 2050 (and susceptibility decreases) then the number of countries drops to three. However, if environmental stress increases because of lower precipitation in some parts of Africa (because of climate change), the number of countries with a high potential for food crisis increases again from three to six countries.

During the discussion, Alcamo was particularly interested in hearing comments from potential model users so that he could make the model more useful to them. Discussion centered around the merits of focusing on capacity and vulnerability variables that appear key to avoiding crisis in times of severe environmental change. Several participants were concerned that by not assessing the long-term average quality of soil, air, or water, and, focusing on only quantity and availability, the model ignored the long-term impacts of environmental degradation. While acknowledging the importance of these environmental problems, Alcamo emphasized that the objective of research on environmental change and human security was to focus on *security threats*, not long-term environmental degradation. As an example, he pointed out that although water pollution is an important chronic health and environmental problem, it is normally not considered a *security threat* unless a toxic landfill explodes and contaminates a river.

In conclusion, the GLASS model has a number of applications. By using regional/country spatial data and climate variability data, Alcamo has developed a quantitative model to support policymakers as they develop strategies for mitigating food and water security challenges. Also, the model can identify "trouble spots" where environmental stress can play a role. While there has been considerable research looking at the connection between environmental change and human security on a qualitative scale, this project is one of the few that has tried to quantify that connection. Given that Alcamo's training is in the natural sciences, this discussion represented an example of interdisciplinary dialogue and exchange between natural and social scientists that is needed for designing effective policy responses.

❑ *For copies of papers that present the goals and data from the GLASS model or for more information, please contact Professor Joseph Alcamo at the Center for Environmental Systems Research at: University of Kassel, Kurt-Wolters Strasse 3, D-34109, Kassel, Germany; E-Mail: alcamo@usf.uni-kassel.de; Internet: http://www.usf.uni-kassel.de/english/.*

8 October 1999

Population Dynamics, Migration, and the Future of the Calakmul Biosphere Reserve

JENNY ERICSON, PROGRAM ASSOCIATE, UNIVERSITY OF MICHIGAN FELLOWS PROGRAMS,
FORMER UNIVERSITY OF MICHIGAN POPULATION AND ENVIRONMENT FELLOW

Integrated Conservation and Development Programs (ICDPs) are gaining in popularity through-out developing countries as a way to balance the needs of people with the conservation of natural resources. By employing sustainable management techniques, these programs seek to ensure the availability of natural resources for future generations by placing a value on their conservation. Most of these programs work to ensure that those people who live closest to resources are the ones to benefit from any type of 'set aside' conservation or sustainable exploitation. The basic overriding principle is that by making sustainable use more valuable than unsustainable use, those in closest contact with resources will work to conserve them and thus ensure their future livelihood.

On 8 October, Jenny Ericson of the University of Michigan Population Fellows Program spoke about her experience as a University of Michigan Population and Environment Fellow placed for two years with the World Wildlife Fund (WWF) on an integrated conservation and development project in the Calakmul Biosphere Reserve, located in the southern Yucatan peninsula in Mexico. Ms. Ericson worked with WWF and a Mexican partner organization, Pronatura, to promote placing greater value on the forest and forest products in an effort to reduce deforestation and environmental degradation by relatively new settler populations in the area.


Jenny Ericson

The project had a series of objectives aimed at several different levels of operation. At the macro level, the goal was to establish an understanding of the demographic trends for the region in order to have a better understanding of the human needs in the area and the human influence on the environment. At the community level, the goals were to generate dialogue among the various stakeholders, examine community desires for land use development and empower the local community to take part in decisions that would affect their livelihoods. On an institutional level, the objectives included the establishment of a culturally and politically appropriate participatory land use system and designing a low-cost and effective population monitoring system.

In order to ensure the participation of the local population and record their opinions, Ericson used participatory rural appraisal techniques to allow the predominantly illiterate community to define their own objectives and prioritize their land use needs and desires. There is extensive discussion of the technique and several of the exercises used in the written report of her work. She highlighted that although the process was highly successful in empowering the community with a voice, it was a difficult method with which to extract quantitative data. She also briefly discussed other obstacles along the way such as the conflicting goals of different partners and cooperating agencies.

Ericson concluded by examining some of the accomplishments of the project. These included the provision of a great deal of local training and capacity building, especially in relation to future planning; the development of a series of responses and recommendations used to initiate and broaden dialogue on the links and impacts of land use at all levels; and the development of a clearer understanding of the base environmental problem, its root causes and potential development strategies. On a more concrete level, as a direct result of the project changes have been initiated in internal land use policy at the local level. On a broader level, WWF Mexico has recently decided to include population as one of its institutional priorities and to implement a three-part reproductive health program

in the area.

❑ *Copies of the complete report "Population Dynamics, Migration, and the Future of Calakmul Biosphere Reserve" can be obtained from The American Association for the Advancement of Science, Directorate for International Programs, 1200 New York Avenue, NW, Washington, DC 20005.*

Environment and Security

The *Environment and Security* (E&S) journal is a social scientific journal devoted to the study of environmental forms of insecurity and to the national and international efforts to address these insecurities. The bilingual (French/English) journal tries to build on a new approach to environmental questions and to handle with their social, political, and economic implications by linking the approaches of the natural and social sciences. This year, the journal's editors are releasing two special issues: issue number four explores Canadian environmental foreign policy and issue number five looks at environmental issues in South Asia. Below, please find the table of contents for these two special issues.

No 4. (May-June 2000)
CANADIAN ENVIRONMENTAL FOREIGN POLICY
Peter Stoett, Guest Editor

"Canadian Foreign Policy and Environmental Security: An Introduction"
Peter Stoett

"The Implications of Context, Negotiations, Agreements, and Foreign Environmental Policy Policy"
Samuel Barkin

"Resource Security and the Canada-U.S. Pacific Salmon Dispute"
Christopher Gore

"The Canada-Spain Fishing Dispute: Lessons for Cooperation in Marine Management Between NAFTA and the E.U. "
Peter J. Ricketts

"Human (In)security and Canadian Climate Change Policy"
Heather S. Smith

"Security and the Environment in the Post-Cold War in the Arctic"
Rob Huebert

"Cold War, Frozen Wastes: Cleaning up the Dew Line"
Heather Myers, Don Mutton

No 5 (July-August, 2000)
ENVIRONMENTAL SECURITY IN SOUTH ASIA
R.B. Jain, Guest Editor

"Introduction: Concems for Envrionmental Security in South Asia"
R. B. Jain

"Environmental Security: Challenges before the South Asian Nations"
0. P. Dwivedi

"Reconstructive Postmodemism and Environmental Security in South Asia"
Amita Singh

"Emerging Concem for Environmental Security in International Relations: The Case of South Asia"
M. Shamsul Haque

"Water, Conflict, and Security in South Asia"
Renu Khator

"Resource Management and Environmental Security: the Case of the Chittagong Itll Tracts in Bangladesh"
Mizan R. Khan

"'Wake-Up Call' for India's Environmental Security or Face Collective Suicide"
K D. Gangrade

"Regional Cooperation in Environmental Security: A Study of Prospects in South Asia"
R. B. Jain

For more information, please contact: International Institute for Environmental Strategies and Security (IIESS), C.P. 9621 Sainte-Foy (QC), Canada G1V 4C2; Email: iissen@mediom.qc.ca.

27 October 1999

USAID-WHO Collaboration for Health in the Millennium

J. Brady Anderson, Administrator, U.S. Agency for International Development
Harriet C. Babbitt, Deputy Director, U.S. Agency for International Development
Gro Harlem Brundtland, Director-General, World Health Organization
Duff Gillespie, Deputy Assistant Administrator, U.S. Agency for International Development
Lee H. Hamilton, Director, Woodrow Wilson Center
Christopher Murray, Associate Professor,Harvard Center for Population and Development Studies

In the climate of shrinking foreign assistance and support for international programs, cooperation between the U.S. Agency for International Development (USAID) and its United Nations (U.N.) counterpart, the World Health Organization (WHO), is critically necessary on the crucial health challenges, according to officials from both organizations. Representatives of USAID and WHO gathered at a one-day consultation hosted by the Woodrow Wilson International Center for Scholars on 27 October 1999 to discuss such collaboration.

USAID Administrator Brady Anderson highlighted the need for cooperation between national foreign assistance agencies and the organizations of the United Nations. He utilized examples from his development experience in Africa, particularly Tanzania, to outline the progress that has been made against health challenges in the developing world. Some key organizational issues that Anderson is addressing in his tenure are solidarity in financing with explicit priorities outlined and defining a new role for the state to play in alleviating health crises. A critical social factor in fighting health problems will be to reduce poverty.


J. Brady Anderson

Gro Harlem Brundtland, Director-General of the WHO, outlined her ongoing efforts to reorganize the structure of the WHO in order to meet the future challenges in global health, including such concerns as HIV/AIDS, tuberculosis, immunizations, malaria, river blindness, and tobacco. Efforts are aimed at centralizing the institution into a smaller number of units, involving new collaborators including the private sector, multilateral banks, and national agencies in U.N. global health efforts, and heightening accountability.

Chris Murray of WHO listed four goals for the new WHO: improving health, reducing inequalities in access and distribution of health services, increasing responsiveness to individuals, and protecting families from income loss due to disease. All of these objectives must be met with greater efficiency and no new financial or human resources. Against a backdrop of tremendous progress reflected by greater life expectancy rates around the world, Murray called attention to declining life expectancy rates in Eastern Europe and the former Soviet Union. He also suggested that increased attention would have to be paid to non-communicable diseases as the relatively youthful populations of the developing world ages over the next twenty to thirty years.


Gro Harlem Brundtland

This meeting of USAID and WHO officials was the first of its kind, according to the leaders of both institutions. Brundtland proposed extensive consultations to coordinate actions in the area of health policy. After the initial presentations by the USAID and WHO leadership, staff from each organization met in smaller groups to exchange research and explore means for greater cooperation. Group sessions explored the issues of organization mandates, resources, structure, and interface as well as improving partnerships at the country level, technical challenges, and priorities for collaboration in the coming millennium.

28 October 1999

The Future of Environmental Security in European Institutions

Alexander Carius, Director, Ecologic - Centre for International and European Environmental Research
Kurt Lietzmann, Head of Division, Nature Conservation and Nuclear Safety, Federal Ministry for the Environment

Addressing environmental degradation issues worldwide requires a better institutional understanding of linkages between environment and security, according to Alexander Carius and Kurt Lietzmann speaking at an ECSP meeting on 28 October 1999. This meeting was co-sponsored by the Heinrich Böll Foundation.

Lietzmann co-chaired the recently released the NATO Committee on the Challenges for Modern Society (CCMS) pilot study on "Environment and Security in an International Context" of which there are excerpts in the special reports section in Issue 5 of the *Environmental Change and Security Project Report*. Carius served as one of the pilot study consultants. At this meeting, they discussed the broad set of institutional approaches and frameworks for addressing environmental change and security issues. They also drew on the findings of their newly published volume, *Environmental Change and Security: A European Perspective*, to outline the strategies behind different institutional approaches recently explored by the European Union (EU), the Organization for Security and Cooperation in Europe, the Organization for Economic and Cooperative Development, the United Nations Development Programme, the United Nations Environment Programme (UNEP), NATO, and the IUCN-World Conservation Union.


Kurt Lietzmann

According to Carius, efforts to institutionalize environment and security concerns in European institutions remain in their infancy, in particular, efforts to address environment and conflict linkages. The concepts and linkages are imprecise because the research ranges from conflict management to resources. Also, Carius stressed the need to broaden the concept of security to incorporate issues such as human security. Many units within European institutions (economic and aid units especially) question the "fit" of the environment and security framework for their issues. Yet, sections like the Directorate General XI-Environment of the EU and the European Parliament are increasingly setting out guidelines for action. However, global environmental institutions remain underfunded, making the creation of new institutions questionable.

Lietzmann traced the development of the environmental security ideas within the German Federal Ministry of the Environment. Starting in 1995, participation in the NATO/CCMS was adopted as a means to strengthen environmental policy. The environmental security perspective was examined and developed to make new allies at a time when international environmental negotiations were bogged down. Simultaneously, the German government convened German researchers to understand better the state of the environment in Germany. The product of that effort was the book being released at this meeting.

Efforts of UNEP and other intergovernmental organizations to institutionalize environmental security in the U.N. system have recently been blocked by G-77 [Group of Seventy-Seven] objections. Developing countries oppose expanding the mandate of U.N. organizations to intervene in advance of perceived environmental conflicts. An additional problem is that even if an organization sees the benefit of institutionalizing environmental security concerns, the complexity of the issue is not easily translated into policy. Thus, the linkages are there but the expectations of policymakers in these different international/regional organizations to use these concepts in designing policy are not.

This meeting was an opportunity for American policymakers, academics, and nongovernmental organization

representatives to hear the German and European perspective on environment and security linkages from a German academic and a German policymaker. Both speakers presented their observations on the current debate on environmental security both in European and U.S. circles as well as more globally. Additionally, both reviewed some of the different approaches of the larger groups examining these issues. The dialogue that followed between the speakers and the participants focused on the need to include broader sections of civil society and G-77 perspectives in the environment and security discussions. The participants also stressed the need to understand better the linkages between these two issues in order to more effectively address environmental degradation.

China Environment Series

The Working Group on Environment in U.S.-China Relations, a project within the Woodrow Wilson Center's Environmental Change and Security Project, has published its third issue of the *China Environment Series* (CES). A tool for researchers, policymakers, and educators, CES examines environmental challenges facing China and explores how U.S. foreign policy and assistance might be more effectively crafted to produce more environmentally sound development and better relations with the People's Republic of China.

"The linkage of global and local environmental issues has been highly under-emphasized in the environmental dialogue with China. Ultimately, a reconciliation of global and Chinese domestic environmental priorities may be more feasible than most realize. Indeed, if industrialized countries like the United States better acknowledge the unfamiliar conditions and needs of the developing world, and if nations like China respond carefully but openly, there may be opportunity for a well-designed, equitable greenhouse strategy," writes Chris Nielsen. Nielsen is the executive director of the Harvard University Committee on Environment China Project, in his article "Perspectives on Global and Chinese Environment: Overview of the Harvard University Committee on Environment China."

In the spirit of exploring local environmental issues with regional and global linkages, the other four articles in the *China Environment Series* highlight changes and challenges in the Chinese transportation sector. Following is a list of featured articles in Issue 3 of the *CES*.

"Transportation Infrastructure and Land Use in China"
Robert E. Paaswell

"A New Era for Public Transport Development in China"
D. Tilly Chang

"Transport and the Environment in China"
Michael P. Walsh

"Present and Future Developments of Pollution from Urban Transport in China"
He Kebin and Chang Cheng

The first two issues of the *China Environment Series* featured an inventory of U.S. government and NGO environmental projects and activities taking place in China. In this third issue coverage has been broadened to include current and recently completed environmental projects in China undertaken by other countries as well. The inventory also includes a sample of environmental activities funded by multilateral organizations.

To obtain a copy of the *Series*, please contact the Jennifer Turner at 202-691-4233 or by email at turnerj@wwic.si.edu. You may also download a copy from the ECSP web site at http://ecsp.si.edu.

5 November 1999

Forest Futures: Population, Consumption, and Wood Resources

Robert Engelman, Vice President for Research, Population Action International
Tom Gardner-Outlaw, Research Associate, Population Action International
Nigel Sizer, Director of Forest Policy, World Resources Institute

The meeting highlighted the recently released publication by PAI entitled *Forest Futures: Population, Consumption, and Wood Resources.*

As a research and advocacy organization, Population Action International investigates the relationship between population growth and the availability natural resources and uses that research to explore and promote positive policy options to address the challenges of rapid population growth. Robert Engelman briefly touched on current and positive downward trends in population growth rates, but pointed out that continued overall growth in numbers and shifting consumption patterns mean that there will be increased pressure on natural resources into the foreseeable future. Forests have traditionally provided one of the most easily renewable resources important to human populations as fuel, raw material and in more recent history, as an essential element of communication and education through the use of paper. However, evidence suggests that as human populations have grown, forest cover has been more heavily exploited and the total global forested area has been reduced.


Robert Engleman

One statistic that graphically bears this tendency out is the ratio of forested land to human beings. As global population has grown, this ratio has dropped steadily. The amount of forested cover available to each person has declined globally by fifty percent since 1960. This ratio, currently at 0.6 per capita, is expected to continue to decline as total population continues to grow. Engelman defined the critical forest ratio as .1 hectare per person. Below this level, forest resources would be too scarce to successfully sustain global populations. He highlighted that one of the most critical variables in this ratio is the consumption pattern of current and future populations, particularly the consumption of tropical forest products.

Tom Gardner-Outlaw expanded on Engelman's general comments and supported them with particular findings from the recently released PAI publication entitled Forest Futures: Population, Consumption, and Wood Resources. Of the total current global distribution of forests, sixty percent are in developing countries and are primarily tropical. The remaining forty percent occurring in developed countries are temperate forests. When examined more closely, low forest areas closely correlate with areas of high population growth. For example, Asia has sixty percent of the global population, and only fifteen percent of global forest resources.


Nigel Sizer

The trends in forest cover have been very different in developing versus developed regions. In the period from 1990-1995, total forest area has increased in developed countries by 8.8 million hectares, while in developing countries it has fallen by 65.1 million hectares. Gardner-Outlaw pointed out that this high rate of decline in developing countries reflects a similar pattern in Europe when those countries were in a similar stage of economic development.

The report contains an extensive section on understanding forest loss and an examination of the factors behind loss. Gardner-Outlaw broke these causes into two categories: underlying and direct. Under the heading of underlying causes he listed population growth, economic growth, poverty, market failures and policy failures. Within direct

causes he listed agricultural clearing, industrial logging, infrastructure and industrial development and clearing for fuelwood and charcoal. Population and population growth play a role in all of these individual causes, but also in the relationship between these causes. In recent years, per capita consumption in the global wood trade has been relatively stable, but because of the overall growth of population, total global consumption levels have continued to rise. In addition, because many people in developing countries rely directly on forest products and cleared forest lands to maintain their livelihoods, consumption of these resources in developing regions has a more direct relationship to population growth. In contrast, trends in consumption of forest products in developed countries have been much more dependent on consumer preferences and less directly on population growth.

Thomas Gardner-Outlaw

According to Gardner-Outlaw, these trends have implications for the consumption of global forest resources and for the livelihoods of the various groupings of people reliant on these resources. Significantly, the increasing scarcity of forest resources would have a direct and adverse effect on the lives of women and children. Because women bear the primary responsibility for gathering fuel wood and carry the heavy loads to attend to the needs of the household, a reduction in forest resources could well mean a greater burden on the lives of women and girls. Conversely, improving the well-being and socioeconomic status of women could also lead to more sustainable use of forest and forest products.

A second important implication cited in the report is the future demand for paper as the main medium of communication and education around the world. Gardner-Outlaw pointed out that eight out of ten human beings have yet to reach the level of paper use considered necessary to achieve the basic needs of literacy and communication. If the resources to meet this gap are to be found, vast increases in paper availability will be necessary while at the same time, the excessive use of paper products in countries like the United States must be addressed.

Nigel Sizer, providing critical comments on the presentations and Forest, picked up on the issue of consumption. He highlighted consumption as an essential element in the forest debate, particularly when examining consumption rates in different regions. In the developed OECD countries, each person consumes an average of 160 kilograms of paper a year. In contrast, a person in a developing country only consumes an average of 17 kilograms in a year.

Sizer briefly outlined some of the current and proposed timber and wood product regulations, particularly in relation to upcoming and ongoing World Trade Organization negotiations. He highlighted the fact that most of these discussions deal with trade issues, but not with the issue of the growth of demand. The rapidly increasing demand for paper products has a knock on effect for water resources and pollution related climate change. He concluded that work must focus on reducing unsustainable demand for forest products through campaigns aimed at reducing consumption, by increasing recycling and by changing the methods of production to reduce the overall negative impact on the environment.

❑ *For a copy of the report, please contact Population Action International at: (Tel) 202-557-3400 or http://www.populationaction.org.*

22 November 1999

Trade and the Environment: Finding Common Ground

The Honorable William M. Daley, U.S. Secretary of Commerce
Ken Berlin, Attorney, Skadden, Arps, Slate, Meagher, & Flom LLP
Eric Biel, Office of the Secretary, Department of Commerce
David Festa, Deputy Director of Policy, Department of Commerce
Douglas "Jake" Caldwell, Program Director for Trade and the Environment, National Wildlife Federation
Gary Horlick, Partner, O'Melveny and Myers
David K. Schorr, Director, Sustainable Commerce Program, World Wildlife Fund

At a Director's Forum held at the Woodrow Wilson Center on 22 November, Secretary of Commerce William Daley said that while most Americans want open borders and understand the connection between free trade and jobs, the connection between free trade and the environment is "hardest to sell" and was a major bone of contention at the meeting of the World Trade Organization (WTO) in Seattle last December.

Responding to questions on what the U.S. could realistically hope to achieve at next week's WTO gathering, Daley said that if there is little consensus in this country on ensuring that trade does not lower environmental standards, there is "even less outside." He had just returned from an eight-month tour of other countries, and while he found "great concern" about environmental standards, there was little agreement on how that concern could be interpreted concretely by WTO ministers.


William M. Daley

According to Daley, officials in Washington have been taking an unprecedented degree of initiative in ensuring that future trade agreements take into account environmental concerns. His own Department of Commerce was a natural leader in this regard. The largest agency at Commerce is the National Oceanic and Atmosphere Administration (NOAA), which manages fisheries, endangered species, and coastal eco-systems. "So, I know the pressures that growth can put on the environment, and the need to protect places like our National Marine Sanctuaries. But I also know the needs of the business community." The recent agreement with forty-two nations to rebuild Atlantic tuna and swordfish populations was a good example of the close cooperation between NOAA and the other arm of the Commerce Department, the International Trade Administration, Daley said.

Daley also mentioned President Clinton's recent executive order requiring environmental impact reviews of every major new trade agreement, which came after months of dialogue with nongovernmental organizations (NGOs) such as the World Wildlife Fund.

The Ostriches vs. the Brickthrowers

In a roundtable discussion following the Commerce Secretary's presentation, David Schorr from the World Wildlife Fund said the very fact that Daley recognizes that there is no consensus outside of Washington is important. As the pre-Seattle news reported, the WTO meeting turned into a battleground between business and environmental groups, with the latter insisting that corporate profits not take precedence over the public's welfare. "Will the ostriches or the brickthrowers win?" chimed in Jay Caldwell, a panelist from the National Wildlife Federation. "I hope neither!"

Analyzing this lack of consensus, the panelists concurred that the heart of the matter consisted of the controversy over who has jurisprudence in cases affecting the environment. As lawyer Ken Berlin put it, when is it appropriate

to seek an international solution to problems affecting the global commons versus allowing individual countries to make their own rules? For instance, the United States has a law to protect sea turtles (an endangered species) from death through shrimp trawling, but this is being challenged by other countries in the WTO, on the grounds that the United States has no right to decide on this issue for the rest of the world.

The NGO community is also suspicious about whether the WTO is truly neutral. The "win-win" opportunities for trade and the environment propagated by the Clinton government are misleading, said Schorr, because "win-win" implies that current WTO rules are consistent with environmentally sustainable trade. The WTO, he went on, requires environmental rules to be perfect from a trade perspective, and this "trade purity" is unacceptable to most in the environmental field.

Providing the trade lawyer's perspective, Gary Horlick said that developing countries are cynical about the United States leading the developed world in imposing environmental standards—as long as the United States itself is a bigger polluter. In the view of the developing world, discriminatory regulations prevent them from fully employing their workers and enjoying the benefits of trade.

The panelists were at least encouraged that, thanks to Washington's recent initiative, the issue of trade is now inextricably linked to the environment. The win-win agenda "opens channels for dialogue that didn't exist before," said Schorr. Eric Biel from the Commerce Department thought that a WTO working group on trade and labor (which is another, less emotive way of categorizing environmental and social issues, he said) would provide a valuable forum beyond Seattle. And Caldwell said that he was hopeful that if the developed world listens more carefully to developing countries, then benefits such as market access and technology transfer could be offered in exchange for the raising of their environmental standards.

Environmental Financing in China

28 January 2000 and 9 February 2000

In the People's Republic of China, city and county governments are responsible for over fifty percent of total financing of environmental projects. The magnitude of need in China for innovative and inexpensive financing mechanisms to fund environmental protection and energy efficiency projects far outstrips the current capacity of both the central and local governments in China. In light of this challenge facing China, ECSP's Working Group on Environment in U.S. China Relations began a series of meetings to examine bilateral, multilateral, and private projects in China to promote the financing of environmental protection and energy efficiency projects. The January meeting discussed how past finance programs implemented by the U.S. Environmental Protection Agency (EPA) in the United States could hold lessons in promoting the financing of local-level environmental infrastructure projects in China. The February meeting brought together representatives from the International Finance Corporation and the Global Environment Facility to outline their current and planned energy finance activities in the People's Republic of China. Both meetings were funded by the National Oceanic and Atmospheric Administration and the W. Alton Jones Foundation. For more information about the Working Group on Environment in U.S. China Relations, visit http://ecsp.si.edu/china.

11 January 2000

Population Growth, Environmental Degradation, and State-Sponsored Violence: The Case of Kenya, 1991-93

Colin H. Kahl, Research Associate, Columbia's Center for International Earth Science Information Network CIESIN
Kent H. Butts, George C. Marshall Chair, Center for Strategic Leadership, U.S. Army War College

Demographic and environmental stress can be causes of civil strife when social schisms caused by natural resource scarcities and related social grievances create incentives and opportunities for state elites to engage in violence, according to Colin Kahl, speaking at a recent meeting co-sponsored by ECSP and the Africa Project of the Wilson Center. Kahl, a research associate at Columbia's Center for International Earth Science Information Network (CIESIN), addressed a group of practitioners, policymakers, and NGO representatives on the interrelationships among the three issues of population growth, environmental degradation, and violent conflict. Kent Butts of the U.S. Army War College provided critical comments that centered on the applicability of Kahl's research in formulating policy, including the need to adjust the hypothesis to account for different political, social, and historical factors in each case study.


Colin H. Kahl

Kahl argued that many scholars and practitioners have largely ignored the role of state exploitation and violence when examining the intersection between the issues of population, natural resource scarcity, and violent conflict. As such, Kahl has developed a state exploitation hypothesis that "generates several first- and second-tier effects" that could lead to conflict when combined with particular political institutions and forms of social organizations. The three important first-tier effects are renewable resource scarcity, economic marginalization, and demographic shifts. The two key second-tier effects are increased social grievances and state weakness. State weakness is the concept that factors like environmental degradation, resource scarcity, and population growth will lead to internal strife only if the strife will create "incentives and opportunities" for both individuals and groups to engage in violent behavior.

In developing this hypothesis, Kahl also argued that it is crucial to have explicit definitions of what environmental and demographic stress, civil strife, and the state entail. For Kahl, environmental and demographic stress is "a composite variable encompassing (1) population growth; and (2) the degradation, depletion, and/or mal-distribution of renewable resources." These renewable resources include for example, arable land, fresh water, forests, and fisheries. "Large-scale, sustained, and organized violent conflict within a political entity" which can include campaigns of terrorism, rebellion, insurgency, civil war, and revolution but not crime or riots, constitute civil strife according to Kahl. The state, meanwhile, is composed of "a set of governing institutions and organizations led and coordinated by individuals occupying offices that authorize them to make and implement binding rules for all people within a territorially demarcated area."

There are two intervening variables that must be considered in assessing whether state exploitation dynamics are likely to lead to civil strife. The two variables are institutional inclusivity and groupness. The inclusivity of state institutions refers to the degree to which key social groups are institutionally empowered to participate in, and influence, decision-making by state elites. In an exclusive state, on the other hand, decisions are made by a narrow group of state elites, allowing them and their allies "to exploit resource scarcities to manipulate social schisms to

advance their narrow self-interests, because the social costs of such policies are spread out across society while the benefits are accrued by the narrow clique at the top."

Groupness, the second variable, refers to the degree to which "clusters of individuals depend on distinct identity-groups (whether they be ethno-cultural, kin-, tribe-, religious-, or class-based) for physical, economic, and psychic security, as opposed to a number of overlapping and cross-cutting identity-groups." Thus, the greater degree of groupness in a society, the more likely the tendency will be toward organized violence, while a low degree of groupness makes conflict less likely.

Kent H. Butts

In looking at the role that state violence could play in countries plagued by severe population and environmental pressures, Kahl used the series of events that unfolded in Kenya, leading to violent conflict from 1991 to 1993 as a case study. Conflict became more likely according to Kahl's hypothesis, since Kenya was an exclusionary state with a high degree of uneven groupness. These two intervening variables created "incentives and opportunities" for state elites to exploit the natural resource scarcities in Kenya, leading to civil strife.

Kahl discussed the historical, political, and social factors of Kenya that he argues led to conflict when combined with the intervening and environmental and demographic variables discussed earlier. He provided an overview of the impact of the British colonial structure, the political division of the ethnic groups into two main factions, and the highly developed nationalistic sentiments among the ethnic groups.

Next, Kahl looked at the rapid and uneven population explosion in Kenya and the resulting land scarcity, which created sources of inter-ethnic and political strife. Adding to all this pressure, Kahl argues that the state exploited this natural resource scarcity, in an environment of exclusive institutions and uneven groupness, contributing to an outbreak of violence.

Butts' comments focused on the need for similar research exploring the links between population growth, environmental scarcity, and violent conflict. Both researchers and policymakers must work together to identify the drivers that will increase stability and provide scarcity solutions for the Third World, such as technology and population issues as they relate to land, including accessibility and availability for all parties. He also stressed the need for the developed nation to work with the governments of the developing world to find solutions to that will enhance local, regional, and global security by addressing natural resource scarcity and population issues.

This was an opportunity for practitioners and experts in the fields of population, environment, security, and the region of Africa to hear a political scientist's views on the role that the different issues play. The discussion focused on the need to incorporate more political, social, and economic issues into the model that Kahl developed as well as the ways that this research may be utilized in U.S. foreign policy. Several participants stressed that studies such as Kahl's can provide the tools to evaluate different situations around the world and formulate short-, mid-, and long-term policies to diffuse existing and deter potential conflicts. Building upon the work of other scholars such as Jack Goldstone and Thomas F. Homer-Dixon, Kahl emphasized that in his research demographic and environmental stresses are neither necessary nor wholly sufficient causes of violent conflict, acknowledging the participant's criticisms that other variables must be included when evaluating a crisis.

❑ *For more information, please see Kahl's article similarly entitled "Population Growth, Environmental Degradation, and State-Sponsored Violence: The Case of Kenya, 1991-93."* International Security *23:2 (Fall 1998).*

17 February 2000

Water and Population Dynamics: Case Studies and Policy Implications

Alexander de Sherbinin, Research Associate, Columbia's Center for International Earth Science Information Network (CIESIN)
Victoria Dompka Markham, Executive Director, Center for Environment and Population (CEP)

Governments must work to improve institutions at the local, national, and international levels to better address the social consequences of water scarcity and water pollution issues according to Victoria Markham and Alex de Sherbinin. The two authors presented findings from their edited volume of case studies, *Population and Water Dynamics*, at a recent discussion meeting sponsored by the Environmental Change and Security Project.

Victoria Markham presented an overview of the book's case studies and how the project attempted to make the lessons learned from the case studies applicable in a broad sense from both a management approach and a community approach. She stressed that global water consumption has increased six-fold in the last half-century. She identified both the direct and indirect impacts of the human population on the global water supply: the supply of freshwater per person is declining as population increases; dams and other large development projects are creating pervasive threats to freshwater ecosystems, as well as leading to population displacement; and agricultural and industrial runoff are major sources of water pollution. More indirectly, land use changes such as increased agricultural clearing, construction, and timber cultivation are all leading to greater deforestation and in turn, more runoff. Growing urbanization, particularly in developing countries, is increasing the competition for a limited supply of water. Climate change is disrupting the hydrological cycle creating more floods, droughts, and other natural disasters.


Victoria Dompka Markham

Markham also discussed the issue of finding a balance between water and population. Although traditional approaches have focused on increasing supply, she also examined the idea of demand management. Markham offered three methods through which policymakers can curb demand to more reasonable levels given increasing populations. One is to encourage drip irrigation, a more efficient technology that uses less water than traditional agricultural irrigation. Second, she discussed the concept of appropriate pricing at all levels of society. Pricing needs to be changed not just for the poor but also for wealthy urban populations who often pay far under what it actually costs to get water to them as a result of government subsidies. Finally, water management policies must be developed that address ecosystem and river basin management as well as the needs of local communities to find a balance between the actual water supply and human activities.

Next, Alex de Sherbinin reviewed the unique circumstances in five of the nine case studies and offered specific lessons learned and policy recommendations to address the problems. This case-study approach to water supplies was unique in that it looked at defining different approaches from the global management level to the more local community approaches. Additionally, for each case study selected, both population specialists and natural scientists participated to provide a balance between the ecological and demographic areas.

The case studies selected were divided into three research areas: examining aquatic ecosystems and the challenges of conservation, international river basins, and local participation in water management. The three case studies looking at aquatic ecosystems were in Guatemala, Jordan, and Zambia. For the presentation, de Sherbinin highlighted the critical issues at stake in Guatemala and Jordan. In Guatemala, health issues and subsistence rain-

fed agriculture were the primary issues for the local indigenous population while in Jordan, the focus was on restoring the wetlands to their original state through cleaning and better environmental management.

The authors chose three international river basins to highlight the conflicts between rising demands and a finite water supply and looked at Bangladesh, Mali, and Southern Africa. In Bangladesh, for example, de Sherbinin pointed out that in the south, the country suffered from floods as a result of the monsoon cycle but that in the north, inequitable distribution of water leads to severe water shortages and even droughts. The issue, then, is timing, not just the volume of water available.

The last three case studies, focusing on India, Morocco, and Pakistan, addressed the issue of local participation in water management, or encouraging local communities to take the lead on equitable and sustainable use of water. Examples from the presentation focused on the issues in India and Pakistan. In the case of India, water is declining leading to out-migration of about eight percent of the population to Bangalore, the Silicon Valley of India. Pakistan, on the other hand, demonstrates the issue of disparity in access to water in an agriculturally intensive zone, where the local population successfully argued that access to water is a fundamental human right. What all of these case studies showed, is that water and population linkages are numerous and have different implications. Water and population linkages included:

- recognizing that ecosystem conservation can also meet human needs (e.g., flood control or fisheries);
- recognizing the impact of urbanization;
- understanding that disparities in water use are often due to power relations and market forces (i.e. upstream nations versus downstream nations);
- scarcity and inequity more often lead to out migration rather than conflict;
- access to water is a human rights issue; and
- that community involvement and education are needed.

What do all of these points mean for policymakers? One, policymakers must improve institutions at all levels, particularly international levels, according to de Sherbinin. Taking a page from Aaron Wolf, a noted water expert at Oregon State University, the authors of each case study argued that the focus should be on the economic benefits of water not the hydrological needs when making bilateral or multilateral agreements to avoid future conflicts. Additionally, policymakers must find a balance between appropriately pricing water while protecting subsistence users. Thirdly, technology must be a blend of traditional and environmentally appropriate methods including technical training and assistance and communication among all stakeholders. Policymakers must implement demand management and small-scale engineering solutions to meet future needs while also studying the impact of urbanization on demand patterns. Finally, equitable solutions to groundwater sharing are imperative to ensure access for all people.

The discussion that followed centered on demand management techniques and improving technology to minimize waste water and to provide an adequate supply to everyone. On the demand side, participants addressed how to define appropriate water pricing as well as the value of focusing on economic benefits over water since it addresses underlying needs rather than promoting positions. As to technology, participants discussed the areas of technology that need to be promoted more, particularly industrial processes that can minimize the use of water while simultaneously reducing pollution.

❑ *To download a copy of* Water and Population Dynamics, *please visit the American Association for the Advancement of Science website at http://www.aaas.org/international/psd/waterpop/contents.htm. To read a review of the volume, please see Issue 5 (Summer 1999) of the* ECSP Report *at http://ecsp.si.edu/pdf/Report5-Sect4.pdf.*

29 February 2000

Oiling the Friction: Environmental Conflict Management in the Niger Delta, Nigeria

Okechukwu Ibeanu, Department of Political Science, University of Nigeria

The Niger Delta, once considered "the White Man's Graveyard," is viewed today as an important biological and economic source of wealth for its richness in biodiversity and for its immense oil reserves. However, according to Okechukwu Ibeanu, the extraction and production of oil by large oil companies in cooperation with the Nigerian federal government, has caused environmental damage in this extremely sensitive ecosystem. The government-petrobusiness alliance has exacerbated tensions between various local ethnic communities in the Niger Delta. Ibeanu presented his research findings on conflict in this oil rich but environmentally fragile region of Nigeria at a meeting co-hosted by the Environmental Change and Security Project and the Africa Project at the Woodrow Wilson Center.

Since the 1950s, when Nigeria began exporting large quantities of oil, the oil-rich southern region of the Niger Delta, known as the "oil belt," has been a massive source of revenue for the Nigerian federal government. Nigeria is the fifth largest producer within OPEC (Organization of the Petroleum Exporting Countries), and currently exports about one million barrels of oil per day with Shell Nigeria—the Shell Petroleum Developing Company, a subsidiary of Royal Dutch/Shell, producing about fifty percent of total oil exports.

Okechukwu Ibeanu

Oil and gas pipelines crisscross the region that has experienced many large spills over the last half century. One recent pipeline break resulted in as much as 13 million barrels spilling over an extremely confined space. These oil spills destroy the freshwater ecosystems, foul farmland, kill animals and endanger human life. In addition, canals built to support the pipelines impact the hydrology of the Niger Delta, creating a scarcity of water as well as acting as conduits to pass pollutants back into the ecosystem.

Environmental awareness among Nigerians is widespread and a number of local and international environmental nongovernmental organizational (NGOs) are trying to highlight the precarious environmental situation in the Niger Delta. Yet, Ibeanu stressed that no systematic study has been done on the environmental impact of oil production in the Niger Delta. The Nigerian environmental protection agency remains in its infancy (only ten years old), has limited financial and technical capacity, and is susceptible to corruption. In essence, the agency acts as a rubber stamp for lower standards by endorsing the oil companies' own standards. While oil exports constitute only thirteen percent of Nigeria's gross domestic product, they make up about eighty percent of government revenues, causing the government characterize continued production of oil as an essential Nigerian security interest. In contrast, oil is not central to the survival of the majority of people in the oil-bearing communities of the Niger Delta. Most rely predominantly upon agricultural and pastoral economies. These divergent dependencies have created what Ibeanu terms a "paradox of securities" in that the federal government's pursuit of oil-based "national security" has come into direct conflict with providing communal security for its citizens. The state and its oil company partners and the local communities of the Niger Delta hold very different perceptions of what constitutes security.

In order to ensure the viability of the oil production, the state has relied on the military to secure a stable environment for the oil companies, which together with state officials, constitute the elite of Nigeria. This alliance

was firmly cemented during the long military rule of Nigeria and continues today, as evidenced by the high level of corruption within the federal government. Thus, according to Ibeanu, the Nigerian government, in collusion with petrobusiness, has relied on conscious, systematic, and organized state violence against groups in conflict with the government or petrobusiness. This conflict often emerges when local communities assert their claimed rights to greater shares of the oil profits. But perhaps more importantly, this conflict arises when communities move to protect the local environment upon which they depend for their, livelihoods. In many cases, communities have been willing to resort to violence to end crude oil production if they perceive their human or communal security to be threatened.

The changing nature of ethnicity in Nigeria is another element that is creating instability and contributing to more conflict, says Ibeanu. With the introduction of oil money, many new ethnic groups are laying claim to the oil-producing land and resulting profits. This is not to say necessarily that "new" ethnic groups are forming, but rather that definitions of who constitutes particular ethnic groups are changing, primarily in response to the degradation of the environment combined with the flow of oil money straight into a corrupt federal government coffers. These ethnic groups are distressed that the oil companies misuse security forces to protect production of oil in the face of native claims to the land. There is a lack of accountability and transparency since oil revenues, which supposedly are part of the state income, are actually siphoned off by state officials and oil leaders.

In response to state violence, ethnic groups have mobilized to present their grievances. Ibeanu, however, was quick to point out that some ethnic group elites manipulate the environmental question to their own benefit, further degrading the legitimate claims of those communities truly in need. The paucity of infrastructure and the widespread deprivation in the Niger Delta present a stark contrast to the widespread financial value of the extracted resources, and explains the local demands for more resources, including schools, roads, and hospitals. The percentage of monetary resources derived from oil production that filter back to the communities has dropped from about fifty percent following independence to about thirteen percent in 1999. Communities are simply not seeing the benefit from the oil extracted from their territory. In sum, the tension in the Niger Delta is the result of competing demands of better living conditions for communities and elite self-interest. These competing demands are then fueled at an additional level by conflict between ethnic groups such as the Ogoni and the Ijaw.

The federal government, with the financial support of the oil companies, has responded in two ways. Historically, the military government responded with force as major tool of oppression (with the oil companies themselves directly calling in the military on occasion). With the recently elected civilian government, a new strategy of appropriate compensation has been introduced through the Niger Delta Development Cooperation bill. This program aims to send resources back to local communities in the Niger Delta. However, problems have emerged with this approach with struggles over which ethnic groups are located in the Niger Delta. Will resources be given to traditional ethnic groups living in the wider Niger Delta as defined by the ecosystem? Or will payments go only to the smaller oil-producing area within a subset of the Niger Delta. Hence, tensions have only increased between ethnic groups, a situation the oil companies have been quick to exploit. Moreover, a final level of conflict occurs over the source of funding for the new initiative. The government claims that the funds for this development initiative should come from oil revenues that currently go to the local communities. However, the communities insist that there is not enough money derived from oil revenues that goes towards community development and insist that the initiative should be funded by new government money.

Why does this conflict persist and what can be done about it? Ibeanu stressed that there is a continued misunderstanding of the problem on the part of the federal government, the oil companies, and the international community. He asserted that they are insistent that more money will resolve the issue. However, this money is being misappropriated. Instead of pouring in more money, Ibeanu recommended some fundamental policy changes to overcome the conflict: increasing local participation, encouraging further decentralization and democratization, re-addressing the issue of Nigerian federalism, and changing the mindsets of both local communities and federal government elites.

Despite past grievances, local communities need to begin moving away from viewing the government as the enemy and should seek to cooperate with the government in order to ensure change. On the other hand, the oil companies must be re-oriented in their focus. Currently, they concentrate too much on improving their image through public relations. Instead, Ibeanu suggests that the oil companies should view their activities in the long term. Transparency and openness of their activities will help to alleviate tension, especially if combined with infrastructure investment rather than

payment of compensation, which feeds corruption. Finally, oil companies must adhere to international environmental standards to show their commitment to protecting nature.

❑ *Okechukwu Ibeanu also spoke on this same topic at a Wilson Center public meeting, entitled "Petrobusiness, Politics, and Environmental Conflict in the Niger Delta," on 2 March 2000. Page 19 of this* Report *also features an article on the Niger Delta conflict by Ibeanu.*]

United States Initiatives in Energy and Environment in China

10 February 2000

The Honorable Leon Fuerth, Assistant to the Vice President for National Security Affairs
D. Howard Pierce, President, ABB, Inc.
Douglas Ogden, Vice President, The Energy Foundation

As China's economic growth continues, the country will be facing the need to greatly expand its energy infrastructure, attract foreign investment, and create policies to encourage renewable energy development. ECSP's Working Group on Environment in U.S.-China Relations and the National Committee on U.S.-China Relations co-sponsored a conference that brought together representatives from government agencies, corporations, and foundations to discuss challenges and opportunities for bilateral cooperation in promoting clean and efficient energy use in China.

The three keynote speakers were Leon Fuerth, Assistant to the Vice President for National Security Affairs; D. Howard Pierce, President, ABB, Inc.; and Doug Ogden, Vice President of the Energy Foundation. Leon Fuerth discussed how despite the tensions between the United States and China over the past few years, bilateral governmental cooperation on environmental and energy issues has continued to improve between the two countries. One notable new U.S. energy project in China is the Export-Import Bank Clean Energy Program Project, which will help to fund a Wind Energy Project in northern China. Howard Pierce highlighted how future trends in the Chinese energy sector combined with China's entry into the World Trade Organization will open up foreign oil and gas opportunities in the future. Doug Ogden outlined how The Energy Foundation's China Sustainable Energy Program is promoting energy efficiency and renewable energy policy development in China's industrial, buildings, electric utility, renewable energy, and transportation sectors.

Other speakers featured at this meeting were Marianne Bailey, Asia Program Manager, Environmental Protection Agency; John Boright, Executive Director, Office of International Affairs, National Academy of Sciences; William Chandler, Senior Staff Scientist, Battelle; Jan H. Kalicki, Counselor to the U.S. Department of Commerce; Ernest Moniz, Under Secretary of Energy, Department of Energy; and Ann Weeks, Associate Business Services, U.S.-China Business Council. This meeting was funded by the National Oceanic and Atmospheric Administration and the co-sponsoring organization, the National Committee on U.S.-China Relations.

13 March 2000

The Promises and Pitfalls of Environmental Peacemaking in the Aral Sea

Erika Weinthal, Lecturer, Department of Political Science, Tel Aviv University

The Aral Sea, once the fourth largest lake in the world, fell victim to Soviet-era irrigation schemes to grow cotton in Central Asia. By 1991, the surface area of the sea had been reduced by half and the volume by two-thirds; salinity levels had tripled from ten to thirty grams per liter, according to Erika Weinthal, who spoke at a public meeting of the Environmental Change and Security Project at the Woodrow Wilson Center on 13 March.

If the centralized Soviet system caused the problem, the break-up of the Soviet Union has greatly complicated the solution by creating new sovereign nation states competing for limited water resources. The new states of Central Asia, according to Weinthal, are anxious to demonstrate their sovereignty by controlling their natural resources, including water, and are not inclined to cooperate. This recalcitrance is exacerbated by the physical structure of the body of water, where post-independence borders mean that there are unequal gains to be had from cooperation, particularly between upstream and downstream users. Historical ethnic rivalries further complicate the issue and now, with the newly independent states, threaten to turn into interstate conflicts. Environmental protest, once encouraged as a way to challenge control from Moscow, is no longer tolerated in the new states.

Erika Weinthal

In an attempt to prevent interstate conflict, the international community has stepped in to help manage the situation with financial resources and management strategies. Weinthal highlighted several of these initiatives including the World Bank Aral Basin Sea Program, and the U.S. Agency for International Development-led attempts at management. She asserted that one potential explanation for the failure of both of these processes was the failure to penetrate the local level. In recent years, non-governmental organizations (NGOs) have stepped in to fill the local level role.

If cooperation around the Aral Sea is to succeed, Weinthal pointed to some necessary precursors. The first observation is that international activity in the region would be better served through donor cooperation. Second, the challenge of agricultural reform remains. The Soviet system of monoculture contributed heavily to the environmental problems in the area, and until there is a shift to less water intensive crops, there will be little reduction of the adverse effect of agriculture on the environment. Finally, direct funds should be channeled to programs aimed at strengthening civil society, and work to include communities and local NGOs in the decision-making process.

14 March 2000

Environmental Cooperation for Regional Peace and Security in Southern Africa

Larry A. Swatuk, Department of Political Studies, University of Botswana

A geographical and historical overview of southern Africa is a necessary starting point for discussing water issues in the region. Swatuk pointed out that the pre-colonial settlement structure of the region was focused along rivers, that regional patterns of trade followed the course of these rivers and generally remained within the geographically defined "basin structure." This structure was disrupted with the colonial era. State boundaries were overlaid on these natural structures to create political zones of exclusivity based on mineral and physical resource wealth. Infrastructure development and settlement patters were then re-focused to support extraction and exploitation. The colonial state attitude toward the environment was based on the attitude that resources determine borders, so that the more valuable the resource, the stronger the state. This attitude continued with many post-colonial governments. Each historical era has thus moved further away from the early settlement patters around water resources, and each era has posed new challenges to the human populations and state structures within the region.

History has thus created certain realities within the southern African region. Centers of population have been focused on areas of mineral extraction and are often located in areas that have insufficient natural resources to support these populations. This mismatch and shortfall is particularly apparent when one examines settlement patterns in relation to water availability. Population bases, in many cases, are far away from water sources, creating in some instances the need to literally make water run uphill. Historically South Africa has been the dominant state in the region, and that dominance continues today with South Africa accounting for ninety-three percent of the regional GDP. There is a high level of inequality within the region and within the individual states in the region. Some states are more urbanized, some states have a more developed civil society, and many states still rely on the production of primary products to fuel their economy. All of these realities must be understood in order to explore the strengths and weaknesses of the various proposals for environmental cooperation and the potential effect of that cooperation on regional peace and security.

Having set the historical, geographical, and political stage, Swatuk then briefly examined two examples of regional cooperation around the essential resource of water. In the cases of both the Okavango and the Zambezi basins, cooperation has emerged in a fairly ad-hoc manner, driven by the response to a crisis rather than by an overarching desire to cooperate. In both cases, the water resource is shared across several countries. Swatuk outlined some of the institutional bodies that have evolved around these basins, but pointed out that none of them has been particularly strong in developing, agreeing, and implementing legal or institutional management structures. He also pointed out that the growing importance of tourism has brought additional non-state actors into the forum including non-governmental organizations (NGOs). In the case of the Okavango, these NGOs are proving the most vociferous campaigners for cooperation and are driving the decision-making structure because of their relative international strength in comparison with the states themselves. Thus, in that situation, there is an essentially "accidental" conservation based on the ability to generate income and development from the tourist industry.

Swatuk concluded by stating that the increased activity of the traditionally weaker states in international discussions around the environment, and specifically water was one way in which they were building statehood. He tabled the idea that perhaps this type of internationally-driven resource cooperation could form the basis and framework for wider, more formal efforts to integrate environmental cooperation into the region as part of a larger effort to build peace and security.

19 March 2000

ISA Workshop on Environment and Conflict Research

THOMAS F. HOMER-DIXON, DIRECTOR, PEACE AND CONFLICT STUDIES PROGRAM,
UNIVERSITY OF TORONTO
MARC LEVY, VICE PRESIDENT, CIESIN
DAVID DESSLER, PROFESSOR OF POLITICAL SCIENCE, COLLEGE OF WILLIAM AND MARY
RICHARD MATTHEW, PROFESSOR, SCHOOL OF ECOLOGY,
UNIVERSITY OF CALIFORNIA, IRVINE
GEOFFREY DABELKO, DIRECTOR, ENVIRONMENTAL CHANGE AND SECURITY PROJECT


Thomas F. Homer-Dixon

Funded by a grant from the International Studies Association (ISA), this one-day meeting was an opportunity to bring together notable scholars studying the links between environment, population, and conflict in a meeting directly following the annual ISA convention, held in Los Angeles this year. Co-sponsored by ECSP and the University of California, Irvine Global Environmental Change and Human Security Project, it was held at the University of California, Irvine, Beckman Center.

Participants included many of the leading researchers discussing findings, methodology, and future research trends of the field. Thomas Homer-Dixon presented the findings, thus far, in the emerging field, while Marc Levy discussed the successes and challenges of the current methodology. Finally, David Dessler offered some avenues for further research, including adopting new methodologies to counter some of the current difficulties in research and data collection.


David Dessler

In a continuing effort to broaden ECSP's activities and audience, this was a unique opportunity to gather notable scholars in one room for a full-day session on the direction that environment and conflict research is taking. Geoffrey Dabelko and Richard Matthew have co-authored a rapporteur's report on the findings of this workshop.

For more about the ISA and its activities in the Environmental Studies Section, please visit its website at: http://www.isanet.org/.

❑ *Please see page 99 in the Commentary section of this* Report *for the rapporteur's report.*

22 March 2000

Land, Water, People, and Conflict

Jessica Tuchman Mathews, President, Carnegie Endowment International Peace
Robert Engelman, Vice President for Research, Population Action International
Geoffrey D. Dabelko, Director, Environmental Change and Security Project,
Woodrow Wilson Center

Political scientist Samuel Huntington famously prophesied a clash of civilizations in the wake of the Cold War. But for a group of environmental thinkers, the ending of the Cold War opened up the possibility of battles far more primordial than those fought along ethnic lines—namely, disputes over land, water, and other scarce resources.

These environmental researchers would prefer less money be spent on tanks and automatic weapons and more on solutions to the problems of population growth, environmental degradation, and inequitable distribution of wealth that, they say, are provoking political strife around the world.

The documentary film "Land, Water, People, and Conflict" explores the plausibility of associating a nation's security with a healthy environment. Screened at the Wilson Center on behalf of the Environmental Film Festival, the film is part of the *America's Defense Monitor* series critiquing the American military's relationship with the environment. Like the rest of the series, the film combines testimony from experts with opinions from regular people to make a compelling case for redefining traditional notions of security and defense spending.

For Jessica Tuchman Mathews, an expert who appears in the film, this new understanding of national security is the product of a gradual evolution over the past twenty years. At the panel discussion following the Wilson Center screening, Mathews explained that in the 1980s, but especially the 1990s, it became the trend within academic and policy circles to identify environmental degradation, population growth, and shortages of vital resources as threats to world peace.

Environmental problems contributed to the making of four of the six conflicts in which the United States became involved in the 1990s, Mathews said—namely, Haiti, Somalia, Rwanda, and the Middle East. (Conflicts in Bosnia and North Korea, she said, are not widely seen as outgrowths of environmental or demographic crises.)

Of these, Haiti is the most widely cited example of an environmentally induced political crisis. As the Wilson Center's Geoffrey Dabelko explained in article for the Autumn 1999 *Wilson Quarterly*, one cannot fully understand the 1994 coup in Haiti without taking into account its massive environmental problems. Decades of rapid population growth pushed Haiti's poor farmers into marginal lands, stripping the country of its forests and topsoil. They migrated by the thousands to the cities, where overcrowding and poverty provoked protests and riots. The instability weakened President Aristide's government and encouraged the 1991 military coup against him. It is unlikely that the coup would have occurred had the rural farmers been able to earn a living off the land, Dabelko argued.

Another environmentalist featured in the film, Michael Renner of the Worldwatch Institute, has written a book exploring the nexus between security and the environment. Renner believes that the greatest threats to security today come from within nations, not from invading armies, and points out that environmental crises often underpin, or else exacerbate, a nation's ethnic conflicts. During the panel discussion, Mathews picked up on Renner's concern about the rise of intrastate conflict, arguing that conflicts within nations are often made more acute by resource shortages or a burgeoning population. Environmental problems "further polarize societies that were already divided," she said.

Because environmental issues are seen as falling under a nation's "internal affairs," the international community typically does not pay attention until too late—i.e., when the strains produced by environmental problems lead to

outbreaks of violence. It is therefore rare for an environmental problem to be addressed at the prevention stage.

Mathews stressed, however, that "the connection between environmental degradation and population growth, and conflict is not at all inevitable." She noted that policymakers have an array of options at their disposal should they decide to give priority to ensuring that an environmental crisis does not become a crisis at a political or humanitarian level. Along with panelist Robert Engelman, Mathews recommended that countries:

- Calculate their Gross Domestic Product (GDP) to reflect more accurately the value of natural resources as well as real risks. An environmentally accurate GDP would "eliminate a lot of bad policy decisions," Mathews said. It would also be helpful to incorporate the many bilateral and multilateral environmental treaties into international law.

- Embrace "environmentally rational pricing," where the price of a resource reflects its true value.

- Tax products to compensate for the environmental damage they cause.

In closing, the panel said that the link between the environment and security is still viewed with skepticism, and military programs continue to receive a higher priority for funding. But panelists sensed that the tide was turning, and were hopeful that with growing recognition of the environment-peace link, it will be possible to avoid many conflicts. If countries use diplomacy rather than guns, said Engelman, these conflicts present a "tremendous opportunity for cooperation and compromise." And although organizations like the United Nations could play a role, Engelman, along with the rest of the panelists, said he puts most of his faith in the power of non-governmental organizations and the news media to raise public awareness of the need for preventive diplomacy. "Sociocultural change is absolutely essential" to the prevention of environmentally induced crises, Engelman stressed.

❑ *This summary written by Justine A. Kwiatkowski, Assistant Editor,* Wilson Quarterly. *For more information on the Environmental Film Festival, please visit their web site at: http://www.capaccess.org/ane/eff/. To order a copy of the video, "Land, Water, People, and Conflict," please contact the Center for Defense Information at 1779 Massachusetts Avenue, N.W., Washington D.C. 20036, Phone: 202-332-0600; Fax: 202-462-4559; or visit their website at http://www.cdi.org/adm/m&e.html. Please visit the Wilson Center web site (wwics.si.edu) for a copy of Geoffrey Dabelko's "The Environment Factor" in the* Wilson Quarterly *(Autumn 1999).*

ECSP on the Internet

http://ecsp.si.edu

- Download the *ECSP Report, China Environment Series, Climate Action in the United States and China, and PECS News.*
- Access bibliographic guides to relevant ECSP and China Environment literature.
- Browse through an inventory of work being performed on the environment in China.
- Search through summaries of ECSP and Working Group on Environment in U.S.-China Relations meetings.

28 March 2000

Integrating Population and Environment: Current Practices, Future Potential

Connie Campbell, Community Conservation Program Manager in Conservation Science, The Nature Conservancy
James Nations, Vice President Mexico and Central America, Conservation International
Anthony Anderson, Director, People and Conservation, World Wildlife Fund
Roger-Mark De Souza, Population and Environment Coordinator, Population Reference Bureau

WWF is committed to addressing and mitigating current consumption and population trends, according Anthony Anderson of the World Wildlife Fund (WWF) quoting a key provision of the WWF's Statement on Population and Consumption. Conservation and traditional environmental nongovernmental organizations (NGOs) like the WWF have, over the past decade, begun to incorporate population issues into their overall missions. These groups have recognized that without addressing these critical issues, they will be unable to meet their conservation goals. Likewise, population NGOs have also identified the importance of the links between environment and population, and are incorporating a conservation perspective into their work. In a meeting designed to survey current activities and future potential for integration, Anderson, Connie Campbell, and James Nations each presented the challenges and opportunities of incorporating population into their conservation-focused organizations while Roger-Mark De Souza presented ways to bring the environment into the work of the Population Reference Bureau.


Anthony Anderson

Integrating Population into Conservation Efforts

Drawing on her work on the Parks in Peril program of The Nature Conservancy (TNC), Connie Campbell presented six tasks that she sees as key to successfully integrating population into the work of TNC. One major challenge is identifying and hiring a staff who can work to integrate the two issues. A second challenge is how to institutionalize population within TNC. Within this challenge, there was the organization's institutional mandate to focus on communities, which gave them tacit approval to look at population. The third challenge relates to the conservation process. The four steps to this conservation process are: (1) eco-regional planning – the process of mapping the ecosystem including the impact of mobility and growth of human population; (2) site conservation planning; (3) conservation actions; and (4) measuring the success of conservation actions— including assessing the link of population and linking TNC's own efforts with those of local and regional NGOs. The fourth challenge that TNC faces is generating the resources and partnering with local NGOs to facilitate participatory research. Fifth, training or "updating" of senior management and partners will need to be done to ensure senior-level buy-in of including population matters. The final challenge, according to Campbell, is attracting and maintaining donor interest in these linkages.


Connie Campbell

James Nations of Conservation International (CI) discussed the transition that CI made from solely focusing on creating and protecting parks and natural areas to incorporating the role that population growth plays in conservation. The impetus for change came from losing the battle to conserve nature because population growth was most

rapid in the peak biodiversity hotspots. Some examples include the tremendous population growth in the tropical rainforest areas of Central and Latin America as well as in Central Africa. Three factors at CI allowed this shift from an exclusive conservation focus to including the examination of the linkages between the environment and population. First, the composition of CI's Board of Trustees changed, with new members more open to innovative methods, such as incorporating population into programs, as a way of increasing the effectiveness and capacity of conservation programs. Second, the director of the Board, Liz McCormack, saw the need to address population and advance the goals of the International Conference on Population and Development held in Cairo in 1994. Third, key staff members of CI also saw the link between natural resource conservation and population activities, and pressed for a change in organizational goals.

Roger-Mark De Souza

There remain, however, major challenges to integrating a population action program into a field conservation program, according to Nations. Large reproductive programs tend to focus on urban areas whereas conservation programs tend to be located in rural areas. Therefore, a primary challenge will be in how to introduce population initiatives into the sensitive biodiversity hotspot areas. Only through partnerships and the sharing of knowledge with other local and regional NGOs, will these efforts be successful.

New opportunities have arisen from this attempt to address the linkages, said Anderson. Population and environment, which have traditionally been viewed as respective edge or sideline issues, are now at the center of many debates with more attention paid to their mutual impacts. Although there is still a North-South divide on these issues, the gap has diminished more recently. There has been substantial success in promoting human development, leading to further declines in fertility. New coalitions have been formed. Finally, conservation efforts now work at the landscape level as opposed to smaller fragments, thanks in part to the integration of population since human population studies are usually studied at the larger level.

James Nations

To take advantage of these new opportunities, Anderson recommended a three-pronged approach to creating a population agenda. First, he suggested that NGOs must develop a population statement such as WWF has done with their statement of principles, and carry this out with policy briefs. Second, analyses must be conducted that look at key population trends in high biodiversity areas. Third, WWF and other organizations must secure financial and technical support and prioritize along geographic and thematic lines to ensure that the most vulnerable areas receive attention.

Incorporating the Environment into a Population Organization

Finally, Roger-Mark De Souza presented the challenges the Population Reference Bureau has faced in integrating the environment into its activities. PRB has addressed recently what he termed the three P's: problems, present situation, and potential. In other words, where is PRB coming from? Where is PRB now? And, where could PRB go from here? The challenges that PRB faces are a limited theoretical framework for having a direction of causality, the lack of a policy framework for addressing the linkages, the need to develop and compare data, and finally that much of the work on the two issues has been done in isolation.

Three opportunities have emerged from these challenges. First, the environment contributes to the continuing policy debate about the need for population assistance. Second, there are benefits for both the environment and population work through this integrated research. Third, new technologies such as geographic information systems have increased the capacity to study the two issues together. These opportunities in turn created three potential avenues for further activity. These are the potential for more interdisciplinary, collaborative research, better information sharing, and improved communication.

So, where do NGOs go from here? According to De Souza, collaboration must be furthered to approaches that yield better self-evaluation. For example, how do field-based organizations evaluate their population-environment approaches? They must collaborate with policy-based organizations in order for both groups to see the results of their work. Collaboration can also lead to better information linkages and better communication of results into policy and programs.

6 April 2000

U.S. Central Command Workshop on Environmental Security

General Anthony Zinni (USMC), Commander in Chief, U.S. Central Command
Sherri W. Goodman, Deputy Under Secretary of Defense for Environmental Security, Department of Defense
Alan Hecht, Principal Deputy Assistant Administrator, Environmental Protection Agency
Brigadier General Stephen Johnson (USMC), Deputy Director of Plans and Policy, U.S. Central Command
Terry Flannery, Director, DCI Environmental Center, Central Intelligence Agency
Roy Williams, Director, Office of Foreign and Disaster Assistance, U.S. Agency for International Development
Stephen Lintner, Senior Advisor, The World Bank
Charles Lawson, Bureau of Near East Affairs, Department of State
Douglas McNeal, Regional Environmental Officer, Environmental Hub, Ethiopia, Department of State
Kate Watters, Director of Programs, Institute for Social Action and Renewal (ISAR)
Richard Knapp, Research Scientist, Lawrence Livermore Laboratories, Department of Energy
Geoffrey D. Dabelko, Director, Environmental Change and Security Project, Woodrow Wilson Center
Kent Hughes Butts, Center for Strategic Leadership, U.S. Army War College

How can environmental issues exacerbate regional conflicts and how can environmental issues be used as a tool of U.S. diplomacy and as confidence building measures among regional actors? These questions framed the discussions for a joint Woodrow Wilson Center and U.S. Army War College workshop designed to provide CENTCOM (U.S. Central Command) with information and ideas for integrating environmental considerations into an overall engagement strategy. CENTCOM is the unified military command responsible for U.S. national security interests in the twenty-five nations that stretch from the Horn of Africa, to the Middle East and Central Asia.

Sherri Goodman, Deputy Under Secretary of Defense for Environmental Security, remarked how environmental security "has become an issue of importance to the Department of Defense because we now recognize that it supports the three elements of the national military strategy: shape, prepare, and respond." The national military strategy stresses the importance of "shaping" the international environment to promote U.S. national interests and to prevent conflict. Ms. Goodman underscored how defense environmental cooperation "is a useful, non-threatening tool for initiating early military to military contacts, for engaging militaries in preparation for more complex, cooperative efforts and partnership, and for overall promotion of regional and hemispheric stability."

According to Goodman, the U.S. military has demonstrated that it is indeed possible to meet requirements and objectives set out by the Department of Defense and still be "environmentally friendly." Domestically, the U.S. military is involved in several activities reflecting its environmental awareness and education. This knowledge, Goodman stressed, is now being shared with foreign militaries at a negligible cost, and with encouraging results. The U.S. military's environmental training and education can serve as a model for the armed forces of other nations facing similar challenges. Environmental degradation and its potential threats, such as water scarcity, are a common denominator among the countries under the purview of CENTCOM, and it is vital for the United States to cooperate with these nations on environmental issues.

General Anthony Zinni (USMC), Commander in Chief of CENTCOM, discussed the role of CENTCOM, which includes: ensuring uninterrupted energy flow from the Middle East; access to the region, which has economic potential beyond its oil reserves; freedom of navigation; and maintaining regional stability. The latter is the most important role the United States is playing in the area. Environmental threats, either man-made or natural, are growing in the areas under the purview of CENTCOM, and have the potential to threaten regional stability.

General Anthony Zinni

It is not oil that will be the liquid that causes conflict in the near future, but rather water. Looking at the Horn of Africa, the importance of the Nile on the region, as well as the droughts in Ethiopia, Somalia, Kenya, and Djibouti, it is easy to comprehend better the kinds of environmental problems facing this region. In addition, the Arabian Peninsula and Jordan are also experiencing difficulties in accessing water. It is estimated that the aquifer in the capital of Yemen, Saan'a, will run out of water by 2005, and Central Asia and Southwest Asia are also facing water problems.

The water issue, could lead to conflict and possibly involve the United States in the process. Interdependence among the countries in the region, such as Turkey's control over the water for Syria or Kyrgyzstan's control over the water needed by Kazakhstan are potential sources of conflict not to be underestimated. Ineffective water management from lack of experience as well as a lack of modern technology only exacerbate an already acute problem. Cultural barriers are also difficult to overcome as water, in the words of an old Islamic proverb, is not be sold or controlled, nor intended to be conserved, and thus, should be available to everybody to use and consume. Water diversion for irrigation purposes and upstream consumption also intensify the problem as they lessen the downstream flow of water. Water pollution is affecting the region as well. In Somalia, for instance, slaughterhouses located right on the water have so severely compromised water quality that not even reverse osmosis purification would be able to make the water potable and safe to use. Additionally, a lack of technological capability as well as prohibitive costs are hampering the development of techniques such as desalinization.

Water is not the only environmental problem affecting these regions. Depletion of resources and loss of biodiversity can cause soil degradation. This, in turn, can lead to migration to the cities, which suffer from urban explosion and become hotbeds for extremism. Population growth in Africa and in the Arabian Peninsula is also a great concern, as these regions may not be able to sustain such a high demographic density. Encroachment of territory is a severe problem affecting both the Horn of Africa and the Arabian Peninsula where fisheries are being depleted. These states are unable to protect their own territorial waters, which are being raided by foreign fishing boats.

Awareness is still a major problem in these areas of the world. There is a growing appreciation for environmental issues, and the U.S. military is trying to help promote awareness and emphasize the military's commitment to the environment. Zinni cited the cooperation with the Seychelles and their local coast guard, as well as CENTCOM efforts to help Kuwait establish a local environmental protection agency. The military can do a lot to monitor, watch, and observe environmental trends and problems, as well as cooperate with allies in the region.

General Stephen Johnson (USMC), Director of Plans and Policy at CENTCOM, outlined CENTCOM engagement goals and how they relate to environmental security. CENTCOM is a novice when it comes to environmental security and how the concept fits in with its mission. The following have been identified as potentially destabilizing environmental factors:

- Water access, quality, and control
- Transboundary resource competition
- Migration, refugees, and land use
- Public health/HIV/famine
- Industrial Pollution
- Environmental degradation/desertification
- Eco-Terrorism/war

Population growth, which is a serious concern of CENTCOM, will place enormous demands on resources, and increase the likelihood of disease, migration, and border conflict. Environmental degradation, especially in Central Asia, is of concern, as its impact is not yet fully known.

Like Goodman and Zinni, General Johnson stressed how environmental security has helped foster a productive, multilateral dialogue with key leaders in the area and has fostered cooperation. Environmental security transcends some of the regional tensions, and it benefits many nations. The concept of environmental security is appropriate for us in the military to use as it is reasonably low in cost, and gives the military the chance to

interact and learn from environmental experts and NGO representative. Environmental security is an engagement tool, one which has a win-win outcome.

CENTCOM has been involved in several environmental activities such as port and environmental security assessments in the United Arab Emirates, Jordan, and Seychelles, and more are planned in Kenya and Yemen. Humanitarian relief operations were carried out in Somalia and Kenya, as well as construction events such as a wash rack in Qatar and a water recycling system. A Fisheries Enforcement Mobile Training Team was deployed to Kenya in 1999. Education and training is also provided to representatives of foreign militaries, who come to observe how the U.S. military addresses environmental issues. However, although the scope for activity is larger, CENTCOM has no budget directly allocated to environmental security, and there are limitations to what the U.S. military can do.

The presentations and discussion of the conference all centered on non-traditional security threats, such as droughts, famine, and diseases. They presented the arduous challenges both the military and the civilian worlds must contend with in the future. Most problematic is the funding issue. Although much has been done as evidenced by the examples above, the limitations will continue without more money to increase activity in the region under the purview of CENTCOM. Concluding the meeting, the interagency and donor community representatives agreed that it was essential to work together and saw great promise in combining their efforts to address the issues of the region.

Environmental Nongovernmental Organizations in the PRC and Taiwan

31 May 2000

Chen Man-Li, Secretary General, Homemakers' Union and Foundation
Lu Hongyan, Environmental Volunteer Association of Sichuan University
Shi Lihong, Green Plateau Institute for Ecological Conservation and Development

The Homemakers' Union has been a major force in expanding environmental education, awareness, and citizen activism in Taiwan, according to Chen Man-Li, speaking at a meeting featuring three participants from the Elisabeth Luce Moore Leadership Program for Chinese Women 2000. Each participant gave a presentation on her work in environmental nongovernmental organizations at this 31 May 2000 meeting of the Working Group on Environment in U.S.-China Relations. Two of the women founded small environmental organizations in southwestern China. In 1995, Lu Hongyan established the Environmental Volunteer Association of Sichuan University, which aims to enhance environmental awareness and engender responsible action within the university community. In 1999, Shi Lihong founded the Green Plateau Institute for Ecological Conservation and Development. The mission of this new organization is to preserve endangered species and old-growth forests in the northwest Yunnan Province. Green Plateau also explores community-based integrated conservation and development approaches. In 1998, Chen Man-Li helped found the Homemakers' Union and Foundation-one of the oldest non-profit organizations in Taiwan. While the formation and range of permitted activities of environmental organizations has been much greater in Taiwan than in Mainland China, on both sides of the Taiwan Straits, environmental groups appear to face similar challenges in raising funds and motivating participation of local citizens in their environmental activities. This meeting was funded by the National Oceanic and Atmospheric Administration.

Shi Lihong

Chen Man-Li

13 April 2000

"Environmental Degradation and Migration" and "Sustainable Development: A Southern Perspective," a two-part meeting in the *AVISO* Policy Briefing Series

Steve Lonergan, Director, Global Environmental Change and Human Security (GECHS) Project, University of Victoria
Youba Sokona, ENDA Tiers Monde, Dakar, Senegal

Large development projects, such as the Three Gorges Dam, are a major cause of large human migration movements and will continue to be, according to Steve Lonergan, director of the GECHS project, speaking at a recent Environmental Change and Security Project (ECSP) meeting. Steve Lonergan discussed the links between human migration and the environment in presenting an overview of Issue 2 of *AVISO* entitled, "Degradation and Population Displacement." In addressing migration, Lonergan specifically looked at population displacement where environmental degradation might be a contributing factor as well as social, political, or economic factors. Some researchers have called these environmentally-displaced persons "environmental refugees," a term coined in 1985 by United Nations representative, El-Hinnawi to indicate:

> Those people who have been forced to leave their traditional habitat, temporarily or permanently, because of a marked environmental disruption (natural and/or triggered by people) that jeopardized their existence and/or seriously affected the quality of their life.

Given the controversy, however, in the migration studies community over using the legal term "refugee," Lonergan preferred to use the term "population displacement" to indicate a movement of people, usually not of their own volition.

Population displacements can be caused by several factors, although the primary factors, according to the United Nations High Commissioner for Refugees (UNHCR), are political instability, economic tensions, ethnic conflicts, and environmental deterioration. Examples of environmental deterioration include annual flooding in Bangladesh from monsoons, regularly displacing thousands of people, and the more recent issue of deforestation in Thailand, which has forced many Thais to abandon their homes. The problem, though, with viewing environmental factors as causes of displacement is that there is plenty of anecdotal evidence but not enough empirical data on the relationship, as there is with the other three primary causes of displacement.


Youba Sokona

Having detailed the basics about migration, Lonergan highlighted four key points about the links between migration and environmental deterioration. Despite generalizations about the relationship between the two issues, the field of migration research is complex because of the many separate political, social, economic, institutional, and environmental issues associated with the movement of people. One also needs to distinguish between voluntary and involuntary movements of people. The plethora of push-pull theories and dearth of structural theories of migration are an indication that generalizations often mask this complexity of migration decision-making. Second, the specific contributions of the environment to migratory patterns are hard to pinpoint, especially when those movements may be characterized as "voluntary" in nature. Movements can often be the result of a combination of factors. Third, there is an implicit assumption that migration provides immediate relief from environmental pressures when in fact it often only serves to increase pressures. A good example of this increase is when cholera epidemics or other infectious diseases break out in refugee camps. Finally,

there is a lack of good empirical data on the precise future intentions of the displaced individuals for the future.

After explicating these four key points, Lonergan offered several recommendations for policy. First, he stressed the need to develop a system to anticipate large movements of people and identify those populations that are "most vulnerable." In addition, it is essential to identify adaptation mechanisms, and how these mechanisms may be reinforced in particularly vulnerable communities. Third, more case studies of how environmental degradation affects migration should be funded. Fourth, practitioners should develop better communication and working relationships between the different human rights, population, environmental, and migration organizations. Care should be taken to involve migrants and refugees directly in the development of relief programs. Additionally, both policymakers and researchers must recognize the cumulative causality of environmental degradation and assist the regions receiving migrants and refugees to reduce the environmental impacts of large movements of people. Finally, Lonergan recommended providing assistance to those countries and regions that are most vulnerable to environmental change and identify them as human priority areas.

Following his presentation, the floor was opened to discussion. Participants focused on the need diminish the ambiguity that surrounds the terminology of the field and the need for better indicators to predict and prevent potential mass migrations. For example, in Issue 6 of *AVISO*, the authors define a human security index for measuring progress and decline of regions to show vulnerability to social, political, economic, and environmental tensions. While other early warning systems have been developed, they need to be refined to ensure better early preventive actions.

Next, Youba Sokona, one of five authors of Issue 5 of *AVISO*, entitled "A Southern Dialogue: Articulating Visions of Sustainable Development," argued that a global dialogue is needed on the links between environment and development. However, prior to such a global dialogue, a "Southern Dialogue" should be held in which the Southern states would offer their own visions of sustainable development. Developing countries have a wide variety of differences just like developed nations in their social, cultural, economic, political, and environmental factors, which will have an impact on their priorities, a fact that must be recognized by the North, according to Sokona.

Some of the most important lessons that the South has learned have been the need to articulate who is at risk, what role climate change will play in exacerbating that risk, what levels of coping mechanisms exist, and finally, what are the most effective coping strategies for developing nations to better respond to environmental crises. Sokona provided examples where these lessons are being applied now including the desiccation of the Sahel and the floods in Mozambique. The former offers lessons on how to prevent current widespread famine while the latter shows the challenges to development in many developing nations. In both of these recent events, the nations have shown that there are a wide variety of coping strategies including bartering, migration, social welfare, formal insurance, and education.

A long-term, critical challenge for developing nations that has already had severe impacts in some areas is climate change. Sokona discussed the many varied ways in which climate change can impact the development of nations. He also offered some ways in which the South is trying to combat climate change. Some of the coping strategies that can be used in climate change, but also in other areas of environmental degradation, include increasing and spreading information, building capacity both within nations and across regions, reconstruction projects, risk reduction strategies, and spreading the risk so as to minimize its impact.

Following his presentation, participants queried Sokona on how to measure the impacts and develop meaningful indicators for sustainable development in the South. This need to articulate meaningful indicators points out a key problem between the North and South. The developing countries have very different perceptions and aspirations of what signifies meaningful indicators, a difference that must be overcome within the South and between the North and South. Both presentations highlighted serious deficiencies in both research and in practice of addressing the problems of environmentally-induced migration and promoting sustainable development in the developing nations that is satisfactory to the nations involved.

❑ AVISO *is a policy-briefing series co-sponsored by ECSP through a funding arrangement with the U.S. Agency for International Development (USAID) and the GECHS program through a funding arrangement with the Canadian International Development Agency (CIDA). This briefing was the second* AVISO *policy briefing meeting hosted by ECSP since the inception of the partnership between the two institutions and their funding organizations. This meeting was a two-part* AVISO *policy briefing session featuring presentations by Steve Lonergan and Youba Sokona. For a summary of the first meeting, held 4 June 1999, please go to: http://ecsp.si.edu/water-food-security. To download copies of the first six* AVISO *briefings, please go to the GECHS web site at: www.gechs.org.*

18 April 2000

The Global Infectious Disease Threat and Its Implications for the United States

George Fidas, Deputy National Intelligence Officer for Economics, and Global Issues, National Intelligence Council
Lt. Col. Donald L. Noah, Armed Forces Medical Intelligence Center

New and reemerging infectious diseases will pose a rising global health threat and will complicate U.S. and global security over the next twenty years, according to George Fidas and Donald Noah, speaking at a recent meeting hosted by ECSP. The two speakers presented the findings of a recently released National Intelligence Estimate on "The Global Infectious Disease Threat and Its Implications for the United States" to a group of Washington policymakers and NGO representatives. Fidas detailed the findings while Noah, fielded epidemiological questions on the report.

In 1996, the U.S. intelligence community was tasked with exploring the issue of infectious diseases and its impact on U.S. national security. The Department of State and National Security Council commissioned the National Intelligence Estimate, following more than a decade of indications that infectious diseases were beginning to pose a global threat. This concern came, despite earlier eradication of some infectious diseases (such as polio) in many parts of the world. Many branches of the U.S. government as well as non-profit organizations had begun to study the threat that infectious diseases pose, leading in part to their inclusion in the Department of State's National Security Strategy of 1996.


George Fidas

This NIC report was released at a time of particularly high policy attention. Vice President Al Gore addressed the U.N. Security Council on AIDS and nongovernmental organizations released similar publications about the impact increasing incidences of infectious diseases are having on global security. More recently, at the World Bank meetings held in Washington, DC in April 2000, World Bank President, James Wolfensohn stressed the need to provide unlimited sums of money to poor countries to combat AIDS and other pandemics.

New and Reemerging Infectious Diseases

Globally, infectious diseases remain a leading cause of death, but are particularly pernicious in developing nations. Worldwide, of fifty-four million deaths, approximately one-third to one-half of them result from infectious agents, with most deaths occurring in developing nations and affecting children under the age of five. Some infectious diseases, however, have reemerged or spread more widely since 1973, including tuberculosis, malaria, and cholera. Many of these reemerging diseases are far more virulent than their predecessors and are often drug resistant.

Combined with these reemerging diseases, several new infectious disease agents have been identified since 1973, including HIV/AIDS, Ebola, and hepatitis C. These new infections have no known cure and replicate quite quickly. The seven most deadly disease agents are HIV/AIDS, tuberculosis, malaria, hepatitis B and C, lower respiratory infections, and diarrheal diseases, with HIV/AIDS and tuberculosis liable to cause the majority of deaths from infectious diseases in developing nations by the year 2020. HIV/AIDS in Africa is already taking a huge toll and the spread of this plague is only projected to increase over the next twenty years. Life expectancy in parts of sub-Saharan Africa, for example, has already decreased on average by ten to twenty yeas as a direct result of the AIDS epidemic.

Impact on the United States

Because microbes know no boundaries, public health threats from what were previously thought to be eradi-

cated diseases, and newly emerging diseases are a global threat and complicate global security as they sometimes exacerbate social, political, and economic tensions. The NIC report identified several major contributing factors to the spread of infectious disease that are global in nature. Each factor has been associated with certain infectious diseases. For example, human demographics and behavior can lead to the spread of dengue fever, sexually transmitted diseases, and giardiasis. Innovations in technology and industry can cause toxic shock syndrome and hemorrhagic colitis. Other factors, which can increase incidences of disease, include economic development and land use, international travel and commerce, microbial adaptation and change, breakdown of public health measures, and climate change.

What do these trends mean for the United States specifically? Despite a lower total of deaths from infectious disease agents than in the developing world, Americans are becoming more susceptible to infectious diseases through increased travel, the deployment of armed forces overseas, changes in human behavior and diet, changes in land-use patterns, and increases in international trade. Infectious-disease related deaths per annum have almost doubled over the last twenty years after the lowest recorded deaths in 1980. Tuberculosis for example, exacerbated by multi-drug resistant strains, and an increase in HIV/AIDS infections, has made a comeback. The next serious threat to the United States may come from an unknown or new disease, such as AIDS that emerged in the early 1980s.

Three Scenarios

Fidas also discussed three alternative scenarios developed in the report on the infectious disease threat over the next twenty years. The first scenario, and least likely, according to the NIC, is what is termed "Steady Progress," whereby there is a global "health transition." In other words, given the aging global population, declining fertility rates, socioeconomic advances, and improvement in health care and medical breakthroughs, noninfectious chronic diseases, such as diabetes and cancer would predominate. It is the least likely scenario, however, because there are pernicious challenges both demographically and socio-economically.

A second, and perhaps more likely scenario is one in which progress is stymied, where no progress is made in countering deadly infectious diseases such as the Ebola virus and HIV/AIDS. Microbial resistance to drugs will rise spreading infectious disease agents among large populations such as in China and India. But, unlike the first scenario, this "Progress Stymied" scenario is overly pessimistic about political and socioeconomic opportunities.

Finally, Fidas discussed the third and most likely scenario of the report, "Deterioration, Then Limited Improvement," in which there is a worsening of the disease threat and a deterioration in health services, but will in part be overcome by improvements both in the health field and in the socioeconomic circumstances of countries. Better preventive tactics and new pharmaceutical drugs will help to counter the spread of disease in developing countries with conducive environments such as increasing urbanization and continued levels of inequity and poverty. Fidas stated that this was most likely given the demographic predictions and the social, economic, and political factors.

In sum, although the "infectious disease burden will add to the political instability and slow democratic development in sub-Saharan Africa, parts of Asia, and the former Soviet Union, while also increasing political tension in and among some developed countries," according to Fidas, yet, there is hope. What happens in the future, will depend on improvements, preventive behavior, and what the world does to address socioeconomic and demographic factors today.

Discussion

Participants questioned the motives of Thebo Mbeki's recent statement that HIV does not cause AIDS. They speculated that his political denial is in part based on cultural treatment of diseases, and South Africa's fear of the economic consequences of negative press (i.e. declines in tourism revenues). Discussion also centered on globalization of diseases and what to do. Participants discussed five actions to ameliorate the impact of infectious diseases: (1) more funds must be spent on infectious disease research, particularly on prevention; (2) countries must educate the public on health, especially AIDS; (3) decision-makers must prioritize spending, which will require recognizing health as a security issue that can eventually affect civil society and democracy in countries; (4) cures must be found to these diseases; and (5) countries must work to improve access to health care and drugs.

❑ *This National Intelligence Estimate was the third report released by the National Intelligence Council that ECSP has highlighted at Center meetings. Others included one on "The Environmental Outlook in Russia" and another on "The Environmental Outlook in Central and Eastern Europe." Please see page 33 in the Special Reports section of this* ECSP Report, *for excerpts from this National Intelligence Estimate.*

20 April 2000

One Planet, Two Hemispheres: Green Politics from an Indian Perspective

Anju Sharma, Centre for Science and Environment, New Delhi, India

As the recent protests in Seattle and Washington attest, the problems associated with international institutions are now at the forefront of public consciousness. The International Monetary Fund (IMF), the World Trade Organization (WTO), and the World Bank have all come under heated criticism for flaws ranging from a lack of transparency to indifference to the need for environmental protection.

The latter concern was the topic of an ECSP public seminar featuring Anju Sharma, who gave a presentation on a book she co-edited with Anil Agarwal and Sunita Narain on environmental negotiations from the perspective of countries in the Southern Hemisphere. *Entitled Green Politics: Global Environmental Negotiations*, the book aims to increase the clout of developing countries in international environmental negotiations and to make the outcome of those negotiations fair to participants from both hemispheres.

Anju Sharma

Following her presentation, Justine Kwiatkowski of the *Wilson Quarterly* interviewed Sharma. She asked her to elaborate on how perspectives differ between Northern and Southern Hemispheres and on what would therefore be an equitable system of global environmental governance. Following is a transcript of the interview.

KWIATKOWSKI: Do you feel that the American youth protesting the World Bank and the IMF in Seattle and Washington in the past few months aided the environmental agenda of Southern nations? Or did they misrepresent the Southern views and goals?

SHARMA: The protestors meant well, though, I sense they are not entirely sure about what they want.

Actually, I am not so sure how much the protests in Seattle and Washington were linked. In Seattle, the protesters were concerned with issues such as Tibet and saving turtles. These are worthy goals, but they're what I call "sovereign issues," and the actions the protesters were advocating would infringe on the rights and sovereignty of other nations. The protesters were asking industrialized countries to put pressure on India and other Southern Hemisphere nations to deal with such sovereign issues, which is unfair. Protesters and the general public have to realize one fundamental thing: any loss of sovereignty has to be across the board. That some countries preserve their sovereignty while forcing others to cede theirs is unfair.

However, as a civil society movement, the protests in both cities were impressive. I perceive a general lack of activism in civil society in both Northern and Southern hemispheres, so in that way, the U.S.-based protests were heartening.

KWIATKOWSKI: What inspired you and your colleagues at the Centre for Science and Environment to collaborate on a book about green politics? What does *Green Politics: Global Environmental Negotiations* add to the debate?

SHARMA: We were inspired to put together *Green Politics* when we realized that few Southern countries had an overview of what goes on in global environmental negotiations—which is basically to promote the economic agenda of rich countries. Poor countries do not know what is going on in these negotiations, yet their environmental and economic future depends on the outcome. They have to realize how important these negotiations are, and hopefully

this book will aid in cultivating that understanding.

We would also like to start a dialogue so that people everywhere perceive the importance of democracy in a global context—especially countries in the Northern Hemisphere, which often overlook the need for equality and justice in their environmental negotiations.

KWIATKOWSKI: The thesis of *Green Politics* is that environmental negotiations have been transformed into mere "business transactions." Could you tell us what you mean by that?

SHARMA: Environmental negotiations become "business transactions" when the interests of the business world overtake a country's agenda. At major environmental conferences, developed countries tend to take positions that the industries in their countries want them to take. For example, at the Climate Change Convention, the United States took the position that their automobile and oil industries had instructed them to take. American car and oil businesses feared that their counterparts in developing countries would gain a competitive edge if the United States agreed to global environmental commitments, and so these native U.S. industries attempted to co-opt the process.

Clinton and Gore made it easy for American business to take over in that they did not talk to the Congress first to get a unified opinion—they just rushed off to the climate change meeting without a coherent opinion. That vacuum allowed the industries' perspective to dominate. And this conference is only one example of the North's failure to withstand business pressure. There are many others.

KWIATKOWSKI: One of the major obstacles to environmental management is the tension between economic development and environmental protection. You and the Centre have stated that the two goals can be accomplished simultaneously. Could you provide an example of how this tension has manifested itself in India—a beneficiary of World Bank money—and whether and how the tension was resolved?

SHARMA: The management of national parks is a good example of how this tension has manifested itself in India. India has adopted a Western concept of national parks—essentially declaring certain areas inaccessible to human beings. But that is not practical for our country with a large and expanding population, not to mention a tradition of a symbiotic relationship between the people and the land. This Western method has isolated Indian communities from wildlife management, in many ways stunting their understanding of the importance of preserving the environment— and thereby working against the very goals the policy set out to achieve.

Contrary to this Western conception, it is possible for human communities and wildlife to live together, but this only happens if the community is given responsibility for the resources of its land. If they have a vested interest in preserving the land and understand that it is their future, they will protect it. National parks in India remain as they are, however—scordoned off from the community. But there are a few examples of indigenous groups in India that have integrated with the forest again.

KWIATKOWSKI: Some people believe that environmental issues should be incorporated into existent organizations such as the WTO, while others advocate the creation of a separate global organization focused solely on environmental issues. What do you think is the best global governance framework for environmental protection, and how can it realistically be achieved?

SHARMA: The Centre for Science and the Environment where I work in New Dehli advocates a separate organization, one that acts as a counterweight to the WTO and addresses both environmental and development issues. Or, alternately, the U.N. could get its act together and become a more democratic and streamlined organization. As to whether it is possible or not, I am not sure. People have spoken about a separate organization, but if the current political nexus continues, it will not happen. It is in the current interests of the United States to keep the WTO dominant, and the United States determines most of what happens in the global environmental realm.

9-11 May 2000

Migration, Environmental Change and Security: A Great Lakes Simulation

COLLINS CENTER, U.S. ARMY WAR COLLEGE, CARLISLE, PA

Co-sponsored by
Woodrow Wilson Center's Environmental Change and Security Project (ECSP)
University of Michigan Population Fellows Programs
U.S. Army War College Center for Strategic Leadership

Through a series of role playing exercises, this three-day simulation enabled a mix of inter-agency policymakers from the U.S. government, representatives from intergovernmental agencies, international nongovernmental organizations (NGOs), funding organizations, and leading academics to explore the policy aspects of providing humanitarian and security support to migrating populations, moving due to a combination of factors including environmental degradation and drought. The simulation was set in the Great Lakes Region of Africa, an area characterized by high levels of population growth, a high dependence on subsistence agriculture within a fragile natural environment, and a high historical incidence of human insecurity and resultant population movement. In cooperation with the Center for Strategic Leadership, ECSP used the gaming techniques and facilities at the U.S. Army War College to create a simulated crisis in which "players" divided into negotiating teams to explore how various actors, ranging from state and military to international humanitarian organizations to the United Nations, cope and behave in a migratory situation with root causes in both human management techniques and natural environmental conditions. Before initiating the scenario, the speakers made presentations on current conditions in the Great Lakes region; on NGO-military cooperation in complex humanitarian disasters; on national and international institutions for addressing migration flows; and the state of scholarly work in the subfield of environmental change, migration, and security.

Burundi negotiates with the U.N. team.

Initial observations and conclusions from the exercise include the following points:

U.S. team deliberations.

- Too little policy and scholarly attention is paid to populations that endure severe environmental and economic stress but chose not to move.

- Even with strong incentives for adopting medium and long-range policy approaches to address underlying causes of migration, short-term humanitarian and security concerns dominate the agendas of even actors (such as NGOs) most likely to operate beyond a focus on security.

- Mechanisms for government to NGO and military to non-military communication and cooperation remain underdeveloped, thereby undercutting the effectiveness of response.

- The importance of the given local context and history cannot be underestimated in designing external interventions. Foreign assistance can be resisted in the face of severe stress for historical and local reasons that remain difficult for outside aid providers to appreciate. Knowledge is, therefore, critical to the success of designing

effective assistance and avoiding the temptation to apply a generic model to supposedly similar situations.

The simulation forum provided the opportunity for a variety of experts to step out of their normal roles, and away from the immediate work pressures of their office environment, to examine a problem from a new viewpoint, providing them with additional insight into other actors motivations and policy positions. For the majority of the participants, this was the first time they had taken part in such an exercise, and provided them with an open forum to think "outside the box" on a complex environmental, humanitarian, and security issue. This was the first of a planned annual collaboration between ECSP and the Center for Strategic Leadership.

Following is an agenda of the three-day simulation meeting at the U.S. Army War College:

9 May 2000

Plenary Session I:
Brief introductory presentations:
- Kent H. Butts, Center for Strategic Leadership, U.S. Army War College
- Geoffrey D. Dabelko, Environmental Change and Security Project, Woodrow Wilson Center
- Joanne Grossi, Office of Population, U.S. Agency for International Development
- Frank Zinn, University of Michigan Population Fellows Programs
- Scott Lloyd, International Security Affairs, Department of Defense
- Paula Lynch, Bureau for Population, Refugees, and Migration, Department of State

Presentations:
- Ambassador Grant Smith, Peacekeeping Institute
- Matthew Connelly, University of Michigan

Scenario Overview:
- Roy Alacala, MPRI, Inc.

Dinner Keynote Address
- Ambassador Richard Bogosian, Special Assistant to the Greater Horn of Africa Initiative, Department of State

10 May 2000

Final instructions for the scenario

Development of Initial Team Negotiating Positions
- Team Negotiations

Modify Negotiating Positions
- Team Negotiations

Prepare and Present Team Briefings to Plenary

Phase II Briefing

Development of Team Positions
- Begin Negotiations

End of Day
- Team Leaders and rapporteurs met informally to prepare team briefings

Dinner reception

11 May 2000

Plenary Session II:
Team Briefing Reports

Lessons Learned and Conclusions

❑ *A rapporteur's report of the simulation will be featured in the next issue of the* ECSP Report.

30 May 2000

Nature's Place: Human Population and the Future of Biological Diversity

Robert Engelman, Vice President for Research, Population Action International (PAI)
Richard Cincotta, Senior Research Associate, PAI
Cynthia Gill, Acting Biodiversity Team Leader, Global Bureau Center for Environment, U.S. Agency for International Development (USAID)
Kimberly Sais, Environment Program Financial Analyst, Global Bureau Center for Environment, USAID

What are the direct causes of biodiversity loss on Earth? According to Richard Cincotta, Senior Research Associate at PAI, the five main direct causes of biodiversity loss are habitat loss and fragmentation, biological invasion, pollution, over-harvesting, and human-induced climate change. Cincotta and Robert Engelman presented the findings of their recent PAI report, *Nature's Place: Human Population and the Future of Biological Diversity* at a recent ECSP meeting. Cynthia Gill and Kimberly Sais of the U.S. Agency for International Development provided comments on the report's policy relevance.

While biodiversity's importance has been recognized for some time, too little work has been done on what a loss of biodiversity will mean for the future. Similarly, what are the exact impacts human population growth and density having on ecologically-sensitive areas? The authors set out to more comprehensively document the direct and underlying causes of biodiversity loss, and specifically, in the twenty-five "hotspots" identified by Conservation International. "Hotspots" are defined by ecologists Norman Myers and Russell Mittermeier as the most threatened species-rich regions on Earth. More than 1.1 billion people currently live in these critical regions with the populations expected to triple in the next twenty years. These areas are especially important because although they cover only roughly twelve percent of the Earth's land surface, they are home to more than twenty percent of the world's human population.

Cynthia Gill and Kimberly Sais

Using geographic information systems (GIS) data from the World Conservation Monitoring Centre and Conservation International (CI), Engelman and Cincotta studied the linked between biodiversity with human population by overlaying satellite imagery. The two main data sources were global population data layers and the boundaries of species-rich threatened areas (primarily from CI).

Cincotta presented the findings of the report, including some basic facts about biodiversity. A simple definition of biodiversity that the authors used in the report was, "the sum total of life's physical expression and genetic potential, embodied in the array of organisms now alive." Biodiversity serves many purposes including providing marketable products (e.g., pharmaceutical drugs, fish stocks), fundamental services (e.g., soil nutrient cycle, pollination); and cultural, aesthetic, and scientific contributions to society. Biologist Thomas Lovejoy has compared Earth's biodiversity to a "library" wherein there lies a wealth of data.

In addition to presenting the five direct causes listed above that cause biodiversity loss, Cincotta also listed the four main underlying causes. These underlying causes include population change, poverty and equity issues, policy failures, and market failures. The role of population growth is particularly problematic as it increases the scale of demand, leads to human-dominated ecosystems, and creates habitat islands. For example, Lake Victoria in sub-Saharan Africa is a species-rich area that has become a habitat island, surrounded by areas of high population density.

What does this population growth mean for policymakers? Three policy challenges result from population growth and density. One, it increases the risks of native species survival, since humans bring in non-native species

such as grasses and trees when they change an ecosystem. Two, conservation becomes more difficult and expensive as the number of people in an area increases. For example, nine out of ten threatened species on the U.S. Department of Interior's list, are located in the three identified U.S. hotspots. Third, population growth creates the need for more efficient, more responsive, and greater numbers of institutions (e.g., regulations, policies, programs, and markets). However, an issue that conservationists face in a densely populated area is the issue of property value versus biodiversity. Property values tend to increase as local population grows, making it difficult to purchase adequate land to protect species. California is well-known example in the United States.

Richard Cincotta (l). and Robert Engleman (r)

Sais and Gill both commented that reports like *Nature's Place* are extremely useful for policymakers because they elevate the need to conserve threatened biotas while also addressing human population growth and density issues, thereby helping institutions such as USAID to achieve goals of sustainable development. The biggest change in USAID has been the unit of analysis, with a focus on eco-regional conservation, as can be seen in the case study of Madagascar. Gill also outlined the Global Conservation Program, which is working at different scales, experimenting to find the best approach to conservation. One of the main goals of this USAID partnership program is make sure that they broaden the message by targeting all the stakeholders and using participatory methods to ensure sustainable development practices.

Following the presentations, the discussion focused on the need to increase awareness of these NGO publications to congressional staff. While some efforts has already been made among congressional staff, more concerted targeting of the decision-makers will have an impact on conservation in the densely populated regions. Additionally, participants stressed the benefits of increasing private sector investment into biodiversity conservation, to create wider buy-in to the concepts presented in *Nature's Place*. ■

Population and Environment Linkages Service

New Web Site from the National Council for Science and the Environment

The Population and Environment Linkages Service brings comprehensive and reliable information to researchers, students, policymakers, government officials and others around the world who are working on, or concerned about, the linkage between population growth and the environment. It is in response to calls for such a service in the 1994 International Conference on Population and Development (Cairo Conference) Programme of Action. This project's innovative and rational approach to information, as well as the involvement of stakeholders in the process, seeks to facilitate greater access to material on population-environment relationships and promote more coordinated exchanges among researchers and others.

This service includes links to books, reports, journal articles, newspaper articles, news analysis, maps, conference papers, data sets, slide shows, organizations, regional overviews, laws, bills, and court decisions, from around the world. Different topics can be explored on this website including such issues as biodiversity, climate, conflict, demographics, development, fisheries, food, forests, freshwater, health, migration, policies, urbanization, and women.

For more information or to add a link to this site, please contact, Dr. Peter Saundry, Executive Director of the National Council for Science and the Environment at 1725 K Street, NW, Suite 212, Washington, DC 20006-1401. Phone: 202-530-5810; Fax: (202) 628-4311; and E-Mail: cnie@cnie.org.