

Population and Ecology Research Laboratory



Annual Report 1998 and 1999

Population Studies Center • Institute for Social Research
The University of Michigan

POPULATION AND ECOLOGY RESEARCH LABORATORY (PERL)

AIMS

PERL was established with the following research, training, and institutional aims.

RESEARCH

To assess the influence of rapid changes in the ecological context on population processes, with a special emphasis on the processes of family formation, migration, urbanization, children's well-being, and population growth.

To assess the influence of changing demographic parameters, particularly related to population growth, migration, and family formation, on the ecological context.

TEACHING

To train Nepalese applied social scientists in state-of-the-art social science research methods.

To train U.S. social science students in research methods appropriate in the context of a developing country.

INSTITUTIONAL

To create and institutionalize technical infrastructure for ongoing social science and demographic research in Nepal, including computing facilities and a survey research staff.

To develop strong institutional links between Nepalese institutions and the University of Michigan that will be the basis for cooperative research projects and training faculty and students at both sites.

DIRECTOR'S STATEMENT

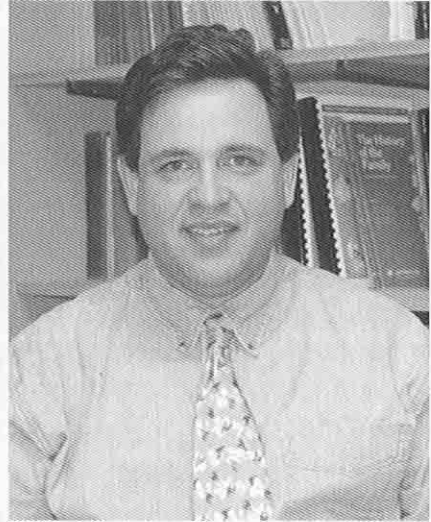
For the Population and Ecology Research Laboratory (PERL), 1998 was a dramatic, transitional year. I moved from the Department of Sociology at Penn State University to the Department of Sociology and the Institute for Social Research at the University of Michigan. PERL came with me, and is now part of the University of Michigan. PERL's new institutional home, in the Population Studies Center of the Institute for Social Research, is an ideal setting for the growth and enrichment of PERL's research, training, and institution-building programs. This new setting provides a host of resources to foster PERL's aims.

PERL's research programs continued at a fast pace throughout this transition. Our population

and environment research program continues into its fifth year during 1999-2000. Our Chitwan Valley Family Study was funded through a competing continuation for five more years (1999-2004).

With PERL's arrival at Michigan's Population Studies Center, we have begun an aggressive program of launching new research projects, beginning with new aging-related work. We also continue to update the PERL staff's training in data collection methods, including survey data, ethnographic and archival data, geographic data, and environmental data. The highlight of these training activities was the visit of three PERL staff to the University of Michigan for course work at the Survey Research Center's 1999 Summer Institute.

Our plans for the new year include bringing another group of PERL supervisors to Michigan's Survey Research Center for advanced training. We are also continuing our program of training Nepalese social scientists at the Ph.D. level, both at Michigan and through continued cooperation with Penn State University. And, as always, we are

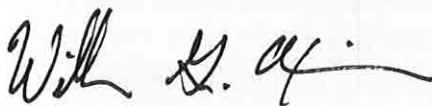


William G. Axinn, Director

continuing our strong commitment to training Ph.D. students from the U.S. at PERL's Nepal field site. These research and training programs serve as the basis for our long-term institutional building efforts. In 1998 our long-term collaboration with Tribhuvan University's Institute of Agriculture and Animal Science was enhanced by a new collaborative agreement with Kathmandu University. Working together with these two universities, we look forward to continued success conducting research on pressing population problems in Nepal, training researchers in state-of-the-art social science methods, and constructing the infrastructure needed to carry out a long term program of social science research in Nepal.

Throughout 1998 and 1999, and more than ever before, the research, training, and institution-building accomplishments of PERL were a product of contributions from many different individuals from many different institutions in the U.S. and Nepal. These individuals contributed to PERL in various ways, and I owe each of them great thanks for their ongoing contributions to the PERL mission. As you will see in the report that follows, most of our accomplishments are the result of the team's hard work. I would like to give special thanks to Dr. Ganesh Shivakoti, who worked to establish PERL but left in 1998 to join the Asian Institute of Technology. Although he is no longer part of the PERL team, many of the successes we enjoy today are a result of his efforts. I would also like to thank the agencies and foundations who have provided generous financial support to PERL (see inside back cover).

This report describes the aims and capabilities of PERL, the activities PERL has completed since its inception, and PERL's accomplishments during 1998 and 1999.

A handwritten signature in black ink, appearing to read "Will G. Axinn". The signature is fluid and cursive, with a long horizontal stroke at the end.

WILLIAM G. AXINN

INSTITUTIONAL TIES

Nepal is a multiethnic and multicultural society, which is ideal for PERL's research aims because the country is undergoing rapid change in both the social and environmental context. PERL was established in 1995 as a joint undertaking between the Institute of Agriculture and Animal Science at Tribhuvan University in Nepal and the Population Research Institute at Penn State University. In 1998, due to

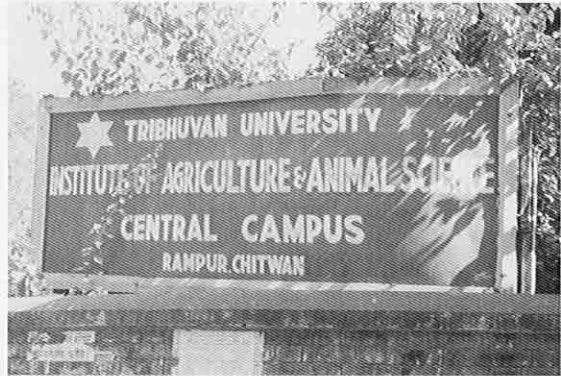
William Axinn's move from Penn State to the University of Michigan, PERL became part of Michigan's Population Studies Center. The move came just as the Population Studies Center joined the Institute for Social Research; thus, PERL also became a part of the Institute for Social Research in 1998.

Michigan's Population Studies Center is an ideal institutional home for PERL, providing



Axinn (center, left), Katmandu University's Vice-Chancellor Sharma (center, right) and members of KU's team for planning its new Human and Natural Resources

Research, PERL gains direct access to another center in the Institute,



Sign at main entrance, Institute of Agriculture and Animal Science, central campus, Tribhuvan University

access to both outstanding research infrastructure and one of the world's leading international demography research and training programs, supported by a wide range of funding institutions. Furthermore, as part of the Institute for Social

Michigan's outstanding Survey Research Center. These new alliances have given PERL unprecedented opportunities to establish state-of-the-art research and training capabilities in Nepal. These capabilities will better enable PERL to accomplish its research, training, and institution-building aims.

Despite the change in PERL's institutional home, PERL continues to work closely with Penn State. A number of Penn State students and faculty continue to be actively involved in advancing PERL's research, training, and institution-building aims. Fortunately, although PERL is a newcomer at the University of Michigan, already many students, staff, post-doctoral trainees, and faculty from the University of Michigan are active in PERL research and training activities as well (see p. 22 for a listing of students, staff, post-doctoral trainees, and faculty from the University of Michigan and Penn State University involved in PERL research, training, and institution-building activities).

To maintain our collaborative ties with the Institute of Agriculture and Animal Science of Tribhuvan University in Nepal, Michigan's Population Studies Center signed a new "Memorandum of Understanding" with that institution in 1998. In addition, to foster new collaborations in Nepal, The University of Michigan's Population Studies Center signed a "Memorandum of Understanding" with Kathmandu University in Nepal. With the cooperation of Penn State students and faculty, PERL is helping Kathmandu University with the planning of their new Human and Natural Resource Studies Center. Through this new institution-building project, we are building the foundation for future collaborative ties between PERL and Kathmandu University.

INFRASTRUCTURE

PHYSICAL INFRASTRUCTURE

The PERL facilities include two buildings within the campus of the Institute of Agriculture and Animal Science, which is located in the Chitwan Valley of South Central Nepal. These buildings consist of offices for project coordinators, faculty associates, research supervisors, and administrative personnel, a computer lab (with a back up energy supply, climate control and power regulation equipment), transportation to facilitate field work and supervision, storage for



PERL field staff in Nepal

incoming and out going questionnaires, a library, and a modestly furnished guest house for use by research scholars and visitors. Five field offices scattered throughout current study areas are also maintained for effective data collection.

PERL facilities are designed to provide personnel and infrastructure support to carry out large-scale social science research projects. At the core of this infrastructure are 45 highly qualified, multi-ethnic research staff members;

55% of the members are women. The survey staff is supported by a modest computing staff to assist with large-scale data entry projects, and an administrative staff to provide logistical support for large scale survey projects. In addition, PERL staff members are trained in



PERL Offices

ethnographic and archival data collection, land use mapping, and flora and water quality assessments. The staff and facilities also provide the means to conduct training in social demography and research methods for Nepalese researchers in Nepal.

At Michigan, PERL offices are housed in the Population Studies Center and the Survey Research Center, at the Institute for Social Research. The Population Studies Center provides pre-doctoral and post-doctoral training in social demography and research methods to PERL staff, computing support for data cleaning, preparation, and analysis activities, and administrative support for research and training

projects. The Survey Research Center gives PERL access to state-of-the-art training in survey research methods.

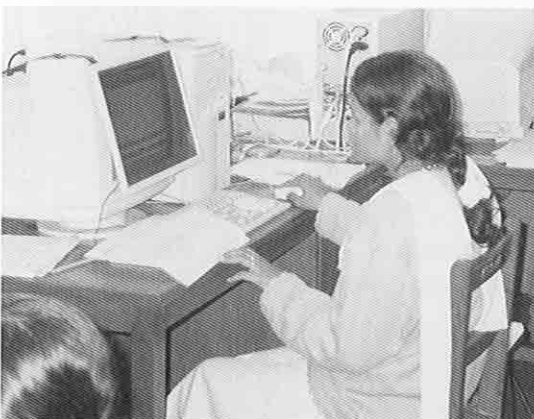
RESEARCH INFRASTRUCTURE

Efforts to meet PERL's research aims are led by PERL's Nepalese staff, including 35 survey interviewers, 4 survey supervisors, 2 data entry staff, 8 logistical support staff, and 2 members of the IAAS faculty. The PERL staff members are continually trained in a broad range of research methods to provide state-of-the-art data collection capability for social sciences purposes. PERL facilities are designed to provide the infrastructure required to support data collection projects using a variety of methods. The combination of the physical resources and the outstanding staff has resulted in well coordinated and managed data collection projects of multiple types.

There are four major types of data collection in research conducted by PERL: survey research, ethnographic and archival research, geographic research, and environmental research.

Survey Research. Important aspects of PERL's survey research includes standards and training, data entry/file preparation/oversight, and experience.

The PERL survey research staff was trained following Michigan's Survey Research Center's (SRC) training protocols. Many explicit steps were taken to insure that PERL survey staff follow the same operating procedures and standards as SRC. In 1994, the



Survey Data Entry

coordinator of PERL's survey group spent three months as a study manager intern at SRC, learning SRC procedures and training methods. All of PERL's training and supervisory materials are based on the SRC materials, and PERL's field operations are designed to mimic those of SRC. Now

that PERL has moved to Michigan, close institutional ties with SRC have enhanced PERL's ability to follow SRC procedures. PERL survey coordinators and supervisors are trained at SRC in survey methods and SRC staff provide direct quality control assurance on PERL projects. This partnership has also resulted in a field-based data entry system in Nepal as well as high quality data analysis facilities in partner organizations in the United States.

PERL has created a number of quality control procedures that meet and even exceed U.S. survey research standards. Examples of the quality controls we employ include: a high supervisor-to-interviewer ratio (one supervisor for every six interviewers); supervisors provide direct and immediate verification of interviews because they accompany interviewers to the field; completed interviews are checked two or



PERL field work supervisors

three times for errors and omissions before the data are entered; questionnaires are data entered twice; and data entry is performed in the field to allow for immediate follow-up on any discrepancies.

PERL staff have completed several large scale survey data collection projects. The first was a 60-minute household interview with 1802 families. PERL staff completed this data collection in 6 months with a 100% response rate.

The second data collection effort was a 70-minute personal interview with 5271 individuals. This data collection included the administration of a life history calendar to adults aged 15-59. PERL staff designed special adaptations of the life history calendar method to adapt it to the Nepalese population, including adding a more detailed set of timing cues, reorganizing the life history calendar's visual cues, and using new recording strategies. These methods proved highly successful (See Axinn, Pearce, and Ghimire 1999). The staff also

completed this data collection in seven months with a response rate of 98%.

Another PERL survey data collection administered a seasonal agricultural practices survey. This 20-minute interview was administered to approximately 1800 households every four months over a period of 3 years, for the purpose of monitoring changes over time in agricultural practices. PERL staff achieved an attrition level of less than 2% of the eligible households. A fourth PERL survey data collection is a monthly registry of demographic events. This 10-minute interview is administered to 2000 households on a monthly basis and tracks the migration and demographic behavior of approximately 15,000 individuals. This registry follows respondents wherever they move throughout Nepal. PERL staff have been collecting these interviews for two and a half years with less than 5% attrition of the eligible individuals. This is an outstanding achievement for longitudinal studies of comparable scope.

Ethnographic and Archival Research. To meet the aims of specific research projects, PERL staff have developed expertise in both ethnographic and archival research methods. In 1994, Tom Fricke, Associate Professor of Anthropology at the University of Michigan, trained PERL staff on ethnographic and archival research.

While conducting her dissertation field work, Lisa Pearce trained members of the PERL staff to carry out unstructured ethnographic interviews. She provided training sessions at PERL as well as practical experience to a small number of PERL supervisors and



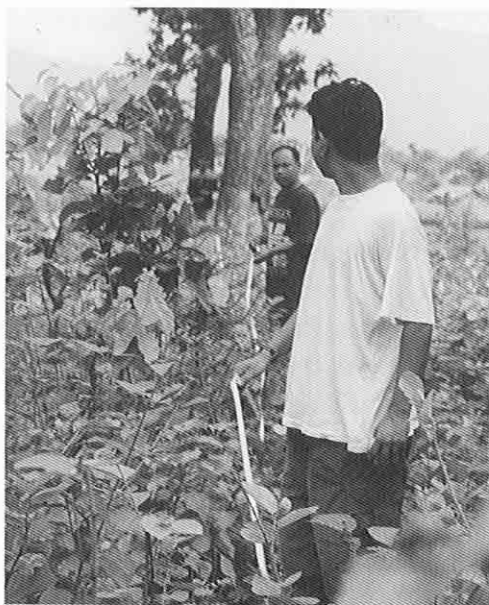
Flora bio-diversity measurements in the field

interviewers. The supervisors and interviewers learned how to be flexible during the interview session, follow important themes with useful probes, and narrow the cultural gap between a foreign researcher and respondent during the interview. PERL's aggressive program of ethno-

graphic and archival data collections has led to a number of methodological innovations, including the Neighborhood History Calendar (described in Axinn, Barber, and Ghimire 1997).

Geographic Research. PERL staff members have also received training in survey and mapping techniques using both traditional tools such as compasses and advanced digital technologies such as global positioning systems

(GPS). The staff members were instructed in field mapping and reporting procedures, as well as data entry procedures and validation checks using programs written in BASIC and QBASIC. The land-use mapping teams gathered geographical data on 171 neighborhoods including all boundaries on within-neighborhood land parcels. Such data have been used to categorize land-use and to generate area-based measures. Similarly, land-



Land use mapping at PERL study site

use mapping teams gathered data on specific point locations (e.g., hospitals, schools, and bus stops) that have been added to the GIS digital database. The geographical data gathered in the field have been linked to data digitized from secondary data sources, including topographic and thematic maps of the area, and have been entered into a GIS database maintained by Stephen Matthews and supported by the GIA Core at the Population Research Institute at Penn State. In addition, the flora teams (see *Environmental Research* on p. 10) were trained in trail-blazing, or course navigation, techniques to enable them to follow paths through difficult terrain such as forest to facilitate the location of sampled flora sites. Stephen Matthews (Population Research Institute/Geography at Penn State University) has provided all the training in these mapping procedures and technologies.

Environmental Research. PERL staff have also been trained in multiple methods of environmental data collection. Their activities have included the collection and analysis of 150 water samples and flora species on more than 300 land plots. Multiple tests of water quality were performed by PERL staff, including pH levels, chemical oxygen demand, inorganic nitrogen, inorganic phosphorus, specific conductivity, total dissolved solids, and total suspended solids. In addition, teams were trained to identify multiple characteristics of wells, including the topography surrounding the well, the diameter and depth of the well, and the lining of the well. Faculty and staff of the IAAS trained water data teams and the tests were performed at the IAAS laboratories. Flora teams were trained by Dr. Darma Raj Dongol (IAAS) to identify grass, shrub, and tree species. From each of the 300 plots, PERL staff members counted the number of different species (biodiversity), the height and diameter of the largest species of shrub and tree (biomass), and used the Braun Blanquet scale to estimate the proportion of the plot covered by each species (ground cover). The Institute of Agriculture and Animal Science (IAAS) has provided technical support for the environmental data collection activities and training of team members from Tribhuvan University.

RESEARCH PROJECTS

ONGOING RESEARCH

Research activities in 1998 and 1999 revolved around two major ongoing research projects. The first project is titled "Changing Social Context and Family Formation" and is commonly called the "Chitwan Valley Family Study" (CVFS) at the study site. The second project is titled "Reciprocal Relations between Population and Environment," and is referred to as the Population and Environment Study. This project builds directly from the Chitwan Valley Family Study. The study area for both projects is the western part of the Chitwan Valley in South Central Nepal. It is surrounded by the Royal Chitwan National Park (jungle) in the south, the Rapti River in the west, Nepal's East-West Highway in the east, and the Narayani River in the north. Both projects were initially funded for five years; the CVFS began in late 1994 and was renewed in 1999 for a second five-year period. The



Local school bus taking students to elementary school

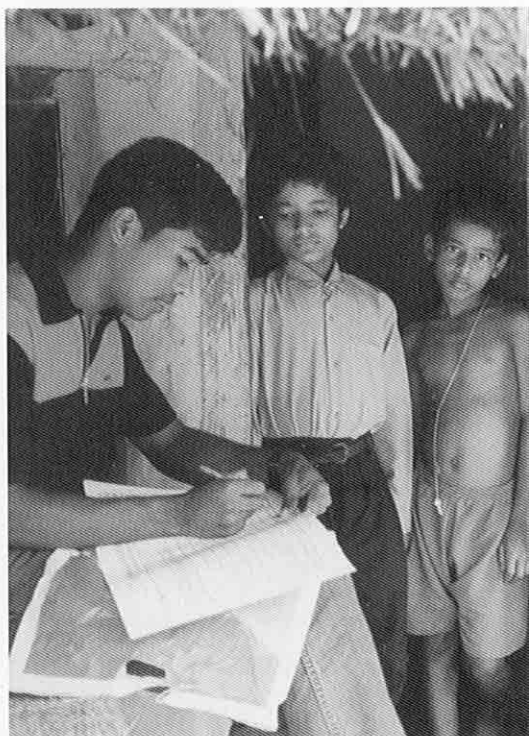
Population and Environment Study officially started in September 1995.

Chitwan Valley Family Study (CVFS). This study is designed to investigate the influence of changing social contexts on the timing of marriage, childbearing, and contraceptive use. The research investigates the extent to which changes in the community produce changes in family formation behavior, and whether the family organization of individual life courses produces these changes in behavior. The study used a combination of ethnographic and survey research methods to gather neighborhood histories from 171 neighborhoods in Western Chitwan. Personal histories were gathered from the 5271 individuals ages 15-59 years living in these neighborhoods using a semi-structured Life History Calendar and a highly structured survey questionnaire. The sample neighborhoods for this study were chosen to represent the neighborhoods in Western Chitwan, including each of the five major ethnic groups inhabiting the area: high caste Hindus, hill Tibeto-burmese (such as Gurung, Tamang, and Magar), indigenous terai Tibeto-burmese (such as Tharu, Darai, and Kumal), Newar, and other caste Hindus.

In 1998, PERL staff focused on checking and cleaning data that were collected and double-entered in 1997 for preliminary analysis and in preparation for public release. The raw data files were transferred to the U.S. and checked for wild codes and discrepancies between the two entries. The discrepancies that appeared during the data review

were sent back to Nepal so that PERL staff could verify which response was recorded in the questionnaire. One of the strengths of this study is that every case has been double-entered and cross-checked to minimize data entry errors. Because the interview was done in paper and pencil format, PERL staff were able to cross-check the discrepancies with the response recorded in the questionnaire; this is generally not the case in a computer-assisted interview format.

To answer the questions posed by the original project, and also to answer new questions that arose during the preliminary analysis of the collected data, William Axinn, Jennifer Barber, and Susan Murphy applied for and were granted an extension of the project from the National Institute for Child Health and Human Development (NICHD). The grant from NICHD includes funding for analysis of the data collected under the original grant, as well as funding to continue the monthly register of demographic events originally funded under the Population and Environment grant. One of the analytic goals of the extension project is to continue investigating the original



PERL interviewer engaging in a household interview

research question: To what extent do changes in the social and economic context influence family formation processes (particularly marriage, the timing of first birth, and contraception to limit childbearing)? The extension project also poses three additional questions: (1) How do qualitative dimensions of these contextual changes, such as the quality of new schools or health services, shape family formation processes? (2) Do neighbors' experiences with social change produce these contextual effects? and (3) Do variations in attitudes and beliefs, or neighbors'

attitudes and beliefs, produce these behavioral changes?

Population and Environment Study. This study builds directly on the CVFS and uses the same study area, population, and sampling frame. The Population and Environment Study is designed to answer three specific questions about the relationship between population change and environmental change: (1) To what extent do changes in marriage timing, household fission, childbearing, and migration influ-

ence changes in land use, water quality, and flora diversity? (2) To what extent do variations in land use, water quality, and flora diversity produce changes in marriage timing, household fission, child rearing, and migration? And (3) to what extent are the observed relationships between population process and the environment produced by exogenous changes in the social and institutional context? This study includes land use maps of selected neighborhoods, flora data collection from surrounding forests and common land, lab analysis and interviewer assessment of water samples collected from each neighborhood, a seasonal update of agricultural activities, and a monthly update

of demographic events and contraceptive use.

Seasonal updates of agricultural activities, consisting of a 20-minute interview of every household once every four months, began in 1997 and continued throughout 1998 and 1999. The data provide continuous information on the changes in cropping patterns and other agriculture activities. Similar to other survey data collections by PERL, this longitudinal survey enjoyed a response rate that was greater than 98%. Using a custom data entry program designed by Jeanne Spicer



(Population Research Institute, Penn State University), these data are double-entered and transferred to the U.S. for further cleaning. Data entry has been completed for 2 of the 7 waves of seasonal updates, and the remainder will be completed in the year 2000.

Throughout 1998 and 1999, PERL staff also collected a monthly update of demographic events (birth, death, marriage, pregnancy, living arrangements, divorce, migration, and contraceptive use) for all initial respondents regardless of current residence, and also for all



PERL interviewer conducting individual interview

in-migrants to 151 of the 171 original sampled neighborhoods. Attrition for this panel data is quite low, approximately 4.5%.

PERL staff also completed data entry of 1997 (time-1) land use maps, baseline agriculture survey data, flora

data, and water data. The 1997 (time-1) environmental measures (land use, flora, and water) have been transferred to the U.S., and are currently being cleaned and prepared for public release. In addition, PERL staff received refresher training in these environmental data collection techniques in late 1999 to prepare for the year 2000 (time-2) environmental measurement.

NEW PERL RESEARCH IN 1998 AND 1999

AGING RESEARCH

Amy M. Pienta, Assistant Professor of Internal Medicine and Sociology at Wayne State University, has led PERL pilot work in the field of population aging. Dr. Pienta's interests have revolved around the health and well-being of the elderly in the United States. In 1998, Dr. Pienta expanded the focus of her research to the health and well-being of the elderly in Nepal. In collaboration with Jennifer Barber and William

Axinn, she received a pilot grant from the University of Michigan's Exploratory Center for the Demography of Aging (MECA) to develop these research interests in Nepal. In November, 1998, Dr. Pienta visited Nepal and conducted interviews of elderly residents about their health and well-being to prepare for the development of a new, large-scale project to collect data on mental and physical health from the elderly residents of Chitwan Valley. Dr. Pienta plans to develop a proposal to the National Institute on Aging (National Institutes of Health, USA) to fund this project.

RELIGION AND FERTILITY RESEARCH

Lisa D. Pearce, Ph.D., a post-doctoral fellow at the Population Studies Center, has conducted research on religion and fertility in Nepal. Dr. Pearce spent five months at PERL in Nepal engaged in data collection for her dissertation as well as other research and training activities. Her project focuses on the influence of religion on fertility preferences. She carried out ethnographic interviews and direct observations. Dr. Pearce plans to submit a proposal to the National Institute for Child Health and Human Development for support to continue multi-method research regarding the influence of religion on family and fertility.

PERL TRAINING

The project's training mission is extensive and complex; Nepalese members of the PERL staff are trained in Nepal and in the U.S. and American researchers are trained in Nepal and in the U.S. At the same time, there are multiple training goals, including placing Nepalese students in U.S.



PERL Supervisor leading a training session

degree programs, encouraging and training U.S. students to successfully add Nepal to their research interests, and keeping staff members up to date on state-of-the-art data collection techniques. Because these training aims are diverse and inter-related with PERL's institution-building and research aims, many of the training activities are described throughout this report. Here, we provide a brief overview of some of PERL's training activities during 1998 and 1999.

NEPALESE STAFF MEMBERS TRAINED IN NEPAL

Rebecca Thornton conducted training in computer applications for the PERL supervisors from January 1999 through May 1999. In addition

Ms. Thornton taught TOEFL and GRE math and English preparatory courses.

Lisa Pearce provided training in ethnographic data collection methods for PERL staff from September 1998 through February 1999. In addition Ms. Pearce conducted training sessions for the TOEFL



PERL field staff at a training session

essay exam and general English language improvement.

Stephen Matthews trained PERL staff in geographical data collection techniques during November 1999.

Dirgha Ghimire conducted refresher training seminars in survey research methods for PERL supervisors and interviewers in July 1999.

NEPALESE STAFF MEMBERS TRAINED AT THE UNIVERSITY OF MICHIGAN

As described in the section titled *PERL Research Infrastructure* (see p. 6), PERL's survey research staff are trained at the University of Michigan's Survey Research Center (SRC). During the summer of 1999, two PERL data collection supervisors and a project coordinator attended courses on survey research at the Survey Research Center's Summer Institute. The purposes of this type of training are twofold: to

insure that state-of-the-art survey data collection methods are used in all of PERL's data collection projects, and to prepare PERL staff for entry into U.S. degree programs in social science.

Indra Chaudhury, Susan Gurung, and Prem Bhandari took the SRC course *Introduction to Survey Methods*.

Prem Bhandari also took the *Introduction to Statistical Analysis I* and *Introduction to Statistical Analysis II* courses.

NEPALESE RESEARCHERS ENROLLED IN PH.D. PROGRAMS IN THE U.S.

PERL has successfully helped several young Nepalese scholars gain admittance into Ph.D. Programs in the United States. Year 2000 training activities will include continuing the search for resources to help additional PERL staff enter into degree programs in the United States, so that they can return to PERL to conduct research.

Kishor Gajurel is a Ph.D. student in Rural Sociology and Demography at Penn State University. Kishor is currently working on his dissertation using data from the Chitwan Valley Family Study and the Population and Environment Project.

Purandhar Dhital is a Ph.D. student in Agricultural and Extension Education and Demography at Penn State University. Purandhar is currently working on his dissertation using data from the Chitwan Valley Family Study.

Netra Chhetri recently completed his M.A. in Geography and Demography at Penn State University, and is currently working toward his Ph.D. in Geography and Demography.

Dirgha Ghimire recently transferred to the Ph.D. program in Sociology at the University of Michigan. Dirgha began his studies in Sociology and Demography at Penn State University in 1997. In addition to his studies, he continues to manage various aspects of PERL research activities.

TRAINING AND RESEARCH ENRICHMENT IN NEPAL

Another of PERL's major training aims is to train U.S. scholars to apply their research expertise in developing country settings like Nepal. To that end, several U.S. scholars received research training in Nepal during 1998 and 1999. Others visited PERL to enrich their research program and to advise trainees.

Scott Yabiku is a Ph.D. candidate at the University of Michigan. He visited PERL in November 1999 to finalize his dissertation research plans, and to tailor his research strategies to Nepal's population.

In December 1999, Dr. Lisa Pearce completed her dissertation. In addition to training the PERL staff, her five-month stay at PERL was devoted to applying her ethnographic data collection training to her dissertation research project. This field work was the final stage of her Ph.D. training program.

Dr. Amy Pienta expanded her research on health and retirement to the elderly in Nepal. Dr. Pienta learned about how the elderly in Nepal differ from the elderly in the U.S. on her visit during November 1998.

Dr. Jennifer Barber visited PERL in March and November 1998 and again in November 1999 to supervise ongoing collaborative

research with PERL staff on social change, education, voluntary associations, contraceptive use, and marriage in Nepal.

Kishor Gajurel, a Ph.D. student in Rural Sociology and Demography at the Penn State University, Dr. Shannon Stokes, Professor of Rural Sociology and



Scott Yabiku (far left) and Jennifer Barber (center) accompanying PERL staff to the field

Demography at Penn State University, and Dr. Leif Jensen, Professor Rural Sociology and Demography at Penn State University, visited PERL in January 1999. The purpose of their visit was to build collaborative ties with Kathmandu University and to plan for future collaborative research in Nepal with PERL.

PUBLICATIONS AND PRESENTATIONS

FAMILY CHANGE AND FERTILITY

- Axinn, William G. and Jennifer S. Barber. 1999. The Spread of Mass Education and Fertility Limitation. Paper presented at the annual meetings of the Population Association of America, March 27-29, New York, NY.
- Axinn, William G. and Scott Yabiku. 1999. Social Change, Family Organization and Fertility Limitation. Paper presented at the annual meetings of the Population Association of America, March 27-29, New York, NY.
- Barber, Jennifer S. 1999. Communities and Attitudes: The Influence of Non-family Institutions and Experiences on Dispositions Toward Marriage. Paper presented at the annual meetings of the American Sociological Association, August 6-10, Chicago, IL.
- Barber, Jennifer S., Lisa D. Pearce, Indra Chaudary, and Susan Gurung. 1999. The Impact of Participation in Women's Groups, Youth Groups, and Credit Groups on Family Formation. Working Paper, Population Studies Center, the University of Michigan.
- Barber, Jennifer S. and William G. Axinn. 1999. The Impact of Exposure to New Ideas through Travel, Migration, and the Media on Permanent Contraceptive Use. Working Paper, Population Studies Center, the University of Michigan.
- Beutel, Ann and William G. Axinn. 1999. Social Change, Gender, and Educational Status Attainment. Working Paper: Population Studies Center, the University of Michigan.
- Ghimire, Dirgha J. 1999. Effects of Premarital Non-Family Experiences on Participation in Spouse Selection in an Arranged Marriage Society. Working Paper, Population Studies Center, the University of Michigan.
- Gajurel, Kishor and Stephen Matthews. 1998. Family Planning Service Availability in Nepal: The Case of Chitwan District. Poster presented at the Annual Meetings of the Population Association of America, Chicago.
- Oladosu, Muyiwa. 1997. The Role of Men in Household Decision Making, Reproduction and Family Planning: A Study of the

Gurungs in Chitwan Nepal. Poster presented at the 1997 Annual Meetings of the Population Association of America, Washington D.C., March 27-29.

POPULATION AND THE ENVIRONMENT

- Axinn, William G., Jennifer S. Barber and Ann Biddlecom. 1999. Social Change, Family Size and Environmental Consumption. Working Paper: Population Studies Center, the University of Michigan.
- Axinn, William G. and Ganesh P. Shivakoti. 1997. "Demographic Issues and the Use of Natural Resources" Pp. 83-85 in Shivakoti et al. (eds.) *People, Participation, and Sustainable Development: Understanding the Dynamics of Natural Resource Systems*. Bloomington, Indiana and Rampur, Chitwan.
- Barber, Jennifer S., Ann Biddlecom and William G. Axinn. 1999. The Impact of Social and Demographic Change on Environmental Quality. Working Paper: Population Studies Center, the University of Michigan.
- Biddlecom, Ann, William G. Axinn, and Jennifer S. Barber. 1999. Environmental Effects on Reproductive Preferences: A Case Study in Nepal. Working Paper: Population Studies Center, the University of Michigan.
- Matthews, Stephen, Ganesh Shivakoti and Netra Chhetri. Forthcoming. Population Forces and Environmental Change: Observations from Western Chitwan, Nepal. *Society and Natural Resources*.
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