

it involves conflict over political power.

- **Adverse or disruptive regime transitions.** Major, abrupt shifts in patterns of governance, including state collapse, periods of severe elite or regime instability, and shifts away from democratic toward authoritarian rule. Some are preceded by revolutionary or ethnic wars as in Cuba 1959 and Liberia 1990. They also may precipitate internal wars and be followed by massive human rights violations. They are analytically distinct from internal wars, however, and sometimes occur with minimal open violence. Note that abrupt nonviolent transitions from autocracy to democracy are not considered “adverse” and thus are not included as failure cases.
- **Genocides and politicides.** Sustained policies by states or their agents—or in civil wars, by either of the contending authorities—that result in the deaths of a substantial portion of a communal or political group. In genocides the victimized groups are defined primarily in terms of their communal (ethnolinguistic or religious) characteristics. In politicides victims are defined primarily in terms of their political opposition to the regime and dominant groups.

The 233 internal wars and failures of governance are the basis of the problem set; that is, the study’s dependent variable. The list is known to omit low-magnitude cases but is thought to include all serious cases of these types that began between 1955 and the end of 1996 in all states in the international system with 1996 populations greater than 500,000.³⁷

One problematic issue is that internal wars, regime crises, and gross human rights violations often co-occur. Moreover, multiple events of the same type sometimes occur sequentially in the same country. Where wars or crises overlapped or came in quick succession, they were combined. The final problem set consists of 127 *consolidated cases* that include 71 *discrete cases* plus 56 *complex cases*, such as linked sequences of events (of any kind) in which four years or less elapsed between the beginning and end of successive cases. The analyses reported here were based on 125 cases, after excluding two low-magnitude ethnic conflicts.

Appendix D: Environment

MEDIATED ENVIRONMENTAL MODEL METHODOLOGY

For the environmental model, the infant mortality rate in 1990 is assumed to be a function of its baseline in 1980, plus the effects of intervening changes—from 1980 to 1990—in environmental stresses, vulnerability, and capacity factors, while controlling for baseline levels in 1980. Symbolically, the model can be expressed as:

$$IM_t = a + b_o IM_{t_0} + \Sigma(b_i E_i + b_{ii} \Delta E_i) + \Sigma(c_j C_j + c_{ji} \Delta C_j) + \Sigma(d_k V_k + d_{ki} \Delta V_k) + \epsilon$$

Where t is the year 1990, t₀ is the year 1980, IM is infant mortality, E_i are environmental stresses, C_j are state capacities, and V_k are vulnerabilities.

Because the number of explanatory variables in a multiple regression model must be limited to avoid “overfitting,”³⁸ and because only about 100 countries have nonmissing values for all variables needed to estimate the environmental coefficients, we could include a maximum of 10 independent variables in the model. Each stress, capacity, and vulnerability factor contributes two variables—a baseline and a change measure—with an additional variable required to measure baseline infant mortality rate. Thus, only one variable from each of the stress, capacity, and vulnerability categories can be accommodated in the model, plus at most one additional variable.

To select appropriate covariates for the model we initially screened potential capacity and vulnerability variables by computing their correlation with infant mortality. Those that were significantly correlated were then tested together with an environmental stress variable in a multiple linear regression model of the general type shown above. Each combination of one capacity, one vulnerability, and one environmental stress variable defined a separate regression model. In addition, since it was hypothesized that tropical countries respond differently to environmental stresses, a tropics variable was included.

A lack of data further limited our ability to test variables in the model, and we were only able to test deforestation and soil degradation variables as environmental stresses and telephones per capita, population in subsistence agriculture,

Table D-1: Best Environmental Models

Table D-1: Best Environmental Models			
Dependent Variable	Independent Variables		
	Environmental Stress	Vulnerability	Capacity
Infant mortality	Deforestation rate	Percent of population in subsistence agriculture	Telephone per capita
Infant mortality	Deforestation rate	Land burden	Telephone per capita
Infant Mortality	Soil Degradation (severity times rate)	Land burden	Telephone per capita

Table D-2: Environmental Model Coefficients

Variable	Label	Coe
LGIM80	UN infant mortality in 1980 (log)	1.1
WOODSX	C	
LWOODS80	W	
BNK63X	A	
L10BNK63	T	
LANDBX	Annual change in land burden	0.0
L10LANDB	Land burden in 1980	0.0
INTERCPT	Constant term	-0.7

Dependent variable: Infant mortality in 1990 (log)
 Number of observations: 95
 R-squared statistic: 0.97

FPO TEXT Shoot Original

Table D-3: Environmental Model Output

General Linear Models Procedure	
Dependent Variable:	
Source	LOGIM DF
Model	7
Error	87
Corrected total	
R-Square	
Parameter	
INTERCEPT	-0.791673
LOGIM80 Log of infant mortality	1.131075
WOODSX Change in forest area (percent)	-0.035194
LWOODS80 Log of woodlands	-0.000302
LANDBX Annualized percent change in land burden	0.010065
L10LANDB 1980 Land burden	0.000087
BNK63X Annualized percent change in telephones per capita	-0.014068
L10BNK63 1980 Telephones per capita	0.507711

FPO TEXT Shoot Original

and land burden as capacity and vulnerability variables:

- **Soil degradation data** came from a UN Environment Program data set—Global Assessment of Human Induced Soil Degradation (GLASOD)³⁹—that contains assessments by regional soil experts about the severity and rate of human-induced soil degradation. The assessments—completed in 1990—reflect processes of degradation over the previous five to 10 years. We converted the data from GIS format to country values. The severity of soil degradation is classified on a 0-4 scale, with 4 being the most severe. The rate is classified from 0-3, with 3 being the fastest. We created a composite severity score by multiplying each classification score by the corresponding percentage of area and taking the sum. We created alternative scores by weighting the higher classes of degradation more heavily and obtained similar results.
- The **deforestation rate**—defined as the annualized rate of

change in forest area from 1980 to 1990—verged on statistical significance (p=0.06) in models with telephones per capita as a measure of state capacity and either land burden or population in subsistence agriculture as a measure of vulnerability.

- The **tropics indicator** was not significant, nor were any interactions among the capacity, vulnerability, and stress variables.

None of the soil variables were significant when tested individually or in simple sums (such as the age of land in class 3 plus the age of land in class 4). However, when the interaction between severity and rate was tested we achieved significant results, with telephones per capita as the capacity variable and land burden as the vulnerability variable. The interaction can be interpreted as suggesting that the impact of soil degradation on infant mortality is nonlinear; soil degradation increases infant mortality only when the degradation is severe and takes place

rapidly.

The environmental model was obtained by regressing 1990 infant mortality rates on annual deforestation rates, adjusting for differences in states' baseline (1980) infant mortality and differences in their capacity and vulnerability. The adjustment was accomplished by including as covariates the factors listed in Table D-2 (telephones per capita serves as a surrogate for capacity, whereas land burden is a proxy for vulnerability). The R-squared statistic, which ranges from 0 to 1, measures the fraction of variability accounted for by the model and therefore is an indicator of how well the model fits the data. The value of R-squared in this case is deceptively large, because most of the variability in states' 1990 infant mortality is in fact explained by 1980 infant mortality alone. The model suggests, however, that even after taking this dependence into account, there remains an association between deforestation rate and infant mortality, as indicated by the p-value of 0.06 for deforestation, almost meeting the conventional statistical significance level of 0.05.

[Editor's Note: These excerpts of the Phase II Findings of the State Failure Task Force exclude the Executive Summary portions of Appendices A (Global Model and General Material and D (Environment) and all of Appendices B (Sub-Saharan Africa), C (Democracy), and E (Data Sources).]

¹ Esty, Daniel C. Jack Goldstone, Ted Robert Gurr, Pamela Surko, and Alan Unger. *Working Papers: State Failure Task Force Report*. McLean, VA: Science Applications International Corporation, 30 November 1995.

² For a list of countries included in the study, see appendix A, table A-1 : Country List.

³ For a list of state failure cases, see appendix A, table A-3: Historical State Conflicts, Crises, and Transitions, 1955-96.

⁴ See appendix A for details on the procedure for revising the set of state failures.

⁵ For a list of control cases, see appendix A, table A-4 : Control Cases Used for the Global Model.

⁶ See appendix A for details on the logistic regression and genetic algorithm techniques; see Esty, Daniel, Jack Goldstone, Ted Robert Gurr, Pamela Surko, and Alan Unger, *Working Papers: State Failure Task Force Report*. McLean, VA: Science Applications International Corporation, 30 November 1995, for details on neural network analysis.

⁷ Jagers, Keith, and Ted Robert Gurr. "Tracking Democracy's Third Wave with the Polity III Data." *Journal of Peace Research* vol. 31(4):469-482, 1995. For details on the scoring and a list of indicators and weightings for each index, see appendix C, table C-1: Indicators of Institutional Democracy and Autocracy, in the full text report.

⁸ For a list of country scores, see appendix C, table C-2: Democracy, Autocracy, and Democracy Minus Autocracy Scores by Country, 1996.

⁹ Zakaria, Fareed. "The Rise of Illiberal Democracies." *Foreign Affairs*, vol. 76(6):22-44, 1997.

¹⁰ For a list of control cases, see appendix B, table B-1: Control Cases Used for the Sub-Saharan Africa Model. Sub-Saharan Africa crises are included in appendix A, table A-3, Historical State Conflicts, Crises, and Transitions, 1955-96

¹¹ See appendix B for further details on the model.

¹² It should be noted, however, that this finding did not have quite as much statistical significance ($p=.10$) as the other findings in this model.

¹³ Goldstone, Jack A. *Revolution and Rebellion in the Early Modern World*. Berkeley: University of California Press, 1991.

¹⁴ On the basis of data two years in advance of the crises.

¹⁵ The global model had the best accuracy for Western industrialized countries and poorer accuracy for Sub-Saharan Africa, where it tended to misidentify too many countries as failures.

¹⁶ Huntington, Samuel P. *The Third Wave: Democratization in the Late Twentieth Century*. Norman: University of Oklahoma Press, 1991.

¹⁷ For a complete list of transitions, see appendix C, tables C-3, Transitions From Autocracy to Partial or Full Democracy, or from Partial to Full Democracy, 1957-91, and C-4, Transitions from Full or Partial Democracy to Autocracy, or from Full to Partial Democracy, 1957-91.

¹⁸ This is a minimum criteria. The median age at which democracies regressed toward autocracy in the period studied is four years. The analysis could also be done using a more stringent criterion for stability; for instance, 10 or even 20 years.

¹⁹ Note that failures outnumbered durable transitions because some failures occurred in countries whose democracies were established before 1957 and thus were not counted as transitions for this analysis.

²⁰ For details on the method, see appendix C.

²¹ For a list, see appendix C, table C-6: Transitions from Autocracy to Partial or Full Democracy Used in Model Derivation.

²² Data were missing for other cases.

²³ For a list, see appendix C, table C-5: Transitions From Full or Partial Democracy to Autocracy Used in Model Derivation.

²⁴ Data were missing for other cases

²⁵ For a useful review of these claims, see Geoffrey D. Dabelko and P. J. Simmons. "Environment and Security: Core Ideas and US Government Initiatives." *SAIS Review* 17(1):127-146, 1997.

²⁶ These developments are covered in the issues of the *Environmental Change and Security Project Report*, Woodrow Wilson Center, Washington, DC.

²⁷ For example, Robert D. Kaplan. "The Coming Anarchy." *Atlantic Monthly* 44-76, February 1994. For a bibliography on environment and conflict, see appendix D.

²⁸ Homer-Dixon. Thomas F. *Environment, Scarcity, and Violence*. Princeton: Princeton University Press, forthcoming 1999.

²⁹ Levy, Marc A. "Is the Environment a National Security Issue?" *International Security* 20(2):35-62, Fall 1995.

³⁰ Glantz, Michael, Michele Betsill, and Kristine Crandall. *Food Security in Southern Africa: Assessing the Use and Value of ENSO Information*. Boulder, CO: National Center for Atmospheric Research, Environmental and Societal Impacts Group, 1997.

³¹ Hauge, Wenche and Tanja Ellingsen. "The Causal Pathway to Conflict: Beyond Environmental Scarcity." *Journal of Peace Research* 35:3, 1998.

³² See appendix D for details of the method; for a list of models and coefficients, see table D-1: Best Environmental Models.

³³ Of course, our measure of soil degradation is too imprecise, and our time frame is too limited for us to determine whether there is an "optimal" rate of soil degradation. It is entirely possible that extending the time frame from one to two decades, for example, would have a negative impact on infant mortality at all levels of soil degradation.

³⁴ Youth bulge—a large proportion of the adult population concentrated in the young adult years—was a significant factor in a model of ethnic war that was developed during Phase I. For details, see Daniel Esty, Jack Goldstone, Ted Robert Gurr, Pamela Surko, and Alan Unger, *Working Papers: State Failure Task Force Report*. McLean

VA: Science Applications International Corporation, 30 November 1995.

³⁵ Solingen, Etel. *Regional Orders at Century's Dawn: Global and Domestic Influences on Grand Strategy*. Princeton University Press, 1998.

³⁶ For sources and more detailed descriptions, see Esty, Daniel C., Jack Goldstone, Ted Robert Gurr, Pamela Surko, and Alan Unger. *Working Papers: State Failure Task Force Report*. McLean, VA: Science Applications International Corporation, 30 November 1995.

³⁷ Eritrea and Qatar, which have populations over 500,000, were inadvertently omitted; Luxembourg was inadvertently included, despite

falling below our population size cutoff, according to the US Census Bureau's International Data Base. These deviations from the rule do not contribute significant error because the number of countries in the study was large.

³⁸ A widely used rule of thumb constrains the number to about 10 percent of the sample size.

³⁹ "Global Assessment Of Human Induced Soil Degradation (Glasod): A Users Guide To The Global Digital Database," UNEP/GRID, July 1, 1991.

Interested in back copies of the *Environmental Change and Security Project Report* or the *China Environment Series*? These ECSP publications or others such as *Climate Action in the United States and China*, working papers from conferences on the toxic legacy of the Cold War in the former Soviet Union, European Seas, or environmental confidence building are available upon request.

The collage displays three environmental reports. On the left is the cover of the 'China Environment Series', featuring a vertical title 'CHINA ENVIRONMENT SERIES' and a grid pattern. In the center is the cover of 'Greening the Chinese Media' by Max Bo, also featuring a grid pattern. On the right is the cover of 'Environmental Change and Security Project Report', featuring a large 'W' logo and a list of features and authors.

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Making a Difference at the Intersection of Population, Environment, and Security Issues: A Look at the University of Michigan Population Fellows Program

by Shannon England

Abstract: The University of Michigan Population Fellows Program was established in 1984 to give early-career professionals in international population assistance hands-on experience working in the field. Funded through the United States Agency for International Development (USAID), the program places fellows with organizations that address family planning and reproductive health issues in developing countries. The program aims both to enhance fellows' skills and to build capacity for development of effective and sustainable family planning and reproductive health interventions. Since the program's inception, there have been more than 200 professionals placed in the field, and the program has expanded to include several new initiatives. These include the Population-Environment Fellows Program (PEFP), the Minority-Serving Institutions (MSI) Initiative, and the Population, Environmental Change, and Security (PECS) Initiative. This special report 1) describes each component of the Michigan Fellows Program; 2) explores the rationale for and methods of linking population and environment through the PEFP; and 3) details the lessons learned in three fellowships.

POPULATION FELLOWS PROGRAM

The original Population Fellows Program places professionals in settings throughout the world. Population Fellows work in diverse settings and address a variety of issues. The Program has grown significantly over the years. During the program's first year only five fellows were placed, while now the number of Fellows placed each year ranges from twenty to thirty. Population Fellows work in different types of organizations. Some work for USAID cooperating agencies involved in family planning and reproductive health, such as The Population Council, Pathfinder International, Futures Group International, Inc., CARE, or John Snow Inc. Others work for indigenous organizations in developing countries such as International Planned Parenthood (IPPF) affiliates, government Ministries of Health, and country specific or local non-governmental organizations (NGOs). Population Fellows may also work for USAID itself, in both Washington and in the mission field offices. The types of placements vary also by job responsibilities; Population Fellows may be involved in field-level implementation of projects or in research and resource management. Some Fellows work at a more removed level in program management and evaluation, while still others are involved in policy development and planning.

POPULATION-ENVIRONMENT FELLOWS PROGRAM

A more recent addition to the University of Michigan Population Fellows Program has been the establishment of the Population-Environment Fellows Program (PEFP). The PEFP was founded in 1993 to encourage development professionals to look beyond traditional sectoral interventions towards those that focus on a more integrated approach, specifically, on the links between population and environment. The Program has served the role of facilitating innovative approaches to community development interventions in both reproductive health and environmental resource use. Since the Program's founding, 27 Fellows have been placed in environmental, reproductive health, and community development organizations, as well as with government ministries of health and environment. With training in both population and environmental issues, Population-Environment (P-E) Fellows perform a wide range of activities: performing community needs assessments using participatory

Shannon England is a staff member with the Population Fellows Program at the University of Michigan. Some portions of this special report are drawn from Caroline Stem, "The Population-Environment Fellows Program Documenting Results: A systematic review of Fellows' placements in the field, 1993-1997." Ann Arbor, MI: Population-Environment Fellows Program, University of Michigan, 1997.

rural appraisal (PRA) techniques, undertaking demographic or geographic information system analysis, assisting with buffer zone management, or engaging in policy analysis and development.

MINORITY-SERVING INSTITUTIONS INITIATIVE

The Minority-Serving Institutions Initiative (MSI) aims to increase the number of students from historically Black- or Hispanic-serving institutions who pursue careers in international family planning or population and environment. To accomplish these goals, the program provides coursework and internships to MSI graduate students to prepare them for a Population or Population-Environment Fellowship. It also offers MSI undergraduates summer internships at US-based organizations working in the fields of international family planning and population-environment. The MSI initiative first began in 1995 as part of a USAID-wide effort to encourage graduates from MSIs to pursue professional careers in the field of development assistance. To date, the Program has placed 25 undergraduate interns and six graduate interns, five of whom have become Population Fellows. The program has the explicit goal of expanding diversity within the ranks of professionals involved in international development assistance, especially in the fields of population, family planning, and population-environment.

POPULATION, ENVIRONMENTAL CHANGE, AND SECURITY INITIATIVE

The Population, Environmental Change, and Security (PECS) Initiative is the newest initiative of the University of Michigan Population Fellows Program. Established in 1996, the PECS initiative brings together population, environment, and security experts; policymakers; and members of the diplomatic community to discuss the impact of both population and environmental change on security issues. The PECS initiative is a collaborative effort with the Woodrow Wilson Center's Environmental Change and Security Project (ECSP). The initiative aims to combine fellows' field-level insights with ECSP's experience in facilitating policy-level dialogue. The result is a unique interdisciplinary forum for examining demographic and environmental roots of conflict and exploring program and policy options. The initiative has sponsored numerous activities, including: 1) regular seminars and working groups at the Woodrow Wilson Center; 2) a working-paper series within the Fellows Programs; 3) specially commissioned papers and annual reports; and 4) an international symposium series. The planned symposium series for 1999 will focus on developing a research agenda and policy framework for addressing domestic and international migration. Leading researchers in the field will examine the relationship of urbanization and refugee flows to environmental degradation and security concerns. As a result of increased interest from donors and host agencies, the PECS initiative will expand this year for the first time to include a fellow who will specifically

work on issues surrounding the intersection of population, environment, and security concerns.

FOCUS ON THE POPULATION-ENVIRONMENT FELLOWS PROGRAM

Training and Professional Development

The most important contribution of the Fellows Program to the training and professional development of P-E Fellows is through the work opportunities it provides for them. Host agencies play an important role in mentoring the fellows and challenging them to tackle complex development questions. In addition to the field work experience, the PEFP tries to ensure that Fellows have the technical skills and tools necessary to effectively carry out their work duties. The Program sponsors annual workshops in which Fellows have the opportunity to interact and exchange experience with other Fellows and host agency representatives. Each workshop includes a technical training session to increase Fellows' competency in technical areas, such as institutional capacity-building, monitoring and evaluation, gender programming, and participatory rural analysis. Fellows learn how to apply these skills to their local context and provide important feedback on what they have learned about implementing these techniques during their placements.

Finally, the PEFP has made important strides in stimulating experimentation and increasing knowledge of population and environment. In each workshop, participants (fellows, PEFP staff, and development specialists) have emphasized that the program and the activities fellows are initiating represent a learning experience. No one knows the best method to link population and environment or whether it is judicious to do so. Only through experimentation and innovation, as well as careful follow-up and evaluation, can these questions be clarified.

Technical Assistance to Host Agencies

A second objective of the PEFP is to provide technical assistance to local agencies in the areas of population and environment. Fellows have found that many organizations do not possess the multi-disciplinary technical expertise to effectively bridge population and environment. Moreover, their institutional structures, based on conventional disciplines, do not easily permit comprehensive approaches to development. The technical skills and paradigms that fellows bring to their host agencies are valuable for raising awareness of the potential benefits of linking population and environment, as well as for building organizational capacity to develop intersectoral interventions. Likewise, fellows gain practical experience and expertise from their host institutions.

All fellows have been involved in some aspect of institution-building, whether it be strategic planning and proposal writing within their host agency, training staff and communities in technical issues related to population and environment, or multi-agency capacity building through partnerships. These activities lay important groundwork for P-E and related interventions. In addition to institutional strengthening, fellows have assisted

their host agencies in undertaking community assessments using participatory rural appraisal (PRA), in documenting the lessons of their work, and in developing program models for replication.

Developing Population-Environment Linkage Frameworks

The experimental and innovative nature of the PEPF has

earned the program an important position in the P-E arena. Recognizing the need to pilot test the feasibility of linking population and environment at the field level, the program seeks to complement theoretical knowledge with practical experience to determine whether it makes sense to address population and environment together or separately. There are three primary means by which fellows have linked population and

The Population, Environmental Change, and Security Fellowship

A collaboration of the University of Michigan Population Fellows Program and the Environmental Change and Security Project of the Woodrow Wilson International Center for Scholars

The Population, Environmental Change, and Security (PECS) Fellowships are two-year professional assignments for individuals with advanced degrees in PECS-related areas. The fellowships aim to:

- 1) *develop a cadre of future leaders with expertise in these areas;*
- 2) *provide technical assistance to organizations addressing security from an interdisciplinary perspective;*
- 3) *facilitate research, dialogue, and analysis of long-term security issues at the nexus of population and environmental change.*

Providing Unique Interdisciplinary Expertise to Diplomatic, Security, and Development Organizations

The Population Fellows Program, administered by the University of Michigan's Center for Population Planning and funded by the U.S. Agency for International Development (USAID), has recently developed a new type of fellowship with support from the Woodrow Wilson Center's Environmental Change and Security Project. The Population, Environmental Change, and Security Fellowship combines the strengths of both programs in addressing critical aspects of evolving international security concerns. The fellowship draws on the Population Fellows Program's 15 years of experience arranging fellowships with organizations working on population and population-environment issues in the developing

world. It also draws on the tremendous policy-level expertise of the Woodrow Wilson Center in the area of environmental change and international security.

The PECS Fellowship will provide a rich professional development opportunity for an early-career professional with graduate training and expertise in the linkages among population, environment, and security issues. The fellow will be placed for two years with an organization exploring these linkages through research, inter-institutional dialogue, case study preparation, and policy analysis.

Fellows as Innovators

Because the PECS Fellowship is a new initiative, we will work closely with diplomatic, security, and development organizations interested in hosting a fellow to formulate a scope of work that will challenge the fellow and have a meaningful impact on each organization's mission.

If past fellowships are any guide, we expect our PECS Fellows to serve as important catalysts for innovation within their organizations. Our traditional Population and Population-Environment Fellows have served a variety of organizations in this

capacity – from local Ministries of Health and nongovernmental organizations to larger organizations such as CARE, Save the Children, USAID, the U.S. Department of State, World Wildlife Federation, The Nature Conservancy, United Nations Population Fund, the Centers for Disease Control, and the World Health Organization. These fellows have spearheaded such projects as institutionalizing reproductive health care for refugees and initiating community land-use planning processes to mitigate the environmental impact of rural migration.

Applying for a Fellowship

Candidates wishing to apply for a PECS Fellowship must meet the program's minimum qualifications:

- U.S. citizenship or permanent resident status; and
- a graduate degree in a relevant area, plus expertise in the linkages among population, environment, and security issues.

Furthermore, candidates must be early-career professionals (with no more than five years of post-master's experience); possess appropriate technical skills and knowledge; and show evidence of a commitment to a PECS-related career. To demonstrate this, candidates are asked to submit the following:

- an official program application form;

- a resume;
- a statement of purpose;
- academic transcripts;
- Graduate Record Examination scores;
- three letters of recommendation;
- a recent writing sample; and
- an official foreign language evaluation (optional).

If you are interested in applying for a PECS Fellowship, please contact Jane MacKie-Mason at the number on the following page. We will be happy to review your credentials and discuss the application process with you.

(continued on following page)

environment in the field: inter-institutional partnerships, programmatic integration, and joint applied research. The salient features of these approaches are discussed below.

Inter-Institutional Partnerships: Due to the traditional disciplinary nature of organizations and the challenges posed by venturing into interdisciplinary areas like population and

environment, many fellows have found inter-institutional partnerships a sound approach to linking population and environment at the intervention level. "Partnership" is viewed as a collaborative relationship formed between two distinct institutions or programs to provide multiple services or information to a specified target population. A clear example

Host Agency Responsibilities

Because fellows bring so much to the organizations they serve, we ask potential host agencies to consider carefully the type of experience they could provide for a fellow.

Are you an appropriate host organization?

We ask that potential host agencies be able to identify a meaningful PECS-related project a fellow could accomplish in our customary two-year placement period. Furthermore, because this is a development program for early-career professionals, the organization must be able to offer an experienced, committed mentor who will collaborate closely with the fellow and help advance his/her expertise.

Can you provide for some of the fellowship costs?

We attempt to be as cost-effective as possible in structuring our fellowships while providing sufficient support for fellows' professional and living expenses. In general, a fellowship provides the following:

- a modest professional stipend;
- health and emergency evacuation insurance;

- travel to and from the placement site;
- limited shipping expenses; and
- assistance with housing and cost-of-living adjustments, where applicable.

Through the years, the Population Fellows Program has arranged for various cost-allocation arrangements with host agencies. In some cases, the host agency has paid for a significant portion of a fellow's expenses; in others, the Fellows Program has provided the bulk of financial support. Most common is some form of cost-sharing in which the host organization provides several of the following:

- work-related travel expenses;
- housing and/or cost-of-living adjustments;
- necessary office equipment (computer, typewriter, etc.) and supplies; and
- access to support staff.

We should note that the more support provided by a prospective host organization, the more likely it is that a fellowship will receive program approval.

Requesting a Fellow

If you believe your organization could provide valuable experience for an early-career professional while better achieving your own organizational objectives, we encourage you to contact us. A phone conversation is often the best way to determine whether your organization is a good "fit" with our program. If it is, we will ask you to complete a Letter of Intent/Scope of Work formally requesting a fellow. This should include the following:

Contact information

How to reach your organization, whom to contact, and who will supervise the fellow (contact information and credentials).

Organizational information

What you do, where your projects are located, why you are requesting a fellow, and any other information that would help us identify an appropriate candidate for you.

Potential support

The level of support (financial, material, and/or staff support)

your organization would be able to provide for a fellow as well as the cost of living in your area.

Scope of work

The 2- to 3-page scope of work identifies:

- the projects on which the fellow would work and the role s/he would play in them;
- the level of independent responsibility expected;
- the qualifications required (including languages);
- a flexible timeline for placing the fellow (fellowships can take several months to arrange).

Before preparing these documents, please contact us to discuss how we might structure a placement that will help your organization explore the critical links among population, environmental change, and security.

For more information, please contact:

Jane MacKie-Mason • Associate Director
 University of Michigan Population Fellows Programs
 109 Observatory, SPH II • Ann Arbor, MI 48109-2029
 Phone: 734-763-9456 • Fax: 734-647-0643
 E-Mail: pop.fellows@umich.edu
 Internet: <http://www.sph.umich.edu/pfps/>

For more information on population, environmental change and security issues, see the Woodrow Wilson Center's Environmental Change and Security Project's Web site at: <http://ecsp.si.edu>.

of such a relationship would be an environmental organization in a rural area coordinating with a family planning or health organization to provide local communities with access to general and reproductive health services. Partnerships allow institutions to develop integrated or comprehensive programs while minimizing the drain on technical and financial resources.

Programmatic Integration: Various fellows have experimented with more integrated approaches through which a single institution addresses both population and environment through a self-contained project. Within the context of the fellows' activities, integration primarily involves multiple and/or linked message articulation and service delivery. A looser form of integration which involves coordination and communication between two departments or programs housed under the same institution, could also be considered an internal partnership. Consequently, many of the issues discussed regarding partnering could also apply, to some extent, to integration. Interestingly, fellows have sometimes found internal integration more difficult to achieve than partnering, particularly when organizations have a rigid sectoral culture resulting from highly vertical programming.

Joint Applied Research: Joint applied research involves collecting and/or analyzing population and environmental data simultaneously to better assess their interactions. Data are gathered in areas such as community attitudes, beliefs, and values; migration patterns; land- and resource-use practices; health status; economic well-being; fertility levels; and environmental quality in order to develop a comprehensive portrait of target communities. Such information helps ensure that interventions are designed both to meet the felt needs of communities and to address objective threats to community and environmental well-being. Such research also helps inform ongoing interventions, ensuring that they are managed to account for changing community perceptions and that they are having the desired impact on the populations and environments they are designed to protect. Fellows have used research methodologies as diverse as analyzing census data, conducting participatory rural appraisal sessions, and examining interactions through the use of Geographic Information System (GIS).

Common Benefits

Many P-E linkage approaches share common advantages. The following is discussion of common benefits identified in three case studies of P-E Fellow placements. The three case studies examine Pathfinder in Brazil, The Nature Conservancy in Ecuador, and CARE in Uganda.²

Recognition of Community-Environment Interdependence: In the three case studies, fellows, host agencies, partner agencies and USAID Mission personnel unanimously agreed that a critical benefit, or perhaps justification, of linking social issues to the environment is the fact that the health of the environment, be it urban or rural, is intricately dependent upon the people using it, and vice-versa. Regardless of the isolation of a region, people reside in and sustain themselves on the land and its resources. The area of Earth which has not experienced at least minimal human exploitation is dwindling rapidly. Without

acknowledging human presence in fragile ecosystems or crowded urban slums, environmental protection attempts will experience marginal success, at best. As a result, environmental organizations have come to recognize the importance of working with, rather than against, local residents and addressing their immediate needs so that they have the ability to focus on higher needs, such as resource conservation. Linked approaches play a crucial, facilitating role in this process.

Addressing Community Needs

Under traditional disciplinary programs, organizations enter a community with a set agenda to assist its residents in an area in which the institution possesses a high level of expertise. While this approach is logical, it is one that disregards the myriad urgencies present within the population. Through P-E partnering strategies, highly specialized institutions can meet broader community needs by coordinating with organizations possessing complementary expertise. Integration offers similar opportunities to address various needs, although it requires the implementing institution to have in-house technical expertise in multiple disciplines. The following are some of the benefits fellows have observed of interventions that address broader, rather than more narrow, development issues.

Legitimacy and Support: Whether an organization takes an integrated or a partnering approach to linking population and environment, it is likely to experience higher levels of goodwill within a community by addressing multiple needs. Communities are more inclined to perceive organizations carrying out environmental projects as responsible institutions committed to improving the residents' quality of life, in addition to preserving the local ecosystem. Likewise, population organizations can acquire legitimacy by meeting requests for assistance in resource-management methods. General development organizations that provide multiple services also enjoy the same benefits of achieving community confidence and trust.

Another factor unique to partnership strategies, which enhances support and legitimacy, is the role of the partners' reputations within their respective target regions. By partnering with a respected and well-received organization, the partner can capitalize on this respect, consequently having a greater chance of establishing support within the population.

Increased Participation: By directing project activities to satisfy community-identified needs, organizations may actually increase community acceptance of and participation in these activities. The local people will readily identify a tangible benefit they are accruing through the comprehensive nature of the project and consequently, will be more prone to participate actively in their activities. As discussed, active involvement at the local level is essential for ensuring sustainability of project interventions. In contrast to other methods, participatory approaches emphasize the importance of local actors and favor a transparent vision over a paternalistic one. In addition, by addressing multiple needs, institutions may also develop new constituencies for family planning, family health, and environmental conservation alike.

Increased Attention to Longer-Term Issues: Through satisfying

critical, immediate needs, organizations are able to alleviate some of the short-term concerns which prohibit populations from devoting time and resources to longer-term issues, such as resource conservation and protection. Quick and effective antidotes, such as health care provision, typically take precedence over interventions necessitating long-investments, such as sustainable agriculture and livestock management techniques. By addressing immediate concerns of a population, the local people, presumably, will have additional time and heightened interest to identify and address longer-term issues.

Increased Empowerment and Involvement of Marginalized Groups

Fellows, host agencies and development officials, in general, have come to recognize the importance of women and other marginalized groups (such as indigenous peoples) in issues relating to both health and the environment. With respect to women, they recognize that women exercise minimal power in the household and the marketplace, yet they are the primary decision-makers with respect to family health and nutrition. Moreover, they often play an important role in resource management. Consequently, they need to acquire the information and ability to influence others. Local people, likewise, represent an important target group, as they possess generations of knowledge regarding location-specific land management practices and herbal medicine uses. Interventions that involve close coordination with these groups are more likely to be culturally appropriate and, consequently, better received and sustained. The following are some ways in which fellows have worked to empower women and marginalized groups to assert their influence in positive ways within the population and environment arena.

Specialized Training: Providing the training necessary for members of marginalized groups to become agricultural extension agents or family planning or health promoters can engender a strong sense of empowerment. As community members take up positions of responsibility within their community and develop specialized skills and knowledge, their self-esteem rises and they are motivated to build their own capacity as well as that of their broader community.

Participatory Methods: Participatory development approaches can also be highly empowering for communities. Through research methodologies like PRA, communities can become engaged in the interaction of important issues like fertility, health status, and environmental well-being. As their awareness and knowledge are raised, these communities are empowered to participate in informed decision-making and can guide intervention design and implementation.

Engagement of All Groups: Finally, organizations have found that the way in which they implement their activities can be as important as the intervention itself in terms of empowering marginalized segments of a community. Meetings and activities can be designed deliberately to encourage participation from all sectors of society - making no distinction by gender or age group. In one project, trainers worked in mixed-gender pairs to set the example for target groups that men and women should work together and that each makes a vital contribution to any activity.

Broadening Perspectives

A comprehensive approach, at the very least, helps development specialists in all sectors understand and consider intervening factors that influence people's attitudes and behaviors. Through linked approaches, both office and field staff come into contact with people from various disciplines, offering them an opportunity to widen their thinking and to work in a mutually cooperative fashion to achieve institutional goals and objectives.

That institutional perspectives can be broadened by exposure to programs like the PEPF is clear in the case of The Nature Conservancy (TNC). TNC has traditionally adhered to a relatively strict approach to conservation. By hosting several Population-Environment Fellows, however, TNC has become much more committed to addressing a broader array of social issues when working on resource management. This recognition has filtered up through the organization, altering a variety of organizational policies and practices.

Fellows, host agencies, partners and USAID Mission staff interviewed for the purpose of evaluating the PEPF all concurred that organizations cannot address ecosystem pressures from a purely conservationist perspective.³ They stressed that local populations play a pivotal role in conservation and to ignore them would be damaging to long-term conservation goals. This consensus was built, in part, through the consciousness-raising efforts of the PEPF and the early results of linked interventions facilitated by fellows.

Comprehensive Approaches Incorporate Attention to Areas Beyond Population-Environment

While addressing population-environment linkages may be an important facet of development work, fellows also have the opportunity to address several other areas as well, including income generation, gender inequities, and citizen participation. For example, in Ecuador, TNC Fellows designed projects to engage local communities more actively in resource management. In the process, they enriched individual and institutional capacity for problem identification and resolution. Such capacity-building activities contribute not only to health and environmental well-being but also lay the groundwork for a more informed and active civil society.

TESTING THE ASSUMPTIONS OF LINKED INTERVENTIONS

It should be noted that underlying all the approaches to and benefits of integration, is a fundamental assumption of Population-Environment work: that local peoples' quality of life can be improved while simultaneously reducing demand on natural resources. Restoring a sustainable balance between people and their environment is a compelling argument for linked interventions, however, fellows and host agencies have found that if intentions are not clear, this idea can be politically charged. If the linkages among population pressures, environmental degradation, and health and economic costs are not identified by communities themselves through participatory

research and consciousness-raising activities, Population-Environment interventions may raise concerns of “population control to promote animal and forest conservation.” As a result, the PEPF remains committed to participatory work that explores the interconnectedness of humans and their environment, and is averse to prioritizing conservation over community needs.

Despite this sensitivity, it is important to recognize that linked activities can contribute meaningfully to declining demands on resources. Whether or not they are more effective and cost-efficient than sectoral approaches is being tested by the PEPF through an assessment project being conducted in select sites around the world. The results of these evaluations will go a long way toward justifying the program’s continued commitment to intersectoral development work.

FOCUS ON MICHIGAN FELLOWS

Brief case studies of a few Michigan Fellows show the wide range of activities that fellows undertake, as well as the diversity of their professional skills and development. Fellowships highlighting work that includes population, environment, and security issues have been selected in an effort to focus on this relatively new area for the Population Fellows Programs.

Julia Cohen was a University of Michigan Population Fellow who was placed with the Bureau for Population, Refugees, and Migration at the U.S. Department of State. Julia became the government point person on the issue of refugee reproductive health and worked to incorporate this issue into projects funded by the bureau. Julia’s key activities included the following:

- Working to secure funding for a mid-Africa refugee reproductive health initiative that included greater attention to gathering demographic and health data for refugee populations.
- Increasing awareness and support for provision of reproductive health services within refugee populations among a variety of U.S. and international organizations. These included the Centers for Disease Control, the United Nations, the World Bank, the Red Cross, Planned Parenthood, the Center for Development and Population Activities, USAID field staff, and non-governmental organizations (NGOs) providing services to refugees.
- Co-chairing the Reproductive Health for Refugees Working Group which met monthly to brief the State Department, USAID, the Department of Health and Human Services, as well as several NGOs working on issues related to this topic, of new developments in this area.
- Revising the Field Operations Guide of the Office of Foreign Disaster Assistance to incorporate women’s specific health needs into disaster relief planning.

Lessons Learned

The main lesson learned during Julia’s placement was that, historically, women’s specific health needs have been overlooked by the planners and managers of refugee relief operations.

Institutionalizing those services involves first raising awareness of the need for such services and then following through with research demonstrating the effectiveness of proposed changes. As a result of Julia’s work the Program learned that:

- A single point person within a donor agency can profoundly influence the design and funding of projects in a new and emerging area of attention. Professional working relationships between individuals resulted in linkages that assured that previously unaddressed concerns were incorporated into future State Department projects.
- In crisis situations, women’s needs are often overlooked and therefore require special attention on the part of program managers who serve migrants and refugees. For example, gender-based violence against women, particularly sexual violence, is a significant problem and until quite recently has been almost ignored by those charged with assuring refugees’ safety and well-being. Policy changes to improve women’s access to resources within refugee camps, special protection services for women at high risk for violence, and programs to serve women affected by sexual violence are all needed to ensure that refugee women receive the care and protection to which they are entitled.
- While data are still inadequate and more research is needed, some evidence exists to suggest that improving reproductive health services within refugee population may save lives and improve health status significantly: pregnancy complications may be diminished, high rates of transmission of sexually transmitted diseases (STDs) and AIDS among refugee populations can be ameliorated, and rates of sexual violence can be reduced.

Lorelei Goodyear was a Population Fellow placed with the International Rescue Committee (IRC) in New York. Her placement was similar to Julia’s in that it focused on reproductive health issues among refugee populations, but it more directly involved her in the design and implementation of improved services for refugees. IRC is a non-sectarian relief agency that provides humanitarian aid to refugees and displaced persons throughout the world. Lorelei was involved in implementing a Mellon Foundation grant to institutionalize reproductive health services into worldwide refugee assistance. Her work primarily involved the following activities:

- Assessing refugees’ needs in areas of contraception, AIDS prevention, STD treatment and services, emergency obstetric services, and sexual and gender-based violence protection.
- Training IRC headquarters and field staff on reproductive health issues among refugee populations and raising awareness of the importance of these issues.
- Developing and distributing “lessons learned” reports to help field staff learn from their colleagues working around the globe to improve services.

Lessons Learned

Lorelei's work helped improve the health status of refugees and displaced persons, especially of women, in diverse populations around the globe—from Pakistan and Tanzania to Azerbaijan and Cambodia. The key lessons learned during her placement include the following:

- Tremendous diversity exists in terms of refugee men and women's reproductive health needs around the globe. The importance of conducting an assessment of needs that incorporates attention to reproductive health issues, beginning within the first days of an emergency, is critical to assuring that adequate and appropriate services are provided.
- Currently, many reproductive health needs of refugees are not addressed at all. Assessments carried out in the field revealed a high incidence of sexual assaults, a need for family planning services among refugee women, a need for comprehensive STD prevention and treatment services—especially in areas where HIV and AIDS are endemic—and improved attention to emergency obstetric concerns for pregnant refugees.
- Sustainability of services mandates that both IRC medical staff and local providers receive training in reproductive health issues. Planning for the time when IRC staff will no longer be providing services, projects must incorporate training of local medical providers, as well as training of lay health persons—such as traditional birth attendants.
- Finally, political controversy may result when reproductive health issues are introduced into existing programs. Further research documenting the need for such programs, as well as their health—and life—saving benefits, is essential to ensuring their continued survival.

Alex de Sherbinin was placed with the World Conservation Union (IUCN) in Switzerland. As a Population-Environment Fellow he worked to establish linkages between population and environmental issues at the international policy-making level. During his placement Alex was involved with several key initiatives. These included:

- Managing a small grants program focused on linking population and environmental NGOs in the delivery of services.
- Coordinating a USAID-funded initiative on Water and Population Dynamics that included commissioning research focused on the relationships between population dynamics and access to fresh water resources.
- Promoting the development of linked interventions in conservation and reproductive health at IUCN field offices throughout the world.
- Institutionalizing Geographic Information Systems (GIS) mapping and analysis into the work conducted at IUCN. This new technology is helping the

organization visualize the connections between demographic variables and conservation activities.

Lessons Learned

Integrating population issues into an environmental organization takes time and adjustment, but the results may include a profound shift towards more effective interventions. Lessons learned as a result, in part, of Alex's work include the following:

- Scarce water resources are emerging as a significant threat to human health and well-being as growing populations, rising consumption levels, and inequities among countries affect the availability of this precious resource. Despite this, however, the complex and multi-faceted links between human health, demographic factors, ecosystem stability, and water resources are often not made by policy makers—who may simply place forests and grasslands on the list of potential “users” of water, rather than viewing them as necessary “providers” as well.
- Attention to the linkages between population and environment assumes new importance under conservation organizations' shift toward bioregional—or ecoregional—conservation. Conservation organizations increasingly hope to slow the rate of habitat loss by focusing on ecosystem-based management—a process that necessarily must incorporate human variables, such as population growth and migration, population density and distribution, and resource use. This new approach demands that conservationists and population experts share information and knowledge about the areas in which they are working. Greater attention to the potential uses of GIS programs in facilitating analysis of multiple variables is also needed.
- Incorporating demographic analysis into protected areas management is a strategy that leads to more effective policy development, particularly in the case of policies that respond to migration flows in and around protected areas.
- Integrated conservation and development projects, whereby conservation organizations partner with reproductive health or family planning organizations, have proven to be a successful strategy in many places for providing needed health services to remote and hard-to-reach populations. Such partnerships allow conservation organizations to more effectively address the needs of populations living in and around protected areas. Key to the success of these partnerships' work is a ‘gender-approach’ to conservation and development that recognizes women as key players in household decisions about resource use, reproduction, and management of the environment.
- Finally, increased attention to the links among population, environment, and security issues is

necessary for all organizations working internationally. Environmentally displaced persons are a concern for those interested in protecting resources, as well as those interested in assuring the security of the state.

CONCLUSION

University of Michigan Population Fellows work in a variety of settings and perform a range of tasks. All Fellows, however, gain the opportunity to develop a network of professional contacts, the chance to master new skills in the field of international development, and the opportunity to transfer important perspectives and competencies to the organizations with which they work. Perhaps most importantly, the Fellows Program has helped to raise consciousness within organizations and local communities about the relationship of population to other aspects of development.

¹ For more on the particulars of the three case studies, see Stem, 24-66.

² Stem, 76.



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