

Foreword

by Geoffrey D. Dabelko, Editor

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The Role of Environmental Degradation in Population Displacement¹

by Steve Loneragan

INTRODUCTION

THE UNHCR IN THE 1993 *STATE OF THE WORLD'S REFUGEES*, IDENTIFIED FOUR ROOT CAUSES OF REFUGEE FLOWS. THESE were: political instability; economic tensions; ethnic conflict; and *environmental degradation*. The claim that environmental degradation was a root cause of refugee flows was a direct response to a growing number of articles positing a link between environmental degradation and population movement, and a recognition that the numbers of displaced persons internationally was much larger than indicated by the statistics on refugee flows.

According to many writers, the number of people who have been displaced by environmental degradation is immense. Jacobson (1988) notes that, "environmental refugees have become the single largest class of displaced persons in the world." Homer-Dixon (1991) further notes that environmental degradation is likely to produce "waves of environmental refugees that spill across borders with destabilizing effects" on domestic

...Immigration has been a substantial cause of the negative environmental news that must be mixed among all the good.... Thus, to what extent environmental problems can be blamed on U.S. population growth, the preponderance of that blame rests on U.S. immigration policy. Only a reduction in numbers will deal with the environmental problem. (Beck, 1996).

While some may feel that such claims are little more than disguised racism—a “greening of hate” might be a better term—it is important to accept that the issue of environmental degradation and population displacement has reached a level of “high politics” discourse. This is true whether viewing environmental degradation as a “cause” or an “effect.”

The purpose of this paper is to clarify the myriad of issues surrounding the linkage between environmental degradation and population displacement. The presentation on the following pages adopts a problem-based approach, attempting to answer crucial questions regarding, for example, the evidence of a link and the potential policy implications of the existing research. In addition, the concern is only with environment as a possible *cause of, or contributor to*, population movement, as opposed to the potential environmental repercussions associated with population movement. The latter concern, while very much in the public debate, has been addressed elsewhere (see Li and Loneragan, forthcoming).

THE ROLE OF ENVIRONMENT IN MIGRATION MOVEMENTS

Migration has been described as “an extremely varied and complex manifestation and component of equally complex economic, social, cultural, demographic, and political processes operating at the local, regional, national, and international levels” (Castles and Miller, 1993). As complex as migration is, the environment is equally so. And it is similarly problematic to remove environmental processes from the social, economic, political and institutional structures of which they are a part. Therefore, drawing a linear, deterministic relationship between environmental degradation and migration (and security) is not only inappropriate, but impossible, despite the claims of some authors. Nevertheless, we can try to identify certain cases where environment plays an important role as a *contributor* to population movement and attempt to design interventions to minimize the negative impacts associated with such cases.

1. How many refugees and migrants are there?

This is an almost impossible question to answer. The International Organization of Migration estimated that there were over 80 million migrants in 1990 (IOM,

1990). Fifteen million of these were refugees and asylum seekers. By 1992, estimates put the total number of migrants at over 100 million, of whom 20 million were refugees and asylum seekers (Castles and Miller, 1993). However, UNHCR (1995) acknowledges that collecting accurate statistical data on refugees and asylum-seekers is “one of the most problematic issues” confronting the agency, and these figures, indeed all figures cited in this article, must be treated with suspicion.

Nevertheless, rough estimates of the total number of displaced persons are often presented with abandon, either for shock value or for political reasons. Myers (1995) states that China has “120 million internal migrants, and at least ...six million deserve to be regarded as environmental refugees.” He goes on to say that there are now at least 25 million “environmental refugees” (Myers, 1995: 15). The International Organization for Migration (IOM, 1992) goes farther, noting that by the turn of the century there may be *one billion* persons who have been “environmentally displaced from their original habitat.” Such claims lead to much confusion and fear on the part of many, and provide ample “evidence” for those wishing to promote anti-immigration rhetoric in the North.

2. Even if we can not accurately estimate the number of migrants, what have traditionally been presented as the causes of migration flows?

The literature on migration is voluminous, and there will be no attempt to repeat this information here. Theories on the causes of migration flows can generally be categorized into two broad perspectives. The first is a “neo-classical economics equilibrium approach,” which suggests that population movement is a “natural” response to interregional differences in social and economic opportunities, and people generally move from where labour is plentiful and capital is scarce to labour-deficit and capital-rich areas. Thus, the level of development in various regions of the globe is seen as determining the magnitude and direction of migratory streams. Extensions to the neo-classical approach explain population movements based on a combination of “push” and “pull” factors; existing conditions at the place of origin may motivate an individual to leave, or qualities of the area of destination may attract a potential migrant. Demographic pressures, political instability, lack of economic opportunities and, more recently, environmental degradation have been posed as possible “push” factors.

The second approach criticizes the neo-classical economic perspective for placing too much emphasis on the free choice of individuals, and for neglecting the macro-structural forces which lie at the base of the regional disparities to which people respond. Population movements are not unique or isolated events, but

include environmental degradation or resource depletion as factors include Appleyard, 1991; and Massey, et al, 1993). This stands in stark contrast to the statements in *The State of the World's Refugees* (UNHCR, 1993), which clearly identify environmental degradation as a

are related to the international power structure and institutional organization. According to this “structuralist” approach, the explanation for population movements lies in the deeper, underlying forces which structure the unequal distribution of opportunities between regions. Population movements, then, are a response to broader structural forces in society, in particular those associated with the uneven penetration of capitalism which has created substantial spatial inequalities.

The difference between neo-classical economic theories of population movements and the structuralist approach influences all aspects of any discussion regarding the issue. Not only do the theories offer opposing views of the causes of refugee movements, but they also imply very different outcomes. The neo-classical approach, arguing that population displacements are natural occurrences, suggests that they are positive events and that policy development should reflect and reinforce the beneficial aspects of these movements. The structuralist approach, however, emphasizes that population movements are a response to unnatural imbalances in power and opportunities. Consequently, the negative aspects of population displacements are a function of inequities in development, and policy should be developed to address these imbalances and attempt to stem what must be viewed as a consequence of the inequitable distribution of resources in society.

3. What role does the environment play as a contributor to population movement?

a) The Advocates

Although there is growing awareness of, and interest in, the relationship between environmental change and population movement, the traditional literature on migration has largely ignored the connection. In their report to the Trilateral Commission (*International Migration: Challenges in a New Era*), Meissner et. al. (1993) never once mention environment or resources. Rogers (1992) in his discussion on migration presents four key indicators of “migration potential:”

- population growth;
- economic restructuring;
- increasing economic disparities; and
- increased refugee flows.

Again, environment is not mentioned. Other recent reviews on the causes of migration which fail to

Jacobson (1988) notes that “environmental refugees have become the single largest class of displaced persons in the world,” with an estimated 10 million environmentally-displaced persons in the late 1980s, compared with 17 million official political refugees displaced by warfare, strife and persecution (see Table 1). And the conclusion by the UNHCR is unequivocal: “There are, nevertheless, clear links between environmental degradation and refugee flows” (UNHCR, 1993, p. 18). While the UNHCR claim may be true, it does not necessarily follow that environmental degradation has been the cause of a majority of “refugee” flows.

b) The Contrarians

Despite these claims, it remains that there has been little substantive research directed at the question of the role of environmental change in population movement. Considerable confusion has arisen over definitions, the size of these “refugee” flows and whether one, indeed, can isolate environmental causes from the complex set of variables affecting population movement. While there is a sense that drastic environmental change may affect the structural forces which, in turn, link to population movement, the environment is seen as little more than a “contextual factor” which is taken into consideration in decision-making (Suhrke, 1992, labels this perspective the “minimalist”). The arguments presented by the “maximalists” (it is claimed) are ill-founded, and based on anecdotal information.

Table 1. Estimates of “Environmental Refugees”

be two or three similarly displaced people who move within their territory of nationhood—so-called “internally displaced persons.” Myers adds these two categories of population movement together and estimates the total number of “environmentally displaced” persons to be as high as 25 million (he further predicts, as

For example, Myers (1993) estimates that that for every person who moves across an international boundary to escape environmental pressures there may

source depletion on population movement may be even more important than these authors suggest.

4. What does “environment” mean in the context of migration?

Part of the difficulty in determining what role the “environment” plays as a cause of, or contributor to, population movement is that authors interpret “environment” quite broadly, or keep it ill-defined. El-Hinnawi (1985), for example, notes three categories of “environmental refugees:”

- Those temporarily displaced because of an environmental stress such as an earthquake, or cyclone, and who will likely return to their original habitat;
- Those permanently displaced because of permanent changes to their habitat, such as dams or lakes; and
- Those who are permanently displaced desiring an improved quality of life because their original habitat can no longer provide for their basic needs.

In these three categories, El-Hinnawi has incorporated three very different groups of migrants. In the first case, there is a temporary movement from physical danger; the second category involves development projects where individuals are forced to resettle within a region (and there is a question how many “internal” refugees are generated by these processes); and the third reflects a voluntary movement based on the “push-pull” model noted above.

It is useful to categorize environmental stress, as follows (Lonergan, 1994):

- **Natural Disasters**
Natural disasters include floods, volcanoes and earthquakes. They are usually characterized by a rapid onset, and their impact (destructiveness) is a function of the number of vulnerable people in the region rather than the severity of the disaster, per se. Poor people in developing countries are the most affected because they are the most vulnerable. (Droughts, despite a slower onset, are also included in this category.) Recent earthquakes in Pakistan and flooding in many regions of the world indicates not only the destructiveness of disasters, but their ability to displace large numbers of people.
- **Cumulative Changes or “Slow-Onset Changes”**
Cumulative changes are generally natural processes occurring at a slower rate which interact with—and are advanced by—human activities. The processes include deforestation, land degradation, erosion, salinity, siltation, waterlogging, desertification and climate warming. Human-induced soil degradation is one factor

which directly affects economic sufficiency in rural areas. Water availability is another factor which may affect sustainable livelihoods. Do factors such as water scarcity and human-induced soil degradation in and of themselves cause population displacement? The linkage is much more indirect; in most cases, one or more of rapid population growth, economic decline, inequitable distribution of resources, lack of institutional support and political repression are also present.

- **Accidental Disruptions or Industrial Accidents**
This category includes chemical manufacture and transport and nuclear reactor accidents. The two most obvious examples are the nuclear accident at Chernobyl, in the former USSR in 1986, and the Union Carbide accident in Bhopal, India, in 1987. Between 1986 and 1992, there were over 75 major chemical accidents which killed almost 4000 persons worldwide, injured another 62,000, and displaced over 2 million (UNEP, 1993). Most of these displacements, however, were temporary. In the case of the accident at Bhopal, despite the death of 2,800 people and illnesses to 200,000 more, there was virtually no mass movement of population out of the region.

- **Development Projects**
Development projects which involve forced resettlement include dams and irrigation projects. In India, for example, it has been estimated that over 20 million persons have been uprooted by development projects in the past three decades (Fornos, 1992). The Three Gorges Dam project in China - expected to displace over 1 million persons - and the Sardar Sarovar Dam project in India are the most notable present examples. Rapid urbanization in some regions of the world is also forcing people from their land; conversion of agricultural land to urban uses has long been a phenomenon in the North, and increasingly this is the case in the South as well.

- **Conflict and Warfare**
Environmental degradation is considered by many to be both a cause and effect of armed conflict. Although the evidence of wars being fought over the environ-

clear that the “environment” is merely a symptom of a larger conflict, and the root cause of any population movement is the conflict itself, and the reasons behind it.

5. *How does one reconcile these different aspects of environment?*

Collectively, it is claimed that these “environmental” changes have resulted in millions of displaced persons. The global deterioration of the environment, continued population growth, and increasing resource scarcity will likely play an increasing role in population movement in the future. But are these factors all “environmental?” And what are the links to migra-

nomic and institutional factors.

The same is true in all cases which are used as “evidence” of environmental refugees. The key factor is that certain populations are becoming more vulnerable to environmental change because of other factors; primary among these are poverty and resource inequality, coupled with population growth, institutional constraints, and economic insufficiency.

7. Is there evidence to the contrary? That environmental change is not linked to migration?

This question is equally problematic. Direct evidence refuting the claim that environmental factors influence population migration suffers the same difficulties of isolating one factor as all studies. Mougeot (1992) did review World Bank projects to determine if environment was a proximate cause of population movement and found no evidence of a connection, but the scope of this study was very limited. It is clear that there remains a need to better understand the linkages

have a strong attachment to the home area and thus a built-in inertia). A proper appreciation and understanding of the complexity and diversity of human responses to environmental degradation is essential if we are to identify the full extent of the phenomenon and plan accordingly.

- *It is extremely difficult to isolate the specific contribution of environmental change in many forms of population*

movement, especially those which are more “voluntary” in nature.

It may be relatively easy to identify the parallel occurrence of environmental degradation and popula-

velopment and its ecological, economic and social manifestations, and ensuring human security. More specific recommendations include:

- Develop a system to help anticipate migrations which might be triggered by environmental disruptions;
- Focus efforts on identifying adaptation mechanisms, and how these mechanisms might be reinforced in vulnerable communities and regions;
- Develop case studies of how environmental degradation influences migration, with specific consideration of developing procedures to assist those affected by environmental disruptions;
- Develop better working relationships among human rights, environment, population and migration organizations;

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U.S. Population Policy Since the Cairo Conference

by Craig Lasher

THE INTERNATIONAL CONFERENCE ON POPULATION AND DEVELOPMENT (ICPD), HELD IN CAIRO IN SEPTEMBER 1994, forged a broad new consensus on the international community's approach to population issues. Over three years after the conference, it is timely to explore the U.S. response to the conference and to the challenges posed by the new consensus.

The government has made real changes in its population policy and the programs it employs to implement those policies. At the policy level, the Clinton administration has elevated the attention generally paid to global issues while raising the priority attached in particular to population stabilization efforts, a welcome departure from the policies of the two previous administrations. On the ground in developing countries, operational agencies both inside and outside government have succeeded in formulating creative new initiatives that build on past experience yet reflect some of the new thinking about the design of family planning and reproductive health programs that took place in the lead up to the ICPD. But the pace of change has been dramatically slowed by funding cuts and restrictions imposed by Congress since 1994.

THE LEGACY OF CAIRO

The "Cairo consensus," as articulated in the conference's *Programme of Action*, incorporates a richer and more holistic view of population and development issues than the documents adopted at earlier international population conferences in Bucharest in 1974 and Mexico City in 1984.¹ The international community has for the last several decades recognized the importance of family planning programs to addressing global population problems. But the ICPD brought about a major shift by placing the discussion of family planning within an overarching ethical and policy framework of broader reproductive health and rights.² The conference reaffirmed that family planning programs should respond to the needs of individuals, and concluded that governments should not impose demographic targets on service delivery programs. In a departure from earlier conferences, the ICPD document breaks new ground in its frank discussion of such controversial issues as the need for sexuality education and contraceptive services for adolescents, the need to prevent unsafe abortion and female genital mutilation, and the importance of high quality reproductive health care.

lation, safe motherhood, and sexual and reproductive health, and to design the programs and policies associated with them.

In the end, the widespread focus on the serious public health problems of maternal health and unsafe abortion was a largely positive development, bringing these issues to the attention of a wider public. But the extended debate on abortion distracted attention from the broad goals of the conference and resulted in the relative neglect of other vital issues. In particular, conference discussions failed to adequately address the relationship between population, the environment, and sustainable development. In other cases, agreement on important factors such as HIV/AIDS and the role of men in family planning received scant public attention.

The absence of major North-South conflicts also distinguished Cairo from its predecessors. The effects of this classic division may have been dampened because the preparatory process leading up to the conference clearly recognized that both excessive consumption in the wealthier industrialized countries and rapid population growth in the poorer developing countries contribute to global population problems. As a result, the conference ended with 180 nations adopting, by consensus, a comprehensive strategy to address population and development issues over the next twenty years. For the first time in the history of UN population conferences, not a single official delegation rejected the entire document. All actors were able to claim victory. The more liberal U.S. and Western European country delegations, as well as women's and family planning groups, were pleased by the overall progressive tenor of the document. The Holy See and conservative nations and groups meanwhile claimed to have prevented what they perceived to be a conspiracy to undermine the traditional family and to make access to safe abortion a worldwide right.

A crucial feature of the ICPD document, with direct relevance to U.S. population policy, was the call for a dramatic increase in spending on population programs and the social sector. An agreement was reached in Cairo that roughly \$17 billion will be needed in the year 2000 and \$22 billion in 2015 for both family planning and broader reproductive health programs. In the early 1990s, worldwide spending on population is believed to have totaled \$4 to \$5 billion from all sources, including both donor assistance and spending by developing country governments and consumers. The *Programme of Action* calls for total expenditures to more than triple the funding level at the time of the conference and for the United States and other donor countries to increase their share of the expenditures from one-quarter to one-third of the total. Although the United States made no new explicit commitments on financing at the conference, the U.S. government had increased its population assistance funding by about

25 percent in the two years prior to ICPD. While several donor countries announced plans to increase population assistance, most other donor countries and developing countries made no new pledges at Cairo, undermining the prospects for implementing the new vision of population programs.

U.S. POPULATION ASSISTANCE AND ITS POLITICAL CONTEXT

The U.S. government initiated an international population assistance program in 1965. Despite recent funding cutbacks, the United States remains the single largest contributor of population and family planning funds among industrialized countries and the recognized world leader in the population field in terms of knowledge, expertise, and experience. U.S. population assistance has traditionally focused on expanding and improving family planning services. But the United States is now being looked to for the design and implementation of the broader agenda of new reproductive health care and women's empowerment initiatives agreed to at the ICPD.

The U.S. Agency for International Development (USAID), which implements the U.S. foreign aid program, has supported contraceptive services provided by both governments and nongovernmental organizations (NGOs), supplied contraceptive commodities, trained health workers and managers, and introduced creative new approaches to educating people about family planning and in reaching them with services. The international population and family planning program is widely acknowledged as one of the most successful U.S. foreign aid programs.³

Virtually every major innovation in the population and family planning field can be directly or indirectly linked to U.S. support. For example, USAID has pioneered a variety of successful approaches to extending family planning through the private sector such as social marketing, and the sale and distribution of contraceptives through existing commercial outlets at subsidized prices. Modern technology has also been effectively applied to the population field in the areas of mass communication and demographic data collection and analysis. In addition, USAID has supported biomedical research, which has been instrumental in the development of a number of new contraceptives, including several now in use by American couples.

USAID has built a strong public-private partnership with U.S.-based cooperating agencies—NGOs, universities, businesses—which have been indispensable to USAID. These partners can provide high quality technical advice and support to overseas field programs. USAID's dedicated staff of career experts on population and related areas and its substantial in-country presence are unique among donor agencies and have also contributed to the effective implementation of projects, as well as the success of country programs.

declares:

Stabilizing population growth is vital to U.S. interests. Economic and social progress in other countries can be undermined by rapid population growth, which overburdens the quality and availability of public services, limits employment opportunities, and contributes to environmental degradation. Not only will early stabilization of the world's population promote environmentally sustainable economic development in other countries, but it will also benefit the U.S. by improving trade opportunities and mitigating future global crises. There is now broad international consensus on the need for a comprehensive approach to population stabilization which, along with family planning services, incorporates reproductive rights and other components of reproductive health, women's socio-economic and educational status, and the special needs of adolescents.⁷

Specific strategies are then articulated as necessary

lescents and the health of infants and children); 3) to reduce population growth rates to levels consistent with sustainable development; and, 4) to make programs responsive and accountable to the people they aim to serve.

The new population strategy was adopted as USAID reconsidered its mission in the post-Cold War era. USAID has termed population and health programs as one of the pillars of sustainable development, along with protecting the environment, building democracy, encouraging broad-based economic growth, and providing humanitarian assistance. At the same

cial sector generally. As Dr. Nafis Sadik, UNFPA Executive Director and Secretary-General of the conference, stated, "Without resources. . . the Programme of Action will remain a paper promise."¹⁵

Grant aid for population programs from donor countries may have increased by as much as 25 percent in 1995, the latest year for which data is available.¹⁶ Bilateral population assistance for 1995 is estimated at \$1.6 billion, up from \$1.2 billion in 1994. Total population assistance in 1995, including World Bank lending and other multilateral sources, reached \$2 billion. However, a significant amount of the apparent increase in 1995 may reflect changes in the definition of population assistance rather than a real expansion in donor commitments. Starting in 1995, UNFPA has broadened its traditional definition of population assistance to incorporate the broader reproductive health initiatives for which cost estimates were developed in the ICPD action plan.

Several donor countries have significantly boosted funding for population programs in the lead up to or since the Cairo conference, most notably Germany, the United Kingdom, the Netherlands and Denmark. Nevertheless, overall donor assistance for population remains far below the trajectory required to achieve ICPD funding goals. Total donor assistance stands at about a third of the \$5.7 billion donor target for year 2000 adopted in Cairo. Allocations to population programs in a number of other countries, most significantly the United States, are moving in the wrong direction. Population assistance has suffered under downward pressure on foreign aid budgets in many industrialized countries. In other countries, a lack of priority for population programs remains a constraint on increasing contributions. The prospects for major increases in donor population assistance, therefore, do not appear promising.

U.S. population assistance, which in recent years has accounted for roughly half of all donor assistance, has declined by about a third over the last three fiscal years. Funding cuts and restrictions imposed by family planning opponents in Congress account for this decline. The recent cuts mean that the United States is even farther behind in meeting its appropriate share of the ICPD spending target for the year 2000, based on the size of the U.S. economy relative to other donor nations. Since the U.S. financial contribution has traditionally represented such a large share of total resources, the funding cut does not bode well for fulfilling the Cairo spending goals.

THE 1994 CONGRESSIONAL ELECTION AND THE U.S. RESPONSE TO CAIRO

The U.S. response to the new challenges posed by Cairo has been profoundly affected by a drastic shift in the political climate in Congress surrounding reproduc-

tive rights issues and in particular international population assistance programs. The euphoria among U.S. population organizations, resulting from the favorable changes in international population assistance policy introduced during the early Clinton years, as well as in Cairo, was short-lived and abruptly interrupted by the November 1994 congressional elections.

In the November election, the Republican party won a majority of seats in the House of Representatives, for the first time in forty years, leaving the Republicans in control of both the House and Senate chambers. The new conservative leadership in the House moved quickly to implement its vision of downsizing the federal government. While its legislative blueprint, the *Contract with America*, focused principally on domestic concerns, its emphasis on tax and spending cuts resulted in large reductions in foreign aid, including population assistance. Foreign aid was viewed as an easy target because of the widespread perception that international spending has no domestic political constituency.

As a result of the election, international population assistance opponents outnumbered supporters in the House, a stunning reversal of the situation prior to the Cairo conference. Although population assistance supporters continue to retain a majority in the Senate, they do so only by a slim margin. More importantly, the shift to Republican control left some of the principal critics of population assistance, such as Representative Chris Smith (R-NJ) and Senator Jesse Helms (R-NC), as chairmen of key committees and subcommittees with jurisdiction over population assistance.

This revolutionary change in Congress has meant a profound historical shift for U.S. population assistance policy. During the 104th and 105th Congresses, anti-choice opponents of family planning elected since the Cairo conference have sought repeatedly to reimpose the Mexico City Policy and to cut-off U.S. funding of UNFPA legislatively. These efforts have had devastating results for U.S. population assistance. The Clinton administration and pro-assistance members on both sides of the aisle have successfully beat back House Republican attempts to place additional abortion-related restrictions on USAID programs. But that success has come at a high price in terms of funding for international population assistance.

Since achieving a majority in the 1994 election, conservative members of the House have insisted that additional abortion-related restrictions be imposed on international family planning funding despite firm opposition from the Senate and the Clinton White House. Their goal has been the enactment into law of the so-called "global gag rule amendment," aggressively championed by its principal sponsor Rep. Chris Smith (R-NJ). The amendment would bar both multi-lateral and foreign nongovernmental organizations from receiving U.S. family planning funds if, with other

non-U.S. funds, they provide legal abortion services or engage in any activity or effort to alter the laws or governmental policies of any foreign country concerning the circumstances under which abortion is permitted, regulated, or prohibited.¹⁷

While the global gag rule amendment has not become law, severe restrictions have been placed on the release of population assistance funds in the three fiscal years since Cairo (FY96, FY97, and FY98). These restrictions are the price paid for blocking the efforts of family planning opponents to enact new population policy restrictions. For example, the FY96 foreign aid appropriations bill allocated just \$356 million for international population assistance. This level represented a 35 percent funding reduction from the all-time high for population assistance of \$547 million the previous year and was disproportionate to cuts in other foreign aid programs. But the drastic funding cut was also coupled for the first time with restrictions on the release of the funds. As a result, the population program has had severe disruptions that continue in some form to this day. The release of the appropriated funds was delayed for nine months, and the funds were then available only on a month-to-month basis at a rate of 6.7 percent of the total, ensuring that just a small fraction of the funds was actually spent in the remaining three months of that fiscal year.

The following year, population assistance funds for FY97 were delayed five months as a result of a compli-

- The executive branch from the President on down must continue to work to rebuild the case for U.S. involvement in global population stabilization efforts. By combining the health, rights, and women's empowerment agenda of Cairo with the more traditional economic, environmental, and national security rationale for a U.S. government role, policymakers may be able to marshal the support of the Congress and the American public in renewing the commitment to international population assistance as an essential part of this country's foreign aid program.

- Program managers, both inside and outside the U.S. government, must build on ongoing initiatives to improve the availability and quality of family planning services while at the same time increasing investments in the other reproductive health and development interventions highlighted at ICPD. The incremental approach adopted by USAID, relying on a careful assessment of reproductive health and development needs and the capacity of developing country governments to address those needs in a cost-effective manner, has proven to be the right way to operationalize the new vision of population programs adopted at the Cairo conference. But more clearly needs to be done in the future.

CORRELATIONS BETWEEN TRANSFORMATION OF

**1. ENVIRONMENTALLY CAUSED VIOLENCE:
A PHENOMENON OF DEVELOPING AND TRANSITIONAL
SOCIETIES (HYPOTHESIS ONE)**

Environmental conflicts² are caused by certain ecological problems of particular intensities. Yet these conflicts remain social and political events. Therefore, several attributes of conflict must be considered together for a complete explanation of environmental conflicts: actor characteristics, interests, actions, and outcomes based on those actions. The first hypothesis holds:

Violent conflicts triggered by the environment due to degradation of renewable resources (water, land, forest, vegetation) generally manifest themselves in socioeconomic crisis regions of developing and of transitional societies if and when social fault lines can be manipulated by actors in struggles over social, ethnic, political, and international power.

The ENCOP cases provide ample evidence for the assumption that developing and transitional societies—or, to be more precise—discriminated groups within those societies, are most affected by interactions between environmental degradation, social erosion, and endemic violence. Crisis areas susceptible to conflict are found in 1) arid and semi-arid plains (drylands); 2) mountain areas with highland-lowland interactions; 3) areas with river basins sub-divided by state boundaries; 4) zones degraded by mining and dams; 5) tropical forest belts; and 6) poverty clusters of sprawling metropolises. In these sensitive areas found in Africa, Latin America, Central and Southeast Asia, as well as Oceania, traditional society-nature relationships, regulated by cultural-specific approaches to the environmental problems, are acutely at risk.

All those conflicts have in common the phenomenon of marginalization of one or more actors. One major exception exists: inter-state conflict over shared river basins. Although there are cases where conflicts between upper and lower riparians occur in marginalized ecoregions of neighboring states, e.g., Eastern Anatolia in Turkey versus Syria and Iraq, in most cases geopolitical and strategic security issues stand in the foreground. Disputed water resources and rural development issues, (e.g. the farmers in Syria and Iraq), are shoved into the background. These priorities apply especially for regional water conflicts in the Middle East that transpire within the framework of historic territorial conflicts.

However, conflicts induced by marginalization of certain groups share the problem of discriminatory access to natural resources. Thus the concept of environmental discrimination is crucial to all the conflicts under consideration. *Environmental discrimination occurs when distinct actors—based on their international position and/or their social, ethnic, linguistic, religious, or regional identity—experience inequality through systemati-*

cally restricted access to natural capital (productive renewable resources) relative to other actors.

The conflict geography of environmental conflicts corresponds largely with that of regional conflicts. Conflicts tend to occur in the South, a pattern observed since World War II. In fact, the number of armed conflicts immediately after 1989 has risen sharply due to the collapse of the Soviet Union. In the early 1990s conflicts occurrence in the Eastern transitional societies has again ebbed slightly, and since 1994-95, a decline has taken place in the total number of violent conflicts and wars. This development notwithstanding, the number of ongoing violent conflicts in the South—particularly those of low intensity—is still high and probably increasing due to links with maldevelopment. This judgment results from various regional analyses which, in contrast to conventional war registers, include the assessment of unrest leading to bloodshed as precursors of environmental conflicts. For example, in Central Asia a number of such incidents of unrest have already taken numerous human lives but are not registered in available databases (e.g., Fergana Valley). Additional relatively low-level conflicts of this kind will likely escalate either in the short intermediate term. In these cases, environmental crisis serves as an indicator of likely state failure and thus expected major conflict (e.g., Northern Ghana).

Most environmental conflicts are carried out between actors within a country (see: fig. 1, A and appendix). In some cases, internal conflicts become internationalized (see: fig. 1, B). Most of those that do spread across borders involve migrants or refugees coming from war-torn or marginal rural areas of a neighboring country. Seeking fertile land or jobs, they cause political, social, or ethnopolitical conflicts outside their region of origin. The internationalization of internal conflicts can also be the consequence of new states created after the collapse of an empire. With the dissolution of the Soviet Union, for instance, the new Central Asian republics now face water distribution conflicts which suddenly have become international conflicts.

Finally, there are environmental conflicts between states which from the very beginning have an international dimension (see: fig. 1, C). Those conflicts may result from degradation of regional environments or the global commons. Contention surrounding ozone layer depletion and climate change (including sea level rise) are political conflicts with no major military dimensions to date. But today, international disputes arise especially between nations mutually dependent upon the cooperative use of international river basins. Although the cases examined in the ENCOP studies did not result in violent clashes, considerable potential for military actions persists among some upper and lower riparians (Baechler et al. 1996:158-165).

Distinguishing between the three levels A (internal), B (internal with interstate aspects), and C (inter-

state) only serves as a rough orientation to environ-

fertility by a growing number of rural producers, ethnically defined living space is giving way to ethnic mixing and social stratification. This process, which largely contributes to new clusters of ethnic groups facing environmental discrimination, is triggered by degradation of scarce resources. It may also be aggravated by modernization processes, on-going protracted violence or wars.

The competition over degraded lands has another dimension that overlaps with center-periphery conflicts. Huge areas of the most fertile land are under cultivation for monocultures (food and most often cash crops), or are serving commercial purposes of central governments (such as Wildlife Parks). As a result, increasingly less productive land remains exclusively for labor intensive food crops. Rural populations put pressure on available land and further stress the landscape. However, identity groups—whether tribes, clans, or ethnic groups—are in general not willing to surrender land which they claim as the land of their ancestors. Historically land use and land tenure disputes have led to deliberate violent measures. But only recently such traditional conflicts have been aggravated by the negative ecological impacts of maldevelopment in the rural sector throughout the developing world. Both environmental discrimination against identity groups as well as the availability of modern small arms have made these conflicts even more brutal (*see: appendix, A1.1-6*. Case studies by Baechler 1996II: 461-502; Klötzli 1996II: 247-336; Lume 1996III: 175-202; Suliman 1996II: 109-180).³

1.2 Center Periphery Conflicts (AII)

Relationships between members of the center and the periphery in developing countries often assume precarious forms owing to environmental transformation. National elites and international investors in the modernizing centers have certain economic, environmental, and energy policy preferences as well as opportunities at their disposal because of their access to resources including power. At the same time, the socioeconomic opportunities for most levels of the rural population prove to be extremely limited. Areas inhabited by poor rural dwellers are indeed often environmentally vulnerable and degraded. Environmental degradation also contributed to the development of rural and (per-) urban poverty clusters by undercutting health conditions, constraining productivity, and shortening time horizons for adequate reactions. A lack of resources makes it extremely difficult for the poor to escape the environment risks or to invest in risk-reducing and income-generating strategies (see section 1.4 on cross-border migration conflicts).

The catalysts to escalate center-periphery conflicts are primarily large cash crop farming projects, dams,

and mining. Globally-oriented companies pursuing capital intensive, high-technology and high-energy projects are confronted with identity groups dependent on natural capital with low or no commercial energy

ENCOP, namely the French nuclear tests in the Pacific, the worldwide protests were relatively moderate. Bloody violence and direct confrontation between the French army and protesting groups (including Greenpeace), however, occurred only in Polynesia, *i.e.*, in the immediate neighborhood of the nuclear explosions. The conflict was contained in the local arena far from the center of the globally acting player, France. Although this kind of globalized center-periphery conflict is an exception (Bhopal in India and other “accidents” did not have the same level of global response), it is indeed not inconceivable that in the near future asymmetric socioeconomic impacts of climate change, ozone layer depletion, and sea level rise will lead to similar constellations (*see appendix, A.II.7-19*) Case studies by Böge 1996II: 503-720; Claus 1996III: 269-2645; Okoh 1996II: 181-246; Schönenberg 1996III: 315-358; Schwark 1996III: 359-408; Wegemund 1996III: 285-314; König 1996III: 149-174; see also Böge 1993; Carino 1993 (manus.); Quimpo 1993 (manus.).

1.3 Internal Migration Conflicts (Type III)

Internal migration conflicts are triggered by either voluntary migration or forced displacement of inhabitants from one region to another within one country. The geographic origin of migrants or displaced persons is the primary criterion for conflicting social and political relationships between the actors. Migration is induced by structural changes such as persistent drought, flood, and soil erosion (desertification). Its direction leads from depressed areas to more favorable zones such as fertile rural or (peri-) urban areas. Although both push and pull factors work together, the push factors are stronger. Forced displacement and expulsion, on the other hand, are due almost entirely to push factors that often appear in connection with large (agro-) industrial, mining, and dam projects.

Inter-regional migration and displacement—as a special type of internal dislocation—pit people of the same ethnicity from different regions against each other.

landers and lowlanders, pastoralists and farmers, rural and urban population. Mountaineers for instance, drawn downwards by the quest for jobs, income, and land, get caught in competitive situations with indigenous populations. The distinct society-nature relationship of newcomers and settled populations triggers tensions, clashes, and in some cases violent conflicts.

Thus a myriad of social interactions emerge. In locally overpopulated and degraded mountain regions with nomadic cultures and few off-farm opportunities, environmental degradation and stress prompt major migration waves into irrigated areas and into urban fringe with resident farming cultures. Integration of former livestock breeders is difficult in large irrigated areas with monocultures (*e.g.*, Himalayan pastoralists

in the plains of Central Asia). On the other hand, farmers also migrate from eroded highlands into fertile valleys settled by semi-nomads (*e.g.* in the Horn of Africa). Thirdly, conflicts emerge if semi-nomadic pastoralists flee from persistent drought and soil erosion to semi-arid and subtropical mountain regions

by environmental discrimination intensify conflicts where the economic situation is eroding and political instability deepens lines of conflict. In some cases the use of violence opens pre-colonial divisions between rival identity groups.

Environmentally-induced migration normally takes the form of slow infiltration over a long period of time. People move into areas that either permit survival or provide favorable living conditions. Only in exceptional situations such as acute drought do massive flights occur spontaneously. The escape routes are diversified. In many regions it pays to cross the national frontier because more favorable foreign destinations lie geographically nearer than the remote capital of one's native country. Frustration and despair can explode into violence in host countries or transboundary regions populated by hostile identity groups or by earlier migrants from common identity groups who show hostile behavior toward the newcomers. Occasionally the routes also lead to the northern industrial countries.

The following key factors hold for both internal migration and displacement as well as cross-border migration and flight.

1. *Problems arising from poverty and poor state performance:* As mentioned above, the largest proportion of populations in developing countries settles in rural areas. Some poverty clusters suffer not only from environmental discrimination but also from insufficient infrastructure, unclear or competing land ownership, sub-division of already small plots, and lack of credits. Phenomena as varied as soil erosion, heavy rains and flooding, drought, salinization, deforestation and woodland clearing, and overgrazing of savannas accelerate the dissolution of traditional living orders. Such living orders include specific ensembles of economy, culture, neighborhood, and kinship groups (families, lineages, and clans). Reaching a point of no return, people have no choice but to give up their homestead. At the same time market economies absorb only a few rural dwellers who are drawn out of their traditional environment. The market induces a highly selective dissolution of traditional structures. Thus landscape degradation belongs to the very transformation that has produced most of the migrants and refugees leaving their degraded environment to date.

2. *Problems arising from modernization:* Problems of modernization include mechanized farming, mining, and urbanization. The various side effects of these activities—such as a total loss of land, the use of fertilizers, salinization, and pollution—encourage rural dwellers to withdraw. They have in fact only two alternatives: either move to more marginal lands and clear them, or join the marginalized in (peri-) urban areas. Shrinking lakes (Aral Sea, Lake Chad), flooding, irri-

Another indicator of demographically induced migration is the clearing and cultivation of new land in remote mountains, in deltas, and in ecologically sensitive coastal areas. Landless people and semi-nomads gradually move into protected zones in urban areas or into national parks. Social unrest can recur as these movements provoke clashes with governmental troops and contribute to politically unstable situations (*e.g.*, the Maasai in Kenya and in Tanzania). Acute conflicts occur if the discrimination is perceived as tremendous by the actors affected. The threshold for discrimination depends greatly upon the perception and varies from case to case. Generally speaking, discrimination is perceived to be unacceptable when social and/or ethnopolitical factors accumulate, facilitating group identity building (*e.g.*, between Bengali immigrants and residents of Assam province in India).

Population dynamics accelerate the impact of other key factors such as poverty, inadequate land use and land tenure systems, environmental transformation, and poor state performance. This constellation of factors encourages cross-border migration, which—in the context of violent coups and civil wars—assumes the form of mass flight, (*e.g.*, in the Great Lakes region in Africa) (*see: appendix, B. V. 25-27. Case studies by Hafiz/ Islam 1996II: 1-108; Ehrensperger 1993 (manus.)*).

1.6 International Water Conflicts (Type CVI)

International river basins are the most obvious example of the general contradiction between ecoregional boundaries and state borders. The asymmetric dependence of upper and lower riparians on an international river basin triggers political tensions, international bargaining, and military threats. Since lower riparians are more vulnerable than upper riparians they can easily receive discriminatory access to fresh water resources. River pollution and water distribution conflict are distinct problems. The former refers to the substantial degradation of resources, whereas the latter refers to economic scarcity. Pollution conflicts are represented as strife over an indivisible public good that affects levels of pollution, political responsibilities, and economic costs. Since neighboring riparians have a vested interest in solving pollution problems cooperatively—in win-win solutions—such conflicts are easier to resolve than those over access to the resource *per se*. Distribution conflicts turn out to be conflicts over divisible public goods. They are perceived as zero-sum games. Discriminatory access to scarce water resources affects national sovereignty and integrity more directly than pollution. Both pollution and distribution can obviously appear in combined forms which complicates the search for cooperative solutions.

International conflicts over water use develop in the context of strong riparian interest in securing access to the shared water resources, of asymmetric power

distribution among riparians, and of the quality of the multilateral relations generally. Conflict dynamics also depend on climatic and geographical conditions, population growth, the economic structure, and the state ability to cope with vulnerability. Therefore, in addition to given hydrologic conditions, the political and socioeconomic *milieu* is of central importance for settling international water conflicts. There is no direct linkage between water pollution and distribution on the one hand and the intensity of conflicts; it is the political context that matters.

In regions that suffer from seasonal drought if not from permanent water crises (*e.g.*, the Middle East), distribution and discrimination are highly sensitive issues, which are treated as threats to national security. Because water flow is easy to manipulate by riparians of a shared basin, scarcity conflicts in crisis-prone regions

catalyst for cooperation if political compromises are seen as desirable and technical solutions as feasible. Successful compromises or even institutionalized mechanisms of dispute settlement reduce the danger of water-use conflicts racing out of control.

Only if water issues coincide with extremely unfavorable political conditions will they become a trigger of warlike actions (*e.g.*, between Israel and Syria in the prelude to the Six-Day War). The asymmetrical geographic positions in the basin then come into play as the upper riparian puts pressure on highly vulnerable

However passing the threshold of violence definitely depends on sociopolitical factors and not on the degree of environmental degradation as such.

esis that environmental scarcity simultaneously increases “economic deprivation” and “disrupts key social institutions.” This is despite the fact that ENCOP refers to different theoretical concepts than ECACP. “Deprivation conflict,” as one general type introduced by Homer-Dixon, has comparable connotations as the ENCOP types: center-periphery, ethnopolitical, internal migration, and global environmental conflicts. The concept of “disruption of key social institutions” is incorporated in the context of this study with the concepts of *marginalization* induced by discrimination against certain actors on one hand and by poor state performance in certain areas on the other.

Moreover, environmental conflicts in most cases involve rural populations in developing countries struggling for survival. Modernization and a high dependence on degrading resources challenge the livelihood security of rural dwellers. The probability that conflicts will escalate is high when

- a major contradiction exists between economic expectations and/or a larger demand for resources on one hand, and limited development perspectives, degraded resources, and poor state performance on the other (e.g., few off-farm alternatives, lack of technical skills, and financial means);
- at least one of the actors involved perceives the resort to violence as the best alternative to other solutions.

It is necessary to include many “if-then” clauses when examining violent outcomes of environmental conflicts. Environmental degradation may be a background reason for a certain conflict, it may be a factor leading to channeling or cleavages along lines between distinct groups, and it may even be a triggering factor to a conflict dynamic. However, passing the threshold of violence definitely depends on *sociopolitical* factors and not on the degree of environmental degradation as such. Critical sociopolitical factors include the lack of institutional capacities for peaceful conflict settlement, the readiness and/or capacity of authorities and leaders to organize and mobilize collective actors, the (mis-) perception of alternatives to resorting to violence, the preferences and opportunities of actors, and actor limitations. These topics have to be examined in more detail to better understand when and at what point environmental conflicts turn violent.

2. INEVITABLE SITUATIONS AND THE LACK OF REGULATORY MECHANISMS (HYPOTHESIS TWO)

When considering the interests and the behavior of actors, action can be seen as the result of two consecutive filtering processes of decision-making. Concerning the first filter, how does transformation influence the opportunity sets of individual and collective actors? Related to the second filter, how does transformation shape actors’ preferences so that violent conflict is considered the mechanism for solving environmental conflict?

In all forty ENCOP case studies, transformation of society-nature relationships was perceived as *serious* in terms of both degradation of renewables and discrimination against actors highly dependent on their shrinking natural capital. Yet only *eighteen* of these cases crossed the threshold of violence. In *eight* cases there were wars, whereas in *ten* cases, there were violent conflicts below the threshold of war. In *twenty-two* ENCOP cases—of which none serve as control cases—neither war nor violent conflict was present. In *eleven* of these cases, minor incidences of violent actions occurred that were below the threshold of violent conflict. *Nine* cases experienced either military threat or political tension only. And in *two* cases, the disputed projects were dropped or postponed.

Against this empirical background the conclusion is reached that the resort to violence only occurs if and when some of the following *five key situations* coincide:

Inevitable environmental conditions: Group survival is dependent on degraded resources for which no substitutes are apparent and eventually the group faces an inevitable and therefore desperate environmental situation. Inevitability does not stand for a deterministic or functional approach to human behavior. *Inevitable circumstances* are environmental conditions upon which an individual or a collective actor cannot rely upon rationally or deliberately.

Scarcity of regulatory mechanisms and poor state performance: When a political system is incapable of producing certain social and political conditions, goals, such as sustainable resource use, become unattainable. The scarcity of regulatory mechanisms is either due to a lack of state outputs regarding resource management and livelihood security or due to a disruption of (traditional) social institutions designed to regulate access to resources. Migration, for instance, can be a result of the first type of scarcity (state output) and thus provoke the second type of scarcity (disruption of institutions).

Institutionalizing the environment: The environment is instrumentalized or manipulated by dominating actors to pursue specific group interests so that environmen-

tal discrimination becomes an (ideological) issue of group identity. Instrumentalization can reach from the up-stream manipulation of the seasonal water flow for

societies, countless and sometimes serious environmental conflicts are resolved by legal and political means. Negotiation, compromise, and mediation play a central role. The organized use of force is not a central part of political strategy.

A state's authority to act consistently vis-à-vis environmental transformation should encompass a large array of economic, social, and institutional instruments: assess suitability and support crop choices, enhance the workability of land, provide access to markets, make credit and cash available, introduce land property rights, etc. Most of such instruments are hardly available in the ENCOP case studies where an *appropriate choice* would sometimes have made the difference between degradation and sustainability. Local and regional areas if not the state as a whole are subordinated to the interest of the center, often more concerned about adhering to international standards on commercial and investment law than on internal developments outside the capital district. Parts of the marginalized population see the state as a bureaucratic apparatus or as a hostile agent for foreign interests that plunders national resources without redistributing the revenues to provinces and communities.

The establishment of subsidiary conflict and resource management mechanisms would presume more than a mere economic distribution logic. Yet precisely the lack of conflict-resolving mechanism prevents innovative practice. In many places the ruling political culture allows little latitude to manage resources subsidiarily, the lowest level possible (except on marginal and degraded lands of minor value). As a consequence, there is widespread insecurity concerning property rights. Property rights disputes have rarely been solved satisfactorily, depriving a prerequisite for effective local self-government and sustainable resource management. Property rights enhance livelihood security and thus contribute to labor-intensive improvement of the productivity of sensitive soils.

States with poor performance are unwilling to adapt existing international regimes to new challenges (e.g., Nile riparians). Nor are they committed to delegate substantial authority to supra-national regional organizations that aim at acquiring dispute settlement capacities (e.g., International Governmental Authority on Development, (IGAD) in the Horn of Africa). Existing environmental agreements often express good will, but they show a considerable lack of binding legal power and strict implementation. The search for the least common denominator, weak enforcement mecha-

tary conflict only emerges if specific fault lines accentuate it, if polarizing actions drive it forward and if groups are organized and mobilized. In order to do so leadership and arms are required.

means the conflict would not have occurred in the same way—or even at all—without environmental degradation being an important variable.⁶ The evaluation also indicates that the role of environmental discrimination—depending on the individual case—can be quite different. Its role ranges from discrimination being a background reason to the point where it is a proximate trigger to a violent conflict. In the causal analysis, therefore, it is critical to clearly distinguish among the various impacts environmental degradation has on the conflict behavior of actors.

3.1. Reason

First, transformation of society-nature relationships plays a role as a *reason* for conflict. It is perceived as almost predestined and, from the viewpoint of the groups affected, hardly within their power to ward off. This is the great background role of the environment being the permanent “noise” in the system. Transformation of landscapes in a historical dimension and its effects “act” as either hidden or clearly visible “system powers” by touching on the opportunities and preferences of affected actors in many ways.

Due to complex interactions, it is often hard to distinguish between the role of transformation of the landscape and the role of economic decline. However, there is an important difference between *economic* scarcity and *environmental* scarcity which has always been neglected in classic economics. Economic scarcity addresses the distribution problem of man-made goods between those interested in access to these goods. Environmental scarcity, on the other hand, highlights the input side of a third (external) factor, namely of natural resources provided by the landscape as a life support system (land, water, mineral, coal, oil, gas). Economic conflicts are political conflicts that deal with the production and (re-) allocation of human and physical capital, whereas environmental conflicts are political conflicts that are concerned with the availability of natural capital. The latter is a necessary prerequisite to any economic activity. The subjects of environmental conflicts are degraded sources and over-strained sinks. For example, eroded and marginal land trigger conflicts over access to productive land. Polluted water resources trigger conflict over access to rich fishery resources. Hence, the reason or the *casus belli* are the increasing availability of “common bads” and the discriminated access to scarce “common goods.”

3.2. Trigger

Second, transformation of the landscape plays a role as a *trigger* if actors perceive discrimination as inevitable. A trigger causes an actor who previously preferred non-violence to prefer violent action. Sudden events such as crop failures trigger migration and flight that lead

to violence. Violent action cannot be excluded as a possible outcome if livelihood security is at stake and organized actors face environmental discrimination (e.g., ethnopolitical conflicts).

The transformation of the landscape triggers violence if it is obviously caused by projects of third parties (e.g., mining company/central government on Bougainville and Dutch Shell/central government in Ogoni land in Nigeria). Generally speaking, transformation triggers violence if discrimination against actors is immediately linked with specific events leading to the destabilization, if not dissolution, of the social order. The latter may be caused by the use of marginal land or by specific project-related activities which create “national sacrifice areas.” Therefore, conflict analysis has to focus on how political institutions operate, on how socioeconomic structures fall apart, and how traditional ways of living are at stake.

3.3. Target

Third, environmental concerns become a *target* of discriminated actors if transformation of the landscape is what the conflict is about—at least in the eyes of one of the actors. In many conflicts, sustainable resource use may be an ultimate goal of actors highly dependent on their natural capital. However, protecting one’s resources against the intervention of third parties often stands in the foreground.

A target usually encompasses different sub-goals not always internally consistent. Resisting foreign intrusion into one’s own environment also presents a dilemma to discriminated actors. On one hand, resistance pivots around the natural and cultural environment to safeguard against invasion of modernity; on the other hand, it turns back the threat of marginalization by participating in modernization and development. Thus, environmental concerns—first having been a target in and of itself—become a reason for pursuing new goals. As we have seen in some cases, the struggle for self-determination, autonomy, and secession becomes the main target putting the environmental concerns on a sidetrack. Central governments tend to react to the call for self-determination by upholding national sovereignty and territorial integrity, and, if necessary, by use of military force. Since discriminated actors perceive the use of military force further proof of centralization and delegitimization, the goal of self-determination is justified once more.

3.4. Channel

Fourth, environmental concerns only indirectly serve as a *channel*. A channel is a line of political, social, economic, or national cleavage. Channels thus are designed to shape the group identity by manipulating existing sociopolitical fault lines.

Even though a high level of environmental degradation in a certain area shapes threat perceptions, channeling moves the environment to the background as ongoing conflicts proceed. Once a conflict escalates to war, it will hardly be waged primarily over the original reason or the trigger of the conflict itself. In the hot conflict phase, hostile parties tend to grasp for fundamental legitimization patterns and ultimate goals. Slogans such as “to be or not to be” or “they” destroy “our” resources, are mobilizing channels more than “land scarcity” as such.

Nonetheless, at the same time group leaders fighting for autonomy or secession may promise a solution to environmental problems. If self-determination will be achieved—so the assumption goes—“we” will not act as irresponsibly as “they” did. War therefore is not waged directly to solve ecological problems even though they may be a reason or a trigger. Similarly, war does not occur in order to defend the traditional way of life against the “attacks” of modernization. War is often about self-determination and national sover-

In individual ethnopolitical wars of medium and high intensity, resource degradation, competing land-use rights and tenure systems, population growth, ethno-social stratification, regionalism, and maldevelopment accumulate into an insoluble problem syndrome causing and/or triggering violent responses. A high intensity of violence with all its excesses ensues, touched off by war crimes, rape, massacres, and crimes against humanity including genocide (*e.g.*, Rwanda, Sudan).

In the foreseeable future, environmental conflict will not be a “world war” with a global front. A war between the United States and China to preserve the ozone layer, for example, would be absurd. Even classical inter-state wars—for instance between riparians of the same river basin—may remain an exceptional phenomenon due to intensified efforts concerning international agreements. However, in some cases, certain threat potential warrants careful monitoring (Middle East, Central Asia, Nile basin, and Mekong basin).

The growing problems of supplying agriculture, industry, and households with fresh water will become domestic problems. They will either be linked to conflicts due to the marginalization of rural poor or the creation of national sacrifice areas. Either way they are two sides of the same coin, namely environmental discrimination. Conflicts in marginalized ecoregions as well as in national sacrifice areas are by definition related to some clusters within states. Thus they fail to induce an overall conflict pattern affecting countries as a whole. More often central governments try hard to contain violence as much as possible within the area at stake. These attempts, if successful, lead to protracted low-intensity conflicts in focal areas. As a result, heterogeneity increases between highly productive rural

ENDNOTES

¹ Most of the empirical studies referenced in this article are found in Baechler *et al.* (1996) as well as in Baechler/Spillmann (1996 II, III). Some others exist as draft papers only.

² "Environmental conflict" connotes environmentally caused violent conflict and wars. Concerning the definition of war, refer to the concept provided by Istvan Kende and further developed by Klaus-Jürgen Gantzel. War is an armed, violent mass conflict following a planned strategy, encompassing the following three constitutive qualitative criteria: 1) it must be a conflict with a minimum of continuity (months rather than days); 2) there have to be central organizations on both sides (this could also be a para-military or guerilla force); and 3) at least one of the war parties has to be a government with regular or at least government associated troops (Kende 1982:5; Gantzel 1987:33). Violent conflicts are organized armed struggles of some duration (more than a one-day upheaval) between two or more collective actors with political goals. Violent conflicts are below the threshold of war but have a strong tendency towards this escalating to war.

³ The individual authors of the case studies are not listed separately in the bibliography attached to this study. All authors with either (1996II) or (1996III) indicated in sections 1.1 to 1.7 are included in Baechler/Spillmann (1996II, III).

⁴ Poor state performance is a lack of state outputs regarding civil and political rights, welfare expenditure, livelihood security, resource management, income, and job creation. The state may not produce good outputs for two different reasons. Firstly, the decisions and actions of the state are correct in terms of publicly stated legitimate goals, but their impact is not strong enough to reach the goals. Secondly, the rulers, although proclaiming that the state enhances the public interest, may pursue ends that are actually in their own interest. Both reasons apply especially for regions outside the capital area. Adopted and modified from Lane/Ersson (1994: 82-83).

⁵ ENCOP conducted a case study dealing with the globalized conflict in French Polynesia concerning the nuclear tests carried out by the French government. The study addressed the environmental disruption through testing as well as the protests of indigenous population, liberation movement, and INGOs against the policy of the French and the intervention of the navy (Danielson 1993(manus.)).

⁶ From a social science perspective, cases are interesting only where environmental scarcity is a necessary factor. With the configurative case studies approach the distinction between contributing and necessary factors depends highly on subjective judgements. Therefore, biases were diminished through periodical discussions among the researchers that contributed different case studies to ENCOP. On the other hand, the development of a testable model will be necessary if one aims to falsify empirically the distinction between contributing and necessary variables.

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Appendix

Secrecy vs. the Need for Ecological Information: Challenges to Environmental Activism in Russia

by Thomas Jandl

NOWHERE IS THE CONNECTION BETWEEN ENVIRONMENTAL PROTECTION AND NATIONAL SECURITY CLEARER THAN IN THE case of weaponry as a polluter. Even within this category of environmental threats, there is a hierarchy. At the top, both in terms of environmental priorities and international security, are weapons of mass destruction. They represent not only classic environmental problems—health hazards and threats to species—but also create an obstacle to economic well-being. Plus, they tend to affect neighboring nations to the same degree as the country on whose soil they are produced or stored. Nuclear, biological, and chemical accidents are truly global polluters, through transportation of contaminants in ocean currents and in the atmosphere.

Both East and West are grappling with their Cold War legacies, and more specifically with the cost of safeguarding and storing nuclear waste. In the prevailing economic situation, the obstacles to dealing adequately with the Cold War heritage are even more significant for Russia than the West.

It is in this context that the Norwegian NGO, the Bellona Foundation, initiated its analysis of the Soviet Cold War legacy on and around the Kola peninsula. Two major reports—*Sources of Radioactive Contamination in Murmansk and Arkhangel'sk Counties*, and *The Russian Northern Fleet: Sources of Radioactive Contamination*—resulted from this effort. The reasons for focusing on this region are not solely environmental. Norway's interest in the Northern Fleet's nuclear legacy stems from the country's vicinity to the storage sites and is thus as much inspired by national security as by pure environmental concerns. This issue has transcended like few others the realms of classic environmental problems and related health hazards, moving into the fields of diplomacy and international security. Russia reacted strongly to Volume II of the report, arresting co-author Alexandr Nikitin.

This article will, through the Nikitin case, explore how an individual environmental organization ventured through the minefields of international security and diplomacy, forging obvious as well as unlikely alliances along the way. For environmental organizations, there are two lessons to be learned: One, the increased mixing of national security issues with environmental concerns makes it more dangerous to work in the field by widening the range of problems environmentalists can encounter. Two, environmental groups have to build relationships in a much wider range of areas than environmental policy alone. Bellona USA's fax list includes the state department, the national security community, the international affairs community in Congress, the congressional human rights caucus, and a group of opinion leaders in the areas of democratization and economic transformation from a planned to a market economy.

There is also a lesson to be learned for politicians and national security specialists. While the globalization of trade is hotly debated, the spreading of environmental problems into the commons—the oceans and the atmosphere—is well under way. The separation of these international environmental cases from international security policy, for semantic or ideological reasons, invariably comes back to haunt us. The earlier these problems are addressed in international negotiations, the better.

THE SCOPE OF THE PROBLEM

environmentally disastrous accident as a consequence of Cold War activities is much higher than previously known—or admitted.

Environmental and national security concerns become most directly intertwined when the military and its activities and systems create the environmental hazard. The inadequate storage of nuclear weapons and other contaminated materials raises questions of how far secrecy in military affairs can legitimately be maintained.

A large amount of nuclear and chemical hazards

exists, in the form of actual weapon systems (warheads, bombs, mines, etc.), related items such as nuclear submarine reactors, and other contaminated materials. The U.S. Departments of Energy and Defense are wrestling with these problems, and more specifically the cost of decommissioning nuclear waste. The world's largest defense contractor, Lockheed Martin, is unable to fulfill its contract on agreements that require cleaning up a contaminated storage site in Idaho Falls. The cost vastly exceeds the 1994 estimates of \$179 million: for a single site of low-level materials, cost estimates now

5 October 1995: The FSB, Russia's federal police, raids the Bellona office in Murmansk and confiscates all research materials. Bellona employee Alexandr Nikitin is questioned.

5 December 1995: The Ministry of Defense forms an expert committee to evaluate information in the Bellona report with respect to state secrets revealed therein. The committee declares it is not competent to evaluate the sources for the information.

6 February 1996: Alexandr Nikitin is arrested by the FSB and accused of espionage for his work on the Bellona Foundation's report on *The Russian Northern Fleet: Sources of Radioactive Contamination*, an environmental document about radioactive waste in Northwest Russia.

27 March 1996: The Constitutional Court rules that Nikitin's attorney does not have to request security clearance as suggested by the FSB.

11 April 1996: Nikitin is indicted, but the text of the indictment remains classified.

24 June 1996: The Ministry of Defense forms a second committee. The results mirror the findings of the first. The Ministry of Atomic Energy sets up a committee. This committee finds no state secrets in the Bellona report. The Ministry of the Defense Industry forms a committee, which finds it is not competent to respond to the questions posed by the FSB.

17 July 1996: The Environment Committee of St. Petersburg concludes the report has no relevance to environmental problems in the region.

August 1996: Amnesty International adopts Nikitin as the first prisoner of conscience since Andrei Sakharov. The International Helsinki Committee sets up a Nikitin commission. The UNHCR reviews the Nikitin case.

17 September 1996: A Ministry of Defense committee finds that the damages caused by Nikitin are \$1 million.

30 September 1996: The FSB bases its charges against Nikitin on secret Defense Ministry decrees. The Russian Constitu-

are in the \$600 million range (Mintz, 1997).

The American experience offers a good indicator about the challenges in Russia, where the government has to deal with an even larger number of submarines, bombers, and missiles than the Pentagon and DoE. In addition, Russia's economy is in transition. Even the most optimistic assessments do not suggest that Russia will be able to pump as much money into its cleanup program as the United States. At present, Russia falls far short of funding even the most basic needs. In the immediate future, it is clear that the cost of a reasonably safe cleanup of Russia's nuclear waste must be underwritten by the international community.

To increase the world's interest in confronting this "Russian" problem, the Bellona Foundation initiated its analysis of the Soviet Cold War legacy on and around the Kola peninsula. In 1994 and 1996, Bellona published two volumes of a report on nuclear contamination in northwestern Russia (Nilsen & Boehmer, 1994; Nilsen, Nikitin & Kudrik, 1996). The reasons for focusing on this region are not primarily environmental; Norway's interest in the Northern Fleet's nuclear legacy stems as much from the security aspect of the problem as from pure environmentalism.

So far, the Russian Northern Fleet has taken out of operation approximately 130 nuclear submarines. Approximately 150 more will follow within the next half decade under the second part of the Strategic Arms Reduction Treaty (START II). A total of 18 percent of all nuclear reactors in the world are located on the Kola Peninsula, giving the area the distinction of accommodating the highest concentration of nuclear materials worldwide. Solid radioactive waste is stored in eleven facilities along the Kola coast. All are full, and at several sites waste is stored openly in drums or containers without any protection against the elements or theft. There is no intermediate or permanent storage site in the area. In fact, all waste is supposed to be shipped to the Mayak reprocessing plant in Siberia. At the rate the trains are going, the transportation of the existing waste would take more than fifteen years, without even taking into account the newly decommissioned submarines that will add to the nuclear wastepile over the next years. In addition, the Mayak plant is not capable of accommodating all the waste, and would be overwhelmed if all the material supposed to be reprocessed were really to arrive. The abysmal state of the rail system makes it highly unlikely that all the waste will go through Mayak.

In addition to the solid nuclear materials, liquid waste is stored in unguarded concrete containers. Since the 1997 federal budget for the first time did not include money for container maintenance, Russian experts have publicly stated that winter frost will cause already existing cracks to widen and cause leakage of low-level radioactivity next spring (Nilsen, 1997). The government's response was to tighten laws on state

secrecy. Scientists who want to measure radioactivity around these containers next spring will do so at the risk of being accused of espionage and treason.

To exacerbate the problem, only 35 percent of all funding for the Northern Fleet's nuclear safeguard work was actually allocated to the navy. Most of the money was used to cover salaries and pensions. Bills go unpaid for long periods of time. At one point, a storage facility commander had to send an armed platoon to an electric power plant to restore at gunpoint the power supply for the essential cooling systems. The facility had not paid its electricity bills (Jandl, 1995). The director of the Atomic Icebreaker Fleet in Murmansk, who is also responsible for some of the on-board storage of radioactive waste, calls the storage policy of the Northern Fleet "fraught with disaster" (Roukcha, 1997). Policymakers must therefore think of the implications of a START III treaty where more submarines were taken off line without assuring proper funding of the cleanup after dismantlement.

report has added an unintended fourth realm: human rights and democracy. Russian security police arrested one of the contributors to the report for alleged national security breaches. Since that time, Bellona has forged alliances with groups not traditionally known for environmental work, such as Amnesty International and Human Rights Watch. Similarly, traditional environmental groups have added human rights to their line of work, as exemplified by the Sierra Club's Human Rights program and, albeit not by choice, Bellona through the defense of its employee, Alexandr Nikitin.

THE SWING OF THE PENDULUM

In the period of 1989 to 1991, Russia was in a state of euphoria. Everyone wanted to talk to westerners, journalists, scientists, or environmentalists. After decades of secrecy decreed by the authoritarian communist regime, the door had opened and the tides of change seemed to sweep a country eager to catch up on interaction with like-minded foreigners.

Between 1991 and 1994, Russia knew no rules. The old order was dead, and nobody had bothered to replace it with a new one. Not surprisingly, the remnants of the old days tried to hold on. After 1994, the old guard had reorganized itself sufficiently to clamp down on the new-found liberties. The Federal Security Service (FSB) interviewed Bellona's Igor Kudrik about his work on the problems stemming from the storage of nuclear fuel from the Northern Fleet's submarines in the Kola region. At first, there were no allegations about telling state secrets, only questions of loyalty and nationalism. Why would a son of Russia work with foreigners? Not coincidentally, the only Bellona employees ever harassed by the FSB are the two Russian nationals on the staff, Kudrik and Nikitin. Kudrik had to leave Russia and now works for Bellona in Norway.

At that time, the FSB paid visits to numerous activists. On one occasion, the office of the newspaper *Moscow News* was ransacked after the paper published the research of Vil Mirzoyanov, a scientist, on chemical weaponry. Russia had just signed the chemical weapons convention. Mirzoyanov got off easily. There was no written law on state secrets at that time, and *Moscow News* was an influential paper. Nevertheless, after the incident Mirzoyanov decided to move to the United States. But Bellona bore the brunt of the security apparatus' wrath, maybe because Nikitin's "betrayal" of the motherland weighed heavier due to his military past. He was a former navy captain. In 1995, a state secrecy law was passed, and in 1997, the law was amended to give the FSB sweeping powers to decide, without proper judicial review, what information on nuclear weapons and nuclear storage and safety, should be deemed secret.

The pendulum had swung full circle from Soviet authoritarianism to quasi-libertarian freedoms of in-

formation to post-Soviet restrictions on information whose publicity is explicitly protected in the Constitution. Bellona got caught somewhere in the middle, after having worked in Russia throughout the post-communist era.

Bellona learned many valuable lessons in the course of this case. The key ones are discussed below. For small environmental groups as well as grassroots activists in Russia, the key question is, how can one continue the work without the support of a western

would create an unacceptable national security risk for populations in the nuclear countries themselves, as well as in nations in close range of a nuclear storage facility or weapons production site. Second, the new Russian law on state secrets is so broadly worded that, in theory, activists or NGOs could be accused of breaching national security laws if they simply measure the radiation levels around civilian “nuclear power installations and special physical installations which have significance for defense” (Law on State Secrets, 1993). While Russia, of course, has a right to protect its national security, this definition of security infringes on other countries’ own environmental safety and, given the power of the atom, touches on global security concerns. Furthermore, the law directly contradicts the Russian Constitution, which states that no condition endangering the health of the population can be kept secret.

The Russian side claims that the broad wording of the state secrecy laws allows all sorts of existing international cooperation projects to continue. Indeed, these laws are not aimed at U.S. military officials who help their Russian counterparts comply with arms control

non-environmental constituencies. Bellona has talked to many a U.S. senator or representative with no love lost for the environmental movement. *Dear Colleague* letters circulated in the House and Senate received wide bipartisan support, and no clear ideological current is discernible among the signatories. Senator Ted Stevens (R-Alaska) is as supportive as Senator Ted Kennedy (D-Mass.)—two gentlemen undoubtedly on the opposing ends of the political spectrum. In the House, defense hawk Representative Curt Weldon (R-Pa.) has helped as much as environmentalist Representative David Skaggs (D-Colo.). Vice President Al Gore has taken up the Nikitin case in private with then Russian Prime Minister Viktor Chernomyrdin, while Canadian Prime Minister Jean Chretien has done so in public.

Everything is in a name. Bellona showed good political instinct when the organization—despite the founders' wild days as youth activists—embarked on a pragmatic path, building coalitions rather than shocking and alienating. The group is committed to environmental protection and unashamed of calling itself an environmental organization. But by addressing environmental protection in a scientific way, Bellona has gained a reputation that allows its staff to talk to politicians who would not normally interact with most other environmental organizations. Greenpeace, just to name one, has done important work in bringing environmental concerns to the attention of a mass audience. Greenpeace also performs a wide range of serious academic research on environmental issues. Nevertheless, its reputation is one of sensationalism, regardless of the merits of a specific report or campaign. In the Nikitin case, Bellona has managed to paint a picture of general, international political interest over the green background upon which it operates. Broad support was easier to obtain on such a foundation.

Amnesty International has adopted Nikitin as a prisoner of conscience, and Human Rights Watch is working the case from its Moscow office. The Sierra Club's human rights campaign is working hard on the issue, and democracy groups and former dissidents support Nikitin from within Russia. Many de facto U.S. officials support Bellona by taking the banned Northern Fleet report to Russia or using its analysis and numbers in their argumentation. The report is the first and only book to be banned in post-communist Russia. Prominent Russians, like former Yeltsin science adviser Alexey Yablokov, are openly supportive of Nikitin and Bellona.

No environmental group can take on the Russian security apparatus. This is why environmental organizations will have to forge alliances with other organizations to increase their leverage. Bellona's cooperation with a host of human rights advocates, supporters of democratization and economic conversion in Russia, and international relations experts, is an early model of this new coalition. It has been made neces-

sary by the move of environmental issues into the dangerous politico-military realm. And, NGOs remain small and relatively powerless vis-à-vis a totalitarian system. Russia appears to have turned the tide towards a democracy and the government is not indifferent to criticism. But the Nikitin case is only the beginning.

MONEY TALKS

To break the indifference some nations exhibit to

to bed with the "enemy" called the nuclear industry? Business is pragmatic enough to work with NGOs that in past times have chided the industry for its practices. Environmentalists should be pragmatic enough to work with business when the environmental bottom line shows a change for the better. That does not mean that environmental NGOs should look the other way over abuses by their new partners elsewhere. It just means that where interests overlap, environmentalists should stretch out their hands. When interests clash, NGOs will speak up as always.

Ideology is dead. Pragmatism is in. Bellona has pursued the art of pragmatic environmentalism in its industry partnership program. Companies sponsor one Bellona program, while Bellona sues them in another. But why not? Defense contractors sue the Pentagon with great regularity, just to see the program managers they had just denounced as incompetent award them yet another billion-dollar contract. Bellona's approach of cooperation may not be suitable for every environmental organization, but all parties with interest in international work will inevitably have to find innovative solutions to doing business.

THE FUTURE HAS ARRIVED, LIKE IT OR NOT

Globalization is well under way. For the environmentalists, that means that if we do not change our ways of operating, we will be left in the cold. This journal will receive submissions on the global impact of CO₂ emissions reductions. There will be discussions on the exploitation of the oceans, and eventually about the use of resources in space. Every issue related to resource use will increasingly be defined in terms of national security. Trade and access to markets and resources will rapidly replace military influence and ideological infighting.

This being said, it is anachronistic that many politicians still do not understand the importance of a pragmatic approach to issues of global reach. Ideology appears to be the driver in an amendment to the successful Nunn-Lugar Cooperative Threat Reduction program, prohibiting funding of environmental projects. To be sure, Nunn-Lugar is a disarmament program. Yet, nobody asked for money to plant flowers. On the other hand, one potential catastrophe replaces another if nuclear submarines are decommissioned with U.S. money, but no funds can be spent on the final storage of the spent nuclear fuel from those subs.

Funding nuclear cleanup is good business in America. The nuclear industry in the United States had to survive without a domestic nuclear power plant order for two decades. Contracts will be commissioned for cleaning up and safeguarding nuclear sites. U.S. companies have made large investments and want to recoup their money. Russia is a vast market, but Russia cannot pay. Eventually the West will pick up the

tab, at the latest when the first irradiated fish are found in Alaska. This debate is reminiscent of the one that surrounds health care. Prevention is cheaper than the cure. Politicians and the public would prefer not to pay the cost of the cleanup. But eventually we will have to. The earlier we do it, the cheaper it will be and the less damage will be done in the process.

There is an additional benefit. Some Russian companies are indeed quite good at what they are doing, and they do it for much less than their Western counterparts. In one project currently under consideration, the Western partners would transfer technology to their Russian joint venture company. The Russians would produce nuclear waste storage casks for use in the Kola region. If the project works well, these casks could be used in the U.S. cleanup program as well, a mutual benefit for the Russian and American partners.

The Clinton administration, in general friendly to the idea of environmental cleanup, has not managed to prioritize the environmental legacy of the Cold War. Ken Luongo, former advisor for nonproliferation policy to Secretary of Energy Hazel O'Leary and director of the DoE Office of Arms Control and Nonproliferation, stated that "[w]hile Presidents Bill Clinton and Boris Yeltsin would publicly announce their common aims, achievement of those goals was hampered by bureaucratic staff on both sides who still harbored misgivings about the other's intentions." Luongo also blamed Congress and the administration for their "perceptions of the cooperative programs as foreign aid rather than as an investment in U.S. security." He said that the United States needed "a cabinet secretary that cares. Secretaries Albright, Cohen, or Peña need to take on this issue [of nuclear safeguards] as their own. Only then will the bureaucracy move. We've been lulled into a false sense of security because people think we've accomplished much more than we have" (Luongo, 1997).

Potential problems need to be addressed in the early stages of a project. As mentioned above, the Cold War did not leave the developers of nuclear weapons much time to ponder the environmental consequences of their work. But today, the world is safe enough to take a minute to reflect and think issues through. START III, the next round of the Strategic Arms Reduction Treaty, needs to include provisions for dealing with the dangerous side effects of the disarmament process.

name of Cooperative Threat Reduction created one threat from another, spending billions of taxpayer dollars in the process?

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Forest Plunder in Southeast Asia: An Environmental Security Nexus in Burma and Cambodia

by Kirk Talbott and Melissa Brown

A REGIONAL PERSPECTIVE

GEOGRAPHIC ENORMITY, POLITICAL AND ECONOMIC COMPLEXITY, AND BIOLOGICAL DIVERSITY HELP DEFINE THE A

The private wealth amassed by political and economic elites breeds corruption and undermines both long-term regional development and the prospects for stable, civil societies as evidenced by the 1997-98 financial crisis rocking Asian economics.

This trend does not bode well for the environment. The fundamental structures of civil society—such as

that defines the environmental security nexus in the region.

CAMBODIA

The rate of logging throughout Cambodian history belies the conflict of the times. In the late 1980s, a series of agreements was reached between Hun Sen's communist regime, the Khmer Rouge (KR), the Thai military, and private entrepreneurs that led to a dramatic increase in the rate of deforestation. These adversaries have cooperated for years in virtual battle zones on logging, gem mining, and trade in spite of ongoing warfare. Political convictions and ideological differences have been muted by a joint effort to pillage the forests for wealth. Illegal logging, in conjunction with prostitution and heroine trafficking, is the basis for shadow economies throughout Cambodia. The derived revenues are used not only as financial backing for political causes, but also for building the private wealth of the elite, assuring the cooperation of officials, and maintaining personal armies.

In 1991, with the signing of the Paris peace accords, Cambodia emerged from almost two decades of international isolation. Vietnam removed its forces. The UN helped to establish an interim governing body, the Supreme National Council (SNC), in preparation for democratic elections to be held in 1993. With the agreements, Thailand, Vietnam, and other neighboring countries were able to engage freely and legitimately in business associations focused on the extraction of Cambodia's natural resources.

The upcoming 1993 elections proved to be another

Every year, logging revenues associated with an anarchic deforestation amount to several hundreds million US dollars but the State collected no more than 10 million US dollars in 1996 and 1997 . . . Besides the official National Budget, Hun Sen, the CPP and the Army run parallel budgets by diverting State revenues (taxes, customs duties, royalties and especially logging revenues) for their own benefits . . . [Hun Sen] never tells the public where “his” money comes from.⁸

Rainsy predicts the demise of the Hun Sen’s regime. ‘With such a poor governance characterised by a total absence of the rule of law and rampant corruption, Cambodia’s economy can only fall apart.’ And indeed, the country has seen zero percent growth in its GDP as

opposed to the 6 or 7 percent experienced in the years before. In addition, Hun Sen’s coup prompted many countries and institutions to suspend or reduce their assistance.

Additionally, there appears to be a saturation of financial corruption within the highest ranks of the Cambodian government. According to the KNP, Hun Sen’s budget system, established with the CPP and the Army, diverts State revenues ‘from taxes, customs, duties, royalties and especially logging revenues’ for their own purposes through parallel budgets. These funds are then used to bolster public support, or at least to temporarily insure cooperation. Military expenditures currently account for two-thirds of the national budget while education, health, agriculture and rural development are allotted only 12 percent.⁹ Hun Sen main-

Frontier Forest of Mainland Southeast Asia

tains his power by appeasing political leaders and business tycoons with logging revenues and concessions.

Approximately 40 percent of Cambodia's territory is designated within forest concessions.¹⁰ The concessions, totaling over 6.5 million hectares, have been granted to Malaysian and Indonesian, as well as Thai, Taiwanese, and other companies. The process of granting the concessions appears to be wholesaling to the highest bidder. Because of the lack of transparency in the logging trade, it is difficult to assess the destination of Cambodia's timber. In addition, the current political climate renders it nearly impossible to get a breakdown of the profits that these sales are generat-

ing. However, it is apparent that many well-placed individuals, representing several competing political factions, are engaged in these deals. Certainly much of the wood is going to Vietnam and Thailand although many suspect that a significant quantity of Cambodia's highest-grade wood ends up in China, Japan and quite possibly Europe.

Recent meetings of the Consultative Group (CG) of donor countries that have provided foreign assistance to Cambodia have sent explicit and increasingly strongly worded warnings to the Cambodian authorities to clean up the logging situation. In July 1996 at the CG meeting in Tokyo, for example, the representative from Germany stated "If no decisive measures are taken in this field, and if considerable amounts of revenue continue to bypass the regular state budget, it will be very difficult for us to convince our authorities of the necessity to support Cambodia with German tax money."¹¹

There is now intense international pressure on Hun Sen to permit and respect the scheduled 1998 elections. As with the 1993 elections, the political factions are most likely turning to Cambodia's remaining forests for financing the election process. History is likely to repeat itself with the cycle of forest plunder exacerbated by the ironic collusion between competing factions in

NLD. The SLORC responded by disregarding the results and violently harassing and imprisoning NLD representatives and other advocates of change.

The SLORC has now been in power for almost ten years.¹⁴ During this time, Burmese human rights abuses have drawn an international spotlight reserved for the most egregious in the world. Accordingly, the United States and some other industrialized nations have enacted trade sanctions against Burma. In addition, despite the instability, the World Bank, the Asian Development Bank, and the International Monetary Fund will not lend Burma money because of the country's current military expenditures, lack of macroeconomic transparency and extensive record of human rights abuses.¹⁵

Several of the larger ethnic groups in Burma have been at war with the military regime for decades. However, beginning in 1989 and through the early 1990s, most of the armed resistance groups signed cease-fires with the SLORC. The cease-fire arrangements are not so much peace agreements as they are business deals. Former guerrilla armies are able to sustain their forces and control their former territories, in cooperation with the ruling regime. At the same time, the cease-fires have opened up previously remote border-area forests to large-scale, non-sustainable commercial timber extraction. As a result, the World Resources Institute has estimated that the rate of deforestation in the large northern state of Kachin has more than doubled since the SLORC came to power. Simultaneously, defense spending is purported to be at least 50 percent of government expenditures.

At the heart of these agreements is the demarcation of border areas that have long been the sites of civil warfare. Pending the cease-fire arrangements, these controversial tracts of land have been effectively divided into government-controlled and ethnic-controlled areas. Timber rights are apportioned accordingly. The SLORC and some ethnic groups are able to exploit the forests of the country's border regions at a faster and more effective pace without the current threat of open warfare. However, the current cease-fires between warring factions in Burma are not an indication that peace will be perpetuated by a common drive for logging revenue. On the contrary, in other countries such cooperation has proven short-term, with long-term consequences. Continued hardship and loss of resources for the majority, coupled with the increasing wealth and corruption of the elite minority, will likely contribute to more unrest.

While enormous profits are being made, fighting between the SLORC and adversarial factions will likely remain diminished. However, these alliances are based, at least in part, on exploitation of the limited resources, such as valuable timber and minerals. The resultant peace accords are tenuous; but they can be expected to become even more so as the timber resources in

Burma's frontiers are depleted. Most timber profits in Burma are funneled into the Union of Myanmar Economic Holdings, Ltd. (UMEH), which is controlled and owned by SLORC members, well-positioned military officers, and the Defense Ministry's Directorate of Defense Procurement (DDP). UMEH is one of the leading joint venture partners of foreign investors in Burma. Its foreign-funded projects include hotels, department stores, and condominiums in Burma's major cities. Revenue from drug exports purportedly are laundered and taxed through these businesses. At the same time, UMEH is a primary source of long-term funding for the military. As such, logging and drug revenues have enabled the build-up of military power.

meeting between India's minister of state for commerce and Burma's former Forestry Minister, Lt. General Chit Swe.¹⁸ The parties discussed the establishment of forest-based industries in the border areas and teak trading directly at border points, instead of first passing through Rangoon.¹⁹

While these business deals seem to be temporarily fostering good relations, the newly bolstered timber trade creates several causes for concern. First, the capital generated by the SLORC is used predominantly to finance its armed forces. The SLORC's military is comparable to that of Indonesia's in what is considered a highly militarized state with a population over four times the size of Burma's.

Secondly, Burma is the source of approximately 50 percent of the world's heroin.²⁰ Logging and heroin trafficking often go hand in hand in Burma. Reports from inside Burma suggest that in some areas, forests are cleared for commercial timber export, then planted with opium poppies. The same roads used for transporting timber from Burma to China are often used for transporting heroin and opium into China. Frequently, logs are hollowed out and filled with heroin and other opiates, often produced in rebel-held areas, for transboundary trade. The lucrative and volatile nature of drug trafficking makes it fodder for potential conflict.

Thirdly, Burma's population as a whole is benefiting only minimally—if at all—from the depletion of its forest resources. There is no accountability for the transfer of the conversational resources and political-military elites are gaining the wealth and power derived from the logging. This sort of corruption at the highest level of government is causing anger and cynicism among the population, comprising a serious potential source of conflict.

Finally, the PRC's commercial, military, and transportation endeavors throughout Burma are of regional

conferences are taken actions for the approval of donor countries and agencies. It has been suggested that officials charged with enforcement of environmental legislation are often deterred by the regime from fulfilling their responsibilities. Military spending continues to significantly increase Burma's external debt while consuming a disproportionate percentage of logging revenues. At the same time, in the face of China's aggressive actions in Burma, the current regime seems to have only selective concern for Burma's long-term national sovereignty interests.

The position of the importer of Southeast Asian timber is fundamental to much of the current predatory logging in Cambodia and Burma. The current cycle of conversion, consumption and corruption in Southeast Asia involves the collaboration of the world's industrial nations. While the more economically developed Southeast Asian countries may be directly responsible for the majority of the logging trade, a significant proportion of the trade in processed natural resource products eventually ends up in the markets of the Europe, the United States and Japan. Burmese and Cambodian wood could appear in the form of affordable hard wood furniture in London, picture frames in New York, or scaffolding for construction in Tokyo, thus globalizing the cycle of supply and demand.

Trade sanctions are one of the most controversial policy tools being implemented. The United States and several European countries recently enacted sanctions against Burma, based primarily on human rights abuses. In the Case of Cambodia, the CG's twenty-

Environmental Degradation and Migration The U.S.-Mexico Case Study

The Natural Heritage Institute

In ECSP Report Issue 3, we published the initial findings of the Natural Heritage Institute's (NHI) U.S.-Mexico Case Study on Desertification and Migration. Following is a detailed account of the conclusions and recommendations to policymakers from NHI's final report entitled Environmental Degradation and Migration: The U.S./Mexico Case Study. This report presents the findings of a four-year investigation led by Michelle Leighton of the NHI, a nonprofit, public interest environmental organization. NHI seeks to broaden understanding about the interrelationship between the

U.S. Action and Opportunities for Policy Reform. The latter is related to specific programs on environment, agriculture, and community development.

**A. POTENTIAL FOR U.S. ACTION:
POLICIES AND PROGRAMS**

I. Cooperative Programs

Our findings demonstrate a strong correlation between land resource degradation, poverty among rural households, the lack of capacity to farm, and migration both within Mexico and across the U.S. border. The pervasive deterioration of lands in Mexico in the rural drylands should be viewed as an important contributor to migration flows (whether seasonal or per-

provement of agriculture, population initiatives, and migration have traditionally not considered how best to address such integrated issues. President Zedillo's "Alliance for the Countryside," discussed below, may be a start. The following discusses potential reform of U.S. policies and programs as a beginning point for addressing the issues that touch upon U.S. foreign

largely on sectoral issues—e.g. research on agricultural productivity has not traditionally focused also on related environmental degradation, such as deforestation, or on contributors to migration, such as lack of education or family planning programs. This in turn has led to policies that do not approach these problems in an interrelated fashion. The inverse is also true—when programs to arrest deforestation are implemented, they do not readily integrate issues of community development. We have observed that this dynamic is beginning to change. Further research will help identify opportunities for integrated programs on the field level, and can suggest how best to harmonize policies and programs at the national or binational level.

The further development of methodologies for integrating environmental, population pressure and migration predictions is of particular importance in addressing the issues of poverty and migration among Mexican farmers and laborers. Data show that environmental stress variables are of significant importance because they can create incentives to migrate. Population pressure on the *ejido* population and the increasing rate of deforestation may also result in increased migration. Policies targeting the amelioration of environmental stress and population pressure on the land could play pivotal roles in reducing incentives to migrate to the North. If implemented properly, they would work by retaining migration.

B. OPPORTUNITIES FOR POLICY REFORM AND PROGRAM DEVELOPMENT

1. *Environment and Agriculture*

a. *Promoting Improved Land and Water Management Practices*

Our findings demonstrate a strong correlation be-

b. *Improved Forest Management and Land Tenure*

Most of the Mexican forests, many of which are threatened by over-harvesting, are located on *ejido* land, where much of the property is communal and cooperation with other communities in forestland management has been problematic. This lack of cooperation has led to overuse of land, including overharvesting and soil erosion. One solution may be to direct policy efforts at resolving property rights on these lands and effectively manage common property resources.¹⁴ Part of this solution must include continued regulation of forest management and improved enforcement of laws/policies.¹⁵ According to some experts, adequate forestland management requires trained, equipped personnel who can utilize integrated and multipurpose forestry products and which involves local communities or local nongovernmental organizations.¹⁶

2. *Population and Rural Development*

a. *Population and Other Demographic Initiatives*

Research indicates that population trends in growth and movement in Mexico's rural areas are correlated with poverty and land degradation, particularly in *ejido* communities. Population pressure on natural resources, measured by the rate of deforestation are important determinants of migration. Reducing this pressure should be part of efforts to reduce migration at the source.

Given the scarcity of good farmland in Mexico and the large size of the farm population, increasing the productivity of labor in farming offers a limited solution. It may be more important to focus on the development of decentralized non-farm activities. Specifically, activities which lead to greater decentralization away from the border and the main cities of the benefits created by NAFTA in labor intensive manufacturing are warranted. As with development strategy, balancing protection of the environment with project development initiatives will be critical to preserving Mexico's natural resources.

In addition, more in-depth research of the correlations between population trends and migration is warranted to quantify this contribution and identify more concretely the extent to which population growth leads to further subdivision of and pressure on lands. Deforestation may well be a symptom of population pressure,¹⁷ though some argue that it is the inverse. The Mexican government has succeeded in reducing population growth rates, though the rates still remain quite high in rural areas and in indigenous communities may often reach a figure double the national average. Education programs need to be expanded to the more remote rural areas. These programs can require long

maturation periods in order to achieve long-term results and require a longer-term commitment of resources. In Mexico, these programs may be subject to greater volatility related to the Presidential cycle. Budgets for such programs are not as robust as they will need to be to effectively address this problem. Moreover, USAID efforts to address population problems are being canceled. U.S.-Mexico cooperative programs in the population area should be revisited to determine how integration of these programs with other environmental and economic development programs can serve to address the root causes of migration identified in this report.

b. *Community Development Initiatives*

Poverty, which in rural areas is exacerbated by the inability to productively farm, or by the farming of marginal lands, is an important factor in the decision to migrate. Municipalities with high levels of marginality also have high rates of migration, indicating that the lack of local opportunities and poverty are important determinants of migration. Community development programs established in rural areas should focus on the reduction of crop cultivation where the soil and/or climate are unsuitable for cultivation and the institution of controlled grazing practices. Moreover, it is recognized that there is a need for employment creating new investments to expand from the border area into the interior regions of Mexico. Many of the benefits created by NAFTA in labor-intensive manufacturing have been focused on the border and some have called for more aggressive efforts to attract development further south.

Small producers face the threat of displacement by more competitive farmers due to land titling reforms that may create a market where only the most competitive landholders will succeed.¹⁸ While this may not be undesirable in terms of pure economic theory, it is likely to have a tremendous impact on migration—there is likely to be a surge in migration out of the rural agricultural areas as this economic transition takes place. Improved farming productivity from soils conservation and related programs may not only result in better environmental resource management, but allow, where appropriate, for a slower and more equitable transition toward an ultimately more urbanized Mexican society. Moreover, soils conservation and agricultural training can be directed at the marginal and subsistence producers to increase sustainability of their livelihood and reduce involuntary migration.

In the longer-term, both financial institutions and producers' associations should be created for smallholders in order to enhance smallholder competitiveness and fill the void that remittances are currently filling in providing access to financial liquidity and sources of insurance.¹⁹ To achieve this, there should

be an increase in the profitability of investment in labor intensive agricultural activities. One avenue is through the cultivation of fruits and vegetables that acquire competitive advantage in the context of NAFTA. Most of rural central/southern areas of Mexico remain highly dependent on extensive corn/maize production, and transition would take some considerable effort, financially and otherwise. This high "front end" investment may provide more-lasting long-term benefits. Too, this would require public investment in infrastructure (irrigation and roads), and organizational and institutional development of these areas so that farmers can invest profitably in agriculture. In addition, developing financial institutions on both sides of the border that will channel remittances to the emitting areas and make migrants' savings available for borrowing by other community members with investment plans, would also help create employment.²⁰

The Mexican government has recognized the need for implementation of substantial efforts to address rural development. In 1995, Mexico created "Alliance for the Countryside" to address socio-economic problems affecting the agricultural sector. It comprises the following Secretariats: SAGAR, Hacienda y Credito Publico, Comercio y Fomento Industrial, Reforma Agraria, Desarrollo Social, SEMARNAP and Trabajo y prevision Social. The Alliance's general goals are to increase the income of agricultural producers and agricultural production to a level above population growth, produce sufficient basic foods for the population, promote the export of products from countryside, preserve natural resources and increase rural housing. These policies are to be implemented by facilitating access to new technologies, promoting the inflow of capital into the countryside, and improving human resources through training. There are 64 initiatives proposed by many different agencies in the Alliance but it is uncertain which are being undertaken. Our investigation revealed agency funding cuts have led to little improvement, especially for natural resources and agricultural management programs.²¹

In addition, Mexico's National Development Plan (1995-2000) includes a three-point plan established by the Mexican National Science and Technology Council, in association with SEMARNAP, to improve soil management as follows:

- 1) conduct a national soils inventory (currently underway);
- 2) develop new soil legislation to revise legislation as appropriate, including connecting property and usufruct rights with the responsibility of conserving and restoring the soil, and develop soil management and restoration standards with the aim of producing clear standards that protect investments while maintaining a low level of bureaucratic red tape; and

3) persuade agricultural producers to modify their management practices to better assure sufficient income and sustainability of soil resources.

The government has yet to make substantial funds available for these reforms. However, there is much that can be done in terms of training campesinos, civil servants and governmental and non-governmental promoters.

As a final note, many of the needed initiatives discussed could be further catalyzed by U.S.-Mexico cooperation and assistance. These opportunities are described above in the section on Conclusions and Recommendations. Importantly, NHI's findings suggest that targeting program development and assistance in rural environmental and agricultural settings, in association with public or private localized programs, can serve as a potentially potent investment in reducing migration. This will not be a daunting task as both private and official institutions in the United States possess environmental resource and agricultural expertise that can be utilized in approaching cooperative program development with counterpart institutions in Mexico. Nongovernmental organizations on both sides of the border have already begun to work together on these issues. Official leadership is needed to move beyond these initial efforts. We strongly urge exploration of these issues and opportunities by Congress and the Administration.

ENDNOTES

¹ Areas where migration is well-established have already lowered their transaction costs of migration making the opportunity costs of migration much greater (A. de January report, Appendix, p. 16). The newer areas have not yet reduced the transaction costs of migration (Id., p. 16). Consequently, rural development efforts in the newer areas may have a greater impact in reducing migration: improved development opportunities could effectively compete with the opportunity costs of migration (Ibid., p. 16).

² See Appendix 1, p. 16.

³ Internal Communiqué from U.S. Ambassador Jones to the White House, U.S. Department of State and other federal agencies, January 1997 (on file with the Author).

⁴ Ibid., p. 6.

⁵ Information was provided by several commentators on this, including in written comments of Professors Philip Martin and David Myhre, Fall 1997. Professor Martin has identified that for a US \$300 transfer, Western Union charges 10% and on the Mexican side, Electra exchanges the money into pesos at a very high rate.

⁶ Appendix 1, p. 16

⁷ See discussion in earlier sections of this report.

⁸ Marginality is measured by CONAPO at the municipal level through an index that eight low levels of education, poor housing conditions, high percentage of the population in communities of less than 5000 inhabitants, and a high incidence of households in poverty.

⁹ Appendix, p. 17

10 Ibid.

11 Ibid.

12 Ibid.

13 Ibid.

14 Ibid., p. 16.

15 Ibid.

16 Written comments of Hector Arias, Cideson, Sonora, Mexico, to NHI September 8, 1997. One problem he notes is that large consortia of timber companies exploit the resource. Yet, the lands are owned by local individuals or ejidos and the local people bear the responsibility for reclamation at a practical level. As reclamation is generally expensive and requires training; it is often not undertaken effectively.

17 Ibid.

18 See Appendix 1 pp. 16-17.

19 Ibid.

20 Ibid.

21 Some have criticized these programs. Paredes Rangel, General Secretary of the National Campesina Federation, indicated that the most important aspects of the program were

technology transfer and training (1995); Mazon-Rubio, President, National Agriculture Council, is concerned that the subject of stable income was not addressed and proposed that a follow-up schedule to deal with pending issues be created (1995); for Bonilla-Robles & Gonzalez Quiroga (1995), land ownership issues were of paramount importance; to Bonilla-Robles & Gonzalez Quiroga (1995), land ownership issues were of paramount importance; to Bonilla-Robles (President, National Federation of Small-plot Owners: rural credit and commercialization issues are important; Gonzalez Quiroga has indicated that rural training programs sponsored by institutions have yet to reach rural areas. Programs are needed that will generate rural jobs and maintain sale prices of agricultural products above production prices. Rural credit programs are not working and the rural sector needs the government to guarantee loans so that producers with un-paid debts will be eligible for new loans. Un-paid debt is far from being resolved. New monies should not be used by just a few individuals or by the banks themselves, but instead should be managed fairly.

***Dialogue, The Wilson Center's Radio Program
Discussing Environment, Population and Security***

Dialogue, the Wilson Center's award-winning radio program, explores the world of ideas and issues in national and international affairs, history, and politics. Broadcasts are hosted by George Liston Seay, public and international affairs specialist, and feature weekly conversations with renowned scholars, authors, and public figures. Several shows have been devoted to discussing environmental issues, and the following broadcasts can be purchased through Public Radio International:

Broadcast 137: **"The Politics of Conservation"**

Douglas Weiner, Assistant Professor of History at the University of Arizona in Tuscon
Saving the world's resources is undoubtedly a good thing. Yet in the past some groups have used environmentalism's positive goals to advance less honorable political notions. Douglas Weiner, scholar and environmentalist, discusses environmental decisions and their unavoidable political consequences.

Broadcast 283: **"Environment and Security"**

P.J. Simmons, Director, Environmental Change and Security Project, Woodrow Wilson Center
The world's environmental crisis continues apace. In emerging nations of Eastern Europe and in the developing regions of Asia and Africa armed conflict abounds. New strategic thinking suggests a linkage between these phenomena, and a new discipline joining environmental and security concerns is being developed. P.J. Simmons describes the actors and factors in what may be a 21st century strategic theme.

Broadcast 235: **"The Population Challenge"**

George Moffett, Diplomatic Correspondent, *Christian Science Monitor*
During the 1970s the world's crisis of population growth was widely noted and debated. Then, as public attention shifted to the worldwide economic crisis of the late 1980s and the political upheaval of the early 1990s, population issues seemed almost to disappear. George Moffett, Diplomatic Correspondent for the *Christian Science Monitor*, argues that the crisis is more threatening than ever. He describes its dimensions and suggests solutions.

Solving China's Environmental Problems: Policy Options from the Working Group on Environment in U.S.-China Relations

by Aaron Frank

THE PEOPLE'S REPUBLIC OF CHINA (PRC) IS BECOMING

numerous engagement strategies for U.S. policymakers, and highlighted the context in which these strategies could be implemented.

I. THE WORKING GROUP ON ENVIRONMENT IN U.S.-CHINA RELATIONS

The Woodrow Wilson Center's Working Group on Environment in U.S.-China Relations, coordinated by the Environmental Change and Security Project in partnership with the Center's Asia Program, is an ongoing multidisciplinary forum for discussion of environmental and foreign policy concerns. The aims of the Working Group are to: (1) identify the most important environmental and sustainable development issues in China and discern how those issues relate to U.S. and Chinese interests; (2) develop creative ideas and opportunities for government and nongovernment cooperation on environmental projects between the United States and China; and (3) discuss how environmental issues can continue to be a building block in improving U.S.-China relations.

The Working Group has had particular success in drawing upon the expertise of its over forty members, which include government, NGO, academic, and private business representatives. Working Group speakers have represented a broad mix of backgrounds, ranging from China scholars to government officials and World Bank representatives. Working Group meetings are co-chaired by Elizabeth Economy of the Council on Foreign Relations and P.J. Simmons of the Carnegie Endowment for International Peace, and are held on a not-for-attribution basis.

Small group sessions of the Working Group concentrate on more specific topics of interest and have included visits by Qu Geping, Chairman, Committee on Environmental Protection and Natural Resources Conservation, National People's Congress; and the Citizen Involvement in Environmental Protection Delegation from the People's Republic of China.

II. MAIN THEMES OF WORKING GROUP DISCUSSION

During the first six months of Working Group discussion, the following three strategies were identified as key to engaging the Chinese on environmental issues.

A Clearly Defined and Articulated China Policy

The relationship between the United States and China is complex; while progress has been achieved on many issues in recent years, others still raise considerable tension. Changes in both U.S. and Chinese policy (such as the linking and then delinking of human rights to trade on the United States side, and the differing levels of aggression towards Taiwan on the

Chinese side) have created corresponding fluctuations in the warmth of U.S.-PRC relations. It is not unreasonable for the Chinese to view U.S. policy as a seesaw which balances itself according to pressures from Congress, the public, or the media. To combat this Chinese perception and to enhance domestic credibility on relations with the Chinese, many Working Group members argued that the most important action the U.S. government could take would be the formulation of a clearly articulated, coherent China policy with explicit objectives and guidelines by which progress on a variety of issues could be measured. Such a policy was considered to be a means to avoid the public perception that policy changes are the result of economic incentives or "pandering" to Chinese interests.

Financing Mechanisms for Environmental Projects

The Chinese are frequently critical of U.S. government offers of environmental assistance because the United States rarely backs up its promises with strong funding mechanisms. Both the U.S.

**Compendium of Working Group on
Environment in
U.S.-China Relations Meetings**

5 February 1997

Chinese Energy Production

WILLIAM CHANDLER

Special Reports

1 October 1997

Chinese Fisheries and

International Cooperation on Oceanic Issues

STETSON TINKHAM, Department of State;

ZHI

China on environmental issues will facilitate the transfer of American environmental technologies to China and will further support the work of environmental NGOs establishing partnerships and programs in the PRC.

The meetings of the Working Group on Environment in U.S.-China Relations have identified key engagement options while also exploring China's energy sector choices and water-related problems. Working Group members believed that support for U.S. businesses marketing environmental technologies in China should be a priority for the U.S. government. Since the U.S. government is currently unwilling to increase significantly its financial commitments to support environmental protection measures or technology transfers to China, it should attempt to open doors for those who can—namely private firms. In doing so, the United States could help bring environmental remediation technologies and alternative fuel sources to the Chinese while opening markets for U.S. firms and products.

At the same time, the U.S. government and NGOs should support and assist China in developing policy changes in the energy and water sectors, especially through multilateral fora on the environment. Working in tandem with private businesses, NGOs and foundations offer the best external hope for encouraging Chinese sustainable development.

Cooperation on a variety of levels is necessary for water quality and quantity in China to improve. China's water problems are not dissimilar from those experienced in the United States; academic and governmental exchanges could greatly reduce water shortage difficulties by introducing new irrigation techniques and comprehensive watershed management plans. In many ways, China's water problems will be solved more through policy changes than technological fixes.

Through continued engagement and explicit support for environmental projects, the United States can provide a framework within which businesses, NGOs, and foundations can successfully promote Chinese environmental improvements. Such cooperation is vital if the United States aims to effectively assist the Chinese in their economic and environmental development. Only under such a scenario can the United States hope to have a positive influence on future Chinese energy choices and on a Chinese development pattern that is environmentally sensitive for both China and the world.

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¹ In June, 1997 China began phasing out the use of leaded gasoline in Beijing and Tianjin to help reduce automobile emissions. While this policy is unquestionably a move in the right direction, Chinese emissions will continue to increase in the future; automobile ownership in China, for example, expanded from 710,000 in 1991 to 1,500,000 in 1995 (*China Environment Series*, 1997).

² The World Bank estimates that 178,000 people in major Chinese cities suffer premature deaths each year from pollution, and mortality rates from chronic obstructive pulmonary disease are five times those in the United States (World Bank, 1997; Mufson, 1997). The World Bank also estimates that air and water pollution damages equaled roughly 8 percent (\$54 billion) of the Chinese GDP in 1995 (World Bank, 1997).

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The Findings of the Environmental Scarcities, State Capacity and Civil Violence Project: China, Indonesia and India

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[Editor's Note: The following summaries are from the Project on Environmental Scarcities, State Capacity, and Civil Violence, a joint project of the University of Toronto and the American Academy of Arts and Sciences. This meeting addressed these studies.]

SUMMARY OF THE CHINA CASE STUDY

by Elizabeth Economy

have engendered during the past almost two decades. Thus, while Beijing is racing to redress the negative institutional and environmental ramifications of the reforms through campaigns, exhortations, and new laws, it is not willing (or in some cases not able) to implement policies that might slow the pace of economic development, such as raising the price of water, increasing pollution discharge fees, or devoting sufficient state financial resources for local water conservation or waste management projects.

In this scenario of overall diminishing state capacity and growing demand for resources, the impact of water scarcity on state capacity might be expected to be dramatic. However, it is not. In some respects, the potential negative ramifications are mitigated by opportunities presented through the transformation of state capacity by the reforms. Nonetheless, there are important signals that over the longer term, water scarcity may indeed significantly diminish state capacity in several key areas.

Both demand- and supply-induced scarcities of water are increasing demands on the state for new infrastructure such as dams, canals, wastewater treatment facilities, and irrigation systems. This is placing greater stress on the fiscal strength of the state. Beijing has attempted to shift a greater portion of the burden of financing these projects on to the local and provincial governments as well as the international community. In many cases, however, the provinces lack the resources to make such substantial investments. Even Beijing has been stymied by the overwhelming costs

associated with its desired river diversion project. In response to the growing responsibility of local leaders to pay infrastructure costs, they have used China's integration with the international community to turn to the international community for substantial funding assistance for these infrastructure projects.

While the short-term implications of this behavior appear relatively benign, there are potentially quite serious longer range ramifications for state capacity. First, the autonomy of the state may be diminished by a greater reliance on foreign lenders. These lenders not only provide financial aid but also insist on additional politically sensitive measures such as pricing reform. In addition, a diminished role for Beijing in the financing of projects and greater dependence on local sources of funding also suggests a longer-term decline in the reach of the state that will not be limited to resource management issues. Local leaders, especially at the provincial level, have become increasingly vocal in their opposition to some state policies. For example, the Sichuan governor's vocal response to Beijing's inadequate financial contribution for resettlement engendered by the Three Gorges Dam indicates a threat to legitimacy of the state. In its most extreme form, this loss of legitimacy and decline in the reach of the state contribute to social instability and violent demonstrations of the sort that have occurred among those slated for resettlement or already displaced along the Yangtze River.

Both demand- and supply-induced water scarcity result in substantial interprovincial conflict. Contin-

THE CASE STUDY OF BIHAR, INDIA

by *Thomas Homer-Dixon and Valerie Percival*

Despite robust economic growth in the last few years, India is beset by a daunting combination of pressures. Population growth stubbornly remains around 2 percent; the country grows by 17 million people a year, which means its population doubles every 35 years. Demographers estimate that—even under the most optimistic estimates—India's population will not stabilize below 1.7 billion. Cropland scarcity and degradation affect large areas of the country. While data on the state of India's forests are of low quality, fuel-wood shortages, deforestation and desertification can be found over wide areas.

Resource scarcities in many rural areas, combined with inadequate opportunities for alternative employment, have produced rural-urban migration. The growth rate of India's cities is nearly twice that of the country's population. Their infrastructures are overtaxed: Delhi now has among the worst air pollution of any urban area in the world, power and water are regularly unavailable, garbage is left in the streets, and the sewage system can handle only a fraction of the city's wastewater.

India's recent urban violence was concentrated in the poorest slums. Moreover, it was not entirely communal violence: Hindus directed many of their attacks against recent Hindu migrants from rural areas. The rapidly growing urban population also leads to evermore competition for limited jobs in government and business. Attempts to hold a certain percentage of government jobs for lower castes have caused inter-caste conflict.

These pressures express themselves in a social environment already stressed by corruption and communal animosity. Political parties, including the Congress Party, increasingly promote the interests of only narrow sectors of society. The central government in Delhi and many state governments are widely perceived as incapable of meeting the society's needs and have lost much of their legitimacy.

ued population growth, as well as increasing demands from industry and agriculture, contribute to diminish the coherence of the state by engendering a growing number of interprovisional claims to these water resources. Rising pollution levels also result in growing interprovisional disputes over the responsibility and costs of treatment facilities and clean-up costs. These problems are endemic with little prospect for immediate resolution. Moreover, Beijing has yet to develop an effective mechanism for resolving such conflicts.

Water scarcity and pollution also occasionally have triggered violence in rural and urban areas. There is no evidence that these are more than isolated incidents with limited ramifications over the long term. It is worth mentioning, however, the extreme scenario in which security continues to grow, especially in urban areas, and a more sustained challenge to the state is posed. In continuation with a contraction in the economy and the continued spread of corruption and abuse of power at both the elite and local levels, a much more threatening form of urban civil violence, involving migrant workers, unemployed state enterprise workers, grain-short urban dwellers, and disgruntled peasants, might arise.

In the final analysis, water scarcity probably does not pose a substantial or direct challenge to state capacity. Moreover, as provincial and local regions grow wealthier, they may replace the center as the primary initiator and financial sponsor of environmental protection policies. Thus, while state capacity may be di-



have created a wholly new class of educated, increasingly mobile, urban, and informed people with greater expectations for political participation and less tolerance for autocratic or corrupt behavior on the part of government officials and agencies.

The concentration of natural resource-based wealth in the hands of a small political-economic elite, in which the president's family is very prominent, is under growing attack from many parts of society. The power and conspicuous consumption of these elites—often ethnic Chinese in league with members of the president's family and other regime figures—is increasingly unacceptable to a general public long suspicious of the country's wealthy Chinese minority; to the rising middle class which sees its own business prospects constrained by cronyism; and to elements within the military and civilian state elite itself who see the growing power and profile of the Chinese conglomerates and "the kids" as

the political and economic strategies of the New Order. They have been a substantial source of state revenue, a resource for political patronage, a safety valve

To ameliorate growing scarcities of renewable resources, minimize the spread of scarcity-induced conflicts, and protect the capacity of the state from erosion, the New Order must take its “ingenuity gap” seriously, and take steps to close it. Failure to unfetter the generation and delivery of ingenuity needed to deal



9 May 1997

Civilian-Defense Partnerships on Environmental Issues: Past Lessons and Successes, Potential Pitfalls, and Opportunities

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DoD ROLE/CONTRIBUTION/COMPARATIVE STRENGTHS/FUTURE PLANS

SHERRI W. GOODMAN

The Department of Defense has a long history of working to protect the environment. There are now over eight thousand environmental professionals working in the Department of Defense. Senator Inhofe, chair of the Armed Services Subcommittee on Military Readiness, said last month that environmental issues affect the quality of life, military training, and readiness of our military facilities.

We now realize that there is a linkage between environmental degradation and resource stability around the world. In his Earth Day remarks this year, Defense Secretary Cohen said, "environmental protection is critical to the Defense Department mission, and environmental considerations shall be integrated into all of its activities." We have evolved from perceiving environmental considerations as a strain on military activities to viewing them as opportunities to serve as good stewards. From the top generals to the newest recruits, the military today makes environmental protection a matter of business.

At home we are committed to building partnerships with other agencies like State, EPA, Energy, and with citizens and non-governmental organizations. One of the things that we are trying to bring to the table is our ability to work with the different militaries around the world. We have tried to reach out with a regional approach, working closely with the unified commands within the Department of Defense: Southern Command for the Western Hemisphere, European Command for Europe and Africa, Pacific Command for the Asia-Pacific region, Central Command for the Middle East, and then Atlantic Commands for the Atlantic area. Whether regionally or with individual militaries, DoD's environmental experts can help build institutional and intellectual capacity within these nations to address environmental issues.

We are working under the terms of our Memorandum of Understanding (MOU), with EPA and DoE to leverage the resources that our agencies have. For example, there is an effort among Russia, Norway, and the United States to bring U.S. environmental management techniques and methods to the Russian military, particularly the Russian navy. The Russian navy's activities include operations in the Kola peninsula, which is not far from the Norwegian border. As virtually any Norwegian will tell you, the threat Norway feels from Russia today comes not from weapons, but from contamination by Russian fleets very close to the Norwegian border. The Norwegian defense minister approached the U.S. Secretary of Defense in June 1994 and asked for help in engaging the Russian military on these issues.

In September 1996, Secretary of Defense William Perry and the Russian and Norwegian defense ministers signed a Declaration on Arctic Military Environmental Cooperation (AMEC). Since then, the U.S., Norwegian, and Russian militaries have combined their efforts to begin applying modern environmental management techniques to address military-related radioactive and non-radioactive problems in the Arctic. We are working on supporting Russian efforts to use proper environmental methods in their submarine dismantlement procedures. To build trust and cooperation with the Russian military, we share information and provide training, teaching, and education.

We think that through global engagement, we can promote democratization and very importantly, civilian control of the military. Our activities show great promise in fostering international security and regional stability.

**DoE ROLE/CONTRIBUTION/COMPARATIVE STRENGTHS/
FUTURE PLANS
MARC CHUPKA**

Environmental problems vary from region to region and in time span. Some problems are immediate, and some are longer term.

One environmental problem in particular directly relates to the stability in Russia and the Newly Independent States. Civilian nuclear reactors may affect the health of local and regional populations. Everyone may recall the destabilizing effect of the Chernobyl catastrophe on the region and on the environment, the health of the people, and the government. Nuclear weapons clearly present an environmental security problem.

In Central and Eastern Europe, definitions of security are expanding. Providing such services as clean water, healthy air, environmental protection, and economic support is essential to the countries' collective strength and viability. Environmental components to development become part of the security equation.

The Department of Energy has been engaged in dismantling the nuclear legacy of the Cold War here and abroad. We now know that environment and security are linked. One of our major responsibilities relates to controlling nuclear weapons and materials. Our focus on energy security traditionally concerns global oil markets as our nation's main energy provider. To secure our energy sources, we must invest in clean and efficient energy production.

The Department of Energy can make an impact in many different areas by improving science and technology. The DoE's enormous investment in high performance supercomputing has allowed us to keep our nuclear deterrent viable without actually testing weapons. These same computational capabilities help us to

ment from the U.S. government to proceed in expanding Russia's facility for treating low-level liquid radioactive waste in Murmansk. By transferring technology and creating investment opportunities in Murmansk and across Northwest Russia, we have helped Russia begin to implement a broader radioactive waste management strategy.

In the Baltics, we had a very strong environmental relationship both on the civil and military fronts. The Baltics share development interests with Poland and

include, What capabilities exist in the government or private sector for solving the environmental problem in question? In Zimbabwe for example, the U.S. Security Assistance Program, aimed at funding African militaries to perform biodiversity and conservation work, was thwarted by the fact that game-park management

example, we are learning from the Scandinavian countries about new technologies. We worked with the Australians on clean up technology, and we try to bring those technologies or practices back into our own work. Under NATO offices, the handbook on environmental guidelines for the military sector has been shared with many militaries around the world, helping develop environmental programs in the military.

Comment: How will AMEC cope with Russia's inability to deal with certain projects?

Comment: That poses a very difficult problem. Russia lacks funds. How much money will the Russians put up for their projects? We have signed some project agreements already, and we are moving forward on these projects. We are also working closely with the Russian navy.

In Russia, if you think you've made two steps forward, you've usually also taken one and a half steps back. So, we have to be patient. Russia will continue to be a priority. We need Russia because of the importance of the Russian military.

To deal with the legacy of the Cold War, we will continue to work with countries. We have active engagements with Poland, the Czech Republic, and Hungary. The possibility might exist of having meetings with China in the near future, and we are now considering the Middle East as well.

Comment: I'd like to know what the next steps are in terms of priorities, regional issues, and areas of the

world where you may be focusing in the future?

Comment: What are our next priorities? One of the things that we are going to do is to set up a regional environmental house program, placing foreign service officers in various embassies around the world. This summer that program will actually join forces with the first six house operations in East Africa, Central America, the Middle East, Central Asia, East Asia, and Southeast Asia. Our next step will be to start various inter-agency teams to actually carry out some of the substantive activities that we have proposed.

Comment: We have shut down or redeveloped some of the military bases we have overseas. What new environmental and economic benefits have resulted?

Comment: Many of our activities overseas are advantageous to the U.S. We conduct health impact research on air pollution in China that produces results difficult to obtain in the United States. Scientifically, we have cleaned out our most obvious particulate and air pollution at a much lower cost. In Mexico, we had an Air Quality Management district try to build in El Paso. If we continue to provide such assistance, El Paso may be able to meet its own clean air goals. Activities in northwest Russia solve environmental problems by helping Russians manage radioactive waste.

Domestic leadership on global issues is strategically important. We can finally break through to a new level of political consensus on global climate change. We could indeed change the world.

May 21, 1997

Findings of the Pivotal States Project

JOHN BRESNAN, East Asian Institute, Columbia University
ROBERT CHASE, International Security Studies, Yale University
SUMIT GANGULY, City University of New York/Columbia University
EMILY H

Third, these pivotal states potentially have a significant influence on their regions, perhaps as engines of economic growth, or as models of political liberalization.

Most importantly, these states are geo-strategically placed. They are large and populous, with a growing middle class, and they are located in positions of importance to U.S. security, perhaps near some of the world's hot-spots or along major maritime routes.

The point is not to split hairs about which state is pivotal but rather to use this model as a means to assess the strategic importance of different states in the developing world. Right now, the following states have been designated as pivotal: Egypt, Turkey, Brazil, Mexico, South Africa, Indonesia, Algeria, India, and Pakistan.

What does the existence of these pivotal states mean for U.S. foreign policy? The pivotal states project provides a rigorous means to prevent instability and to promote prosperity in the developing world. Instead of directing scarce national resources haphazardly to humanitarian projects, the pivotal states strategy directs funds to the establishment of relations with particular developing countries.

After the end of the Cold War, many legislators thought that less money was needed for foreign policy. As Sir Halford McKinder once noted, democracies fail to think strategically in times of peace. The repercussions of rapid change in the developing world will affect American national interests. A pivotal states strategy will encourage policymakers to confront these challenges directly, before they threaten American national security.

Robert Chase

The pivotal states idea is a device to get people talking about American priorities at the end of the Cold War. Many people have thanked us for getting the discussion started about where U.S. interests lie, but there has also been some criticism. One group of people called it overly simplistic to choose nine states out of 130 as pivotal. Some people asked, "What about America's responsibility to the poorest countries of the world?" Another group said that for diplomatic reasons, it did not make sense to list openly the countries that the United States prioritized. A fourth group said that development assistance could not help foster security.

That there are so many contradictory ideas about the pivotal states model suggests a lack of coherency among international experts in U.S. foreign policy. The pivotal states project has invested effort in bringing people together to exchange ideas and to share their expertise.

The original article on pivotal states presented the new strategy as a pragmatic re-focusing of American aid. By focusing AID's scarce and diminishing re-

sources on a limited number of countries, U.S. resources would make more of an impact. However, over the last year, we have learned from country experts that

CASE STUDY ON INDIA

Sumit Ganguly

Why does India matter? It matters because one cannot afford to ignore a fifth of humanity. India is one of the ten leading emerging markets, and despite some setbacks, India is clearly on the path towards economic liberalization. In India, democratic institutions have survived. Since 1991, India has been growing at approximately 5 percent per capita, and the projection is that it will grow at 7 percent. In ten years, income will essentially double.

What about India's longevity? There are a number of causes for concern, including ethnic-religious conflict and overpopulation. India adds approximately eleven million people, the entire population of Australia, to its population every year, with important consequences in terms of health, housing, and sanitation. However, India is not on the verge of crisis nor in immediate danger of collapse. In contrast, India has achieved extraordinary integration; the 1997 elections have improved the government's stability; and institutional renewal in India has taken place. India's economy will continue to grow, particularly as institutions acquire a great deal of robustness.

On the part of the United States, India has been the subject of considerable neglect since the 1960s. Now, there are several ways that the United States can show a renewed interest in India. The president should be swifter in terms of appointing an ambassador. The NSC could use a full-time staff for South Asia, and a position similar to assistant secretary in the State Department should be created. The Indian region would also be enhanced by a presidential, or at least a vice-presidential, visit. No president has visited India since President Carter, and now would be a good time to demonstrate American interest in India. Regional arms control, particularly within the Indian military and the U.S. military, would encourage nonproliferation. Continued support of economic liberalization in India, perhaps by increasing access to American markets, would also help stabilize the Indian economy.

CASE STUDY ON MEXICO

Peter Smith

The pivotal influence of Mexico is, in some ways, overshadowed by the presence, power, and influence of the United States. However, Mexico is critical to the United States because of bilateral links.

The future of Mexico is difficult to predict. Right now, Mexico has a "checkerboard democracy," with free and fair elections and democratic rule in some sectors, and authoritarianism in other sectors. In the last fifteen years, there has been an escalation of violence, a string of high-profile political assassinations, and rebellions in Chiapas and Guerrero. The traditional political apparatus is in an advanced state of institutional

disintegration.

One prediction for the future is that there will be a continued process of democratization in Mexico. Mexico's political situation is undergoing considerable change, and it may even be possible for an opposition candidate to win the presidential election in the year 2000 or the year 2006. For democratization to happen, free and fair elections must occur.

A less fortunate possibility for Mexico's future may be a throw-back to authoritarianism, with an alliance between reactionary elements within the PRI (the so-called dinosaurs), segments of the military, and law-enforcement agencies. In fact the populist dinosaurs are not all old, retrograde, corrupt, right-wingers as their opponents claim; only some of them fit this description. If we start seeing social unrest in Mexico City and other metropolitan centers, we might conceive an authoritarian response.

Alternatively, we may see an equilibrium or uneasy balance between democracy and authoritarianism in Mexico over the next ten to fifteen years. This would mean perpetuation of the checkerboard pattern that is now in place. Though Mexico has not collapsed—Mexico is no Yugoslavia, Rwanda, or Zaire—there is considerable uncertainty about its future.

According to the World Bank, the Mexican population is likely to be 108 million by the year 2000, 135 million by the year 2025, and 165 million by the middle of the decade. This growth may cause unemployment and social agitation, leaving the state vulnerable to authoritarian repression.

There is no sign in the near future that Mexico is going to employ its next generation, so an increased number of migrants may enter the United States. We are trying to build triple fences in San Diego, double the budget for border patrol, and carry out operations like "Hold the Line." However, these policies push the migratory stream from one place to another but do little to ameliorate it.

The United States will also continue to deal with drug trafficking. Mexico was thought to be the transit point for about 30 percent of cocaine imported into the United States in the late 1980s, and 70 to 80 percent in the mid-1990s. Newly strengthened cartels represent a source of major political corruption and have caused an escalation of violence. These problems will continue to complicate our relationship with Mexico.

U.S. policy is, in some ways, institutionally and bureaucratically "balkanized" between trade, state, DEA, and INS, with each agency having its own policy toward Mexico. We need a more coherent and unified policy, with a reconciliation of our policies on immigration and trade. Right now, we have free flows of capital and products, but in contrast, no free flows of labor. What can we do to improve our policies? Guest worker programs could be explored, and collaboration along the border could be increased. As far as drug

control policy is concerned, we could turn our attention away from supply control to demand reduction.

President Clinton met briefly with opposition leaders, in the middle of a campaign swing, two months before an important mid-term election in Mexico. The PRI saw this as a great opportunity to bolster its own political capital. Though we applaud Mexico's transition toward democracy, we have to be careful about our alignment with the PRI and the ruling party.

GENERAL DISCUSSION

Comment: Did you make any attempt to quantify the different variables to lead to your pivotal states' conclusions?

Chase: Many of the definitions that make states pivotal are very difficult to quantify. We have, however, been putting together matrices to evaluate the different dimensions that Emily put together. Quantifying the different variables is certainly a valuable idea, and we are open to suggestions.

Comment: Do you agree that leadership in having a free market is one of the most important things that the United States can provide?

Kennedy: I clearly support economic integration, and open markets, but as our individual state experts would

nounced that 26 percent of deaths in China are respiratory disease related. It takes a little time for that data to penetrate, but senior Chinese policy officials know that staggering public health problems require attention. China's controlled media keeps environmental

additional state. If saving whales ranks a priority, Norway should be included. The pivotal states model can be refined, depending on the particular issue.

Comment: My fear is that leaving China and Russia off the list does not acknowledge the need for attention to global issues. For example, on climate change, we have heard from some senior Chinese officials who basically say that the United States should treat China as a developing country when it comes to international environmental issues. China would like to get more technology, and more assistance to meet environmental challenges. My fear is that by leaving them off as pivotal states, even though Russia and China will still get a lot of attention with traditional issues, they will not get much needed attention as developing countries.

Comment: I do not think that we should feel threatened by Russia and China in the midst of your global environment accords. We started off with a list of nine

30 September 1997

Bridging the Gap between the EU and the U.S.: Attitudes, Analyses, and Strategies

MICHAEL GRUBB, Energy and Environmental Program, The Royal Institute of International Affairs

Last year, in Geneva, the United States called for the Kyoto negotiations to establish leading binding targets for the reduction of CO₂ emissions. There are still considerable skeptics who question the seriousness and adequacy of these targets, but after years of debate, governments have largely gone beyond the “whether” to the “how.”

The Kyoto Agreement on restraining CO₂ emissions can be more efficient and environmentally effective through the use of intergovernmental emissions trading. After an international agreement enters into force, one government may reach agreement with another participating government to exchange part of its allowable emissions, so that one may emit more and the other correspondingly less. The terms upon which they agree to the exchange would be a matter between them—the terms might involve monetary transfer, a non-monetary political trade-off, or something in between such as debt cancellation.

Intergovernmental emissions trading increases economic and environmental efficiency. A country which has higher abatement costs for reducing emissions can trade with a country that has lower abatement costs. Therefore, the cost of achieving a collective reduction in emissions is lowered. Intergovernmental emissions trading also allows for more flexibility in negotiating binding commitments. Countries such as Norway will not be as risk-averse towards an agreement, if the security exists that when target goals cannot be met, trading to gain more emissions can ease economic strains. Clearly, introducing the option of trading increases the willingness of countries to enter into an agreement. Countries can then ease the political problem of allocation by negotiating among themselves to change individual emissions levels.

A significant part of my own efforts over the past year has been to persuade European and Japanese governments that emissions trading is a good thing. Key European policymakers came to accept that intergovernmental emissions trading is a practical proposition, and that it could have advantages. But one real and potent concern remained: could emissions trading become a means by which the world's biggest and richest polluter, the United States, could escape from having to take any significant domestic action? Specifically, if the targets established at Kyoto are relatively weak, could the United States buy in, at little or no cost, to sufficient additional quotas to avoid having to take any significant action at all?

Against this background, the European Council of Ministers met in June and crafted a simple but effective compromise that called on countries to clarify their specific commitments. The European Union stated that it is prepared to accept the logic of emissions trading, but only if clear benefits result, with greater efficiency enabling a stronger overall outcome.

The “international trade in emission allowances” (ITEA) model is an easy-to-use and transparent tool that predicts the outcome of intergovernmental trading and explores key themes related to defining commitments in the Kyoto negotiations. The costs to the European Union, the United States, and Japan were predicted and compared under the following conditions: without trading of CO₂ emissions, with trading of only CO₂ emissions, without trading of all greenhouse gases, and with full intergovernmental trading of all greenhouse gases. The data used came mainly from governmental submissions made available by the International Energy Agency. The results show that the costs to the major OECD countries associated with reducing domestic CO₂ emissions by 5 percent from 1990 levels are the same as those arising from a flat-rate reduction of 13.9 percent across all industrialized countries, if that 13.9 percent reduction is implemented with the ‘full flexibility’ of including all greenhouse gas emissions with full intergovernmental trading. In other words, when costs are kept constant, full intergovernmental trading of all greenhouse gases results in a net benefit of about 9 percent in reductions.

Technological developments can further reduce the cost of emissions reduction and help provide more efficient electricity. For example, the United Kingdom owes its ability to reduce carbon dioxide output to advances in the electricity sector. Around the world, improved technology has made possible the use of alternative energy sources. The use of wind energy was negligible in 1990, but capacity in Europe has grown at roughly 25 percent annually. Wind energy capacity in Europe is now projected to exceed 6000 MW by the year 2000 with rapid increase thereafter.

The most valuable aspect of Kyoto is the creation of a structure which offers a first and simple step on the road to defining appropriate commitments. Developing countries should be involved, but the responsibility for reducing emissions should reside with the countries that cause the bulk of the problem, release the most emissions, and have the best technology. When those countries demonstrate seriousness of intent—when they bring their own emissions down to

historic levels—then a precedent for developing countries to follow will be set. Therefore, the reduction in Kyoto is a pre-condition for negotiating with developing countries. An important goal is to remove the hesitation of developing countries to being drawn into commitments and to make it attractive to those countries to reduce emissions. Emissions trading offers a way forward.

Wilson Center Fellows and Scholars

The Wilson Center has a long history of fellows and guest scholars coming to research and write on environment, population and security issues. Here is a selection of recent and upcoming fellows and the Wilson Center programs sponsoring their stays. For more information on all Wilson Center programs and projects, visit our web site at <http://wwics.si.edu>.

ASIA PROGRAM:

Dai Qing - Woodrow Wilson Center Fellow

Freelance Writer and Journalist, Beijing, China
“Zhang Dongsun: The Fate of China’s Leading Independent Intellectual”
September 1998-May 1999

DIVISION OF U.S. STUDIES

Robert Fishman - Public Policy Scholar

Professor of History, Rutgers University
“Metropolitics: What Washington Needs to Know About the New Regional Politics of Cities and Suburbs:”
September 1998-June 1999

LATIN AMERICAN PROGRAM:

Raul Benitez-Manaut - Guest Scholar

Researcher of the Centro de Investigaciones Interdisciplinarias en Ciencias y Humanidades UNAM, Mexico
“Mexican National Security at the End of the Century: Challenges and Perspectives”

Charles Briggs - Woodrow Wilson Center Fellow

Professor of Ethnic Studies, University of California, San Diego
“Infectious Diseases and Social Inequality in Latin America”
September 1997-June 1998

KENNAN INSTITUTE FOR ADVANCED RUSSIAN STUDIES:

Theresa Sabonis-Chafe - Short-Term Scholar

Ph.D. candidate, Department of Political Science, Emory University
“Power Politics: National Energy Strategies of the Nuclear Successor States”
June-July, 1997

Viacheslav Glazychev - Guest Scholar

President of the Academy of Urban Environment and Professor, Moscow Architectural Institute
“Cultural Foundations for the Urban Environmental Development”
July-August 1997

Tatyana N. Garmeva - Guest Scholar

Russian Academy of Sciences, Siberian Division, The Baikal Institute of Nature Management
“Problems of Sustainable Development and the Role of International Cooperation in the Lake Baikal Region”
January-April 1998

Frances L. Bernstein - Research Scholar

Postdoctoral Fellow, Department of History of Science, Medicine and Technology, Johns Hopkins University
“Gender and the Politics of Public Health in the Soviet Union”
September 1998-February 1999

The Challenges of Freshwater Resources into the Next Millennium

AGENDA

Framing the Debate: Scarcity versus Distribution
SANDRA POSTEL, Director, Global Water Policy Project

***Framing the Debate:
Allocating Benefits versus Allocating Water***
EVAN VLACHOS, Associate Director, International School
for Water Resources, Colorado State University

Water and Conflict Resolution
AARON WOLF, Assistant Professor,
Department of Geography, University of Alabama

Water and Civilization
JEROME DELLI P

20 November 1997

Damming Troubled Waters: Conflict over the Danube

RONNIE D. LIPSCHUTZ, Associate Professor of Politics and Director of the Stevenson Program on Global Security, University of California, Santa Cruz

Dr. Ronnie Lipschutz, a prominent contributor to the ongoing debate over environment and security linkages, presented findings from his case study on conflict and the Danube River. With research originally prepared for the Environmental Security Project of Columbia University, Lipschutz provided a detailed historical examination of the conflicts that have arisen along the Danube. He paid particular attention to the modern confrontation between the states of Slovakia and Hungary over their shared Gabčíkovo-Nagymaros Barrage System (GNBS). In this case, the Danube River provided an important example of a “dog that didn’t bark,” a case where shared water concerns led to strained tensions but did not result in violent conflict. Lipschutz highlighted the critical roles played by institutions in mitigating a violent outcome.

Beginning in Germany and ending 2,888 km later in the Black Sea delta, the Danube River Basin includes 13 countries in Europe and is shared by a mix of religious and ethnic groups. Historically, the delta was a flood plane that people struggled to manage. Over the last two hundred years, the river has turned from a “natural habitat” into a highly industrialized area. Paradoxically it is now the fact that flood control is so good that there is a water shortage for some parties along the river.

In the 1920s, the Soviet Union proposed to build a barrage system across the Danube to make the region navigable for military purposes. By the 1950s and 1960s, joint planning among the communist countries of the Eastern Bloc proposed the Gabčíkovo-Nagymaros Barrage System (GNBS) on the middle part of the Danube River running through Czechoslovakia and Hungary. Supporters argued that the new source of electricity that would come with the dams and power plants would substitute for air-polluting soft brown coal, help meet the energy needs of both countries, provide flood control and agricultural irrigation, and improve the river’s navigability. Although there was skepticism on environmental, ethnic, and other grounds, the governments and water management sectors of both Hungary and Czechoslovakia were enthusiastically in favor of the project. Hungary and Czechoslovakia finalized plans for the river in a 1977 bilateral treaty.

In the 1980s with work on the barrage system underway, opponents of the GNBS formed the group Danube Circle in Hungary. In 1988, 40,000 people turned out to protest before the Parliament Building in Budapest. Not long after, the organization was able to give the government 140,000 signatures from people against the project. Hungarian officials did not strongly curb these political actions as they thought it less threatening for their citizens to protest water rights than human rights. The officials miscalculated according to Lipschutz. What first began as an environmental group turned into a broader force of opposition to the Hungarian regime. Although external funding had been obtained and construction begun, growing political opposition in Hungary to the dam coalesced into a mass movement that was eventually able to raise the matter to the highest political levels and bring the project to a halt on the Hungarian side.

However, in Slovakia, the plans for damming the river were not similarly sidetracked: a new alternative plan for the series of dams, known as Variant C, came into favor. Without building on Hungarian territory, the Slovaks managed to alter drastically the Danube’s water flow by closing off side channels in Slovakia. The

Variant C remains a symbol of sovereignty and strength for Slovakia. Slovakian Prime Minister Meciar can shore up his own power base by using the issue to play what Lipschutz calls the “Hungarian card” in eastern Slovakia where there is a sizable Hungarian minority. Politically, Hungary has more incentive to find a solution: the carrot of European Union membership could be a reward. Since EU membership is further off for Slovakia, Lipschutz believes that the final outcome will favor Variant C.

In terms of lessons to be taken from the Danube and the Gabcikovo-Nagymaros dispute, the emphasis according to Lipschutz should rest on recognizing the importance of domestic and international institutions in conflict resolution. In the realm of environment and conflict, institutions matter and future research must better integrate these variables intervening between

environmental degradation or depletion and violent conflict. In the case of the conflict between Hungary and Slovakia, recourse to the European Commission and the International Court of Justice in The Hague provided a social structure that allowed for the exploration of alternative social arrangements. A density of linked and overlapping institutions dampened tendencies toward an anarchic and violent relationship between contending parties.

Editor’s Note: For more on Ronnie Lipschutz’s arguments on environment, conflict and security, see his publications cited in sections A, B, and D of the Bibliographic Guide to the Literature. For more on Columbia University’s Environmental Security Project, see the entry in the Updates Section.

December 11, 1997

U.S. Population Activities: Ongoing Plans and Future Directions

JULIA TAFT, Assistant Secretary of State, Bureau of Population, Migration and Refugees, Department of State

DUFF GILLESPIE, Deputy Assistant Administrator, Center for Population, Health and Nutrition, USAID

PATRICIA ROWE, Chief, Population Studies Branch, International Programs Center, Census Bureau

Julia Taft

The State Department has established that international population policy is critical to sustainable development strategies. International family planning policy affects the ability of people around the world to sustain livelihoods. It also has an impact on issues surrounding women's health, children's survival, and healthy families. I think that there is a great deal of misunderstanding or conscious deception in what the U.S. policy is toward population.

When we promoted our pro-choice program and tried to provide worldwide family planning assistance, some people characterized our policy as pro-abortion. Actually, pro-choice is pro-life. Our emphasis is on keeping the already-born children alive, opening up options, and educating women.

When children are too closely spaced, their survival rate is very low. How do we provide families with an environment in which their children can survive? The U.S. funds family planning programs. We give money to Georgetown University for consultations, to try to help families determine the best method of birth spacing for them. We conduct programs in micro-credit so that women have options of working rather than just staying at home and producing more children. We promote female education because women who are educated gain more respect as well as develop the ability to take care of the children they already have.

The legislative challenge that we face is the global gag rule. We all know and comply with the restriction that all recipients of federal money may not use these funds to pay for abortions. There was, in fact, a recommendation that organizations could not—even with their own money—fund discussion about abortions or the promotion of policies to change rules, in their own or other countries. The Istook Amendment attempted to tell recipients of federal money, the NGOs, that they could not use any portion of their own money to try to influence national legislatures. That has been discarded; I hope permanently. The debate around the amendment centered on free speech. Does the federal government have any authority to tell organizations or individuals what they can do with their own money?

Family planning is particularly relevant to the national security community. Look at some of the countries that have incredibly high unsustainable population growth—Nigeria, Saudi Arabia, Liberia, and in particular, Rwanda. These countries do not have room for all their people. They cannot educate their citizens nor handle migrations of people. They devastate forests to create land and grow food. Major tensions exist between ethnic groups, as factions attempt to gain economic and political leverage. When governments cannot service the needs of their societies, the result is upheaval.

There are 125 million women who have already expressed a need, a willingness, and an urgency for family planning, but who are unable to obtain it. Because of this, many will have abortions, and many of them will die. We need to consider these women as we put forward a new population policy.

Duff Gillespie

USAID is the primary executor of the U.S. government's population program, which was begun in 1965. The bulk of USAID funds go to family planning activities either directly, such as for the provision of contraceptives, or indirectly, such as to research related to the assessment of family planning efforts. The budget in FY 1998 is \$385 million. We operate in sixty countries, but there are fifteen countries designated as priority countries. These include the largest countries in which we have bilateral programs: India, Bangladesh, Indonesia, Ethiopia, and Peru.

We classify eight additional countries as "special concern countries." These are countries in which we are active either because of a crisis situation, such as Haiti, or for historical reasons, such as Mexico. At the present time, Haiti receives more population funds per capita than any other country in the world. This is because of the

special crisis situation that exists there. However, that level of support is probably not likely to continue. For most of these eight countries—special concern countries—we are either in the process of withdrawing or reducing aid.

The rationale for the program, as defined by Congress and the administration, is to make population dynamics consistent with sustainable development. We do not set a particular demographic target, but we do see population as an important dynamic for our social and economic development. In most cases, the actual population plan of action that occurs in a particular country is that which is defined by the host country's government.

USAID has focused on building upon its family planning and research programs in order to have a greater impact in the areas of family planning and reproductive health. For example, a major new initiative under the Clinton administration is post-abortion care, which I might add is fairly noncontroversial, even on the Hill. This post-abortion care involves taking life-saving steps for women who have had incomplete abortions, usually as a result of illegal abortions.

We are much more active in programs focused on sexually transmitted diseases, such as HIV/AIDS programs. We are also involved with internal and reproductive health programs, and a population health nutrition program, with spending on health-nutrition totaling about \$550 million per year.

What has been the result of our work? USAID is by far the largest donor in the area of population and, with the exception of China, has played a pretty important part in all major family planning programs in the developing world. There has been a major shift in the demographic situation of the world. In the 1960s the doubling time for the developing world was thirty-four years, and the average family size was over six. Now, the doubling time is forty-six years, and average family size is under four.

Groups like ours try to show that in order to improve health and empower women, societies must make population control and reproductive health a priority. I have serious doubts, however whether these findings will provide enough incentive for host country governments to start making major investments. The challenge is to try to show individuals who control policies why this is something that should be considered as important for the well-being of not just their citizens but also their economies.

Patricia Rowe

The International Programs Center is part of the U.S. Bureau of the Census. The U.S. Bureau of the Census does not do policy; it essentially produces data. The Center has two components, technical assistance and research. For more than forty years, the bureau has been helping countries by providing technical assis-

tance in gathering information. This assistance in more than 100 countries has taken the form of teaching statistical office staff how to plan, design, conduct, analyze, and disseminate the data.

The Center provides to their sponsors information

late large families for various economic reasons. But why would people who are wealthy refrain from having more children?

Gillespie: Child survival may play a very important role. The expectation of children living to adulthood is incorporated into people's decision-making process, and therefore, almost invariably, there's a change in the desire for fertility. That change actually takes several generations to take place, so the relationship between child survival and fertility is much more complex than it may at first seem. The other factor is that people realize the relationship between their number of children and lifestyle. That relationship is not as good as it used to be. In an agrarian based economy, with little technology, it was advantageous to have an extended family. Now, when you have inheritance, a large family actually decreases the family's power.

Comment: All the initiatives that focus on girls' education are really important. The relationship between the education level of the girl and her fertility is just incredible. For every year beyond four years that a girl goes to school, she later has one less pregnancy and 20 percent more future earning income. Providing her with other alternatives and more value in her society, through education, should be a continued focus, and hopefully we will find more money for that.

Comment: There are a lot of people who are unemployed and undereducated. There are many angry and rebellious youth. How do we find ways of lessening these pressures? What kinds of health services are needed? I think there is a real gap—which I know DIA is trying to reduce—with the NGOs. We've got to figure out how we can keep these issues from becoming so mysterious that we lose sight of the fact that the only way to address them is by having people come together and share information. To meet the challenges of today, we need to foster open discussion.

Comment: We have to recognize the appropriate limitations and use of classification. Just by virtue of CIA and USAID or NGO in the same sentence, we may stand accused of spying on an NGO, which we do not do, or of somehow being involved or tainted with the spread of AIDS. It is as bad as being accused of promoting crack-cocaine in some circles.

The point is that we are all concerned about the issue of unsustainable population growth. We have to broaden the constituency of people who are as committed as we are to trying to do something constructive. We must figure out a way to have at least the ability to talk to one other.

[Editor's note: This meeting also featured a speaker from the U.S. intelligence community who asked that his comments not be reproduced.]

Official Statements and Documents

Below are excerpts from recent official statements in which environmental issues are cited in the context of security institutions and national interests. The Wilson Center encourages readers to inform the ECSP Report of other related public statements.

**Excerpts from President Clinton's remarks to the United Nations Special Session on Environment and Development, The United Nations, New York
26 June 1997**

**Excerpts from Vice President Gore's remarks at the
Many Glacier Hotel, Glacier National Park, MT
September 2, 1997**

... If we stay on our present course, scientists predict that average global temperatures will rise by 2 to 6 degrees Fahrenheit in the next century....That's why, if we fail to act, scientists believe the human impact of global warming will be severe:

America's prosperity and good health.

Today that same bipartisan spirit is needed to forge a worldwide strategy to combat global climate change. The Clinton Administration is committed to doing its part at home by using the force of the market and the power of American innovation to cut our emissions and keep our economy growing. And we are determined to lead in developing a global action plan based on sound science and sensible cooperation—a plan that makes sure that all nations play a part and in which innovation and initiative are rewarded.

Each of these efforts will contribute to a more secure, just and livable world.

.....

**STATEMENTS BY TIMOTHY E. WIRTH
Under Secretary of State for Global Affairs**

Excerpts from Under Secretary Wirth's remarks at the Western Hemisphere Defense Environmental Conference, sponsored by the United States Southern Command and Office of the Deputy Under Secretary of Defense for Environmental Security, Miami, Florida 3 June 1997

... Consider these basic facts. Five biological systems—croplands, forests, grasslands, oceans and fresh waterways—support the economy of this hemisphere and indeed the entire world. Except for fossil fuels and minerals, they supply all the raw materials for industry; and provide all the food. In other words, virtually all economic activity is dependent in some way on the natural environment and its underlying resource base. Thus, when that environment is polluted or degraded or otherwise diminished, our economic capacity is reduced as well.

... Moreover, our population is increasingly urban, and cities—especially large cities—present particularly intractable environmental difficulties. On a bad day in Los Angeles or Mexico City or Santiago, the air itself becomes a direct threat to human health. The children that are growing up in such a polluted atmosphere run the risk of life-long mental and physical impairments.

... Before I close, I would also like to call attention to one idea, a suggestion whereby sound environmental policy might be used as a component of conflict prevention. The idea is the creation of international parks along difficult or controversial borders. Recently, the governments of Colombia and Panama suggested establishing a series of nature parks along their common border, as a way to reduce tension there.

... There is already at least one outstanding example

of using a park as a way to help solve a difficult and long-standing border dispute. I am thinking of the Chamizal National Memorial, which the United States and Mexico established in 1963 as a key part of the agreement that resolved a hundred-year old border dispute along the Rio Grande. Today, the Chamizal

of atmospheric concentrations of greenhouse gases. But unless significant actions are taken early in the next century, it is very likely that atmospheric concentrations will, by the year 2100, nearly triple the pre-industrial level and rise higher than any point in the last 50 million years. Changes to our climate system would also continue beyond the effects that the current studies predict; the risks would increase dramatically as concentrations continue to rise. Moreover, there is no reason to believe that these additional effects would be linear; they would most likely take unpredictable and highly undesirable paths.

... So action by industrialized nations alone will not put us on the road to safe concentrations of greenhouse gases; we need action by the developing countries as well. But it is very clear from all our discussions and negotiations to date that if the developed countries, with our current economic capacity, technical capability, and energy intensive life-style, don't go first—setting the example and reducing emissions—then developing countries will not act either. We must lead the way. . . .

STATEMENTS BY CAROL BROWNER

Administrator, Environmental Protection Agency

**Excerpts from Administrator Browner's remarks at the Environmental Business Council of New England, Boston, Massachusetts
October 3, 1997**

... We still have major environmental and public health challenges ahead of us. And what makes them more difficult is the fact that, in many cases, they are not as obvious to the majority of Americans. But they are very real, nonetheless.

... We have taken measures to improve our air quality—setting stronger public health air quality standards for the first time in two decades—standards that will prevent thousands of premature deaths each year, and improve health protections for people of all ages.

We have enacted new laws to protect our drinking water and our food from dangerous contaminants.

... This new generation of environmental protection means something else, too. It means what the President has said, on many occasions, and what has proven to be true: that environmental protection and economic progress do go hand-in-hand.

You know that addressing the challenge of global warming is not about ratcheting down our economy. . . . Rather, it is about investing in new technologies that make our industries more efficient, more profitable—and cleaner in the process.

... I'm talking about more efficient motor systems in factory equipment, advanced turbine systems, computer workstations and household appliances that use less electricity—and thus reduce global warming emissions—all through available technologies.

According to the National Academy of Sciences, we can cut global warming pollution by one-fifth—right now, at no cost—simply by using technologies that are already on the market.

STATEMENTS FROM RICHARD LUGAR
Senator (R. - Ind.)

**Excerpts from Senator Lugar's Remarks at the Senate Agriculture Committee Hearing on Global Warming
March 5, 1998**

...In preparation for Kyoto, the Senate passed the Hagel-Byrd resolution in July, urging the President not to sign any treaty which failed to include emissions limitations on developing countries. However, the United States signed the Kyoto Protocol, with administration officials conceding that it does not include "meaningful participation" by the "key developing countries." China and other developing countries have reportedly expressed adamant opposition to limit even their rates of growth in greenhouse gas emissions.

The national debate over the Protocol may force this nation to overcome its tendency to separate energy and environmental policies. In reality, many of our environmental problems are related to our need for energy. Changes in energy policy are essential to addressing environmental concerns.

Events beyond our borders also have tremendous impact on American energy security and environmental interests....

...To address these many issues, I believe that the President should establish an interagency Energy and Environmental Security Task Force. Such a task force should include the National Security Council, the Council of Economic Advisors and high level representatives of pertinent agencies such as USDA, Energy, Transportation and the Treasury. We cannot cope with any of our pending environmental or energy security problems without a new energy policy.

We must also address the serious threat of worldwide deforestation. Experts indicate that about 20 percent of the increase in greenhouse gas concentrations is due to the elimination of carbon sinks in our soils and forests. We are losing 30 million acres of tropical forests per year. Yet the Kyoto Protocol may not allow the United States to count projects which we fund in developing nations to avoid deforestation and promote sustainable agriculture as part of our contribution to addressing the climate change problem.

.....

**STATEMENTS BY JOHN GANNON
Chairman of the National Intelligence Council**

**Excerpts from remarks by John Gannon to the Washington International Corporate Circle
31 October 1997**

...We think it is critical that policymakers think beyond the crises of the day and consider some of the evolutionary trends that will shape our future, both from a national security and an economic perspective....

First, population will increase by 1.2 billion to over seven billion by 2010. About 95 percent of this growth will be in developing countries. This growth will be accompanied by increased urbanization: about half of the world's population will live in cities compared with one third today. . . .Countries such as Mexico and Saudi Arabia that hold key geopolitical positions will be among those heavily affected by population pressures. In some societies a "youth bulge"—the growing number of people between 15 and 24—will strain educational systems, infrastructure, and the job market.

. . . For the industrialized world, the population problem will not be associated with growth but with increasing life spans and decreasing birth rates. The "Social Security-Medicare" debate already reverberating throughout the developed world will become even more acute. Governments will struggle to provide social welfare and health services to an aging population, while the labor force—the pool whose taxes help finance these services—shrinks.

In the Former Soviet Union the issue is not buttressing a safety net, but creating one to cope with a wide range of economic and social problems, the solutions to which will take many years of concerted effort in health, environmental, and economic policies. The extent of Russia's demographic ills is reflected in a sharp and

of the area, where housing, sanitation, employment, and food distribution are already under serious strain.

Consider another aspect—that of human migration. There are about six million immigrants from the Maghreb residing in the European Union, distributed mainly in France, Italy and Spain. Such large inflows are another factor in the equation that ties together the stability of countries on the northern and southern shores of the Mediterranean....

.....

**STATEMENTS BY NAFIS SADIK
Executive Director
United Nations Population Fund**

**Excerpts from Dr. Sadik’s remarks to the East Asia and Pacific Regional Conference of the Society for International Development, Tokyo, Japan
1 April 1997**

...The challenge before us as we mark the fifth anniversary of Agenda 21 remains as it was in 1992: to balance population growth with resources for development, attack poverty and secure women’s equality. In the intervening five years however, we have reached international consensus on many issues which were unre-

pects for sustainable development. It must be broken by explicitly integrating population into economic and development strategies; otherwise, the cycle will continue, contributing to environmental degradation and resource depletion.

...Empowering women through education and better health care, and moving towards gender equality and equity in law and practice will be the basis for improving the quality of life and alleviating poverty elsewhere in the subregion. I am glad to say that I see signs in the last few years at all levels that the process is taking firm hold in South Asia.

The key can be found in the consensus agreements forged at a series of global meetings in this decade—particularly the 1994 International Conference on Population and Development in Cairo and the Fourth World Conference on Women in Beijing a year later. These spell out a human-centred approach to development which focuses on meeting people’s needs for education and health care, empowering women and achieving gender equality and equity.

...This approach to population and social development

has been accepted by all governments in the region as part of the global consensus. The evidence is that they are taking it seriously. Each country in South Asia must define its policies and programmes based on national priorities and particularities. But as Cairo and the other conferences emphasized, any effective strategy will require development partnerships involving government, civil society and the private sector. And considerable resources will have to be mobilized, from both domestic sources and international development assistance.

...As the Cairo conference emphasized, poverty and social and gender inequity influence and are influenced by population growth, structure and distribution. Efforts to slow population growth, reduce poverty,

New Publications

Conflict and the Environment

by Nils Petter Gleditsch (editor)

Dordrecht: Kluwer Academic Publishers, 1997

Reviewed by Simon Dalby

This book is, so far, the most comprehensive single publication in the area of environmental security. At six hundred pages it is also clearly far the largest book yet to be published in the field. Its thirty five chapters arranged in six substantial sections present the proceedings of the NATO Advanced Research Workshop on Conflict and the Environment held in Bolkesjø Norway in June 1996.

A conceptual section on environmental security follows a stand alone introductory chapter by Sverre Stub which contextualises matters in terms of the need for sustainable development and the necessity of understanding the environment as a common human interest. The editor has taken the unusual step, and in this case clearly excellent decision, to publish critical voices first in this volume. These provide a number of templates

the post-communist experience in Siberia, Ivanov engages the Western academic literature on environmen-

Turevskiy's examination of the challenge presented by the industrial pollution of the Severesky Donets River area in the Ukraine, and in Lidya Svirenko and Alexandr Spirin's analysis of the ecological consequences of the inappropriate use of irrigation, the water logging of rich soils and the destruction of traditional wetlands in the Ukraine.

The sixth and final substantive section deals with social and political responses to the environmental problems identified in the earlier sections. Oddvin Horneland offers a conceptual model that is designed to allow defense policy makers to evaluate the impact of defense forces on the environment. Detlef Sprinz develops an economic model of environmental security policies that state governments can apply both nationally and internationally. Katrina Rogers explores the lessons that can be learned from cases of international cooperation where conflict has been avoided. She suggests distinguishing between short-term ameliorative measures under the rubric environmental security and long-term sustainable activities under the term ecological security. The latter requires a serious political commitment to bring about social change.

Karin Dokken argues that fear of environmentally-induced conflict can act as a spur to regional integration and international cooperation so formulations of problems in terms of environmental security can be

politically useful. Arthur Westing's analysis of international law and the environment includes specific suggestions that an international prohibition on the use of nuclear weapons is necessary and that natural heritage sites should be declared demilitarized sites. Oleg Kolbasov extends the arguments about r

ies in this volume are to be adequately conceptualized. More than a technocratic approach is needed in dealing with these urgent and important matters.

A second important theme follows from these inadequacies of the technocratic approach. This is that the basic assumption in the introduction, of a common fate for all humanity, simply doesn't hold when empirical analysis is undertaken on the ground. Many of the chapters point to the regional particularities of degradation and the institutional history of specific conflicts as being important to resolution of difficulties. The crucial point is that the specific causes of degradation are different in different places. The simple and prevalent assumptions that economic development and liberal democracy have all the answers has to be ques-

human-induced environmental degradation is at the core. The typology could also be referred to as conflict dimensions, since most often more than one dimension exists in each conflict. The typology is further divided into three categories: a) intra-state, b) intra-state but with inter-state aspects /internationalized or c) inter-state/international. These typologies are referred to as: (Type A I) Center-periphery conflicts; (Type A II)

1. Environment
 2. Poverty
 3. Conflict
 4. Environment & Poverty
 5. Environment & Conflict
-

4. *Post-conflict reconstruction* - This research reverses, in part, the environmental scarcity, poverty, conflict relationship. The period just after war contains many lasting effects of the violent conflict and brings many state-society issues to the forefront. What are the circular links between pre-war and post-war societies in terms of environment, poverty, and security?

Like Percival's future research agenda, the second report by Rønnfeldt contains his recommendations for new research within the realm of environment, poverty, and conflict. Although both authors analyze the environment, poverty, and security linkage from a sustainable development perspective, Rønnfeldt takes a more direct policy approach in his section. The purpose of research is "to examine causes of conflicts and their interplay in order to assess which policy instruments are required and in what circumstances, so as to facilitate the design of efficient environmentally sustainable strategies" (p. 55).

Rønnfeldt begins with a working definition of each of the terms environment, poverty, and security and points out the interdisciplinary nature of their linkages. Each term has "traditionally been dealt with in three different academic disciplines—environment within natural science, poverty within development theory, and conflict within international politics" (p. 57). He reviews the tri-circle model and then provides a short literature review for four areas: poverty and conflict; conflict and environment; environment and poverty; and environment, poverty, and conflict. His most in-depth literature review is on environment and security as he clearly identifies this research area as the most abundant and robust and compares it to the relatively non-existent work in the environment, poverty, and conflict area. Additionally, the environment and conflict literature fertilizes the future work of the Norwegian program as it contains an ongoing debate of just where, how, and in what context environment and security reticulate. Rønnfeldt presents research compiled using seven Norwegian and international databases to help determine the scope of present research. He completes a comprehensive search in each of the four above areas to support numerically his claim that there is little research in the area of environment, poverty, and conflict.

Rønnfeldt uses Marc Levy's division of three waves of environmental security research to organize the literature.¹ The description of the first two waves of environment and security literature lays the foundation for the third wave. Homer-Dixon and the Toronto Group produce the major work and methodology of the second wave. Rønnfeldt incorporates his criticisms of the second wave into the elements he suggests for the third wave, which he states as follows: Add a poverty dimension to 'Environmental and Conflict Studies;' Identify the relative importance of factors in the causal pathway to conflict; Include null cases in the

analysis; Study cooperation in addition to conflict; Explore mechanisms of governance; and Focus on the regional level.

Woven through each of his recommendations is an emphasis on quantitative analysis and the policy implications of the environment, poverty, conflict field. Rønnfeldt stresses the need to apply quantitative methodologies to examine statistical correlations between environmental factors and conflict. As these factors are analyzed, the link between environment, poverty, and conflict may shift the focus of security to other political and economic factors. However, such shifts indicate Rønnfeldt's movement away from emphasizing strict causality between environmental degradation and conflict. Rather, he focuses on poverty as the important missing link in the previous logical frameworks. The analytical methods in turn should help policymakers prioritize among the causal factors, leading them to develop priority policy areas and "cost effective use of international assistance" (p. 72).

Rønnfeldt adds a section on governance that further speaks to his emphasis on research-supported policy initiatives. Governance incorporates the issue of political institutions and their effectiveness, but more importantly, it acts as "an intermediate variable between the independent variables poverty and environ-

**Population and Environment:
Rethinking the Debate**

by Lourdes Arizpe, M. Priscilla Stone
and David C. Major (editors)

Boulder, CO: Westview Press, 1994. 352 pp.

Reviewed by Mita Gibson

The debate over the interactions between human population processes and the environment can be traced as far back as 1789 when Thomas Malthus published his famous *Essay on the Principle of Population*. In recent years, the debate has been characterized by optimists such as Julian Simon who emphasize the importance of economic growth and technology as opposed to the more pessimistic view illustrated by Paul and Anne Ehrlich who focus on the need to reduce population growth whether through fertility reduction or control of migration. In *Population and Environment: Rethinking the Debate*, an interdisciplinary group of scholars examines the complex relationships between population and environment with special attention to the social, political and institutional context of these linkages.

Edited by Lourdes Arizpe, M. Priscilla Stone and David C. Major, the book is based on a collection of papers presented at a 1992 workshop held in Mexico and funded by the John D. and Catherine T. MacArthur Foundation. The authors conclude that there is rarely a direct link between environmental problems, human activities and population issues. They also emphasize the importance of analyzing population trends in relation to other processes, particularly micro-level data about social and economic factors. Although the authors hold different views about the dynamic relationship between population and environment, they share a common concern about the oversimplified nature of the debate.

The book is organized into three parts. Part one provides an overview of population and environment with an examination of world population trends and the gender and environment debate. This first section includes chapters by Arizpe and Margarita Velazquez, Wolfgang Lutz, Gita Sen, Bina Agarwal, and Alberto Palloni. Part two includes case studies and a review of the complexities inherent in population-environment relationships. The second section includes chapters by Richard Bilsborrow and Martha Geores, Peter Little, Marianne Schmink, Stephen Bunker and Bryan Roberts. Part three provides a summary of conclusions and suggestions for future research.

Although many of the issues covered in this book have been examined before, the authors provide a

wealth of information about the nature of population-environment linkages. The first two chapters are of particular interest from a development and foreign policy perspective. In the first chapter, Arizpe and Velazquez argue that the concept of population must be expanded to include social dimensions such as access to resources, livelihoods, gender and structures of power in addition to the usual demographic measures such as population size, density, and rate of increase. With respect to the linkages between conflict, population growth, and environmental degradation, Arizpe and Velazquez emphasize the importance of examining the social context such as the distribution of goods and services and the institutional context that governs access to critical resources, in addition to the usual population and environment indicators.

In the next chapter, Wolfgang Lutz focuses on world population trends and provides a valuable historical overview of population patterns in different regions. He outlines the determinants and basic characteristics of changing population patterns and asserts that population cannot be linked to environmental issues without considering intermediate behavioral and technological factors. Policy issues such as food security and conflict over resources are not simply the result of population growth or demographic factors but are also related to a range of socio-political, economic and institutional factors that are equally important.

The case studies included in part two illustrate the complex social relationships involved in population-environment linkages. There are two chapters with particular relevance for development and foreign policy. In "The Socioeconomic Matrix of Deforestation", Marianne Schmink presents a framework for analyzing deforestation with an emphasis on social dynamics such as conflict and cooperation as possible contributing factors. She examines case studies from Brazil and India and highlights the linkages between individual decisions about forest use, a changing market or policy environment, and conflict or cooperation among social groups.

The role of a changing market or policy environment is also examined by Stephen Bunker in a chapter on problems of population and environment in extractive economies. Bunker focuses on economies that extract natural resources for export and argues that an extractive economy can be a driving force for population growth and environmental degradation. As new

Geores present their study of population change and agricultural intensification in developing countries and conclude that it is difficult to demonstrate a convincing linkage between growing population pressure and changes in land use in developing countries. It is important to take a more holistic approach that examines the range of interrelationships between population and land use including increases in agricultural land area, the effect of outmigration and basic land use practices. In a chapter on urbanization and the environment, Bryan Roberts examines urban poverty and quality of life as well as the relationship between urbanization and environmental change. Roberts also takes a community-based approach and notes that urban poverty is not an inevitable result of population pressures but is also related to the political context and the lack of adequate urban planning

Since this volume was published in 1994, much has been written about the need to involve local people in the development process and respond to community-identified population and environment concerns. Many of the contributors to this book have continued to build on their research into the complex mediating factors involved in the relationships between population and environment. With its emphasis on the social, political and institutional context of population-environment dynamics, this book is an important resource for all those with an interest in the field.

Mita Gibson is the manager of the Population Environment Fellows program at the University of Michigan.

Biodiversity and Human Health

Francesca Grifo and Joshua Rosenthal (editors)

Washington: Island Press, 1997. 379 pp.

Reviewed by Jessica Powers

"In the end, the most powerful contribution of biological diversity is as the fundamental library for the life sciences."
-Thomas E. Lovejoy, Forward

Thomas Lovejoy's quote underscores the premise of this comprehensive volume, a follow-up to the two-day symposium sponsored by the National Institutes of Health, the National Science Foundation and the Smithsonian Institution in 1995. The contributors outline the many links between loss of species and human physiology and disease. The volume is divided into four sections covering: (1) the causes and consequences of biodiversity loss; (2) drug discovery from biological diversity; (3) biodiversity and traditional medicinal methods; and (4) developing strategies for the conservation and sustainable use of these crucial resources, including an agenda for the future.

Chapters, written by leading experts in various environmental and scientific fields, are unfettered by jargon and complement each other well. In the first section, Dr. Eric Chivian links global environmental degradation to the exponential growth of species extinction in recent years. The irreparable damage of unsustainable practices, particularly habitat destruction by humans, is identified as the greatest threat to ecological diversity. Robert Engleman and his colleagues connect population pressures to the loss of species and to the rise of infectious diseases.

Sections two and three review past and present drug discoveries as a direct result of species variety and the relationship between environmental change and human health problems. Without rich biodiversity, scientists will lack the wherewithal to counterattack the spread of infectious diseases. The authors present numerous examples of how both traditional medicinal practices and modern laboratories have culled remedies from biological sources. They also highlight major losses incurred by the science community as a result of anthropocentric, destructive human behavior.

Having cited the implications of biodiversity loss and demonstrated the necessity for continued use of medicines and remedies derived from diverse plant and animal species, the contributors in the final section explore the challenges of balancing development with conservation and sustainable practices. The authors offer specific solutions to these challenges, culminating in a recommendation found in the afterword. The authors advocate the establishment of a "National Council for the Protection of Biodiversity and Human Health," hoping to spur greater interaction, information exchanges and increased interest among physicians, scientists, non-governmental organizations and policymakers.

Overall the book is a practical guide on the salience of biodiversity with respect to pharmacology. Editors Francesca Grifo and Joshua Rosenthal have gathered an excellent multi-disciplinary group of scientists and scholars who provide a comprehensive and thoughtful analysis of the complicated interrelationship of environmental degradation, human population growth, species loss, disease and human health. Neither too pedantic nor oversimplified, this book serves as both a primer for policymakers and a general review for the scientific community.

Jessica Powers is Program Assistant at the Environmental Change and Security Project.

**The Endangered Atmosphere:
Preserving a Global Commons**

by Marvin S. Soroos

University of South Carolina Press, 1997. 339 pp.

Reviewed by Stacy D. VanDeveer and Alex Farrell

The Endangered Atmosphere fills important gaps in the literature on international environmental cooperation and environmental security: It surveys four major international efforts to protect the atmospheric commons from over-exploitation, focusing on regimes for the regulation of nuclear testing, European transboundary air pollution, ozone layer protection and climate change. It also includes chapters on international scientific cooperation, the atmosphere as a commons, and environmental security. As a broad survey of major international agreements and organizations (both political and scientific) involved in ongoing efforts to protect the atmosphere, the book accomplishes much, offering up a great deal of empirical information. For each case, Soroos chronicles the emergence of atmospheric protection onto the international agenda and the development, over time, of international institutions and organizations to address defined problems. In particular, the book's treatment of the nuclear test ban regime as an important example of international cooperation in pursuit of environmental security goals is interesting and well informed.

There are many specific features of the book worthy of praise. The second chapter, a brief primer on the science of the atmosphere, is not to be missed by students of international politics because an informed understanding of the physical environment is a prerequisite to understanding environmental policy. Chapter Nine, which discusses environmental policy as a security issue is quite interesting, although the views of critics of this approach are not aired sufficiently. In particular, Soroos' examination of strategies to enhance environmental securities (vis-à-vis the atmosphere) by addressing "threats" and "vulnerabilities" suggests potentially fruitful avenues of policy and research. Perhaps the most useful part of this section is the development of a variety of Prisoner's Dilemma models for different environmental problems, especially the asymmetric version used to describe transboundary air pollution. Importantly, the author notes that there are some limitations to generalizing from the regimes studied in the book, but he may not go far enough in this regard. For example, in the case of transboundary air pollution, upwind nations (i.e. nations which contribute *to* the pollution of others but do not receive pollution *from* others) are generally resistant to emissions reductions unless it is shown that these emissions also have important impacts domestically. The broader implication is that international environmental policy will be difficult unless all (or many)

nations feel that they stand to benefit.

The section on the atmosphere as a commons (Chapter Eight) presents a useful conceptual framework for understanding the problematique of managing the atmosphere, although it could be expanded, as suggested below. This chapter serves as a well-organized introduction to commons management debates. Soroos presentation of the complexities of the atmosphere as a "commons" – given that much of it lies within the national jurisdiction of sovereign states – illuminates many of the tremendous difficulties in managing such a resource with diverse human uses.

One particularly stark oversight of *The Endangered Atmosphere* is the lack of analysis directed at the international scientific information, cooperation and organizations Soroos posits as so important for political cooperation. At the international level, "science" and "policy-making" are rarely as separate as Soroos' treatment of them. Little or no attention is paid to the importance of scientific language and the ways in which scientists "frame" environmental and/or policy questions. For example, despite having an international appearance, virtually all of the analysis used to support LRTAP was performed in Austria, Norway or the Netherlands — nations which pushed for international environmental protection. A discussion of the causes and implications of this situation would be very illuminating, and potentially important when considering LRTAP as an example for international environmental policy development. Nor does the book probe the very asymmetric access and participation of states in "international science" or the ramifications of such asymmetries for negotiation, trust and institutional credibility and effectiveness. In none of the four cases discussed, for example, is data gathering, analysis and distribution unproblematic. Where are the heated scientific debates on these issues? Surely they can matter for policy development. What about the importance of values as imbedded in varying perceptions of risk, credible evidence and the role of science in public policy? For example, states (and societies) can and do disagree on the credibility of scientific "findings." They may be skeptical of science done in another country or paid for by someone else. This unproblematic treatment of science leaves readers with an overly simple view of scientific and technical involvement in international relations, suggesting a much more linear process of policy development than most scholarship on the science-policy relationship have found.

Also surprising is a virtual absence of discussion on the European Union (EU). For the transboundary air pollution case the book focuses on the 1979 UNECE Convention and its follow-on Protocols (LRTAP) to the exclusion of virtually any EU policy, even though EU Directives currently have greater, and growing, importance compared to LRTAP. The discussion on

transboundary air pollution is limited in that it focuses almost exclusively on policies related to the ecological effects of acidification, with a brief mention of ground-level ozone. This focus may well be due to the attention that political scientists have traditionally paid to the acid rain issue, but it contrasts with the current scientific view that the atmospheric pollution is a multi-pollutant, multi-effects problem in which acidification, ground level ozone, eutrophication of water bodies, airborne particles, and global climate change are all inextricably linked. This view may strengthen the argument for a Law of the Atmosphere found at the end of the book, and deserves further study.

Most importantly, and the reader could easily become confused by the emphasis on international negotiations and treaties and think that these are key drivers of transboundary air pollution policy. Soroos focuses almost all of the discussion on transboundary air pollution on LRTAP and in some places (pp. 144, 265, 274) he explicitly claims that LRTAP has “measurable positive effects in mitigating the problems they were created to address.” Confusion emerges when he admits elsewhere (pp. 141-144 and 275) that LRTAP Protocols did not directly result in emission reductions beyond what would have occurred regardless. The book only briefly mentions domestic issues or market conditions, arguably the primary forces shaping air pollution emissions. Indeed, a close examination of the evidences shows that nations which ratified the LRTAP Protocols were headed for emissions reductions already, due to changes in domestic policies or expected shifts in energy markets and thus ratification was essentially costless. Other nations participating in the negotiations, such as the United States and Poland, simply refuse to ratify most LRTAP protocols. Lastly, Soroos claims that there are important indirect effects of LRTAP, including the development of international institutions for air pollution research and monitoring and the development of domestic support for environmental policies in various countries. However, he does not analyze national-level research and monitoring, or the reasons for domestic support for environmental policies, and thus cannot test these hypotheses. The claims of indirect effects of LRTAP thus remain speculative.

Given the criticisms outlined above, *The Endangered Atmosphere*, contains a rich description of some important international environmental policy problems, draws valuable lessons from them, and presents some thought-provoking ideas for future research and policy. It presents a thoughtful summary of international relations research on the topic of protection of the atmosphere and is recommended for readers seeking such a treatment. However, the book’s international relations focus highlights the need for more complete comparative research of national (and where appropriate, sub-

ration, slant drilling, tertiary and deep offshore recovery techniques have made it possible and economical to produce oil and gas resources in areas where this was not feasible before. At the same time, high-effi-

of international environmental policy must incorporate economics and development, while environmental issues should be further integrated into trade blocks and treaties. They assert that politically, economically and environmentally, international cooperation is necessary for national sovereignty, and therefore it is necessary to advance the next generation of environmental policy on a global, multi-sectoral level.

In section two, "Tools and Strategies for the Next Generation," the essays consider current issues as situations, trends and harbingers. In "Privately Financed Sustainable Development," Stephan Schmidheiny and Bradford Gentry discuss the international trend away from development aid and toward private investment, as a means of fostering sustainable development. Private capital increasingly comprises the majority of international financial income for many developing countries. In addition, international investors are demonstrating a preference for projects marketed as "sustainable." The authors recommend that governments of recipient and investor countries work with investors and multinational corporations to integrate environmental and social initiatives into development. They assert that as a major investor and a significant recipient of private capital investment, the United States must build sustainability into its development policy, both domestically and abroad.

E. Donald Elliot explicates in "Toward Ecological Law and Policy" the premise that environmental policy too often ignores the interconnectedness intrinsic to the environment. Elliot stipulates that federal laws often do not account for local conditions and variables and simultaneously restrict the power of local authorities. The chapter describes the "command and control" system as a central government commanding the acceptable level of pollution, and then controlling the means of attaining that level. Elliot proposes a system of "command and covenant" where the federal government sets the standards, but decentralized authorities achieve compliance through locally appropriate methods. He suggests that the next generation of environmental policy should mirror nature by building on successful techniques and developing systemic "bubbles" where national policy is implemented through decentralized bodies. The strategies recommended in this chapter include economic incentives; improved environmental information programs; private programs; and structural changes to environmental programs.

The third section, "Extending the Reach of Next-Generation Policy," takes environmental policy to a new level by highlighting ideal policy and technology initiatives. These ideas are, for the most part, not likely options for the present.

In "Coexisting with the Car," Emil Frankel discusses existing realistic and successful programs of privately maintained toll roads and high occupancy vehicle lanes. He outlines a logical blueprint for trans-

portation system improvements such as incentives for public transportation and carpooling, automobile technology innovation, and increased personal car taxes. However, it has proven extraordinarily difficult in the United States to innovate in the transportation, energy, and agriculture sectors. The other topics covered in this final section may be useful for generating goals, rather than facilitating applications.

In the final chapter, "A Vision for the Future," Esty and Chertow address the realism of the included essays. Esty and Chertow acknowledge that *Thinking Ecologically* is a set of diverse, strong suppositions and theories that may even contradict each other. However, this volume is not intended to be a book of answers. It is a tool for initiating discussions, and possibly reforms, in the next generation of environmental policy. *A Vision for the Future* is filled with images of an environmentally utopian world where the ideals of each author are realized. These are goals to strive for, but not to expect—"our vision is deliberately optimistic, and by no means the most likely."

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Land Mines: Dealing With the Environmental Impact
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*Nuclear Weapons Tests, Arms Control,
and the Environment:
The 1995 World Court Case and Beyond*
by Nico J. Schrijver

Update on the Task Force on State Failure

Over the last four years, the Central Intelligence Agency's Task Force on State Failure has been conducting an empirical effort to identify factors associated with state failure by examining a broad range of demographic, societal, economic, environmental, and political variables. The project design, selection of variables and interpretation of results has been pursued by three teams of academic consultants led by Daniel C. Esty (School of Forestry and Environmental Studies, Yale University), Jack Goldstone (Department of Sociology, University of California at Davis), and Ted Robert Gurr (Department of Government and Politics, University of Maryland).

Before entering its second phase of study, the three scholars shared their preliminary findings at a May 1996 meeting at the Wilson Center. Thomas F. Homer-Dixon of the University of Toronto was the commentator for the session. During their presentations, the researchers emphasized that their preliminary findings do not represent the official view of the U.S. government or the Intelligence Community. The Task Force identified more than 100 serious political crises, or state failures, between 1955 and 1994 that posed security and stability threats. These crises took the forms of ethnic and revolutionary war, overthrow and collapse of regimes, and genocide or politicide. Effects of about 75 possible independent variables on state failure were examined—including demographic, social, economic, environmental and political variables. The Task Force found that three clusters of variables had significant correlation with subsequent state failures: (1) quality of life; (2) openness to international trade; and (3) the level of democracy. However, it is the interaction among these variables that provided the most important insights.

Quality of Life

Low levels of "quality of life" indicators—including high infant mortality, low nutrition, low per capita incomes, low access

Bibliographic Guide to the Literature

The following bibliography is a compilation of all entries from the three previous Environmental Change and Security Project Reports and new additions from the last year. The Guide includes a wide range of publications, organized by theme, which relate to the various conceptions of environmental security. The sections are:

- A. *Environment and Security: General Debate & Definitions;*
- B. *Redefining Security: Articles Mentioning the Environment;*
- C. *Environment as a Security Threat to a Nation's Health, Economy or Quality of Life*
- D. *Environment as a Contributing Factor to Political Instability and/or Violent Conflict*
- E. *The Intelligence Community and the Environment*
- F. *Environmental Effects of War and Preparations for War*
- G. *Official U.S. Statements Relating Environment to Security Issues or Security Institutions*
- H. *Population, Environment and Security*
- I. *Environmental Security and Migration*

The Environmental Change and Security Project will continue to publish updates to this bibliography; we welcome suggestions regarding citations to include. Entries are formatted according to Kate L. Turabian's Manual for Writers of Term Papers, Theses and Dissertations.

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D. ENVIRONMENT AS A CONTRIBUTING FACTOR TO POLITICAL INSTABILITY AND/ OR VIOLENT CONFLICT

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Nongovernmental Activities

*This UPDATE SECTION is designed to highlight the environment, population, and security activities of foundations, nongovernmental organizations, academic programs, and government offices. Listed below are organizations **not included** in previous Environmental Change and Security Project Reports. For descriptions of organizations listed in Issues 1, 2 and 3 of the ECSP Report, please visit our new web site at <http://ecsp.si.edu>. Prior listings appear below at the end of each section. Please refer to the web sites found within these descriptions for updates on current activities and contact information. If your organization is not listed or if you have an organization to recommend, please contact Michael Vaden at vadenmic@wwic.si.edu.*

Foundations

ROCKEFELLER FOUNDATION

The Rockefeller Foundation is a grant-making and research institution which is organized around nine core areas: African Initiatives, which build on human capacity and institutional infrastructure in Africa; Agricultural Sciences, which seek to increase crop yields of smallholder farmers in developing countries without degrading natural resources; Arts and Humanities, which seek to understand and engage difference in changing societies through the arts; Health Sciences, which seek to build human capacity for population-based health care in developing nations; Equal Opportunity/School Reform, which seeks to create jobs and community support for people to join the mainstream economy; Global Environment, which builds on international leadership capacity to initiate and carry out innovative approaches to sustainable development and which facilitates the transition to a new energy paradigm based on sustainability; and Population Sciences, which mobilize resources to satisfy unmet demand for family planning. The Foundation has just published a new book, *High Stakes: The United States, Global Population and Our Common Future*. For information, contact: Rockefeller Foundation, Global Environment Division, 420 Fifth Avenue, New York, NY 10018. Tel: 212-852-8365; Internet: <http://www.rockfound.org>.

Nongovernmental Organizations

ASPEN INSTITUTE

The Aspen Institute is an international nonprofit educational institution dedicated to enhancing the quality of leadership through informed dialogue. The Institute's International Peace and Security Program is composed of a series of international conferences designed to suggest strategies to promote peace and security in the face of the principal threats and sources of tension that will characterize the first decades after the end of the Cold War. Publications and conference reports are widely disseminated. International poverty and development were the subject of the Program's fourth conference, held in December 1997. The Institute also has a Program on Energy, the Environment, and the Economy which attempts to build consensus in the areas of energy and environmental policies through meetings which bring private and public sector actors together in a nonadversarial setting. The Program has several forums covering energy policy, the environment in the 21st century, valuing environmental performance, workshops on the Pacific Rim, and Central and Eastern Europe. For information, contact: Susan Sechler, The Aspen Institute, Suite 1070, 1333 New Hampshire Avenue, NW, Washington, DC 20036. Tel: 202-736-5800; Fax: 202-467-0790; E-mail: dave.austin@aspenninst.org; Internet: <http://www.aspeninst.org>.

CARNEGIE ENDOWMENT FOR INTERNATIONAL PEACE, INTERNATIONAL MIGRATION POLICY PROGRAM

The Program is a leading source of expert analysis and policy ideas on migrant and refugee issues. It focuses on bridging the worlds of research and policy, bringing an independent voice to migrant and refugee policy debates, and enhancing public understanding of these and related issues. Its activities extend to Russia and other post-Soviet states, as well as numerous other governments, leading independent institutions, the UN, and other international agencies. For information, contact: Demetrios Papademetriou and Kathleen Newland, International Migration Policy Program, Carnegie Endowment for International Peace, 1779 Massachusetts Avenue, NW, Washington, DC 20036. Tel: 202-939-2276; Fax: 202-332-0945; Internet: <http://ceip.org>.

CARNEGIE ENDOWMENT FOR INTERNATIONAL PEACE, MANAGING GLOBAL ISSUES PROJECT

The Project will identify lessons drawn from attempts in the international community to manage a wide range of global issues (including environment, weapons proliferation, organized crime, terrorism, trade, the Internet,

and other issues). It will examine how innovative mechanisms and techniques used in one arena (such as the NGO-government partnership in drafting and negotiating a land mine accord) can offer positive or negative lessons for the management of other transnational issues (such as negotiating agreements on climate change or global crime). By bringing together experts from a variety of different disciplines and professions, the project aims to strengthen practice and enrich the growing theoretical literature on international organizations and global governance with the insights of actual experience. For information, contact: P.J. Simmons, Director, Managing Global Issues Project, Carnegie Endowment for International Peace, 1779 Massachusetts Avenue, NW, Washington, DC 20036. Tel: 202-939-2259; Fax: 202-483-4462; E-Mail: pjsimmons@ceip.org; Internet: <http://ceip.org>.

CENTER FOR BIOREGIONAL CONFLICT RESOLUTION

The Center for Bioregional Conflict Resolution was established in 1995 to study the complex relationship among human communities, public regulatory institutions, and the natural environment while addressing a growing number of intense conflicts between human communities and scarce resources. The Center works with parties to large scale environmental conflicts that are regional and transboundary in nature to increase awareness, collaboration, and coordination. The four primary goals of the Center are to study and enhance the conservation, preservation, and restoration of key bioregional resources, to foster the development of cooperative processes to sustain human communities and complex ecosystems, to aid in the development of bioregional public policies, and to act as an information clearinghouse. The Center is currently developing the following research programs: Improving the Understanding of the Relationship between Ecosystem Planning and Management, Human Communities, and Public Institutions; Strengthening the Theory and Practice of Environmental Conflict Resolution; Leadership Training to Improve the Quality of Environmental Decision Making; and Developing Effective Strategies for Integrating Cultural Preservation with Environmental Protection. The Center's co-directors recently published a book, *Bioregionalism* (Routledge Press, 1997) that examines the history and confluence between bioregional science and conflict resolution. For information, contact: Center for Bioregional Conflict Resolution, 340 Soquel Avenue, Suite 104, Santa Cruz, CA 95062. Tel: 408-457-1397; Fax: 408-457-8610; E-mail: concur@concurinc.com; Internet: <http://www.concurinc.com/CONCUR07.html>.

CENTER FOR ECOLOGICAL MANAGEMENT OF MILITARY LANDS

The Center for Ecological Management of Military Lands (CEMML) is a research and service unit within the Department of Forest Sciences in the College of Natural Resources at Colorado State University. The Center provides professional services and technical support to the Department of Defense in conservation, environmental protection, and natural and cultural resources management. CEMML has several program areas including Resource Inventory and Monitoring, Floristics, Data Management and Analysis, Computer Cartography and Spatial Analysis, and Environmental Planning. They also provide a wide range of professional training in support of the DoD conservation and land management missions. In 1996, the Center published *U.S. Army Lands: A National Survey*. For information, contact: Center for Ecological Management of Military Lands, Colorado State University, Fort Collins, CO 80523-1470. Tel: 970-491-2748; Fax: 970-491-2713; E-mail: cemml@cemml.colostate.edu; Internet: <http://www.cemml.colostate.edu>.

CENTER FOR PUBLIC ENVIRONMENTAL OVERSIGHT

The Center for Public Environmental Oversight (CPEO), formerly known as CAREER/PRO, is a project of San Francisco State University's San Francisco Urban Institute. It helps communities that host or have hosted U.S. military installations address the legacy of military environmental degradation. CPEO operates a widely-used Internet newsgroup, holds training workshops for members of Restoration Advisory Boards, and consults with citizens and community groups both within the United States and abroad. Project staff participate in numerous advisory committees dealing with military base cleanup. CPEO publishes the newsletter, *Citizens' Report on the Military and the Environment*, which is available free of charge. In September 1995, it published the *Military Contamination and Cleanup Atlas for the United States 1995*, mapping and listing military contamination in all U.S. states and territories. For information, contact: SFSU Center for Public Environmental Oversight, 425 Market Street, Suite 705, San Francisco, CA 94015. Tel: 415-904-7750; Fax: 415-904-7765; E-mail: aimeeh@igc.apc.org.

EVIDENCE BASED RESEARCH

Evidence Based Research (EBR) is a for-profit research, analysis, and development firm specializing in making science and practical knowledge available to support decision makers in government and private industry. EBR has several program areas including Environmental Security, International Studies and Analysis, Military Studies, and the Communications Planning and Evaluation Laboratory (COMPEL). EBR analyzes the relationship

between the environment (freshwater, arable land, climate change, etc.) and the security of states. EBR has provided support to the Department of Defense, the NATO CCMS pilot study, "Environment and Security in an International Context," and the development of regional strategies for the Asia-Pacific, Western Hemisphere, and U.S. European Commands. For information, contact: Evidence Based Research, Inc., 1595 Springhill Road, Suite 250, Vienna, VA 22182-2228. Tel: 703-893-6800; Fax 703-821-7742; E-mail: ebrinc@ebrinc.com; Internet: <http://www.ebrinc.com>.

FEDERATION OF AMERICAN SCIENTISTS

The Federation of American Scientists (FAS) has several projects which address environment and security linkages. The Long-Term Global Food Project examines the prospects for satisfying the future global demand for food and publishes a quarterly newsletter entitled *Perspectives on the Long-Term Global Food Situation*. FAS also sponsors a project to promote the establishment of a global program for monitoring emerging diseases (ProMED), begun in 1992. ProMED Mail is a new electronic information network to link scientists, doctors, journalists, and lay people to share information on emerging diseases and human security. For more information, contact: Dr. Barbara Rosenberg, ProMED Mail Steering Committee and FAS Coordinator, E-mail: bhrosenb@purvid.purchase.edu; Internet: <http://www.fas.org>.

FUTURE HARVEST

Future Harvest seeks to promote the importance of agriculture and international agricultural research by raising awareness of their wider social benefits, including peace, prosperity, environmental renewal, health, and the alleviation of human suffering. Future Harvest commissions studies on the links between agriculture and critical global issues. Study results are widely disseminated through the media and world influentials who serve as ambassadors. Current work explores the connection between food insecurity and the degradation of natural resources and violent conflict, as well as the consequences of this conflict for migration, international intervention, and global peace and stability. It examines the environmental conditions of key agricultural areas. Future Harvest was created out of concern that in the next century, the world will need to feed an additional 90 million people a year without jeopardizing the earth's land, water, and biodiversity. It is an initiative of the Consultative Group on International Agricultural Research (CGIAR), a network of sixteen international agricultural research centers, that recognizes the role of science for food, the environment, and the world's poor. For information, contact: Barbara Alison Rose, Director of Operations, Future Harvest, CGIAR Secretariat, World Bank, 1818 H Street, NW, Washington, DC, 20433. Tel: 202-473-4734; Fax: 202-473-8110; Email: futureharvest@cgnet.com.

GLOBAL WATER PARTNERSHIP

The Global Water Partnership (GWP) was established in 1996 and is a network of government water departments, NGOs, multilateral banks, professional associations, UN agencies, the private sector, and academic institutions which share the vision of water management and development articulated in 1992 in Dublin and Rio. GWP initiatives are based on Dublin-Rio principles and are intended to support national, regional, and international cooperation and coordination of activities and to foster investment in water resource activities. These initiatives include supporting integrated water resources management; encouraging governments and other stakeholders to adopt consistent policies; building information-sharing mechanisms; developing innovative solutions to conflicts over water resources; suggesting practical policies based on these solutions; and helping to match needs to available resources. In support of these initiatives, GWP sponsors publications and meetings on water resources. For example, following the World Food Security Summit in 1996, GWP's Technical Advisory Committee-ASEAN Region, convened an international conference in Manila entitled "Water and Food Security: Some Thoughts on Strategy and Practical Actions Following the Summit." For information, contact: GWP Secretariat, c/o SIDA, S-105 25 Stockholm, Sweden. Phone: 46-8-698-50-00; Fax: 46-8-698-56-27; E-mail: gwp@sida.se; Internet: <http://www.gwp.sida.se/>.

HARVARD CENTER FOR POPULATION AND DEVELOPMENT STUDIES

The Harvard Center for Population and Development Studies aims to advance understanding of world popula-

of topics including arms control, economic security and social transition, human security, and crisis survival. For information, contact: Winifred M. Fitzgerald, Executive Director, Harvard Center for Population and Development Studies, 9 Bow Street, Cambridge, MA 02138. Tel: 617-495-3002; Fax: 617-495-5418; E-mail: wmfitz@hsphsun2.harvard.edu; Internet: <http://www.harvard.edu>.

INTERNATIONAL POLICY COUNCIL ON AGRICULTURE, FOOD, AND TRADE

The International Policy Council on Agriculture, Food, and Trade (IPC) is dedicated to developing and advocating policies that support an efficient and open global food and agricultural system that promotes production and distribution of food supplies adequate to meet the needs of the world's population. IPC was founded in 1987 as an independent group of leaders in food and agriculture from twenty developed and developing countries. It conveys its recommendations directly to policymakers, and publishes a variety of papers and studies. For information, contact: International Policy Council on Agriculture, Food, and Trade, Suite 100, 1616 P Street, NW, Washington, DC 20036. Tel: 202-328-5117; Fax: 202-328-5133; E-mail: Schrader@rff.org; Internet: <http://www.agritrade.org>.

INSTITUTE FOR SUSTAINABLE COMMUNITIES

The mission of the Institute for Sustainable Communities is to promote environmental protection, sustainable economies, and participatory decision making at the community level in Central and Eastern Europe and Eurasia

Fax: 970-927-3420; E-mail: outreach@rmi.org; Internet: <http://www.rmi.org>.

UNIVERSITY OF MICHIGAN, POPULATION-ENVIRONMENT FELLOWS PROGRAM

The Population-Environment Fellows Program (PEFP) provides fellowships for individuals who have completed graduate degrees in areas related to population and environment. PEFP is administered at the University



Ecologic – Centre for International and European Environmental Research

Ecologically Sustainable Development, Inc.

Environment and Conflicts Project, Swiss Peace Foundation (Berne)/

Center for Security Policy and Conflict Research at the Swiss Federal Institute of Technology, Zurich

Environmental and Energy Studies Institute

Governmental Activities

ARMY ENVIRONMENTAL POLICY INSTITUTE

The Army Environmental Policy Institute's (AEPI) mission is to assist the Army Secretariat in developing forward-looking policies and strategies to address environmental challenges which may have future impacts on the Army. AEPI is tasked with anticipating environmental trends and monitoring environmental legislation;

UNITED STATES AGENCY FOR INTERNATIONAL DEVELOPMENT / CENTER FOR POPULATION, HEALTH AND NUTRITION

The technical structure of USAID is divided into four Regional Bureaus and the Bureau for Global Programs, Field Support, and Research. The Regional Bureaus provide technical and programmatic expertise to the missions in each of the four regions (Asia, Africa, Latin America/Caribbean, and Europe/NIS). The Global Bureau is divided into five centers, each corresponding to one of the Agency's five focus areas. As its name suggests, the Global Bureau focuses its efforts on global leadership, technical support to the field, and research and evaluation. The Center for Population, Health and Nutrition (PHNC) performs these functions in Washington, D.C. for the PHN sector. Integral to performing these functions is the pivotal relationship of the PHNC to its partners and stakeholders within USAID, such as missions and regional bureaus, and outside of the Agency, such as the NGO community, host governments, and multilateral organizations.

The Center for Population, Health and Nutrition's (PHN) goals are to stabilize world population growth and to protect human health. In order to achieve these goals, the Agency has adopted a strategy based on four strategic objectives: reducing unintended pregnancies, reducing maternal mortality, reducing infant and child mortality, and reducing STD transmission with a focus on HIV/AIDS. These are a refinement of the historical strategic direction of the Population, Health and Nutrition sector. Looking to the future, the PHN strategy also incorporates principles from the Cairo Program of Action and reflects Agency mandates in the 0.041 TcReg

Nutrition and Maternal Health Division (NMH): Provides technical guidance and assists in strategy development and program implementation in nutrition and women's health, especially maternal health.

Health Policy and Sector Reform Division (HPSR): Assists in the design, implementation, research, and evaluation of health and nutrition policy reform, management and financing issues, including health care financing, quality assurance, pharmaceuticals, private sector, and data activities.

Environmental Health Division (EH): Assists in the design, implementation, research, and evaluation of environmental health activities and issues, including water and sanitation, hazardous wastes, vector-borne tropical diseases, food hygiene, solid waste, air pollution, and occupational health.

HIV/AIDS Division (HIV-AIDS): Provides technical guidance and assists in strategy development, program design, and implementation of HIV/AIDS control activities worldwide.

Office of Field and Program Support (OFPS)

The Office of Field and Program Support (OFPS) was created as a demand driven, service-oriented unit within the PHN Center to ensure that state-of-the-art technical direction is translated into field strategies and programs which achieve impact both globally and at the country level. OFPS has two major functions:

Field Support: Includes Joint Programming and Planning, coordination between the Global Bureau, Regional Bureaus, other donors and the field, and significant technical input into strategic planning and performance monitoring.

Program Support: Includes programming/budgeting for the Center, personnel management, and other tasks related to the global management of PHN resources.

The PHNC and the Missions have developed and implemented the Joint Programming and Planning Coun-

Environmental Protection Agency, the National Intelligence Council, and the Peace Corps. Since the Summit, the United States has formalized its commitments to global and domestic food security, making the USDA the lead agency for an intergovernmental effort to reach the food security goals for the next century that were agreed to at the Summit. The IWG recently established a Food Security Advisory Committee of interested non-governmental groups and individuals to advise the Working Group in the process of drafting a national Action Plan on food security which will be released in 1998. For information, contact: Office of the National Food Security Coordinator, room 3016S, USDA, Foreign Agriculture Service, 14th and Independence Avenue, SW, Washington, DC 20250. Tel: 202-690-0855; Fax: 202-720-6103; E-Mail: guroff@fas.usda.gov; Web Site: <http://www.fas.usda.gov/icd/summit/summit.html>.

Previous Listings of Governmental Activities

The Centers for Disease Control and Prevention
Department of Agriculture/Natural Resources Conservation Service/International Conservation Division
Department of Commerce/National Oceanic and Atmospheric Administration,
Office of Global Programs
Department of Commerce/National Oceanic and Atmospheric Administration,
Office of International Activities
Department of Defense/Environmental Security/International Activities
Department of Energy
Department of State/Bureau of Intelligence & Research
Department of State/Bureau of Oceans and International Environmental & Scientific Affairs

Academic and Professional Meetings

18-19 APRIL 1996: DUTCH NATIONAL RESEARCH PROGRAMME ON GLOBAL AIR POLLUTION AND CLIMATE CHANGE
“Environmental Security and Sustainable Development”

This workshop was organized by the Dutch National Research Programme on Climate Change and Global Air Pollution (NRP), the Netherlands HDP Committee, and the Netherlands Organisation for Scientific Research (NWO). The workshop targeted experts and researchers with relevant experience in the understanding of environmental security and societal impacts of global environmental change, as well as policymakers concerned with this issue. The complete proceedings of this workshop were published in NRP Report # 410 200 003. For more information, contact: NRP Programme Office, PO Box 1, 3720 BA Bilthoven, The Netherlands. Tel: 31-30-2743211-2970; Fax: 31- 30-2744436; E-mail: nopsecr@rivm.nl.

18-19 MARCH 1997: U.S. DEPARTMENT OF

12-14 JUNE 1997: INTERNATIONAL HUMAN DIMENSIONS OF GLOBAL CHANGE PROGRAMME (IHDP)

“1997 Open Meeting of the Human Dimensions of the Global Environmental Change Community”

The purpose of this meeting was to bring together the growing human dimensions of the global change research community. The conference featured a plenary session and a panel specifically on environmental security as a research priority area for IHDP. The intent was to promote exchanges of information on current research, teaching, and outreach; to encourage networking in this new field; and to attract social scientists, humanists, and others not previously involved in human dimensions work. The meeting was held at the International Institute for Applied Analysis (IIASA) in Laxenburg, Austria. For more information, contact: Ingrid Teply-Baubinder, IIASA, A-2361 Laxenburg, Austria. Tel: +43-2236-807; Fax: +43-2236-71 313; E-Mail: teply@iiasa.ac.at.

3-4 JULY 1997: ECOLOGIC, CENTRE FOR INTERNATIONAL AND

20-22 NOVEMBER 1997: GLOBAL GREEN USA

“Fourth Annual Legacy Program Forum on Military Toxic Cleanup and Base Conversion”

Held in Indianapolis, Indiana, this year’s forum focused on tools and strategies for revitalizing communities,

William Nitze, Assistant Administrator for International Activities, Environmental Protection Agency.

21 May 1997: "Findings of the "Pivotal States Project"

John Bresnan, Columbia University, East Asian Institute; Robert Chase, Yale University, International Security Studies; Daniel C. Esty, Yale University, School of Forestry and Environmental Studies; Sumit Ganguly, Hunter College; Emily Hill, Yale University, International Security Studies; Paul Kennedy, Yale University, Director of International Security Studies; Charles Norchi, Yale University, International Security Studies; Peter Smith, University of California at San Diego, Latin American Studies.

30 September 1997: "Climate Change: Bridging the Gap Between U.S. and European Attitudes, Analyses and Strategies"

Michael Grubb, Director, Energy and Environmental Programme, Royal Institute of International Affairs, London.

18-19 November 1997: "Conflict or Cooperation: The Challenges of Freshwater Resources into the Next Millennium"

Jerome Delli Priscoli, Senior Policy Advisor, Institute for Water Resources, U.S. Army Corps of Engineers; Aris Georgakakos, Georgia Water Resources Institute, Georgia Institute of Technology; Joseph Dellapenna, Professor, School of Law, Villanova University; Sumit Ganguly, Professor, Department of Political Science, Hunter College; Frank Hartvelt, Senior Water Policy Advisor, United Nations Development Programme; Fekri Hassan, Professor, Department of Egyptology, University of London; Steve Lonergan, Director, Center for Sustainable Regional Development, University of Victoria; Miriam Lowi, Assistant Professor, Department of Political Science, College of New Jersey; Ambassador Clovis Maksoud, Director, Center for the Study of the Global South, American University; Sandra Postel, Director, Global Water Policy Project; Andras Szöllösy-Nagy, Director, International Hydrological Program, UNESCO; Evan Vlachos, Associate Director, International School for Water Resources, Colorado State University; William Werick, Policy Analyst, U.S. Army Corps of Engineers; Aaron Wolf, Assistant Professor, Department of Geography, University of Alabama.

20 November 1997: "Damming Troubled Waters: Conflict over the Danube, 1950-2000"

Ronnie D. Lipschutz, Associate Professor, Department of Politics, University of California, Santa Cruz.

11 December 1997: "U.S. Population Activities: Ongoing Plans and Future Directions"

Julia Taft, Assistant Secretary of State, Bureau of Population, Refugees and Migration, U.S. Department of State; Duff Gillespie, Deputy Assistant Administrator, Center for Population, Health and Nutrition, U.S. Agency for International Development; Patricia Rowe, Chief, Population Studies Branch, International Programs Center, Census Bureau, U.S. Department of Commerce.

ENVIRONMENTAL CHANGE AND SECURITY PROJECT

Visit our new website at <http://ecsp.si.edu>

✓ ACCESS full text of the *ECSP Report* and *China Environment Series* from our Virtual Library

✓ PARTICIPATE in an interactive discussion group on environment, population, and security issues

Internet Sites and Resources

Following is a list of Internet sites and forums which may facilitate research and policy efforts. The Environmental Change and Security Project encourages readers to inform us of other relevant sites for inclusion in the next issue by email at ECSP@erols.com; or by posting the address on our on-line discussion group at <http://ecsp.si.edu>.

Government Institutions

ARMY ENVIRONMENTAL POLICY INSTITUTE (AEPI)

<http://www.aepi.army.mil/>

This site contains indepth information on the Army's environmental policies and practices. It summarizes recent environmental legislation, lists actions that Congress has taken or scheduled on environmental legislation, and provides additional information on legislative issues. The site also includes a copy of the 1994 Environmental Trends Update, as well as links to government policies and regulations relating to the environment.

GODDARD DISTRIBUTED ACTIVE ARCHIVE CENTER (DAAC)

<http://xtreme.gsfc.nasa.gov/>

DAAC's site provides data on global change and research related to environmental issues such as the global biosphere.

PACIFIC NORTHWEST NATIONAL LABORATORY, CENTER FOR ENVIRONMENTAL SECURITY

<http://www.pnl.gov:2080/science.html>

This site outlines the Pacific Northwest National Laboratory science and technology program. It places specific

UNITED STATES BUREAU OF THE CENSUS/INTERNATIONAL PROGRAMS CENTER

<http://www.census.gov/ipc/www>

The International Programs Center's work in the area of population and security can be accessed through its International Database (IDB) at this site.

UNITED STATES CENTRAL INTELLIGENCE AGENCY (CIA)

<http://www.odci.gov/cia>

The CIA home page provides links to Agency publications, press releases, demographic maps, official statements, and other intelligence community Web sites.

UNITED STATES DEPARTMENT OF DEFENSE, ENVIRONMENTAL NETWORK

International Organizations

EUROPEAN ENVIRONMENTAL AGENCY (EEA)

<http://www.eea.dk>

The EEA site provides information to policymakers and the public about Europe's environment.

GLOBAL ENVIRONMENTAL FACILITY (GEF)

<http://www.worldbank.org/html/gef/geftext.htm>

The GEF home page provides multi-lingual links to its publications and bulletins.

NORTH ATLANTIC TREATY ORGANIZATION/SCIENCE PROGRAMME (NATO)

<http://www.nato.int/science/scope/es.htm>

The NATO Science Programme website contains information on its projects related to environment and security issues, including the reclamation of contaminated military sites, regional environmental problems, and natural and man-made disasters.

Internet Sites and Resources

ASPEN INSTITUTE

<http://www.aspeninst.org>

The Aspen Institute website includes information on its policy and seminar programs as well as a listing of publications related to the environment.

THE BELLONA FOUNDATION

<http://www.grida.no/ngo/bellona>

This web page features this Norwegian environmental group's factsheets and the latest news on the state of the environment in Eastern Europe and Russia.

CARNEGIE ENDOWMENT FOR INTERNATIONAL PEACE, MANAGING GLOBAL ISSUES PROJECT

<http://ceip.org>

This website includes a library of over 8,500 volumes and more than 200 periodicals. The site also includes general information about the Carnegie Endowment and detailed information on its Managing Global Issues Project, which examines several environmental issues including biodiversity, transboundary air pollution, trade in endangered species, and hazardous waste transport.

CENTER FOR BIOREGIONAL CONFLICT RESOLUTION

<http://www.concurinc.com/CONCUR07.html>

The Center's site includes information on its various projects and programs, including: Strengthening the Theory and Practice of Environmental Conflict Resolution; Leadership Training to Improve Environmental Decision Making; and Developing Effective Strategies for Integrating Cultural Preservation with Environmental Protection. The site also includes publications and information about professional training programs.

CENTER FOR ECONOMIC CONVERSION (CEC)

<http://www.conversion.org>

This page details CEC's attempts to build a sustainable peace-oriented economy and includes descriptions of local, state, and national efforts to do so.

CENTER FOR INTERNATIONAL ENVIRONMENTAL LAW (CIEL)

<http://igc.apc.org/ciel>

The CIEL site offers a variety of resources about environmental issues including trade, biodiversity, international financial institutions, global commons law, and publications.

COMMITTEE FOR THE NATIONAL INSTITUTE FOR THE ENVIRONMENT (CNIE)

<http://www.cnie.org/>

The CNIE website maintains a library of Congressional Research Service Reports on Natural Resources and Environmental Quality, a Population and Environment database, a directory of Environmental Education Programs and Resources, a Biodiversity database, and notices of environmental science conferences and meetings.

ENVIRONMENTAL DEFENSE FUND (EDF)

<http://www.edf.org/>

This site includes a library of EDF's publications and discussion forums on issues such as environment and health, global warming, and endangered species. EDF's site also features a bi-monthly newsletter.

EVIDENCE BASED RESEARCH

<http://www.ebrinc.com>

The Evidence Based Research (EBR) webpage features selected projects and publications. The site also includes detailed information about EBR's current for profit work on environment and security.

FEDERATION OF AMERICAN SCIENTISTS

<http://www.fas.org>

The Federation of American Scientists (FAS) website features current programs relating to emerging diseases, biological weapons, and nuclear nonproliferation.

GLOBAL ENVIRONMENTAL CHANGE AND HUMAN SECURITY(GECHS)/INTERNATIONAL HUMAN DIMENSIONS PROGRAM(IHDP)

<http://steve.geog.uvic.ca/GECHS/index.html>

The website includes working papers on human security, environmental change, and human migration. It also

includes valuable links to other human security and environmental security sites. The site will soon feature policy-briefing papers on these topics.

GLOBAL NETWORK OF ENVIRONMENTAL TECHNOLOGY(GNET)

<http://www.gnet.org>

The GNET site provides access to the latest U.S. government initiatives on the environment.

GLOBAL WATER PARTNERSHIP

<http://www.gwp.sida.se/>

This site details the work and objectives of Global Water Partnership (GWP). The site contains news reports, a library of GWP's publications, and a calendar of events.

GREEN CROSS INTERNATIONAL

<http://www.gci.ch>

This website profiles Green Cross International's work including its programs on the Earth Charter Initiative, Environmental Legacy of Wars, Water and Desertification, Energy and Resource Efficiency, Environmental Education and Information Dissemination. This site also includes information on programs and events and a library of discussion papers and books.

INTERNATIONAL HUMAN DIMENSIONS PROGRAM (IHDP)/GLOBAL ENVIRONMENTAL CHANGE AND HUMAN SECURITY

<http://geography.geog.uvic.ca/hdp/htmls/index.html>

This home page gives a project description and outline of IDHP activities. It provides access to reports by IDHP and other key research organizations, an online bibliography and global change hyperlinks.

INTERNATIONAL INSTITUTE FOR THE ENVIRONMENT AND DEVELOPMENT

Internet Sites and Resources

OVERSEAS DEVELOPMENT INSTITUTE (ODI)

<http://www.oneworld.org/odi/>

This site features the Overseas Development Institute's latest research on natural resources, humanitarian policy, and international economic development.

PACIFIC INSTITUTE FOR STUDIES IN DEVELOPMENT, ENVIRONMENT, AND SECURITY

<http://www.pacinst.org/pacinst>

The Pacific Institute provides research and policy analysis in the areas of environment, sustainable development, and international security. Their page allows access to its programs and publications.

PATHFINDER INTERNATIONAL

<http://www.pathfind.org>

This site describes Pathfinder's on-the-ground research projects and includes a description of all active programs. It is designed to address population, environment, and security issues.

PLANET ARK WORLD ENVIRONMENTAL NEWS

<http://www.planetark.org/news>

In association with Reuters news agency, this organization runs a daily environmental news service.

POPNET/ POPULATION REFERENCE BUREAU

<http://www.popnet.org>

PopNet is produced and maintained by the Population Reference Bureau and is a resource for population information. PopNet presents information on Demographic Statistics, Economics, Education, Environment, Gender, Policy, and Reproductive Health. Its resources include websites produced by government and international organizations, nongovernmental organizations, university centers, and associations and listserves.

POPULATION ACTION INTERNATIONAL (PAI)

<http://www.populationaction.org>

This site details population program research at PAI. This research ranges from reproductive health, to funding, to the status of women. The site also maintains a legislative update about the politics of population assistance. In addition to a catalog of PAI publications, the site also contains general facts and figures on population.

POPULATION COUNCIL

<http://www.popcouncil.org/>

This site offers information on current projects and programs, including research on Gender, Family, and Development, Safe Motherhood, and Reproductive Health Products. The site also includes brief synopses of the Population Council's journals, books, and issues papers.

POPULATION REFERENCE BUREAU (PRB)

<http://www.prb.org/prb>

The PRB site details information on population trends for policymakers, educators, the media, and the public. This site provides access to PRB's most recent activities and publications.

RESOURCES FOR THE FUTURE (RFF)

<http://www.rff.org>

RFF's website features brief research papers on multiple topics including climate change, energy security, military base cleanup, and trends in disease.

ROCKY MOUNTAIN INSTITUTE (RMI)

<http://www.rmi.org>

The RMI site features information on its latest research including topics such as energy, green development, climate change, water, and security. The site also includes RMI's newsletter and publications.

SOCIOECONOMIC DATA AND APPLICATIONS CENTER (SEDAC)

<http://sedac.ciesin.org>

This site contains information on SEDAC's various reports, including the projects on Integrated Population, Land Use and Emissions Data, Environmental Treaties and Resource Indicators, and the Stratospheric Ozone and Human Health. The site also includes interactive applications to search for socioeconomic and environ-

mental data.

STOCKHOLM ENVIRONMENTAL INSTITUTE (SEI)

<http://www.sei.se/>

SEI is an international institute for environmental technology. Its site offers a variety of links and publications.

TRADE AND ENVIRONMENT DATABASE (TED)

<http://gurukul.ucc.american.edu/ted/ted.htm>

The Trade and Environment Database webpage provides links to information about the TED projects, its cases, and other relevant websites. Over 350 cases relating trade and the environment can be sorted by legal, geographic, trade and environment attributes. Other TED research papers relating trade and the environment to economics, conflict and culture are also posted on this website.

COLORADO STATE UNIVERSITY /CENTER FOR ECOLOGICAL MANAGEMENT OF MILITARY LANDS (CEMML)

<http://www.cemml.colostate.edu>

This site provides information on CEMML, a research and service unit within the Department of Forest Sciences in the College of Natural Resources at Colorado State University. The site features information on current research and publications, workshops and training.

CORNELL UNIVERSITY/CENTER FOR THE ENVIRONMENT

<http://www.cfe.cornell.edu>

This site provides an overview of the Center, which is designed to foster cooperation between private and public institutions as a means to resolve environmental conflicts. The page includes links to its publications and related web sites.

JOHNS HOPKINS UNIVERSITY /CENTER FOR COMMUNICATION PROGRAMS

<http://www.jhuccp.org>

This site offers information on the Center's work towards population control, disease containment, and other issues that can create conflict due to environmental stress. This website also offers searchable databases, links to related sites, publications, and research.

UNIVERSITY OF CALIFORNIA/INSTITUTE OF GLOBAL CONFLICT AND COOPERATION (IGCC)

<http://www-igcc.ucsd.edu/IGCC/igccmenu.html>

The IGCC page includes information on the Institute, IGCC fellowships, grants, ongoing research, and campus programs. This site also provides the full text of all IGCC publications.

UNIVERSITY OF IOWA/CENTER FOR GLOBAL AND REGIONAL ENVIRONMENTAL RESEARCH (CGRER)