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ANNOTATED BIBLIOGRAPHY

NEPAL

FAMILY HEALTH INTERNATIONAL

SUMMARY OF ACTIVITIES

(1977-1998)

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ABBREVIATIONS AND ACRONYMS

AIDS	Acquired Immune Deficiency Syndrome
AIDSCAP	The AIDS Control and Prevention Project
BAP	Bhoruka AIDS Prevention Project
CEDPA	Center for Development and Population Activities
CPR	Contraceptive Prevalence Rate
CRS	Contraceptive Retail Sales (Company)
CSW	Commercial Sex Worker
CTU	Contraceptive Technology Update
DHS	Demographic Health Survey
DMPA	Depot Medroxyprogesterone acetate (Depo Provera)
EC	Emergency Contraception
FHI	Family Health International
FP	Family Planning
FPAN	Family Planning Association of Nepal
GON	Government of Nepal
HIV	Human Immunodeficiency Virus
IEC	Information, Education, and Communication
INGO	International Non-Governmental Organization
IUD	Intrauterine Device
MCH	Maternal and Child Health
ML	Multiload IUD
MOH	Ministry of Health
MOPE	Ministry of Population and Environment
NCPS	Nepal Contraceptive Prevalence Survey
NFFPHS	1991 Nepal Fertility, Family Planning, and Health Survey
NFP	Natural Family Planning
NFS	1976 Nepal Fertility Survey
NGO	Non-Governmental Organization
NLSS	1996 Nepal Living Standards Survey
NMA	Nepal Medical Association
OC	Oral Contraceptives
PID	Pelvic Inflammatory Disease
RH	Reproductive Health
SC/US	Save the Children/U.S.
STD, STI	Sexually Transmitted Disease, Sexually Transmitted Infection
TCu	Copper-bearing T-shaped IUD, models include TCu 220, TCu 380A
TFR	Total Fertility Rate
UNFPA	United Nations Population Fund
USAID	United States Agency for International Development
USFDA	United States Food and Drug Administration
WHO	World Health Organization

OVERVIEW

Nepal is one of the world's poorest countries, landlocked between the plains of northern India and the great Himalaya mountains that form the border with Tibet. The country is geographically divided into three regions: the *terai*, or plains belt that runs along the southern border, the hills region, and the mountain region. As one moves from the *terai* up to the mountains, living conditions become increasingly more difficult and accessibility to health services increasingly more limited. As a result, there are wide discrepancies in levels of health care among Nepal's 75 districts. Over 60 ethnic groups comprise the country's 23 million citizens.

The Government of Nepal (GON) has given high-level attention to population issues since the late 1960s, recognizing the necessity of balancing population and economic growth, given the country's limited resources. The GON's family planning program has embraced a variety of approaches, including mobile camps, outreach programs, community-based programs, and involving the private/commercial sector. Services are provided by the GON, private voluntary organizations, and the private sector. This commitment continues to recent times, as exemplified by the creation of the new Ministry of Population and Environment in 1996.

The results of the GON's efforts are clearly demonstrated by changes in population statistics. Contraceptive prevalence among Nepalese married women of childbearing age has increased significantly over the past two decades: in 1976 the CPR was only 3 percent; by 1996 the rate stood at 29 percent. Total fertility during this same period has declined from 6.3 to 4.6. And knowledge of modern contraceptive methods has increased nearly three-fold.

Sterilization is the predominant method of contraception, with female sterilization accounting for 13 percent of modern contraceptive prevalence and male sterilization accounting for 6 percent. The early age of marriage (an average of 18 years for females), combined with the low prevalence of modern method use, underscores the important role played by breastfeeding in the reduction of fertility in Nepal.

Nevertheless, Nepal's fertility remains among the highest in Asia, and there remains a very large unmet demand for family planning. Increasing contraceptive prevalence remains the primary challenge to the program. Efforts to increase the knowledge, promotion, and availability of spacing methods need to be carefully integrated with efforts to reduce unnecessary medical restrictions and establish a good logistics system.

Over the past decade, the HIV/AIDS epidemic has begun to pose new challenges to Nepal's health system. Though only 362 cases of HIV and 52 cases of AIDS had been reported by 1996, Nepal's high prevalence of STDs in urban areas and the *terai* region, which borders India and several of its major trade routes, makes it highly susceptible to a rapid increase in the incidence of the disease. Epidemiological projections indicate that as many as 10,000 people may be infected nationwide. As part of the international efforts to combat the spread of the disease, FHI's AIDSCAP project began working in Nepal in 1994, and the work continues under FHI's IMPACT project.

FHI has been working in Nepal for two decades, and its program has been diverse, responding to the requests of the USAID Mission, the Ministry of Health, and the Ministry of Population and Environment. Assisted by an in-country technical advisor since 1993, FHI has helped in policy development as well as programmatic research formulation, data analysis, and dissemination of information. FHI has played a central role in advising senior-level reproductive health policy makers, international donor agencies, and local and international NGOs. FHI's secondary data analyses are routinely used by these audiences to help formulate policies and programs.

This annotated bibliography summarizes Family Health International's extensive work in Nepal over the past two decades. The body of the text consists of brief narratives of FHI's population and AIDS control projects. Appendix I is a matrix of FHI's population activities and Appendix II lists FHI's AIDS prevention projects in Nepal. Appendix III lists FHI's published papers focusing on population and AIDS issues in Nepal.

POPULATION ACTIVITIES

EVALUATION AND ACCEPTABILITY OF CONTRACEPTIVE METHODS

STERILIZATION

Gender Inequality in the Adoption of Sterilization in Nepal (1997)

In Nepal, as in other developing countries, large differences exist between the prevalence of male and female sterilization. In the early years of the family planning program, male sterilization was more important, but female sterilization became the more commonly used over time. As of 1996, female and male sterilizations accounted for 69 percent and 31 percent of those sterilized, respectively.

This study analyzed data from the 1996 Nepal Family Health Survey, which is part of the worldwide Demographic and Health Surveys (DHS) project, and focused on two groups of women: women who had been sterilized and women whose husbands had been sterilized.

Awareness of at least one modern contraceptive method was nearly universal. The women of sterilized husbands had a slightly higher level of awareness than the women in the other group. The two groups of women did not vary significantly with respect to their awareness of spacing methods. Sterilization was the first method ever used for approximately 80 percent in both groups. Among those who had used other methods, OCs and injectables were most common.

Both supply and demand factors influenced the choice of male and female sterilization. On the service delivery side, geographic location, source of service delivery, and season had independent and significant influence on the choice between the two methods. For example, mobile camps had a strong significant role in increasing the prevalence of male sterilization, and the acceptance of male sterilization was influenced by the season – it was less common during the peak season (mid-December to mid-April), when the bulk of female sterilization services are obtained. On the demand side, women's status and education of the husband were important factors: in general, the higher the woman's status and the higher the husband's level of education, the less likely the woman had been sterilized.

In the Mountain/Hill regions, 10.4 percent and 20.7 percent of couples not currently using contraception intended to use male and female sterilization, respectively. The ratio of sterilization in these regions could, therefore, be about two females for each male. In the *terai* region, only 2.8 percent of the women expressed preference for male sterilization and 34.5 percent reported intention to use female sterilization.

Women's preference for female sterilization in the *terai* region is generally believed to be due to male dominance and relatively heavier work that men do than females. Females fear that their men may not be able to do hard work if they have a vasectomy. In the Mountain/Hill regions, by contrast, females have relatively more autonomy, but they typically have a heavier work burden than their male counterparts. It is commonly believed that sterilization causes

weakness and adversely affects the ability to work. Therefore, it is often argued, male sterilization is more accepted in these regions. Thus, similar concerns about the adverse effects of sterilization on health, but different gender-based economic activities result in the preference for male and female methods in the two broad ecological regions.

Vasectomy Reversal in Nepal (1987)

Data from 157 men in Nepal who had vasectomy reversal were analyzed to determine the characteristics of men requesting vasectomy reversal. The study determined that the men who underwent vasectomy reversal in Nepal do not represent the typical vasectomy acceptor. Those seeking reversal were a specific minority group of sterilized men: their mean number of living children at the time of vasectomy was lower by two children than the average for male sterilization acceptors nationally, their mean age at the time of vasectomy was lower (by two years), and a higher percentage had a youngest child who was less than two years old. Three-fourths of the men had a youngest child younger than the recommended minimum age of five years.

Death of a male child was the single most important reason for seeking reversal, followed by death of a female child. These two reasons accounted for three-fourths (72%) of all the reasons. Re-marriage was the primary reason for only about 10 percent of the men. The interval between vasectomy and reversal for those who had lost a male child was shorter than for those who had lost a female child or had re-married. Nearly half of those who lost a son (49%) had a youngest child less than two years old when they obtained a vasectomy.

The findings suggested that more careful screening of men seeking vasectomy, and especially with regard to the age of the last child, could reduce the demand for vasectomy reversal considerably. Couples with very young children should be encouraged to adopt a temporary method of family planning and defer vasectomy until the last male child is older. The promotion and use of spacing methods need to be given greater importance in the family planning program in Nepal, and family planning personnel need to be more careful in pre-operative counseling. Efforts to reduce the demand for reversal could be implemented more easily and less expensively than expanding the availability of vasovasostomy.

This study was published in the *Journal of Biosocial Science* 1990; 22: 423-32.

INTRAUTERINE DEVICES

A Comparative Study of the Intrauterine Devices TCu 380A versus TCu 200 in Kathmandu, Nepal (1987-90)

This trial was part of FHI's Phase III multi-center clinical trial that compared the TCu 380A IUD to the TCu 200 IUD in eleven centers and was also part of a large international clinical investigation comparing the TCu 380A IUD with the IUD most commonly used at each study site. The project was conducted in 23 developing countries from 1985 to 1989 and involved approximately 10,000 subjects.

The TCu 380A IUD and the TCu 200 IUD were randomly assigned to volunteer participants, who agreed to use their assigned IUD as their sole method of contraception during the study and were followed up for 24 months post-insertion.

The women were asked to return for follow-up visits at 1, 3, 6, 12, 24, and 36 months after IUD insertion and at any time complications occurred.

In Nepal, 200 women were enrolled in the study over a seven-month period beginning in November 1987; 100 volunteers received the TCu 380A IUD and 100 received the TCu 200 IUD. After 24 months of IUD use, only three TCu 380A IUD subjects and one TCu 200 IUD subject were considered lost to follow-up. There were no hospitalizations in this study. Reports of menstrual complaints were few during follow-up. The number of reports of menorrhagia and intermenstrual pain, bleeding, or spotting in both IUD study groups were very similar.

The investigator diagnosed one case of PID in a woman receiving a TCu 200 IUD (endometritis only); no other cases of PID were reported. In both study groups there was one case of a mucoid vaginal discharge that was classified as a nonspecific STD. There were three reports of other unspecified IUD-related problems: one in the TCu 380A IUD group and two in the TCu 200 IUD group. No cases of uterine perforation were reported during follow-up.

At 24 months, 17 women in the TCu 380A IUD group and 25 in the TCu 200 IUD had discontinued from the study, yielding 24-month discontinuation rates of 17.2 per 100 women for the TCu 380A IUD group and 25.1 per 100 for the TCu 200 IUD group. The difference in discontinuation rates between IUD study groups was statistically significant.

During the 24 months of IUD use there were no pregnancies in the TCu 380A IUD group and two pregnancies in the TCu 200 IUD group, yielding 24-month gross cumulative pregnancy rates of 0.0 and 2.5 per 100 women, respectively. The 24-month rates for IUD expulsion/displacement for the TCu 380A and the TCu 200 were 8.3 and 11.4 per 100 women, respectively. The difference in 24-month rates for IUD expulsion/displacement between the study groups was statistically significant.

The difference in the 24-month rates for IUD removals due to bleeding/pain, other medical reasons, and planning pregnancy were not statistically significant. The difference in the 24-month rates for IUD removals due to personal reasons was statistically significant, 1.2 for the TCu 380A and 6.7 for the TCu 200.

This study was published in the *Asia-Pacific Population Journal* 1995 10 (2): 15-26.

IMPLANTS

Norplant Contraceptive Acceptability among Women in Five Asian Countries (1988-1993)

This study looked at the acceptability of Norplant subdermal implants in Nepal and four other Asian countries. The study population in Nepal consisted of 407 women, 189 of whom completed five years of use. The study population in each country was divided into two groups, completers and non-completers (those who discontinued use before five years).

The user satisfaction questionnaire administered at five years post-insertion (to completers) revealed that in Nepal 38.4 percent of the completers indicated a very favorable experience and 61.6 percent indicated a somewhat favorable experience. The most-liked feature of the implants for women who completed five years of use in Nepal was that the method lasts for five years (84.2%), and the least-liked aspect of the method was menstrual disturbance (58.5% of those discontinuing). Of the women planning to use a contraceptive method again, Norplant was the most popular choice (49%). A total of 54 percent of women in the study discontinued early. Also, about five percent of the women objected to the appearance of the implants and about six percent to the insertion procedure.

There were significant sociodemographic differences between women who completed the five years and those who discontinued early. Women who were younger and more educated were more likely to discontinue the study early. Also, women with lower parity and a desire for additional children were more likely to request early implant removal.

The study findings were published in *Contraception*, 1994 October; 50: 349-61.

Five-Year Evaluation of Safety, Efficacy, and Acceptability of Norplant Implants in Nepal (1985-91)

In 1984 FHI began coordinating a series of pre-introductory Phase III clinical trials of Norplant to introduce the method in selected countries, to provide training to physicians in insertion and removal techniques and in client counseling, and to determine overall acceptability of the method. A secondary objective was to provide regulatory authorities and policy makers the opportunity to review local clinical data in deciding on wider use of Norplant.

The two study sites were the Lalitpur Family Planning Clinic in Patan and the Family Planning Association of Nepal (FPAN) in Kathmandu. A total of 407 study participants were enrolled in the study, 307 at the clinic in Patan and 100 at the FPAN clinic. Two acceptors, one from each site, never returned for follow up visits after having the capsules inserted.

Follow-up visits were scheduled at 1, 3, and 6 months after insertion of Norplant, and every six months thereafter until removal or five years. Five women were determined to be pregnant during the study. The estimated dates of conception indicated that four pregnancies occurred prior to Norplant insertion; one pregnancy was attributed to method failure.

The primary reasons for early removal were menstrual problems (64 out of 148 removals, or 43.2%), followed by personal reasons and medical reasons (15% each). Of the women who reported menstrual information at both admission and the first year follow up, 17.2% reported a worsening in the degree of intermenstrual bleeding. This percentage decreased steadily for the remainder of the study. The vast majority of study participants reported no change in the degree of intermenstrual bleeding during the study. The other main causes for early removal were personal and medical reasons, each with 22 (14.9%) early removals.

When asked if they would recommend this method to a friend 93.4% said they would. Only 2.6% said they would not recommend the method, and 4.5% were not sure if they would recommend the method. A total of 38.7% of the acceptors definitely intended to use a second set of Norplant implants. The majority of women (51.8%) were not certain, and 9.5% did not intend to have a second set of implants inserted. The cumulative continuation rate was 61.6 after five years. This study indicated that Norplant was a highly effective, safe, and acceptable method among Nepalese women.

This study was published in *Advances in Contraception* 1996 (12):187-199.

Insertion-Site Complications During the First Year of Norplant Use (1985-87)

In a study of 2,674 Norplant acceptors from seven countries, one of which was Nepal, the one-year incidence rates of infection, expulsion, and local reaction varied widely among countries and clinics within a country. In contrast to previous reports that insertion-site complications occur during the first few weeks of use, these data showed that a substantial proportion of insertion-site infections (34.6%) and implant expulsions (64.2%) were reported after the first two months of use, while 35.7 percent of local reactions were reported after 4.5 months of use. To assist clinicians in better client counseling and complication management, the study reviewed frequency of insertion-site complications, distribution of the time of onset post-insertion, and potential sequelae of complications.

A total of 407 acceptors in two sites in Nepal were followed. At the first site, two acceptors out of 307 (0.7%) experienced infection and two experienced expulsion. Slightly under five percent of acceptors (15 women) experienced a local reaction, including pain, itching or rash. At the second site, three percent of acceptors (3 out of 100) experienced infection and expulsion, and six percent experienced local reactions.

The overall infection rate of 0.8 percent found in this one-year pooled analysis was slightly higher than the 0.3 percent rate reported in review articles. However, this rate fell at the midpoint of a previously reported range of 0.0 percent to 1.6 percent among four single-country studies conducted. The expulsion rate found in this analysis was 0.4 percent, which was higher than the 0.1 percent rate reported for a pooled cohort of 816 acceptors enrolled in Phase III trials.

Of the 16 women overall with infections who did not have their implants immediately removed, eight eventually required or requested removal, indicating that the recommendation for immediate removal in case of infection was appropriate. These findings demonstrated that clinicians must be aware that there can be wide variations in the occurrence of such events between countries and even centers within a country.

This study was published in *Contraception* 1990 Jan; 41 (1): 27-37.

Initial Acceptability of Contraceptive Implants in Four Developing Countries (1985-86)

An analysis of 2,586 potential acceptors of Norplant hormonal contraceptive implants interviewed at two family planning clinics in Nepal and three other countries – Bangladesh, Haiti, and Nigeria – revealed that interest in trying Norplant was high: between 48 percent and 67 percent of respondents who had come to the clinics to start contraception or to obtain information about Norplant and were considered potential implant acceptors expressed an interest in trying the method. Large proportions of women identified effectiveness, reversibility, and convenience as the implants' most attractive aspects. Women in their late 20s or older who had had a few children and were interested in spacing births for at least several years or in limiting births, but were not ready for sterilization, were most likely to express interest in Norplant.

Eight hundred and fourteen of the 2,586 potential acceptors were in Nepal. Almost half of the women in Nepal had come to the clinic to start contraceptive use. Thirty-seven percent of the women were practicing contraception. About one-half of the potential acceptors in Nepal had heard about Norplant before the interview. Potential acceptors 35 years of age or older were nearly twice as likely as those under 25 to be interested in Norplant (61 % vs. 35%); likewise, those with six or more living children and those who wanted no more children were substantially more likely than those with few children and those who wanted more children to be interested in the method.

A woman's level of education was inversely related to interest in trying Norplant, with 51 percent of women with no education expressing interest in the method, followed 42 percent of women with one to seven years of education and 40 percent of women with greater than eight years of education. A woman's age and parity were also statistically associated with interest in Norplant, with interest in the method increasing with age, as well as with greater parity.

Interest in Norplant in Nepal was higher among women who had heard about the method from health workers and family planning motivators who visited them in the village (82%) than among those first informed by friends or relatives (58%) or by clinic personnel (48%). Women who were current users but wanted to switch methods were more interested in trying Norplant than were nonusers, and pill users were the most interested in trying Norplant. Women with no education were more likely to be interested in trying Norplant than were women with some education.

Among Nepali women interested in trying Norplant, the method's reversibility and the woman's feeling that sterilization was not yet appropriate for her were the reasons mentioned most frequently as being important in their desire to try Norplant (by 85% and 81% of respondents, respectively).

In all countries the largest proportions of women who elected not to use Norplant cited a preference for other methods as a reason (51% in Nepal). Fear of side effects was the next most frequently mentioned reason in Nepal (48%). Approximately one-third of the women said that their husband would not approve and that this was an important factor in their decision, and fear of insertion and removal procedures were also frequently mentioned.

The results of this survey pointed to the need for thorough counseling to reduce the apprehensions that both women and their husbands may have about this method, which was new at the time of the study.

The findings of this study were published in *International Family Planning Perspectives* 1990, June; 16 (2): 49-54.

BARRIER METHODS

Condom Breakage and Slippage Rates Among Study Participants in Eight Countries (1989-1994)

This study, conducted in Nepal and seven other countries, showed that condom breakage rates during vaginal intercourse using lubricated latex condoms ranged from 0.6 percent of all condoms used to 13.3 percent. Most research sites reported breakage rates below five percent. When breakage and slippage were combined, total condom failure rates ranged from 3.8 percent to 13.3 percent. The condoms used in the FHI studies came from a single US manufacturer.

Participants were provided with written or verbal instructions on correct condom use and were asked to use a specified number of condoms (2 to 10, depending on the study objective) during a defined study period (two weeks to two months). They were requested to use each condom during one act of vaginal intercourse. After the study period, each participant was asked a series of questions on the acceptability of the study condoms and on how well the condoms performed in actual use. Participants were asked the number of study condoms that broke, as well as the timing and location of each break.

The lowest reported median level of education of users among all sites was at the site in Nepal (seven years). In Nepal, 159 couples used a total of 750 condoms. Among these participants, 4.0 percent of the condoms broke, 3.5 percent were reported to have slipped, for a total condom failure rate of 7.5 percent in Nepal. There was a surprising consistency across most sites for timing and location of most condom breaks, with approximately one-third of breaks occurring as the condom was put on, and the remaining two-thirds during coitus or when the condom was removed. In the Nepal study, seven percent of the condom breaks occurred while donning

and 93 percent occurred during coitus. Eighty-three percent of the breaks were located at the tip of the condom, ten percent near the opening, and seven percent along the shaft.

Qualitative data collected as part of this research identified four types of user behavior that may cause condoms to break — an incorrect method of putting on a condom, the use of oil-based lubricants, the reuse of condoms, and the duration or intensity of coitus. This study provided evidence that for a majority of users, if the condom is used correctly and consistently, it is an effective method for preventing pregnancy and STDs, including HIV infection. The high failure rates at some of the sites (Nepal's rate of 7.5% was among the higher failure rates recorded) may be caused by incorrect behavior or by certain characteristics of a few participants.

This study was published in *International Family Planning Perspectives* 1994 June; 20 (2): 55-8.

Acceptability and Actual Use Breakage and Slippage Rates of Standard and Smaller Latex Condoms: Nepal and Sri Lanka (1991-92)

At the time of this study, USAID provided smaller (49 mm) latex condoms to several Asian countries, including Nepal, Sri Lanka, and the Philippines. Prior to this study, research had not been conducted to assess the performance of such condoms in actual use. Consequently, it was unclear whether men in certain Asian populations found 49 mm condoms perform better than standard condoms (52 mm).

The primary objective of the study was to determine the breakage and slippage rates in actual use of the standard and smaller latex condoms provided by USAID. A secondary objective was to compare components of acceptability of the two sizes of condom, focusing on issues of preference, comfort, and fit. The results were intended to assist USAID improve their condom procurement and distribution operations to these countries.

The study was conducted in Nepal and Sri Lanka; at both sites 150 participants were recruited. All participants were provided with information on the correct use of the study products and told of the benefits and risks of being in the study. A double-blind study design was used to test the condoms. The participants at each site received five 49 mm condoms first. After a one-month period, they were asked to return to the clinic to answer a questionnaire about condom performance. Upon completion of this questionnaire, a set of five 52 mm condoms was distributed to the study participants and plans were made for a second follow-up interview in one month. During the final visit to the clinic, a second questionnaire was administered to assess consumer preference and acceptability for the two condoms.

In Nepal, 150 male participants completed the study and tested 750 of each of the study condoms. The breakage rates were not significantly different between the two size condoms in either of the two countries. The reported breakage rates were slightly higher for standard condoms, however, with a breakage rate of 3.2 percent for the smaller condoms and 4.0 percent for the standard condoms in Nepal.

In Nepal, the reported slippage rate for the smaller condoms were significantly lower than the rate for the standard condoms. The slippage rates were 0.4 percent for the smaller condoms versus 3.5 percent for the standard condoms. The condom failure rate, the sum of breakage and slippage rates in the study, was high for the standard condoms compared to the smaller condoms (7.5% vs. 3.6%) in Nepal.

In general, participants in the Nepal study reported that breakage occurred most often at the tip of the condom. Almost all of the breakage in Nepal reportedly occurred during intercourse; very little breakage took place while putting the condom on or during withdrawal.

When asked for their reactions to the two condoms, 77 percent of the participants in Nepal liked the smaller condoms either very or fairly well, 20 percent were neutral, and 3 percent either somewhat or strongly disliked these condoms. With respect to the standard condoms, 62 percent of the participants in Nepal reported that they liked the standard condoms either very or fairly well, 21 percent were neutral, and 17 percent either somewhat or strongly disliked these condoms.

When questioned about the comfort of the smaller condoms versus the standard condoms, the results were statistically significant in Nepal. Ninety-one percent of participants reported that the smaller condoms were "more comfortable to wear" than the standard condoms. When asked which of the two condoms they "liked better," however, 59 percent chose the standard condoms, while only 34 percent responded that they liked the smaller condoms better.

Based on breakage rates alone, the results of this study did not support distribution of one size condom over the other in either of the two sites. Based on slippage rates alone, the data favored distribution of smaller over standard condoms in Nepal, given that slippage rates were statistically higher among standard condoms. Primarily due to higher slippage, total failure rates were much higher among the standard condoms in Nepal, supporting distribution of smaller over standard condoms. Based on the breakage, slippage, and preference results, it was not possible to make a recommendation to eliminate the smaller condom from USAID's distribution system. For Nepal, a preferable option would be to ensure that condom users have access to both sizes of condoms, which would possibly increase overall condom acceptability and usage.

MATERNAL AND CHILD HEALTH

Family Planning Camp as an Opportunity to Assess and Help Reduce the Prevalence of Reproductive Health Morbidities in Rural Nepal (1996-97)

In December 1996 a two-site camp for minilaparotomy was organized in the Bajura district, one of the least-developed districts in Nepal. Services for the three-day camps included counseling, screening, and surgery. A total of 63 women, the majority of whom were illiterate, came to the camp seeking sterilization. The purpose of this study was to assess the prevalence of maternal morbidities at a rural site. The median number of ever-born children was seven (ranging from 3 to 13) and the median number of children surviving was five. Of the 63 women, 25.4 percent

were clinically determined to be inappropriate candidates for sterilization; minilaparotomy services were performed on the remaining 47 women.

Nearly 86 percent of the women had never used a modern method of contraception. Only 14.3 percent reported having used a method in the past (mostly DMPA). Each woman was queried by the attending physician regarding any serious morbidities they had experienced during the last three months. Over 79 percent experienced at least one problem, while only 20.6 percent reported no major illness. Among the women who experienced illnesses, 96 percent of the illnesses pertained to reproductive problems. Vaginal discharge and pelvic inflammatory diseases were the most frequently reported problems; 14% suffered from a prolapsed uterus. Although the great majority of women had experienced health problems, only one-third had been to a local health post for treatment or consultation; most had resorted to local faith-healers.

Although the median age of the Bajurali women was 30, the median of seven children borne indicated early entry into motherhood and closely spaced births. Sterilization could thus provide these women with protection from potential pregnancy for at least half of their total childbearing years. The fact that one-quarter of those seeking to terminate childbearing were clinically inappropriate candidates highlighted the need for family planning camps to provide temporary methods of contraception.

Family planning camps are not the ideal means for addressing the broad range of maternal health problems, which this study demonstrated affect a large number of women in Nepal. However, given the existing health infrastructure and the quality of the personnel at the community-level health care facilities, it seems unrealistic to expect that comprehensive health services may be provided in the foreseeable future, particularly in remote areas. Single-purpose camps are often the only occasion when a physician is available and accessible locally.

Family planning personnel can play an important role in understanding women's morbidities and helping lessen some of the burden of diseases. This requires, however, that family planning providers pay attention to broader health issues than may be typical at a camp, which could be accomplished with a relatively modest investment. In addition, family planning camps may be the only relatively inexpensive and efficient strategy for socially legitimizing the concept that fertility control is within one's reach and choice.

Safe Motherhood Project (1996)

With support from the World Health Organization, FHI provided technical assistance to the MOH's Family Health Division to develop and disseminate the GON's safe motherhood policy. FHI assisted the MOH to establish a safe motherhood library, to compile data on the status of maternal mortality and morbidities in Nepal and prepare reports and papers based on these data, to provide management support to the Safe Motherhood Programme coordinating office, and to develop several types of advocacy materials.

The project produced a packet of materials for policy makers and service providers, which included a call to action, a brochure on "Making Safe Motherhood Work in Nepal," a booklet with national and district-level population and health data, and the Government of Nepal's Safe Motherhood Policy. The project also supported the production of a 25-minute documentary video titled "A Nepali Mother's Story," which demonstrates the difficulties with which the typical rural Nepali mother must contend during pregnancy and delivery.

Perinatal Mortality in Nepal: Implications for Behavior Modification (1996)

This study examined levels and differentials of perinatal mortality based on the 1996 Nepal Family Health Survey. The highest perinatal mortality in Nepal was among the mothers in the *terai* region and the lowest among those in urban areas (rates of 65.8 and 47.7, respectively). Mothers in rural areas had 20 percent more perinatal deaths than those in urban areas. The perinatal mortality rates did not vary considerably by mothers' education. Mothers in the age group 30-39 had the lowest perinatal mortality. Those in the age group 40-49 had 50 percent greater perinatal mortality than the 30-39 age group. Those with either the first pregnancy or more than five pregnancies experienced the highest perinatal mortality, and mothers who had 2-3 pregnancies had the lowest.

Children born within an interval of less than two years had the highest risk of perinatal deaths, and those born after three years had the lowest risk. This suggests that health care advocates should encourage women and their families to avoid birth spacing of less than two years. Similarly, preventive health care counselors and service providers should ascertain the birth interval status and may use it as a marker toward minimizing perinatal mortality. Those whose last birth is less than two years should be advised and encouraged to practice effective spacing methods of contraception. This intervention alone could contribute to substantial reduction in perinatal mortality in Nepal, and likely in similar settings elsewhere.

Infant Mortality and its Correlates and Determinants in Nepal: A District-Level Analysis (1996)

This study examined the relationship between infant mortality and multiple indicators of socioeconomic development in Nepal in 1991. Infant mortality rates ranged from a high of 201 to a low of 32 per 1,000 live births in Nepal's 75 districts, with a national average of 93.

Several indicators of socioeconomic development were considered in the analysis. Simple correlation results showed that many of the socioeconomic factors were inversely associated with the infant mortality rate, though many of the variables had little or no independent effect on infant mortality. Among the several socioeconomic factors, female literacy was found to be a powerful factor in lowering infant mortality in the districts.

The results showed that two-thirds of the effect of female literacy operated through the use of child and maternal health services. Proximity to a health facility is also an important factor in

affecting health service utilization and consequently the infant mortality rate. But female literacy is considerably more important than proximity to a health facility.

Overall, female literacy appears to be the critical factor in increasing the district-level use of maternal and child health services, provided they are available, which in turn leads to reduced infant mortality. It appears to act as the agent for change in health-seeking behavior in the districts.

The findings of this study suggest that both changes in the social setting — at least female literacy — and the availability of good quality health services on a regular basis, as well as use of the services, are necessary ingredients in lowering infant mortality in Nepal.

This study was published in the *Journal of the Nepal Medical Association* 1996 34 (118 & 119): 94-109.

Poverty, Literacy, and Child Labor in Nepal: Implications for Behavior Modification (1996)

In many districts in Nepal, the prevalence of child labor, particularly female child labor, is high, with the vast majority of the children concerned living in rural areas. This study examined data from the 1991 census of Nepal to estimate the prevalence of child labor.

The child labor situation in some districts might have improved since 1991, when the census data were collected, but the absolute numbers of children in the age group 10-14 increased to 2.6 million by 1996, up by 350,000 children since the 1991 census.

The data suggested that child labor in Nepal existed largely due to poverty and low levels of literacy. Furthermore, poverty affected proportionately more female than male children; female children bore the brunt of the incidence of poverty. Child labor has been an integral part of survival and family welfare, especially in areas of remote and rugged terrain. Low levels of literacy may be due to lack of an immediate apparent benefit from schooling and, to some extent, access to and availability of schooling facilities. Even if facilities were to be improved and access increased, however, school attendance may not be expected to increase without a concomitant improvement in the family poverty situation in many of the districts.

The data analyzed in this article suggested that a two-pronged policy intervention was needed: one that would make it possible for people to raise their income, and the other that would make simultaneous efforts to increase literacy. Improvements in schooling would both discourage child labor and significantly improve development indicators in Nepal's districts. These two interventions could have considerable impact if they were targeted to the most deprived groups of people.

This study was published in the *Asia-Pacific Population Journal* 1996 11 (3): 3-14.

Girl Child Marriage in Nepal: Its Prevalence and Correlates (1996)

The 1991 census in Nepal provided data on ethnic groups in the country for the first time. The data afforded the opportunity to analyze the role of the ethnic factor in socioeconomic development as well as marital and reproductive patterns at the aggregate, district level in Nepal. This study sought to examine the role of the ethnic factor in girl child marriage.

Between 1961 and 1991, the prevalence of married female children in the 10 to 14 age group had declined from 25% to 7%. This analysis found that the prevalence of girl child marriage in the 75 districts in Nepal was closely related to ethnic group membership. Twenty-four ethnic groups, representing nearly 24 percent of the total population of the country, were positively associated with higher prevalence of girl child marriage. The level of socioeconomic development also influenced the prevalence of girl child marriage, but this had only a secondary effect.

The 24 ethnic groups were mostly concentrated in the *terai* ecological region, where the cultural norms and practices were heavily influenced by the culture of north India. In contrast to other groups, especially in the mountain region, the women belonging to the *terai* groups were generally confined to farming; they exercised considerably less control over the economic resources and household decision making. Women were typically considered an economic burden, premarital courtship or marriage by consent was generally not accepted, and marriages were usually arranged by parents.

Because of weak implementation and monitoring systems, the enforcement of the legal age at marriage (for females, 16 with parental consent and 18 without) remains difficult. As indicated by the census data, marriages below the legal age tend to occur frequently in Nepal.

Enhancing women's status by raising age at marriage through legal means will remain a difficult task unless strong implementation and monitoring systems are developed in the Nepalese context. Multi-sectoral approaches, such as increasing female literacy, eliminating legal discrimination against property rights encouraging non-agricultural employment for women, and raising social awareness might be effective ways to bring about normative structural and institutional changes at the societal level.

Unless such inputs are introduced on a massive scale, the results of this study suggested that a mere linear improvement in the level of socioeconomic development cannot be expected to reduce significantly the prevalence of girl child marriage in Nepal. Ethnic institutions and social networks remain key determinants of girl child marriage.

This study was published in *Contributions to Nepalese Studies* 1996 Jul; 30 (2): 361-75.

Maternal Morbidity Among Women Admitted for Delivery at a Public Hospital in Kathmandu (1994)

A pilot study aimed at investigating the problems and patterns of maternal morbidity was conducted at the Maternity Hospital in Kathmandu. A total of 274 women admitted for delivery completed structured interviews on their experiences with maternal morbidity. The overwhelming majority (94.1%) of respondents suffered from some problem or illness during pregnancy or during labor and delivery, although these problems varied in clinical importance.

The most prevalent morbidities reported during pregnancy were dizziness (60.9%), excessive vomiting (56.2%), edema (36.9%), blurred vision (24.1%), and urinary problems (19.7%). Prevalence of non-obstetric diseases that might have been aggravated by pregnancy appeared to be low. Almost 75 percent of respondents reported two or more morbidities during pregnancy. A high proportion (62.0%) of women reporting problems sought care for at least one morbidity. Of women who sought care, most went to a government hospital (61.8%).

It was not possible to determine prevalence for many types of maternal morbidities during labor and delivery using data from a hospital delivery population. However, 37.6 percent of women had labor greater than 18 hours, and 25 percent experienced heavy bleeding during delivery. The most prevalent postpartum morbidities reported by women who had previous pregnancies were urinary tract problems (41.2%), uterine pain (38.2%), breast pain (33.1%), bleeding (23.5%), and fever greater than three days (16.9%). Symptoms of uterine prolapse and urinary problems were often reported during the last birth interval; fistulae and hemorrhoids appeared to be uncommon.

The educational makeup of the study group suggested that multiple intervention strategies to reach first-time mothers may be advisable. Half of the women had received no formal education whatsoever, and for these women educational efforts that do not depend on literacy skills may be most appropriate. Targeting other family members, such as husbands, mothers, and mothers-in-law, may also be a potentially effective approach, given the evidence of a largely family-based system for making decisions about seeking care.

This study was published in the *Journal of the Nepal Medical Association* 1996 34 (118 & 119): 132-40.

Study of the Impact of Breastfeeding on Birth-Interval Effects and Early Childhood Mortality (1989)

Hazard models applied to data from the 1976 Nepal Fertility Survey (NFS) were used to analyze the extent that breastfeeding explained birth-interval effects on early childhood mortality in Nepal. Both preceding birth interval and following birth interval had substantial effects on infant mortality (0-18 months of age), before the introduction of breastfeeding as an explanatory variable. Breastfeeding explained virtually none of the effect of preceding birth interval but almost all of the effect of following birth interval.

The study determined that a short birth interval tended to be associated with early weaning of the previous child, and that conditions in Nepal were such that early weaning had deleterious effects on health, stemming mainly from poorer nutrition following weaning and from disease contracted from contaminated water and food.

Birth-interval effects were smaller in the case of child mortality (18-60 months of age). Preceding birth interval no longer affected child mortality. Following birth interval still had substantial effects, but only if the following child had died. Breastfeeding only partially explained the effect of following birth death.

Breastfeeding effects on early childhood mortality were very large. Relative to not breastfeeding, breastfeeding reduced infant mortality by about 80 percent and child mortality by about 55 percent in the models. These very large effects may have been exaggerated to some extent by simultaneity bias, which could occur if dying children stopped breastfeeding because of illness one month or more before death. In such instances, the cessation of breastfeeding would be more appropriately viewed as a consequence than a cause of mortality.

This study was published in *Demography* 1989 Aug; 26 (3): 439-50.

Ethnic Differentials in Early Childhood Mortality in Nepal (1989)

This secondary analysis of data from the 1976 Nepal Fertility Survey (NFS) used a series of hazard models to investigate the association of early childhood mortality with ethnicity in Nepal. The models incorporated ethnicity, year of birth, mother's literacy level, father's literacy level, rural-urban residence, region, sex, maternal age, survival of previous birth, previous birth interval, and breastfeeding as covariates.

Beyond a modest effect of illiteracy, none of the socioeconomic or demographic covariates included in this analysis contributed appreciably to explaining ethnic differentials in early childhood mortality in Nepal. As in previous studies using fewer variables, this analysis found that ethnic differentials in early childhood mortality persisted in Nepal when other variables were controlled. The breastfeeding and previous birth interval covariates did not explain ethnic differentials in early childhood mortality as expected, because in Nepal breastfeeding varies little by ethnicity. This variable therefore contributed little to the explanation of ethnic differentials in early childhood mortality, despite very large effects of breastfeeding on early childhood mortality itself.

A more complete understanding of ethnic differentials in early childhood mortality will require that future surveys collect considerably more health-related information on circumstances of childbirth and on child-care practices than did the NFS. Little is known about how these circumstances and practices vary among ethnic groups in Nepal. It would be useful to collect detailed information on such variables as attendance at birth (e.g., hospital or home delivery), access to and utilization of maternal and child health services, birth weight, nutrition, food preparation practices, personal hygiene, water supply, vaccinations, and treatment of childhood diseases. Some previous studies have shown that ethnic differentials in early

childhood mortality persisted even when some of these variables were controlled, but a study that has controlled adequately for all of them had not yet been implemented at the time of this study.

Given the large effects breastfeeding had on early childhood mortality, breastfeeding information for all births is highly desirable.

This study was published in the *Journal of Biosocial Science* 1989 April; 21 (2): 223-33.

Infant Mortality Trends and Differentials (1986)

This study compared infant mortality estimates from three data sources -- the 1976 Nepal Fertility Survey (NFS), the 1981 Nepal Contraceptive Prevalence Survey (NCPS), and the 1981 census — and concluded that the estimates derived from the NFS maternity histories are the most accurate.

The NFS estimates of infant mortality trends suggested that the infant mortality rate was probably around 134 in 1981, rather than 98 as derived from the NCPS maternity histories. Estimated infant mortality differentials by geographic, socioeconomic, and demographic characteristics were generally consistent in direction among the three data sources, despite inconsistencies in overall level and trend. Infant mortality was lowest in the hill region, higher in the *terai*, and highest in the mountain region. The children of literate mothers had lower infant mortality than the children of illiterate mothers. Male children had slightly higher infant mortality than female children.

An important observation for policy makers is that infant mortality dropped sharply as birth intervals lengthened. Thus, increased family planning program emphasis on spacing methods of contraception could result in substantially lower infant mortality rates among the children of couples who adopt these methods. Longer spacing apparently had this effect because it reduced the risk of infection from other young children, who as a group tend to be infection-prone, and because it increased the amount of time and attention that a mother was able to devote to the infant.

More resources were devoted to the NFS than to the NCPS. The additional resources devoted to quality control made the difference between usable and largely unusable estimates of infant mortality. Thus, although higher in cost, the NFS was more cost-efficient. In Nepal, where survey-taking is such a difficult enterprise, substantial investments in quality control in demographic surveys are needed.

This study was published in *Studies in Family Planning* 1987 Jan-Feb; 18 (1): 22-31.

Obstetric Deliveries at the Maternity Hospital in Kathmandu, Nepal (1980-82)

FHI analyzed data collected at the Maternity Hospital in Kathmandu, Nepal. Information was received on 989 women who were admitted to the hospital for delivery between April and September 1980.

The average age of women delivering at this urban hospital was 25.4 years. Women under 20 years of age made up 16 percent of the patients and women 35 years and older accounted for eight percent. The average age at first marriage was 18.6 years. Women delivering their first birth had an average age of 21.7 years, while women delivering their fifth or higher birth-order infant averaged 35.4 years. By the time a woman reached 40 years of age, she had delivered on average six live births.

The average interval between the last pregnancy and the current delivery was 32.2 months. Less than seven percent of the patients delivered within one year of their last pregnancy. This was a fairly long interval between pregnancies that may have been due in part to lactational amenorrhea. More than 98 percent of the women who had previously delivered a live birth breastfed their last infant. Women who breastfed for more than one year averaged 37.7 months between births, while those who breastfed for less than a year averaged 24.3 months. Only about one percent of the women whose last pregnancy resulted in a live birth did not breastfeed. The average breastfeeding duration among women who breastfed was 15.5 months.

Previous contraception was another factor that affected the interval between last pregnancy and current delivery. Of the women who had delivered within one year of their last pregnancy, seven percent used some type of contraception; of the women with intervals of two or more years, 16 percent used some contraceptive method between deliveries. The average birth interval of women who contracepted was 55.1 months, compared to 29.9 months for those who had not used a contraceptive method.

Eighty-three percent of the women were delivered by a qualified midwife, 10 percent by a nurse, and six percent were attended by either a general physician or an ob/gyn. A total of 992 infants were delivered, 544 boys and 448 girls, resulting in a sex ratio of 121 boys per 100 girls.

Two percent of the infants were reported as experiencing some type of fetal or neonatal problem, the most common being fetal distress during labor (1%). Women ages 40 or older ran the highest risks of fetal/neonatal problems or death. The stillbirth rate was 25.3 per 1,000 infants delivered and the newborn death rate (before discharge) was 9.4 per 1,000 live births.

Only seven percent of the women used some type of contraception before their current pregnancy. The majority of these women used oral contraceptives or injectables (4% of the total), while one percent used condoms. There was a large increase in the number of women planning to use some method of contraception after this delivery (71%).

The mean total desired family size was 3.0 children. Deviations from this mean family size varied by the age of the patient. Women under 20 years of age wanted an average of 2.3 children, while women 40 years and over said they wanted on the average 5.7 children.

EVALUATION OF FAMILY PLANNING QUALITY OF SERVICES

Contraceptive Method Choice Study (1997-1998)

A key concern for family planning programs is the rate at which users discontinue use of contraception and the reasons for such discontinuation, particularly if due to dissatisfaction with either the contraceptive methods being used or the quality of services provided. A study in Indonesia showed the importance of giving women the method they requested in order to increase continuation rates. FHI designed this study to document the extent to which women did or did not receive their method of choice when attending a family planning service delivery point.

The study is being conducted in Nepal, Mexico, and Zimbabwe. A total of 418 women visiting three public clinics in the Kathmandu valley were interviewed. All 418 women had a particular method preference upon entering the clinic. Of these, 93 percent received the method that they requested. The top three choices were injectables (52%), female sterilization (20%), and male sterilization (7.7%). Of those who did not receive their method of choice, the main reasons cited were that the woman was not menstruating (30%) and medical contraindications (13.3%).

Female Sterilization in Nepal: A Comparison of Two Types of Service Delivery (1997)

Public hospitals and outreach services, known as the *sibir* or camp, are the two major types of facilities for the delivery of sterilization services in Nepal. This study analyzed data from the 1996 Nepal Family Health Survey. It compared the profile of female sterilization clients, awareness of other contraceptive methods, and regret about having had the sterilization between those receiving services from hospitals and camps.

About half of all vasectomies and nearly 40 percent of female sterilizations took place through camp services. The camp has been an important means for sterilization service delivery, particularly for rural women in the *terai* region of the country. This study found no evidence that inappropriate clients were motivated and sterilized through the camps. The patterns of first contraceptive method used and percentage of women who regretted having had the sterilization were also similar between the two groups of women.

Among those who expressed regret, the main reason was side effects. Other reasons, such as desire for another child (by the women themselves or their husbands), were less than five percent for either group. The reasons for regret between the two groups of women were significantly different. Side effects were cited as the main reason by proportionately more women who received services from a hospital than those from a camp. Other reasons (such as desire for another child), however, were cited by proportionately more women clients from the camp than from the hospital setting. Overall, 11.7% of those who had sterilization at a hospital expressed regret. Similarly, 9.9% of those who received services from a camp expressed regret; the difference between the two, however, was not statistically significant.

Because of the pattern of early marriage and childbearing, currently married women have an average of three children before age 30. The proportion of women wanting to stop childbearing begins to increase rapidly after the third child. In this context, sterilization offers an easy, safe, and effective means to implement their desire to stop childbearing, at least among those who are aware of and have access to sterilization services. It will take more sustained efforts and time before a significant percentage of couples begin to use spacing methods, especially before their first child. In the meantime, sterilization remains a backbone of the family planning program in Nepal, and demand for it can be expected to continue to rise. Camps have played an important role in expanding the availability of and access to sterilization services in Nepal without compromising the quality of services.

This study was published in *International Family Planning Perspectives* 1998 Jan;24(2):78-83.

Female Sterilization Acceptors at Permanent and Temporary Service Delivery Settings in Nepal (1994)

FHI analyzed data from the Nepal Fertility, Family Planning, and Health Survey conducted in 1991-92, comparing the profile of female sterilization acceptors, awareness of other contraceptive methods, and regret about having had the sterilization between those receiving services from hospitals and camps. Concerns have occasionally been raised about the quality of care in camp-type settings, and this analysis was intended to investigate the merit of these concerns.

The most common place for female sterilization was the public hospital, where 62 percent of the operations were performed. About 19 percent of female sterilizations were performed in camp settings and about 12 percent in health posts. Overall, approximately one out of four sterilizations (male or female) took place at a mobile camp in the country. This analysis was based on women who were sterilized at either a hospital (n=1,665) or a camp (n=515) setting.

The data for the background characteristics of the sterilized women, by the two types of service delivery settings, indicated that there were significant differences in acceptor characteristics between the two service delivery settings. A significantly larger proportion of women received services from camps rather than hospitals in both the hill and *terai* regions. Further, a larger proportion of those who received services through camps were from rural rather than urban areas. The vast majority of the acceptors from both groups were illiterate.

The data for women's spontaneous and probed awareness of five contraceptive methods revealed that vasectomy had the highest level of awareness among both groups of women. Long-term methods, such as Norplant and IUDs, were the least known. A significantly lower percentage of the clients who received services through the camps were aware of spacing methods of family planning, compared to those who received services through the hospitals. This may be related to the level of education of the women visiting the camps, and the fact that more of them came from rural areas. It could also indicate that field workers did not make an effort to disseminate information about other temporary methods.

There was no significant difference in the percentage of women regretting having had the sterilization procedure between the two groups of women. The overwhelming majority (over 80%) reported side effects (unspecified) as the main reason for their regret. Desire for another child (by the women themselves or their husbands) was the reason cited by 18 percent and 13 percent of the hospital-based and camp-based acceptors, respectively. Sterilizations performed at camps did not result in a higher percentage of the cases of regret, as some suspected.

Camps have played an important role in expanding the availability of and accessibility to sterilization services in Nepal without compromising the quality of those services. There is a need to strengthen dissemination of information on other methods of contraception, particularly among clients coming to camps.

This study was published in the *Journal of the Nepal Medical Association* 1994 Jul-Sep; 32 (111): 144-53.

Family Planning in Nepal: An Update (1994)

This study was intended to assess the progress made by the GON's family planning program over the 15-year period 1976 to 1991. Awareness and practice of family planning in Nepal increased considerably over this time period. As of 1991, the overwhelming majority of Nepalese women reported being aware of at least one method of modern contraception, although the awareness of spacing methods was lower than that of permanent methods. The availability of family planning services had also increased over time.

Each method had attracted a new pool of users, and most women did not switch between contraceptive methods. In the later part of this period, the role of spacing methods in the overall contraceptive method mix slowly increased. Overall contraceptive use increased by an average of 1.6 percentage points per year during the decade 1981-1991. The current level of contraceptive use was associated with an average reduction of 1.5 potential births per woman.

The desired family size among currently married women of reproductive age consistently declined, and the demand for family planning, particularly for limiting pregnancy, remained high. After years of effort, fertility transition appeared to have begun in Nepal. For the majority of women, however, service outlets were still at least one hour or more away from their place of residence. Availability and accessibility of good quality services on a regular basis to meet increasing demand remained a primary challenge to the family planning program in Nepal.

This study was published in the *Journal of the Nepal Medical Association* 1994 Jul-Sep; 32 (111): 131-43.

Understanding Quality of Service in Family Planning in Nepa. (1993-94)

At the time of this study, very little research had been conducted on the quality of family planning service delivery in Nepal. Previous research had focused mainly on provider-client interactions and awareness of contraceptive methods. For an in-depth understanding and assessment of family planning service delivery in Nepal, this study observed all clients being counseled at two large public-sector clinics over a period of time. In addition, Norplant was selected as the "prism" for evaluating family planning service delivery. This method was chosen for its increasing popularity, the fact that it is a quasi-surgical method -- which provided an opportunity to assess clinical medical procedures -- and the research team was aware of concerns about the high level of early discontinuation of the method.

A total of 104 Norplant clients were observed. The clinic counselors tended to provide information only on the method requested to the exclusion of other options. In many cases, the counselor spent five minutes or less discussing contraceptive methods with the client and typically did not encourage clients to ask questions or take an active part in the session. Also, counselors often manifested their own personal biases toward individual methods, and in so doing they appeared to have inappropriately influenced clients' decisions. Interviews with clients were not conducted in private, and many of the clients who appeared at the clinic did not actually receive their contraceptive method of choice, but were advised to return during or shortly after menses to begin a method.

Neither clinic placed a high priority on clients' privacy and comfort during procedures. The provider typically did not explain to the client what he/she was doing or what the client should expect. One clinic was understaffed, resulting in significantly reduced time for client-provider interaction. In many cases, providers performed procedures without reconfirming the health-related information provided on the card prepared by the counselor. Proper medical supplies were lacking and clinical procedures were not always followed.

Side effects were cited most frequently by the women observed as the main reason for requesting early removal of Norplant. In one clinic, because the clients were not interviewed by a counselor before the Norplant implants were removed, there was no discussion of normal reactions to the use of Norplant or any attempt to alleviate patients' concerns. Instead, the implant was removed on request. This appeared to result in a high number of removals for reported "side effects" that might have been normal effects of the use of the drug or totally unrelated to the contraceptive method. After the removal procedure, clients were free to leave the clinic without any discussion of follow up or alternative contraceptive methods.

This study showed that assessing quality of care is a time-consuming activity, and that the value of conducting such a study — the assessment process itself — could play a catalytic role in the providers being more attentive to services, and thus to the quality of those services: during the course of the study team's observation, many of the deficiencies in service delivery in the two clinics improved. This suggested that most providers knew how to provide better services, but they were generally neglectful or simply cut corners to save time, and that several improvements could be made on site in the service-delivery setting. The real challenge seemed to lie in assigning quality a top priority on a regular basis.

This study was published in the *Journal of the Nepal Medical Association* 1994 July-Sep; 31 (111): 154-74.

A Decade of Nepal's Family Planning Program: Achievements and Prospects (1989)

This study analyzed data from three surveys: the 1976 Nepal Fertility Survey, the 1981 Nepal Contraceptive Prevalence Survey, and the 1986 Nepal Fertility and Family Planning survey, with the intent of examining the impact of the family planning program in Nepal and what progress and changes occurred from 1976 to 1986.

The percentage of those who knew of at least one modern method increased nearly three-fold during the decade examined, from 21 to 56 percent. The increase in knowledge by contraceptive method varied considerably. Women's awareness about female sterilization increased four-fold, and was also the most widely known method (half the currently married women) in 1986, followed by vasectomy. Knowledge of condoms increased over three-fold. The IUD was the least-known among the modern temporary methods. Overall, the level of awareness for each method increased considerably more in the first five years than in the 1981 to 1986 period.

During the decade studied the number of new acceptors increased by a factor of 2.5. In general, condoms were the most frequently accepted method, followed by the pill. Current contraceptive use increased from three to 15 percent among currently married women of childbearing age in the ten-year period. Similar to the patterns of level of knowledge, the level of current use increased proportionately more in the first five years than in the second (2.6-fold vs. 1.9-fold).

The share of sterilization in total contraceptive use increased from 67 percent in 1976 to 74 percent in 1981 and to 86 percent in 1986. While male sterilization was more common than female sterilization during the 1976-81 period, female sterilization was more prevalent than vasectomy by 1986. The percentage of women who knew of a family planning outlet (a measure of availability) increased six-fold, from 6 to 36 percent during 1976-86. However, most of this increase in availability (91%) took place in the first five years. In contrast, accessibility -- defined as women's perceived travel time to a known outlet -- increased sharply in the second half of the decade, and only marginally in the first half.

Between 1981 and 1986 the crude birth rate declined by 2.5 percent. During the decade 1976 to 1986 the crude birth rate declined by five percent. The NFS data showed that contraceptive use reduced 0.2 potential pregnancies per woman in 1976. Assuming that the fertility-inhibiting effects of other proximate factors (mainly nuptuality and breastfeeding) had not changed drastically, contraceptive use reported in the NFFPS inhibited one potential birth per woman in 1986 in Nepal. This implies that the total fertility rate declined by 13 percent during the decade. The impact of contraceptive use on fertility during this period was low, just over one percentage point per year.

Despite the considerable progress made in contraceptive knowledge and use, basic patterns of contraceptive method mix changed very little during the decade. Sterilization continued to be the most emphasized method of contraception and was the primary source of most of the increase in contraceptive use.

The study concluded that the overwhelming emphasis on sterilization was not a prerequisite for achieving the government's future fertility target: the same fertility impact could have been achieved through increased use of reversible methods of contraception and with reasonable improvements in their annual continuation rates.

This study was published in *Studies in Family Planning* 1989 Jan/Feb; 20 (1): 38-52.

Contraceptive Social Marketing in Nepal: Consumer and Retailer Knowledge, Needs, and Experience (1986-87)

In 1986 a survey was conducted to assess knowledge, health concerns, and experience with marketing (retailers) and use (consumers) of Gulaf and Nilocon oral contraceptive pills (OCs) and Kamal vaginal tablets distributed by the Nepal Contraceptive Retail Sales Company (CRS). A sample of 763 consumers of Gulaf, Nilocon, and Kamal vaginal tablets, and 361 retailers from a stratified sample of urban medical shops were interviewed.

The study found that the CRS company provided easily accessible and convenient contraceptive retail sales outlets for couples in urban areas who wished to buy and use temporary contraceptives. Also, most shops had adequate stocks of CRS products. Most consumers said they chose to purchase CRS contraceptives from shops, rather than obtain them free from government distribution centers, because the shops were accessible, were close to home or work, were convenient, and the consumers did not have to wait as they did in clinics.

Almost three-fourths of Gulaf consumers and about half of Nilocon and Kamal consumers were first-time users of contraceptives. This implied that the CRS program was serving a new group of people for family planning.

The study found that both retailers and consumers had a basic understanding of the contraindications, methods of use, and side effects of oral contraceptive pills and of Kamal vaginal foaming tablets. However, consumers and retailers were not adequately informed about certain critical aspects of contraindications, method of use, and side effects.

More than half of all Gulaf, Nilocon, and Kamal consumers stated that they desired no more children, revealing that in the majority of cases these contraceptives were being used to limit rather than space births. This finding suggested an unmet demand for longer-acting methods (e.g., injectables and implants).

This study was published in the *Journal of Biosocial Science* 1990 Jul; 22 (3): 305-22.

TECHNICAL KNOWLEDGE TRANSFER AND INFORMATION DISSEMINATION

Emergency Contraception (1997-98)

In August 1997 FHI, together with the Nepal Society of Obstetricians and Gynecologists (NESOG) and the Nepal Fertility Care Center, organized a workshop on emergency contraception (EC) for 80 participants from 20 organizations. The participants consisted primarily of physicians and nurses from the public and private sectors and from the MOH. The objective of the workshop was to review the current scientific information on EC and discuss its implications for service delivery in Nepal.

The workshop focused on the clinical, policy, and programmatic aspects of EC in the Nepalese context. An hour-long session for discussion and questions and answers concluded the workshop. FHI surveyed the participants to seek their input for developing a consensus statement for EC in Nepal and convened a committee to develop the statement, based on the survey data.

Following this national-level seminar, FHI provided technical support in conducting several similar workshops, for 20 to 30 participants each, in regions outside the Kathmandu Valley during 1998. The participants in these workshops included nurses, physicians, medical shopkeepers, and contraceptive social marketing groups. These workshops were organized in collaboration with Nepal Fertility Care Center and the Nepal Social Marketing of Contraceptives. Approximately 450 individuals participated in these workshops.

Support to Media Alert (1995-97)

FHI provided funding to the NGO Media Alert to initiate a new "Reproductive Health Research: Progress Beat" column in its quarterly publication, *Health Alert*. The column included abstracts of key reproductive health articles from various international journals, including *The Lancet*, *Studies in Family Planning*, *International Family Planning Perspectives*, and *Network*, among others.

Health Alert is dedicated to national and international health news, research breakthroughs and technological developments. FHI sponsored the column for eight issues of the journal. As part of FHI's support, Media Alert sent a complimentary copy of each issue of the journal to the district public health offices in each of Nepal's 75 districts, five copies to the libraries of major hospitals and the Nepal Medical Association and the Nepal Society of Obstetrics and Gynecology, and to each division of the MOH's Department of Health Services.

Support to the Nepal Medical Association (1994-96)

FHI provided funds and technical assistance to the Nepal Medical Association to support two special issues of its journal, the *Journal of the Nepal Medical Association*. The first special issue appeared in September 1994, and contained articles on family planning, quality of service,

abortion, prevalence of STDs among commercial sex workers, and an update on HIV/AIDS in Nepal. The second issue was published in September 1996, and covered infant mortality, quality of care in public sector family planning facilities, maternal morbidity, malnutrition, safe motherhood, and postabortion care, among others.

In addition to financial support, FHI also provided editorial services and contributed several articles for each issue. In return for its support, FHI received 500 copies of the journals, which were distributed at national and regional seminars and workshops and to NGOs and international organizations.

Contraceptive Technology Update Series (1989-1996)

Since 1989 FHI has organized a periodic series of contraceptive technology update (CTU) seminars for policy makers and service providers in collaboration with the Nepal Society of Obstetricians and Gynecologists (NESOG), the Nepal Medical Association, and the Ministry of Health. The main objectives of the workshops were to review current scientific information on various contraceptive methods, discuss implications of this scientific knowledge for service delivery, and review recent information on family planning in Nepal.

In 1989, FHI organized the first conference on postpartum contraception in Nepal. The main objective of this workshop was to examine the rationale and approaches to postpartum contraception and discuss its relevance to the programs in Nepal. The conference was attended by about 150 people representing physicians, nurses, researchers, and program managers. This workshop provided the basis for subsequent policy dialogues and program development, including the introduction of a postpartum program in the largest maternity hospital in Kathmandu.

In September 1994, FHI and the JHPIEGO Corporation, in collaboration with NESOG and the Nepal Medical Association, convened a CTU workshop in Nepal. The workshop gathered 30 senior-level health professionals and MOH officials in Kathmandu for three days to provide them with current scientific information on contraceptive methods. A secondary objective of the workshop was to identify qualified participants who could serve as in-country resource persons for conducting national and regional CTUs.

The workshop covered a wide range of contraceptive technology issues, including all major contraceptive methods available in Nepal, maximizing access and quality, infection prevention, counseling, and post-partum and post-abortion services. National data were incorporated into many presentations.

In January 1995, a continuing education CTU was held for 75 service providers and program managers. Many prevailing misconceptions and instances of outdated knowledge were examined and challenged. The CTU included a training component on presentation skills for 15 selected participants, who were then certified to serve as local resource persons.

FHI's assistance has been instrumental in institutionalizing CTU activities in Nepal. FHI assisted NESOG in securing support from USAID to expand the CTUs to four regions of the country, and NESOG organized four workshop in each region in 1996, using the local resource persons trained in January 1995. Approximately 30 local physicians, senior nurses, and MOH officials attended each regional workshop, making a total of approximately 300 individuals who have participated in the various workshops. An important feature of both national- and regional-level workshops was that Nepal-specific research materials were utilized in the review of scientific materials. This model has subsequently been adopted for CTUs outside of Nepal.

Camp Female Sterilization: The Nepal Experience (1977)

While many developing countries had implemented family planning programs in urban areas by the late 1970s, providing fertility control methods in rural areas was (and remains) logistically difficult. One approach to solving this problem is organizing camps for providing sterilization services. Because sterilization procedures require only one contact with the target population to be effective, camp programs offer significant advantages in areas where follow-up facilities are inadequate and temporary methods of fertility control have high discontinuation rates.

In 1977 the International Fertility Research Program (now FHI) published a manual on female sterilization in camps based on the Nepal experience to aid physicians organizing such camps in other countries.

The manual described the organization of a camp, including a discussion of the local facilities needed, organizing a community education and publicity campaign, the staff and equipment that must be brought to the camp, and the necessary screening, operative, and post-operative procedures.

POLICY AND RESEARCH SUPPORT

Support to the Government of Nepal and USAID/Kathmandu (1993-present)

FHI has been providing technical support in family planning and the population sector to the Government of Nepal (GON) for over a decade. At the request of the GON and with the support of USAID/Kathmandu, FHI has provided a technical advisor to assist the Family Health Division of the MOH since 1993. In 1996 the technical advisor's role was expanded to provide assistance to the Population Division of the newly created Ministry of Population and Environment (MOPE) as well. FHI assists the GON in assessing program performance, utilizing data for policy and program development, and investigating implementation issues and problems. This subproject also provides research assistance and training opportunities to local population and health professionals. The program continues to focus on increasing access to contraception and monitoring and analyzing data on the performance of the family planning program.

As part of its technical assistance, FHI has:

- developed a scope of work and program structure for the MOPE;
- assisted the USAID Mission to develop a country strategy for reproductive health;
- assisted the USAID Mission and the MOH's Family Health Division prepare briefing materials for new political appointees charged with health and population programs;
- prepared materials for presentation at a 1996 meeting of the National Population Committee, chaired by the prime minister of the GON;
- supported two special issues of the *Journal of the Nepal Medical Association* focusing on reproductive health and family planning (RH/FP), and regularly provided current RH/FP information to both health and general publications in Nepal;
- analyzed national health data and prepared reports, slides, and other materials on health trends in Nepal and provided suggestions for improving the quality of services to national policy makers and local service providers;
- regularly provided technical assistance to local NGOs, international NGOs, and international donor organizations.

Technical Assistance on Population Projections (1998)

In March 1998, FHI provided support to the Ministry of Population and Environment and New ERA, a private-sector research organization, in preparing a set of population projections for Nepal. The projections were prepared to incorporate new information on the level and trend of fertility that had become available since the last set of projections was produced, and, secondly, to incorporate migration more fully than had been done in the past. The work included an extensive analytical review of relevant statistics collected since 1961, and resulted in a report entitled "Population Projections for Nepal: 1996-2016. Technical Report 1998."

The data from this project were utilized in the GON's Ninth Development Plan (through 2002). The projection work is part of the development of a long-term (20-year) perspective on population planning in Nepal. As part of its technical support to the Ministry of Population and Environment, FHI was the lead organization in identifying the needs and subsequent development of this project.

Support to the Health Service Management Information System (1993)

In July 1993, the GON took a major step in restructuring the MOH, including integrating the entire health service delivery system. Prior to the reorganization, each major program division (e.g., malaria, immunization, family planning, nutrition) had essentially a "stand alone" type of MIS system. This resulted in inefficiency and duplication of effort, which necessitated streamlining the system.

Under the new system, the MIS was consolidated to operate as a section of the Planning and Foreign Division in the Health Services Department of the MOH. In order to make the

integration functional, FHI, in collaboration with the MOH, conducted a workshop on strengthening and improving the MIS for health service delivery.

The objectives of the workshop were to review past experiences with MIS under the various vertical programs and gain insights as to the strengths and weaknesses of the past developments, assess MIS needs under the integrated system, and work toward developing a comprehensive MIS, with identification of training and reorientation needs.

The workshop was held in November 1993 for three days in Kathmandu, and approximately 35 participants attended. The recommendations of the workshop provided the foundation for subsequent scaling up and developing the MIS system for health service delivery.

Family Planning Sector Strategy (1991-92)

At the request of the USAID Mission, FHI staff traveled to Nepal in 1991 to interview key individuals and review research reports and relevant background materials to prepare a family planning sector strategy. The objectives of this strategy document were to review the achievements of the FP sector in Nepal over the past 15 to 20 years, review lessons learned, and to recommend strategies for the next 5 to 10 years of USAID assistance.

The focus of the strategy document was improving the availability of contraceptives and services. Recommended USAID inputs included: procurement of contraceptives; private sector social marketing, particularly in urban areas; quality assurance; information systems for supplies/logistics, services rendered, and quality assurance; repair and maintenance of sterilization equipment; policy development; and support for programmatic and evaluative studies and for the coordination of USAID inputs with other donor agencies.

These inputs, together with those of other donors and the government's own, were expected to result in a CPR increase to 55 percent in socioeconomically "most favorable" districts, 30 percent in "moderately favorable" districts, and 20 percent in "least favorable" districts. The overall average CPR was expected to reach 35 percent and the TFR was anticipated to be 4.5 by the year 2000.

Seminar on Emerging Issues in Family Planning in Nepal (1989)

In December 1989, FHI, the Health Services Coordination Committee of the Social Services National Coordination Council, the Ministry of Health, the National Commission on Population, and the Family Planning Association of Nepal convened a family planning seminar in Kathmandu. The objectives of the seminar were to assess national achievements and challenges of the family planning program, to discuss emerging issues in family planning, and to make policy and programmatic recommendations for strengthening the delivery of family planning services in Nepal. The seminar audience consisted of approximately 125 leading family planning/reproductive health policy makers, service providers, and researchers. This

seminar has since been referred to as a "turning point" in fine-tuning Nepal's family planning policies and program direction.

FHI's research projects and secondary data analyses served as the basis for the discussions during the seminar. The major policy recommendations adopted included the following:

- The current contraceptive method mix should be modified, especially promoting reversible methods of contraception with the same enthusiasm as permanent methods;
- Nepal should prepare itself to accept a considerably higher level of fertility than was targeted in the early 1980s. This will have broad ramifications for social, health, and economic sectors;
- Training programs should be implemented for health workers and field workers. These programs should cover both client communication and interaction skills as well as emphasize the important role of reversible methods of contraception;
- Greater attention should be given to promoting the concept of birth spacing;
- Quality assurance and quality of care should be given priority in service delivery, design, and implementation of programs; and
- There should be more effective intersectoral coordination in the implementation of family planning and health services.

OTHER POPULATION PROJECTS

Sexual and Reproductive Health Needs of Youth in Nepal (1998)

In April 1998, FHI and the B.P. Memorial Health Foundation convened a round table discussion on the sexual and reproductive health needs of youth in Nepal in Kathmandu to identify emerging issues and gaps in meeting the RH health needs of young adults. The discussion covered current and past youth activities in Nepal, information needs, and policy, program development, and service delivery issues. Approximately 25 representatives from the Ministry of Health, local NGOs, health service providers, and international development organizations participated in the round table, which was held in Kathmandu.

This roundtable was part of a larger young adult project in Nepal that FHI initiated in 1998. The young adult project consists of operations research and appropriate youth-oriented activities. In 1999, FHI will conduct a survey and focus groups to collect data on the reproductive and sexual health needs of adolescents and young adults in selected areas of Nepal. The research results will be disseminated to policy makers, program managers, and the target population to facilitate translation of the research results into improved services for adolescents and young adults.

The Linkages of Adult Literacy to Improved Health and Family Planning in Nepal (1997)

In May 1997, FHI and the Center for Development and Population Activities (CEDPA) convened a roundtable discussion of representatives from 20 organizations to explore the linkages between literacy and health. Participants included health service providers, adult literacy programmers, and researchers in adult literacy and women's health and empowerment issues.

The goals of the day-long meeting were to document literacy linkages to health and family planning impacts and to develop a common set of references for research and programs in Nepal. The discussion covered the following issues:

- What is known about linkages of health and family planning to literacy, based on empirical evidence?
- What do policy makers and researchers think they know based on program experience?
- What is not known and needs to be explored, i.e., research priorities?
- Implications of the roundtable's discussion for programs, research, and establishing an agenda for the future.

During the empirical evidence discussion, the participants determined that very little research had been conducted to examine behavior change that is linked to completion of adult literacy classes. One participant's research found no significant relationship between correct knowledge of family planning and use of family planning, indicating that increases in health knowledge do not immediately translate into differences in attitudes and practices. Other points discussed included: the role that traditional health practices play in behavior-modification efforts; and the relative priority of literacy and development interventions, e.g., if one implements an income-generation intervention without an adequate level of literacy, the intervention might not be cost effective.

The session on program experience drew on participants' experiences as programmers and practitioners to identify elements of literacy programs that seem to have a particularly strong impact on health and family planning. Among the points of consensus were: homogenous groups (i.e., by age and sex) are desirable for discussions on health and development topics; literacy groups have played a key role in community change, such as campaigning against hazardous social practices (e.g., alcohol abuse and violence); and non-formal education literacy classes are the most effective outlay of funds for community development.

Finally, some of the research priorities identified during the third session included: What literacy levels relate to various outcomes and, specifically, what levels of literacy are needed to achieve health impacts? What programs have an impact on health? What conditions within the community, household, and individual should be present to expect success?

A Study of Declining Fertility in Nepal (1997)

This study assessed the trend of fertility in Nepal over the past two decades. Fertility trends were estimated from two national surveys, the 1991 Nepal Fertility, Family Planning, and

Health Survey (NFFPHS), which was conducted as part of the worldwide Demographic and Health Survey program, and the 1996 Nepal Living Standards Survey (NLSS).

Both surveys yielded an estimated trend in fertility for the 15-year period immediately preceding the survey. The trends overlapped for the period 1981-1991. The analysis indicated a fairly substantial fertility decline between 1977 and 1995. However, because of the distorting effects of age mis-reporting, the data were not good enough to identify the year when fertility began to decline. Therefore, a constant rate of decline over the estimation period was assumed. Under this assumption, the best estimate was that the TFR declined by 1.90 children, from 6.68 in 1977 to 4.78 in 1991. The TFR declined more in urban areas than in rural areas. Between 1977 and 1991, the TFR fell by 2.70 children, from 6.10 to 3.40, in urban areas, and by 1.83 children, from 6.65 to 4.82, in rural areas.

A detailed analysis of the 1976 Nepal Fertility Survey found that the fertility of Nepalese women in the mid-1970s closely approximated the pattern of "natural fertility," and that the TFR was 6.3 per woman at that time. Fertility appeared to have declined very little before 1980.

The experience of other developing countries that were further along in the fertility transition suggested that this fertility decline was likely to continue and even accelerate, provided that family planning services expanded to meet the increasing demand for them.

This study was published in the *Asia-Pacific Population Journal* 1997 Mar; 12 (1): 33-53.

Conference on Fertility Transition in Nepal (1997)

Emerging evidence suggests that fertility in Nepal has begun to decline. This change in fertility represents a major social transformation under way in society; it indicates a transition in the lives of women and their families and suggests the increasing effectiveness of the population and family planning programs in the country. Between 1976 and 1996, four comparative national fertility surveys were conducted. In addition, censuses and various other surveys provide further information for gaining insights on the fertility transition. The national surveys together with more in-depth anthropological, social, and economic studies provide excellent materials to review changes in fertility and to understand the context and dynamics of the changes now underway in the country.

Against this background, an international conference "Fertility Transition in Nepal: Changing Context and Dynamics" was organized jointly by Tribhuvan University's Centre for Nepal and Asian Studies (CNAS) and Family Health International (FHI) on 25 and 26 November 1997 in Kathmandu. The objectives of the conference were to assess and evaluate changes in the patterns and levels of fertility in Nepal, to analyze and discuss the changing context and dynamics of the fertility transition, and to draw implications from these changes.

The conference focused on three main areas: levels and trends of fertility, methodologies for analyzing fertility changes, and factors contributing to fertility change. The participants of the conference included professors engaged in teaching or conducting research on population at their

respective institutions, researchers from leading private-sector research organizations, journalists representing leading newspapers, and selected senior-level officials from relevant ministries and organizations of the Government. Altogether about 70 persons attended the scientific sessions of the conference. The conference provided the first opportunity for those interested in fertility analysis in Nepal to gather to review the evidence and discuss the fertility transition under way.

One of the expected outputs of the conference was updated reference materials for use in teaching and research. To this end, selected papers from this conference were published in July 1998 as a special issue of *Contributions to Nepalese Studies*, the quarterly journal of the Center for Nepalese and Asian Studies of Tribhuvan University, Kathmandu.

The Human Development Index: A Portrait of the 75 Districts in Nepal (1995)

Nepal's regional development strategies since the 1950s have been formulated to help minimize disparities among the population and enhance the pace of overall development. The focal point for the allocation and mobilization of resources has been the district. This study applied the United Nations Development Program's Human Development Index to assess how much progress had been made in each district and how the districts' levels of development compared to each other. The Human Development Index is an unweighted average of three measures of development: longevity, knowledge, and standard of living.

Life expectancy ranged from a low of 37 years in one rural district to a high of 74 years in Kathmandu District, with an overall average of 55. The literacy rate was about 40 percent nationally, ranging from 21 percent in Humla District to 71 percent in Kathmandu. Similar variations were found with respect to access to resources.

The data analyzed in this study indicated that a great disparity in human development existed among the districts of Nepal. They provided an objective assessment of which particular districts lag behind in relation to other districts and by how much. The data concealed variations that might exist among different population subgroups, such as males and females or ethnic groups. This analysis could serve as a starting point for further research on how to improve deficiencies and gaps in understanding human development in the districts in Nepal.

This study was published in the *Asia-Pacific Population Journal* 1995 10 (2): 3-14.

The Ethnic Factor in the Timing of Family Formation (1989)

This study analyzed data from the 1976 Nepal Fertility Survey (NFS), and examined one main feature of nuptiality that directly affects fertility: the timing of first marriage. Since pre-marital child-bearing is generally uncommon for the majority of women in Nepal, marriage marks the beginning of exposure to the risk of pregnancy and it sets the course for subsequent child-bearing.

This study examined the impact that ethnic group identification had on the age at first marriage, and found that ethnicity was a major determinant of the timing of family formation. Other variables found to have a statistically significant impact on age at first marriage were marriage cohort, pre-marital work pattern, pre-marital work duration, and husband's education.

Brahmins and Muslims had the lowest age at marriage, a mean of 14 years; Kirates and Tamangs had the highest age at marriage, about 18 years. The age at marriage for Chetris, Thakuris, Tharu, Satar, and Mosar, and the "others" was 15 years, and Newars, Gurungs, and Magars averaged 16 years.

Women who reported that they had worked before marriage had a higher age at marriage than those who did not work at all. When the duration of work was considered, women with six years of pre-marital work experience married approximately three years later than women with pre-marital work experience of fewer than six years or those without any work experience. To the extent that parental authority operated, it may be argued that the age at marriage may have been intentionally delayed by the parents, particularly in the case of those women who were providing significant economic labor resources to the family, but it was not possible to test this explanation with the NFS data. Women whose husbands had some educational attainment had a lower age at marriage than those whose husbands had no education.

With the increased pace of modernization, the socio-economic differentials in the timing of family formation in Nepal may be expected to be sharper, and ethnic differentials may be somewhat reduced over time, but it is improbable that the differentials will disappear.

This study was published in the *Asia-Pacific Population Journal* 1989 4 (1): 3-32.

Strength of Fertility Motivation and Contraceptive Use (1988)

This study examined data from the 1986 Nepal Fertility and Family Planning Survey and was intended to test whether new survey questions on strength of fertility motivation enabled improved prediction of current contraceptive use and of intention to use contraception in the future, over and above the effects of socioeconomic factors.

The effect of relative preference intensity (RPI) was large and highly statistically significant. Most of this effect, however, appeared to be captured by the background variables when RPI was deleted from the model. Including RPI in the model, as opposed to excluding it, attenuated the effects of the background variables and improved global fit only modestly, even though this improvement is highly statistically significant. These findings indicated that strength of motivation plays a mediating role between demographic and socioeconomic background variables and contraceptive use, but did not have a large independent effect on use. In other words, background variables affected motivational strength, and motivational strength affected use; but when motivational strength was deleted from the model, background variables alone did almost as good a job of explaining use as did background variables and motivational strength together.

The findings also indicated that the independent variables had considerably larger effects on current use than on intended use. These results raised the question of whether strength of fertility motivation can be affected by educational efforts mounted by family planning programs to increase contraceptive use. The analysis showed that strength of motivation does have some independent effect on contraceptive use, and it is quite possible that this independent effect could be enhanced by educational programs operating independently of the socioeconomic characteristics of program recipients. Because the 1986 survey lacked relevant data, this possibility could not be explored empirically.

The results of this study were published in the *Asia and Pacific Population Forum* 1988 2 (1-2); 5-12, 30-1.

Determinants of Fertility in Nepal: Applications of an Aggregate Model (1987)

This study applied Bongaarts' aggregate model of the proximate determinants of fertility to data from the 1976 National Fertility Survey in Nepal. At the time of the study, fertility of Nepalese women closely approximated the pattern of natural fertility. The effects of induced abortion and use of contraception were negligible. Because of high nuptuality, most of the childbearing years were spent within marriage. Therefore, of the two principal proximate determinants of fertility for a population that is at or close to natural fertility — marriage and post-partum infecundity — the latter was found to be the more important inhibiting factor affecting fertility in Nepal. An average of nearly 25 months of breastfeeding contributed about 18 months of post-partum amenorrhea. If the duration of breastfeeding were to decline by one-fourth, there would be an increase in fertility by one additional child per woman, in the absence of concomitant increases in other proximate determinants, most importantly, contraceptive use.

The temporary separation of spouses due to migration was conjectured to be the second-most important fertility inhibiting factor, not explicitly accounted for in the standard model. There were only negligible differences in the fertility levels and their proximate determinants between the *terai* and hill regions. However, the mountain region had lower fertility and the marriage variable had a stronger negative effect on this population than in the two other regions.

The fertility of urban women was somewhat lower than their rural counterparts, due partly to higher age at marriage and contraceptive use. At the same time, there was some evidence of declining duration of breastfeeding among the educated and urban women. This implies that as urbanization increased and the pace of modernization became more pronounced, the duration of breastfeeding was susceptible to decline. In the absence of concomitant increases in the prevalence of contraceptive use, the study concluded that the early stages of modernization might produce a temporary increase in fertility in Nepal.

The study was published in the *Journal of Biosocial Science* 1987 19: 351-65.

Technical Assistance on Natural Family Planning Projects (1984-85)

With assistance from the Swiss Association for Technical Assistance, the Ministry of Health initiated a small-scale natural family planning (NFP) project in a rural district in the early 1980s. By 1985, approximately 700 acceptors had been taught the use of a NFP method.

The life-table annual failure rate was about eight percent. This relatively low failure rate was likely associated with relatively older women practicing the method. FHI provided limited technical assistance to this study.

STD/AIDS CONTROL AND PREVENTION ACTIVITIES

AIDS PREVENTION EDUCATION AND INTERVENTIONS FOR HIGH RISK GROUPS

Condom Promotion and Distribution Program (1996-97)

The objectives of this project were to continue to expand the distribution and accessibility of the Contraceptive Retail Sales (CRS) brand condoms for disease prevention in an effort to strengthen sales and to influence consumer behaviors in 22 districts and most particularly in the nine districts of the Central Development Region from Naubise to Janakpur/Jaleshwar and Birgunj.

The project developed an STI/HIV/AIDS awareness training curriculum for retailers in Nepali and conducted 22 one-day workshops for 471 general outlet owners, non-traditional retailers (pan shops, tea stalls, liquor stores, general stores, grocery stores, and barber shops), and local community leaders. Special efforts were made to include women; one special session was organized for women retailers only, and a total of sixty women participated. Each workshop participant received a package of training materials including a retailer kit.

CRS revised the social marketing training curriculum and manual originally developed with Save the Children/U.S. and conducted three field trainings for NGO participants on how to integrate these strategies into ongoing disease-prevention activities. A total of 84 participants (45 male and 40 female) were trained in the two-day workshops.

Ten shops participated in a pilot "rack space buying" program through which they were reimbursed for the exclusive use of space for condom product display for one month. This new approach increased condom visibility in highway non-traditional outlets. Additional efforts included a condom display contest to create awareness of STI/HIV/AIDS and the availability of condoms in local, non-traditional outlets, as well as to de-stigmatize condom use. One hundred outlets participated. CRS distributed AIDSCAP condom promotional materials such as tin signs, mirrors, lamp shades, condom wallets, T-shirts, and caps to all of its retail outlets. CRS opened an additional 88 non-traditional outlets in the Central Region.

CRS arranged an average of thirteen video van shows per month (total 136 shows) for the public living and working in communities along the major transport routes. The film was viewed by approximately 87,000 people. Nine billboards and five kiosks were put up along the main highway. CRS also launched a pilot radio program on HIV/AIDS over FM Kathmandu with eight programs aired from March to April 1997. Due its success, it became a regular program.

STD/HIV/AIDS Prevention Education, Strengthening Initiatives for Chemists and Alternative Health Care Providers (1995-97)

Chemists play an important role in the health sector in Nepal. They often serve as the first point of contact and may be the only source of modern health care, including STD treatment, in a rural village. At least 65 percent of chemists are secondary school graduates. As the secondary school curriculum does not include sex education, knowledge of these issues and of sexually transmitted diseases gained at this level of schooling is limited.

A 1996 “mystery shopper” study found that less than one percent of chemists suggested the right medication and the right dosage for a man who complained of symptoms of urethritis, only 14 percent advised the use of condoms, and only five percent suggested partner referral for treatment. With support from AIDSCAP, the Nepal Chemists and Druggists Association (NCDA) set up a pilot training program for 550 chemists in the Central Region to teach them about case management for STDs, interaction between STDs and HIV, and how to do effective health education for prevention, including condom promotion with clients at risk.

In a second phase of the project in 1997, NCDA conducted three, two-day field trainings for 78 novice trainers at Pokhara, Janakpur, and Narayanghat. A total of 215 individuals were trained under this project.

A second follow-up quantitative impact evaluation was conducted after the implementation of the NCDA training. This study also used the simulated client, or “mystery shopper,” approach, and the results were compared to the baseline study taken prior to the NCDA training.

The results showed that 81.3 percent of the chemists recommended medications to treat the STI. Approximately 45 percent of the chemists suggested the correct medications and correspondingly correct dosages for urethral discharge, compared to 0.8 percent of the chemists in the baseline study. In the follow-up study 23 percent of the total chemists suggested condom use to their patients, increasing from 14 percent in the baseline. While only 5 percent of the total chemists suggested STI treatment for partners in the baseline, this increased to 21 percent in the follow-up survey. Three percent of chemists in the baseline advised their patients to consult with a physician if not cured by the treatment. This increased to 16 percent after training. The average cost of the suggested medications decreased from 193 rupees in the baseline to 168 rupees in the follow-up. Chemists’ retention of the training curriculum and prevention education messages substantially decreased after a period of three months following training participation. Those trained closer to the evaluation date had better understanding and retention. This suggests the need for on-going refresher and follow-up training for chemists.

Lessons learned from this project included the following:

- To maximize participation among chemists working in hard-to-reach places, adequate time must be set aside for planning, publicity, and making arrangements for the logistical details for each workshop;

- In each new district, there was initially great difficulty getting chemists interested in joining the training program, and convincing them to take time off to participate. This changed dramatically once the first workshop was conducted -- interest was then so great that demand exceeded the number of training places available;
- The dynamics of mixed groups provided the best learning environment, and a better, more focused environment to discuss sensitive topics such as condoms and demonstrating condom use -- *i.e.*, the presence of participants of both sexes facilitated serious discussion;
- Visual aids were very important when introducing new information in the session on STD syndromes.

This study was published in *Reproductive Health Matters* 1996 Nov; 8: 128-32.

Area of Affinity: Nepal and India (1995-97)

AIDSCAP's first full pilot cross-border intervention, the Nepal-India Area of Affinity (AOA) experience, was supported with funding from USAID's Asia Near-East Bureau. The Nepal-India AOA experience involved coordination between the Boruka AIDS Prevention Project (BAP), implemented by Boruka Public Welfare Trust, and AIDSCAP/Nepal's outreach education subprojects, implemented by General Welfare Pratisthan (GWP) and Lifesaving and Lifegiving Society (LALS) in the border communities of Raxaul and Birgunj. The project was designed to prevent the spread of HIV among truck drivers and their assistants who regularly cross the India-Nepal border.

Staff from both countries worked together at each stage of the cross-border project to ensure consistency of goals, evaluation indicators, strategies, messages, and services on both sides of the border. The projects organized a number of joint events, including a rally with street theater for World AIDS Day 1995. A key result of the collaboration was STD referrals from Nepal to India. As STD services were not accessible in the Birgunj area, staff in Nepal referred patients in need of STD services over the border to the BAP clinic.

The project partners organized a seminar on "Sharing Tripartite Experiences" from India, Nepal, and Bangladesh in 1996 to discuss the Raxaul-Birgunj experience. Some of the key lessons identified were that HIV/AIDS prevention messages for people traveling across borders must be consistent; interventions on both sides of the border gain credibility and community support if collaboration between field staff from the neighboring countries is observable at the field level; and collaboration between two neighboring projects is possible only if there is consistency in the strategic approach.

Human Resources Development Assistance and HIV/AIDS/STD Outreach Training (1994-97)

The Lifesaving and Lifegiving Society (LALS), an NGO in Nepal, provided human resources development technical assistance to the NGO General Welfare Pratisthan (GWP) to assist GWP

manage and implement the AIDSCAP-funded project *Outreach Education to Commercial Sex Workers and Clients/Transient Population Groups in Central Nepal*.

LALS developed and conducted orientation and monthly in-service training for a total of 154 GWP's outreach education supervisors and educators through three phases of this project. Other project accomplishments included: assisting GWP outreach staff plan and implement peer-educator trainings; developing and conducting in-service training modules and sessions for GWP field staff; visiting field-based outreach education sites to conduct non-formal and practical trainings; overseeing outreach education activities; integrating outreach and behavioral change communications interventions; and coordinating trainings and seminars on STD case management. LALS also organized an international study tour to STD/HIV/AIDS projects in West Bengal, India, for staff from various Nepali NGOs dedicated to preventing the spread of HIV/AIDS. More than 207,000 condoms were distributed free of charge through the project.

Outreach Education to Commercial Sex Workers and Transient Population Groups (1994-97)

Nepal's economic conditions have forced laborers to seek employment opportunities in the *terai's* urban industries and agricultural centers as well as similar opportunities in northern India and India's largest cities. Studies have shown up to 300,000 Nepalese working in India. Nepalese women living in India include women coerced to work as sex workers in Indian brothels. It has been reported that approximately 100,000 Nepalese women work in India's sex industry. Not only does Nepal share a border with India, but the country is dependent upon India's transportation routes for the import of foreign and Indian products and export of Nepalese products. These transport routes are key links for commerce and HIV transmission.

The non-governmental organization General Welfare Pratisthan (GWP) has been conducting HIV/AIDS outreach education to transport workers and other communities since March 1993. In collaboration with AIDSCAP, GWP expanded its outreach education mission to a larger geographical region, the Central Development Region -- and to a related target group, commercial sex workers (CSWs).

The overall goal of this project was to reduce the rate of STD/HIV prevalence among CSWs, their clients, and other transient population groups along Nepal's major transport routes in the Central Development Region. A tailored orientation training program was developed for the outreach education staff. Community assessments of CSWs and transient population groups were conducted, followed by additional skills training for the outreach education staff. Outreach sites were established in collaboration with workers' associations, community sex centers, community groups and organizations, clinics, campus areas, and private sector enterprises.

At these sites community outreach educators provided one-on-one communications and engaged in group discussions with the target individuals and key motivators. Other activities in the project included IEC materials development and distribution, six community events, and

distribution of 98,000 condoms. More than 600 individuals were trained, and nearly 275,000 individuals were educated.

The outreach intervention proved to be an important component for reducing high-risk sexual behaviors. The quantitative indicators derived from internal assessments and the New Era baseline and follow-up studies demonstrated a 26 percent increase in condom use in the last at-risk sexual encounter reported by CSWs (35-61%), a 7.1 percent increase in condom use in the last at-risk sexual encounter reported by clients (34-41.1%), and that 74.4 percent of CSWs and 83.6 percent of clients could identify at least one measure to prevent HIV/STD infection.

Condom Social Marketing in Nepal (1994-96)

This intervention targeted CSWs and their clients in the *terai* area of the Central Region as well as along the Central Region's major transport routes. Under an existing USAID-supported contraceptive social marketing project, The Futures Group International worked with the Nepal Contraceptive Retail Sales (CRS) company to develop marketing and communications, improve distribution operations, and develop guidelines for cost recovery. This project supported the integration of The Futures Group's existing condom social marketing program with the AIDSCAP communication and STD prevention interventions in Nepal.

The condom distribution system of CRS was redesigned and expanded significantly, enabling the existing CRS sales force to focus its efforts on broadening the availability of condoms from medical stores to general stores and non-traditional outlets. Nearly 3,000 new outlets for condom sales were opened along the trucking route area, and more than 90 percent of these were non-pharmaceutical outlets. By the end of the project, well over half a million condoms above the target of 4 million were distributed.

A major condom marketing activity in the project was HIV/AIDS prevention communication. Promotional media included radio spots, short video films, promotional items, and simple print messages. Nearly 140,000 individuals received information on the prevention of STDs and HIV from condom promotion and advertising activities along the major transport routes by the end of the project.

STRENGTHENING STD/AIDS SERVICES

Family Planning Association of Nepal/Chitwan STI Services Project (1996-97)

The Family Planning Association of Nepal (FPAN), founded in 1959, is the largest non-governmental organization in the country, with programs in 27 districts. FPAN has been a member of IPPF since 1969. As part of its advocacy role, FPAN has organized many national-level seminars and meetings with policy makers and other change agents, and in the area of AIDS was instrumental in encouraging the formation of a journalist network, Journalists against AIDS. FPAN has also worked in collaboration with General Welfare Pratisthan to encourage individuals in need to obtain proper treatment for STDs.

This STD outreach project sought to improve women's access to comprehensive STD services in the Chitwan district area, by providing low-cost STD consultation and treatment to women in need. In accordance with the National STD Case Management Guidelines, developed by the MOH's National Centre for AIDS and STD Control, FPAN has integrated STD services into its on-going health service delivery, following the recommended syndromic approach for Nepal.

Under this project, a peer educator training workshop on HIV/AIDS/STDs for field outreach staff and volunteers was conducted; HIV/AIDS/STD educational materials were disseminated; a client database was created to facilitate client follow-up, determine service demand, and conduct simple studies; disease prevention messages were integrated into FPAN's community workers' on-going family planning and family health home visits; and an Operational Revolving Drug Fund, with affordable prices for FPAN STD clients, was established.

The project contributed to improved access for women to STD services in the project area. More than 1,000 STD cases were treated, and as a result of health education activities, the reported use of condoms in high-risk sexual contacts among sex workers increased from 35 percent at baseline to 61 percent. More than 22,000 individuals were educated, 436 individuals were trained, and more than 16,000 condoms were distributed.

STD/HIV/AIDS Coordination and NGO Technical Support (1995-96)

In response to Nepal's growing threat of HIV/AIDS, AIDSCAP collaborated with Save the Children/US (SC/US) to expand technical assistance to reach groups and organizations not served by AIDSCAP/Nepal's Condom Social Marketing, STD Services, and Outreach Education implementing agencies. This project expanded the geographical focus of the AIDSCAP/Nepal Strategic Plan to areas beyond the *terai*/Central Development Region to include Kathmandu Valley as well as the Eastern, Western, Mid-Western, and Far Western Development Regions. The overall objective of this project was to maximize the development of critical technical skills. SC/US built on its strong organizational network to bring institutions together to share experiences, lessons learned, and to receive various forms of technical assistance. Project technical assistance and coordination focused on three major areas: IEC, HIV/AIDS prevention counseling, and condom social marketing.

SC/US collaborated with local institutions to mobilize 15 NGOs and international NGOs that have been active in HIV/AIDS IEC materials development to participate in an IEC Coordination Committee. Materials developed by member organizations were made available for other health-related organizations around the country. SC/US also formed a coalition of eight NGOs and INGOs that participated in a counseling workshop in October 1994. A counseling working group, comprising the workshop's most active participants, was established to develop further the counseling strategies and instruments introduced at the workshop.

STD Case Management Training Workshops and Education Initiatives Support for Physicians (1994-96)

AIDSCAP provided support to the Nepal Medical Association (NMA) to develop and manage a series of workshops and supportive educational initiatives for physicians in STD case management. The NMA conducted the STD Patient Management Training Workshops for private sector physicians who provide STD health services in the *terai* region of Nepal and the urban centers of Bharatpur/Narayanghat, Janakpur, and Birgunj, as well as smaller adjacent communities. The STD training curriculum was developed in accordance with the MOH's 1993 STD Case Management Guidelines for Health Care Workers.

The NMA utilized their 17th All-Nepal Medical Conference in February 1996 to hold a special session on STD/AIDS in an effort to update the attending physicians on new STD management protocols. A total of 53 general physicians from the Central Region in Nepal completed the training workshops in the STD Case Management approach to STD diagnosis and treatment.

OTHER STD/AIDS PROJECTS

Rapid Response Fund Grants (1996-97)

The AIDSCAP project awarded grants to nine Nepali NGOs to support local STD/AIDS prevention activities. The grant recipients were the HIV/AIDS IEC NGO Coordinating Committee, the Narayangarh Jaycees, the Jamkavet Library, Save the Environment, the Student Awareness Forum, Sri Ram Yuwa Committee, the Women Skill Creation Centre, the Rural Environment and Development Association, and the Nepal Medical Association –Nepalgunj Branch. The funds supported activities including special symposia on STDs and AIDS, integrating AIDS education and local cultural programming, training community educators, and supporting a drop-in center for at-risk individuals.

Baseline, Mid-Term, and Evaluation Studies for Interventions Targeted to Commercial Sex Workers and Sex Clients on the Land Transportation routes from Janakpur and Birgunj to Naubise (1994-97)

The main purpose of these studies was to provide evaluation data on knowledge, attitude, and practices (KAP) among commercial sex workers and their clients before and after AIDSCAP project interventions. The net effect was measured by comparing the results of the 1996 follow-up survey with the results of the 1994 baseline survey. A rapid qualitative mid-term study was conducted in 1996 to guide the project's final workplans and interventions through mid-1997.

In each survey, information was collected along the highway route from Naubise to Janakpur and Birgunj as the project intervention area, and, for the control area, from the western part of Narayanghat to Butwal/Bhairahawa and east of Dhalkebar, including Lahan, Itahari, and Biratnagar.

In the baseline study a total of 100 CSWs and 209 clients in the project area and 62 CSWs and 103 clients in the control area were interviewed. For the rapid mid-term assessment, 25 CSWs and 25 clients were interviewed. In the follow-up survey, 164 CSWs and 231 clients in the project area, and 112 CSWs and 157 clients in the control area were interviewed.

The baseline study revealed that CSWs were young, averaging 26 years old. In the intervention and control areas, respectively, 84 and 93 percent of CSWs were married and 57 and 66 percent of their clients were married. The level of education was much higher among the clients (90 and 93 percent) than among the CSWs (40 and 44 percent). Ninety percent of clients in both study areas had heard of AIDS, while only 80 percent of the CSWs in the project area and 60 percent in the control area had heard of AIDS.

About one-third of the CSWs in both areas had requested that their clients use condoms for sex, though of these, 60 percent of the clients in the project area and 48 percent in the control area refused to wear condoms. The unavailability of condoms and sexual dissatisfaction were the major reasons cited for not always using a condom. In addition, a substantial proportion of CSWs and clients with previous STDs reported no treatment.

Prior to project interventions CSWs reported chemists' and retail shops as their major source for condoms. Following the interventions NGOs were reported as a major source. In the control area the major condom sources were chemists' and government health facilities. Following the interventions there was an increase in the proportion of CSWs providing condoms to their clients in the project area. This had slightly declined in the control area. The proportion of CSWs having seen, heard, or read condom advertisements increased in the project area, while no change was reported by CSWs in the control area. Radio, television, billboards, and NGOs were the major sources of condom advertisements and information for CSWs in the project area. In both the control and intervention areas a significant gain was seen in the role of television as a source of information. In the project area, CSWs reported use of the condom by their last client increasing from 35 to 61 percent. There was no significant change in the control area.

There was an increase in the proportion of CSWs requesting use of condoms from their clients in both the project and control areas. Specific condom promotion messages, including *Dhaaley Dai, Guruji Ra Antare* and "Condom Lagau AIDS Bhagau," reached a substantial proportion of CSWs in both areas. Following interventions there was an increase in CSWs who had knowledge of HIV. There was a notable decline in the proportion of CSWs having no awareness of measures to protect themselves from AIDS in both the project and control areas.

Reported STI symptoms were slightly higher in the control area than the project area, and nearly 82 percent of clients with STI symptoms in the project area reported seeking treatment. This figure was only 50 percent in the control area.

HIV/AIDS in Nepal: An Update (1994)

From 1990 to 1993 there was a 15-fold increase in the number of HIV infected cases in Nepal, with 195 cases reported to the MOH by 1993. Among the total cases reported, approximately equal numbers of male and female HIV cases were represented. The estimate of HIV infected individuals as of 1994 was 5,000; this number was projected to reach 100,000 cumulatively by the year 2000 if effective preventive measures were not taken.

Commercial sex workers and their clients were the most affected groups. The majority of HIV infected cases belonged to the 20-29 age group. HIV surveillance data indicated that the overall seroprevalence rate increased from 0.20 to 0.70 from 1991 to 1992. Of the total 195 HIV infected cases, 24 (12.3%) were reported to be AIDS cases. The number of AIDS cases doubled between 1991 and 1993. There were three times as many AIDS cases among females than males. Of the total 24 AIDS cases at the time of this analysis, 11 had died. Case studies illustrated the multi-faceted context in which HIV/AIDS was spreading in Nepal.

This study was published in the *Journal of the Nepal Medical Association* 1994 Jul-Sep; 32 (111): 204-13.

Study of Sexual Networking in Five Urban Areas in the Nepal Terai (1993-94)

Prior to the design of program interventions, AIDSCAP supported a rapid ethnographic assessment of the commercial sex industry in the *terai* region. The study was conducted collaboratively with Nepal's National AIDS Prevention and Control Project, Ministry of Health. The field work was carried out between August and October 1993 and was managed by Valley Research Group in Kathmandu.

Commercial sex workers were found in all five surveyed areas. Most of them worked independently and arranged clients on their own, through friends and acquaintances, or informal brokers, such as rickshaw drivers, hotel employees, or restaurant workers. The majority of the CSWs surveyed (excluding the Muna Badi ethnic group) had a very low level of knowledge about AIDS. Their lack of education/literacy and social isolation, combined with only meager AIDS education programming efforts, had denied most of them access to useful information about the disease. The vast majority of CSWs surveyed did not require all of their clients to wear condoms, and thus were at high risk for HIV and STD infection.

Muna Badi CSWs, in contrast, had a significantly higher level of knowledge about AIDS and had been highly successful in adopting protective behaviors. Eighty-seven percent of surveyed Muna Badi reported using condoms 100 percent of the time. This impressive response to the threat of AIDS is related to this community's close-knit and fairly egalitarian nature, the fact that prostitution is practiced openly, and the resulting support for safe sexual practices.

Drivers and conductors constituted a most important target group for AIDS prevention, as they are frequent clients of CSWs, and, because of their mobility, represented a core group of potential transmitters of HIV. The majority of drivers and conductors in all five surveyed areas

had a high rate of sexual contact with CSWs. These clients are at high risk for AIDS because of generally low levels of awareness about AIDS transmission and prevention, low levels of condom use, and high rates of STD infection. In addition, the fact that many drivers and conductors have sex with many different CSWs over a wide geographic area put them at extremely high risk of both contracting and transmitting the virus. Drivers and conductors were an easily accessible target population for AIDS education because they were generally open and concerned about sexual issues and because educational efforts appeared to have the support of drivers' union officials.

In the five surveyed areas a wide variety of professionals expressed willingness to work as AIDS educators. Many of those surveyed, however, including doctors and other health care workers, opposed condom promotion, fearing that it would encourage men to engage in commercial sex.

The study concluded with a number of recommendations for an AIDS prevention program, including a comprehensive AIDS education program, condom promotion, upgrading and expanding STD treatment services, and involving NGOs in AIDS education projects.

Commercial Sex Workers in Kathmandu Valley: Their Profile and Health Status (1993)

The primary purpose of this study was to generate an understanding of the socio-economic profile and the sexual behavior of women engaged in high-risk behaviors in Kathmandu Valley. The secondary purpose was to identify and suggest intervention strategies.

Prior to this study, almost no information existed about how many women in Nepal were engaged in commercial sex activities, although some preliminary investigation had suggested that a "vigorous commercial sex industry" was present in Nepal. This was the first comprehensive study of CSWs in the Valley.

A total of 373 women currently practicing sex for money were interviewed for this study, over a period of three months. Because the women were not randomly selected, the study is not representative of all CSWs in Kathmandu Valley. Most CSWs in Kathmandu Valley come from outside the Valley but from within Nepal. Only a few are migrant CSWs, mainly returnees from India. Among those interviewed, the proportion of literate women was nearly double that of illiterate. Over 50 percent of the CSWs had secondary or higher education.

The average age at entering the sex trade was 18, and about two-thirds entered the sex trade at the age of 15-19. Over half of CSWs entered the trade to escape economic hardship. The persons who most influenced the CSWs to join the trade were their friends. The vast majority of CSWs reported contacting clients themselves or through friends, while nearly one-third of them did so through brokers.

In addition to the sex trade, 68 percent were engaged in other activities, such as the carpet and garment industries or small businesses. The sex trade generated nearly 80 percent of their average monthly income. Regular expenses accounted for about 78 percent of this total, and

savings about 22 percent. Thus, the sex trade appeared to allow CSWs to accumulate sizable savings.

A large proportion of CSWs were "to some extent" aware of condoms. Only one-fifth reported to have "good" awareness. Less than three percent of the CSWs reported using condoms "always," while 28% of the sample used condoms "most of the time," and another 27% used condoms "some of the time." Among those who reported that they urged clients to use condoms during intercourse, only 16 percent of the CSWs would not have sex if the clients refused to use a condom.

The vast majority of the CSWs were aware of general types of STDs, but 42 percent were not aware of AIDS. Of those who were aware, almost all were interested in further knowledge about AIDS, with the most preferred mode being communication by radio.

Gynecological examinations of symptomatic CSWs revealed that nearly three-fourths of the CSWs were infected with some type of STD, though only a small proportion had ever visited a clinic for treatment. In addition, general practitioners in Nepal were not adequately trained in the treatment of STDs.

The study recommended that counseling and treatment of STD be made a part of a larger public health campaign and program for women in general, but especially for women at risk. In addition, a two-pronged intervention approach was proposed: one that would attempt to minimize the health risks to the women who decided to participate in the sex trade, and the other to attempt to modify the sexual behavior of the men who generated demand for commercial sex.

This study was published in the *Journal of the Nepal Medical Association* 1994 Jul-Sep; 32 (111): 191-203.

NB: A more detailed report on the AIDSCAP project in Nepal is available upon request.

APPENDIX ONE

FHI POPULATION ACTIVITIES IN NEPAL							
Project Name	Effective Dates	Collaborating Agencies	Funding Source	Total Funding	FCO	Project Status	Project Objectives
<i>Evaluation and Acceptability of Contraceptive Methods</i>							
• Sterilization							
Gender Inequality in the Adoption of Sterilization in Nepal	1997	MOH	USAID	N/A	7403	Completed	To analyze data from 1996 Nepal Family Health Survey, focusing on sterilized women and women whose husbands had been sterilized.
Vasectomy Reversal in Nepal	1987	Family Planning Association of Nepal (FPAN)	USAID	N/A	3355	Completed	To analyze the sociodemographic characteristics of those having reversal operations and their reasons for seeking recanalization.
• Intrauterine Devices (IUD)							
A Comparative Study of the IUDs TCU 380A vs. TCU 200 in Kathmandu, Nepal	1987-90	Maternity Hospital Thapathali	USAID	\$68,289	2051	Completed	To compare the safety and efficacy of the TCU 380A IUD and the TCU 200 IUD among women.
• Implants							
Norplant Contraceptive Acceptability among Women in Five Asian Countries	1988-93	N/A	USAID	\$1,030	3325	Completed	To assess acceptability of Norplant in five Asian countries.
Five-Year Evaluation of Safety, Efficacy, and Acceptability of Norplant Implants in Nepal	1985-91	Lalitpur Family Planning Clinic in Patan; FPAN	USAID	\$34,939	5182	Completed	To introduce Norplant into countries with no previous experience with the method, to provide proper training to physicians in the insertion and removal techniques and client counseling, and to determine overall acceptability.

FHI POPULATION ACTIVITIES IN NEPAL							
Project Name	Effective Dates	Collaborating Agencies	Funding Source	Total Funding	FCO	Project Status	Project Objectives
Insertion-Site Complications During the First Year of Norplant Use	1985-87	N/A	USAID	N/A	3132	Completed	To determine frequency of insertion-site complications, distribution of the time of onset post-insertion, and potential sequelae of complications.
Initial Acceptability of Contraceptive Implants in Four Developing Countries	1985-86	N/A	USAID	\$35,671	3325	Completed	To determine acceptability of Norplant among potential acceptors.
• Barrier Methods							
Condom Breakage and Slippage Rates Among Study Participants in Eight Countries	1989-94	Valley Research Group	USAID	\$2,329	6397	Completed	To evaluate breakage and slippage rates and location of condom breakage in multiple sites.
Acceptability and Actual Use Breakage and Slippage Rates of Standard and Smaller Latex Condoms: Nepal and Sri Lanka	1991-92	Valley Research Group	USAID	\$16,195	6316	Completed	To determine consumer preference for the standard or the smaller condom and to determine breakage and slippage rates for the two condom sizes.
Maternal and Child Health							
Family Planning Camp as an Opportunity to Assess and Help Reduce the Prevalence of Reproductive Health Morbidities in Rural Nepal	1996-97	MOH	USAID	N/A	7403	Completed	To assess the prevalence of maternal morbidities at a rural minilap site.
Safe Motherhood Project	1996	MOH	WHO	N/A	1620	Completed	To provide technical assistant to the MOH's Safe Motherhood Programme, including data analysis and developing advocacy materials.
Perinatal Mortality in Nepal: Implications for Behavior Modification	1996	MOH	USAID	N/A	7403	Completed	To examine levels of perinatal mortality in various regions of Nepal.
Infant Mortality and its Correlates and Determinants in Nepal: A District-level Analysis	1996	MOH	USAID	N/A	7403	Completed	To analyze the relationship between infant mortality and multiple indicators of development in Nepal.
Poverty, Literacy, and Child Labor in Nepal: Implications for Behavior Modification	1996	MOH	USAID	N/A	7403	Completed	To estimate the prevalence of child labor in Nepal.

FHI POPULATION ACTIVITIES IN NEPAL							
Project Name	Effective Dates	Collaborating Agencies	Funding Source	Total Funding	FCO	Project Status	Project Objectives
Girl Child Marriage in Nepal: Its Prevalence and Correlates	1996	MOH	USAID	N/A	7403	Completed	To examine the role of ethnic differences in the prevalence of girl child marriage.
Maternal Morbidity Among Women Admitted for Delivery at a Public Hospital in Kathmandu	1994	N/A	USAID	N/A	7498	Completed	To investigate problems and patterns of maternal morbidity at the Maternity Hospital in Kathmandu.
Study of the Impact of Breastfeeding on Birth-Interval Effects and Early Childhood Mortality	1989	FP/MCH Project of the MOH and the East-West Center	USAID	\$60,824	3381	Completed	To determine the effects of breastfeeding on early childhood mortality.
Ethnic Differentials in Early Childhood Mortality	1989	FP/MCH Project of the MOH and the East-West Center	USAID	N/A	N/A	Completed	To determine the association between early childhood mortality and ethnicity.
Infant Mortality Trends and Differentials	1986	FP/MCH Project of the MOH and the East-West Center	USAID	N/A	N/A	Completed	To compare the estimates of infant mortality trends and differentials from the 1981 Nepal Contraceptive Prevalence Survey with the estimates from the 1976 Nepal Fertility Survey.
Obstetric Deliveries at Maternity Hospital	1980-82	Maternity Hospital in Kathmandu	USAID	N/A	N/A	Completed	To describe some of the main sociodemographic characteristics of patients admitted to the hospital for delivery, their obstetric history, management of labor and delivery, complications, obstetric outcomes and family planning intentions.
<i>Evaluation of Family Planning Costs and Services</i>							
Contraceptive Method Choice	1997-98	MOH	USAID	\$49,658	9346	In progress	To document the extent to which women do or do not receive their method of choice.

FHI POPULATION ACTIVITIES IN NEPAL							
Project Name	Effective Dates	Collaborating Agencies	Funding Source	Total Funding	FCO	Project Status	Project Objectives
Female Sterilization: A Comparison of Two Types of Service Delivery	1997	MOH	USAID	N/A	7403	Completed	To compare the profile of female sterilization clients, their awareness of other contraceptive methods, and regret between the two service delivery points.
Female Sterilization Acceptors at Permanent and Temporary Service Delivery Settings	1994	MOH	USAID	\$65,287	6382	Completed	To compare the quality of care in the temporary service delivery settings with permanent settings.
Family Planning in Nepal: An Update	1994	MOH	USAID	N/A	7498	Completed	To review emerging patterns and trends in awareness about and practice of family planning and assess the relationship between contraceptive use and fertility and potential demand for family planning.
Understanding Quality of Service in Family Planning	1993-94	MOH	USAID	\$45,487	9318	Completed	To define quality of care and to determine the quality of care within the family planning program in Nepal.
A Decade of Nepal's Family Planning Program	1989	MOH	USAID	\$34,939	5182	Completed	To assess progress made in the FP program from 1976 to 1986.
Contraceptive Social Marketing in Nepal	1986-87	Contraceptive Retail Sales (CRS) Company and New ERA	USAID	\$38,621	3302 2267	Completed	To assess knowledge, health concerns and experience with marketing (retailers) and use (consumers) of OCs and vaginal tablets distributed by CRS.
<i>Technology Transfer and Information Dissemination</i>							
Emergency Contraception	1997-98	NESOG	USAID	N/A	7403	In progress	To review current information on EC and discuss implications for service delivery in Nepal.
Support to Media Alert	1995-97	Media Alert	USAID	\$2,400	7403	Completed	To support a reproductive health column in the quarterly publication <i>Health Alert</i> .

FHI POPULATION ACTIVITIES IN NEPAL							
Project Name	Effective Dates	Collaborating Agencies	Funding Source	Total Funding	FCO	Project Status	Project Objectives
Support to the Nepal Medical Association	1994-96	Nepal Medical Association	USAID	\$10,000	7403	Completed	To support two special issues of the <i>Journal of the Nepal Medical Association</i> , one on RH topics, and one on MCH topics.
Contraceptive Technology Update Series	1989-96	NESOC, NMA, MOH	USAD	N/A	7098;7403	Completed	To update providers on current scientific information on various contraceptive methods.
Camp Female Sterilization: The Nepal Experience	1977	Inter-Governmental Coordinating Committee on Family Planning	USAID	N/A	N/A	Completed	To provide a guide to others who desire to take sterilization to the women of rural areas of developing countries.
Policy and Research Support							
Support to the Government of Nepal (GON) and USAID/Kathmandu)	1993-to present	GON and USAID/Kathmandu	USAID	\$1,015,822	7098/7403	Continuing Activities	To strengthen the institutional capacity of the GON to develop and implement policies and strategies to increase the availability of and access to quality family planning and child survival.
Support to the Health Service Management Information Service	1993	MOH	USAID	N/A	7098	Completed	To review the MIS and assess strengths and weaknesses to work to improve the system.
Family Planning Sector Strategy	1991-92	MOH	USAID	\$24,480	6721	Completed	To review achievements in the family planning sector in Nepal, to review lessons learned and to recommend strategies for future USAID assistance.
Technical Assistance to NFP Projects	1986	MOH, Swiss Assoc. for Technical Assistance (SATA) and FPAN	USAID	\$1,573	3442	Completed	To provide assistance with data analysis.

FHI POPULATION ACTIVITIES IN NEPAL							
Project Name	Effective Dates	Collaborating Agencies	Funding Source	Total Funding	FCO	Project Status	Project Objectives
Seminar on Emerging Issues in Family Planning in Nepal	1989	Social Services National Coordination Council, MOH and FPAN	USAID	\$1,663	3182	Completed	To report the proceedings of the seminar.
Other Population Projects							
Sexual and Reproductive Health Needs of Youth in Nepal	1998	East-West Center	USAID	\$150,000	7412	In progress	To determine RH needs of Nepalese adolescents and design interventions.
Linkages of Adult Literacy to Improved Health and Family Planning in Nepal	1997	CEDPA	USAID	N/A	7403	Completed	To examine relationship between literacy and health.
A Study of Declining Fertility in Nepal	1997	East-West Center	USAID	N/A	7403	Completed	To assess the trend of fertility in Nepal over the past two decades.
Conference on Fertility Transition in Nepal	1997	Tribhuvan University Center for Nepal and Asian Studies	USAID	\$21,000	7403	Completed	To assess and evaluate changes in the patterns and levels of fertility in Nepal; to draw policy and programmatic implications.
The Human Development Index: A Portrait of the 75 Districts in Nepal	1995	MOH	USAID	N/A	7403	Completed	To assess human development at the district level.
The Ethnic Factor in the Timing of Family Formation	1989	MOH	USAID	N/A	7403	Completed	To examine the role of ethnic differences in timing of first marriage.
Strength of Fertility Motivation and Contraceptive Use	1988	N/A	USAID	N/A	N/A	Completed	To determine if new survey questions on the 1986 Nepal Fertility and Family Planning Survey enabled improved prediction of contraceptive use.
Determinants of Fertility in Nepal: Applications of an Aggregate Model	1987	N/A	USAID	N/A	N/A	Completed	To analyze determinants of fertility using an aggregate model.
Technical Assistance on Natural Family Planning	1984-85	MOH	USAID	N/A	N/A	Completed	To introduce NFP methods in rural Nepal.

APPENDIX TWO

FHI AIDS CONTROL AND PREVENTION ACTIVITIES IN NEPAL							
Project Name	Effective Dates	Collaborating Agencies	Funding Source	Total Funding	FCO	Project Status	Project Objectives
<i>AIDS Prevention Education and Interventions for High Risk Groups</i>							
Condom Promotion and Distribution Program	1996-97	Nepal CRS Company	USAID	N/A	52426	Completed	To expand the distribution and accessibility of the CRS brand condoms.
STD/HIV/AIDS Prevention Education, Strengthening Initiatives for Chemists and Alternative Health Care Providers	1995-97	Nepal Chemists & Druggists Association (NCDA)	USAID	\$110,652	51426-0	Completed	To educate members of the NCDA on STD care, treatment and management to strengthen STD/HIV/AIDS prevention and control.
Area of Affinity: Nepal and India	1995-97	General Welfare Pratisthan	USAID	N/A	N/A	Completed	To prevent the spread of HIV among truck drivers crossing the India-Nepal border.
Human Resource Development Assistance and HIV/AIDS/STD Outreach Training	1994-97	Lifesaving & Lifegiving Society (LALS)	USAID	\$17,700	36427-0	Completed	To assist General Welfare Pratisthan in managing and implementing an AIDSCAP funded project.
Outreach Education to CSWs and Transient Population Groups	1994-97	General Welfare Pratisthan	USAID	\$290,421	33426 53326-0	Completed	To reduce the rate of STD/HIV prevalence among CSWs, their clients and other transient population groups along the major transport routes.
Condom Social Marketing in Nepal	1994-96	Futures Group International, Inc.	USAID	\$209,880	52325-0	Completed	To integrate existing the condom social marketing program with the communication and STD prevention interventions in Nepal.

FHI AIDS CONTROL AND PREVENTION ACTIVITIES IN NEPAL							
Project Name	Effective Dates	Collaborating Agencies	Funding Source	Total Funding	FCO	Project Status	Project Objectives
STRENGTHENING STD/AIDS SERVICE							
Family Planning Association of Nepal/Chitwan STI Services Project	1996-97	FPAN	USAID	\$38,872	51327-0	Completed	To improve women's access to comprehensive STD services by providing low-cost STD consultation and treatment to women in need.
STD/HIV/AIDS Coordination and NGO Technical Support	1995-96	Save the Children	USAID	\$28195	56429	Completed	To expand technical assistance to reach NGOs not served by AIDSCAP/Nepal's implementing agencies.
STD Case Management Training Workshops and Education Initiatives Support for Physicians	1994-96	Nepal Medical Association (NMA)	USAID	\$25,298	31425-0	Completed	To develop and manage a series of workshops and supportive educational initiatives for physicians in STD case management.
OTHER STD/AIDS PROJECTS							
Rapid Response Fund Grants	1996-97	N/A	USAID		56329	Completed	To support local STD/AIDS prevention NGOs.
Baseline, Mid-Term, and Evaluation Studies for Interventions Targeted to Commercial Sex Workers and Sex Clients on the Land Transportation Routes in Central Nepal.	1994-97	New ERA	USAID	\$16,569	36426-0, 57425-1, 54429	Completed	To measure sexual behavior among CSWs and their clients and to measure baseline service provision by pharmacists.
HIV/AIDS in Nepal: An Update	1994	MOH	USAID	N/A	N/A	Completed	To provide an overview of the patterns and trends of HIV and AIDS cases, discuss the types of HIV transmission and the factors contributing to the spread of HIV/AIDS.

FHI AIDS CONTROL AND PREVENTION ACTIVITIES IN NEPAL							
Project Name	Effective Dates	Collaborating Agencies	Funding Source	Total Funding	FCO	Project Status	Project Objectives
Study of Sexual Networking in Five Urban Areas in the Nepal <i>terai</i>	1993-94	Valley Research Group	USAID	\$14,287	20432-2	Completed	To provide information on the operation of the sex industry, the sexual behavior of CSWs and their clients, gatekeepers of CSWs, and the access of sex workers to health services.
Commercial Sex Workers in Kathmandu Valley: Their Profile and Health Status	1993	Valley Research Group and MOH	USAID	N/A	7098	Completed	To generate an understanding of the socio-economic profile and the sexual behavior of women engaged in high risk behaviors.

APPENDIX THREE

List of FHI Publications

- Baker J, Friedman R, Thapa S, Rai T. Understanding quality of service in family planning in Nepal. *J Nepal Med Assoc.* 1994;32;154-174.
- Bhatta P, Thapa S, Neupane S, Baker J, Friedman M. Commercial sex workers in Kathmandu Valley: profile and prevalence of sexually transmitted diseases. *J Nepal Med Assoc.* 1994;32;191-203.
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- Chi IC, Thapa S. Mechanical devices for interval laparoscopic tubal sterilization in previous IUD users. *Adv Contracept* 1994;10;223-234.
- Chi IC, Thapa S. Postpartum tubal sterilisation: an international perspective on some programmatic issues. *J Biosoc Sci.* 1993;25;51-61.
- Choe MK, Retherford RD, Gubhaju BB, Thapa S. Ethnic differentials in early childhood mortality in Nepal. *J Biosoc Sci.* 1989;21;223-33.
- Dangol BD, Retherford RD, Thapa S. Declining fertility in Nepal. *Asia Pac Popul J.* 1997;1:33-53.
- Shrestha M, Hurst C, Farr G, Amatya R, Tucker B, McMahon J. A comparative study of the intrauterine devices TCu 380a versus TCu 200 in Kathmandu, Nepal—investigator network needs. *Asia Pac Popul J.* 1995;10(2);15-26.
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- Kane TT, Farr G, Janowitz B. Initial acceptability of contraceptive implants in four developing countries *Int Fam Plann Perspect.* 1990;16;49-54.
- Klavon SL, Grubb GS. Insertion-site complications during the first year of Norplant Use. *Contraception.* January 1990: 27-37.
- Krueger SL, Dunson TR, Amatya RN. Norplant contraceptive acceptability among women in five asian countries *Contraception.* 1994;50::349-61.
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- Retherford RD, Choe MK, Thapa S, Gubhaju BB. To what extent does breastfeeding explain birth-interval effects on early childhood mortality? *Demography.* 1989;26;439-50.

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Smith JB, Lakhey B, Thapa S, Rajbhandari S, Neupane S. Maternal morbidity among women admitted for delivery at a public hospital in Kathmandu. *JNMA*. 1996;118/119;132-140.

Steiner M, Piedrahita C, Joanis C, Glover L, Spruyt A. Condom breakage and slippage rates among study participants in eight countries. *Inter Fam Plann Perspect*. 1994;20;55-8.

Suvedi BK, Baker J, Thapa S. HIV/AIDS in Nepal: an update. *J Nepal Med Assoc*. 1994;32;204-13.

Suvedi BK, Baker J, Thapa S. HIV/AIDS in Nepal: an update. *J Nepal Med Assoc* . 1994;32;204-213.

Thapa S, Chhetry D, Aryal RH. Poverty, literacy and child labour in Nepal: a district-level analysis. *Asia Pac Popul J*. 1996;11(3);3-14.

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