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**WORKSHOP - CONFERENCE ON
POPULATION, FAMILY PLANNING,
AND DEVELOPMENT IN NEPAL**

Jointly Sponsored by:

**His Majesty's Government of Nepal -
Family Planning/Maternal and
Child Health Project**

**Nepal-University of California
Family Planning/Maternal and
Child Health Project**

**Berkeley, California
August 24-29, 1975**



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NEPAL—UNIVERSITY OF CALIFORNIA
FAMILY PLANNING/MATERNAL AND
CHILD HEALTH PROJECT

BERKELEY, CALIFORNIA
AUGUST 24-29, 1975

SOME THOUGHTS BY

His Majesty King Birendra Bir Bikram Shah Dev

of Nepal

POPULATION

It is only true that our total needs grow with the rise in population. But if economic output fails to keep pace with human needs, poverty perpetuates itself, scarcities become acute, prices rise ever faster, the problem of indiscriminate settlement worsens, forest-wealth gets depleted and soil erosion continues to bring in ever more devastations. In brief, the natural environment, congenial to a happy and peaceful life of men, gets polluted. Nor is this all. Any imbalance which arises between population and natural production may disturb peace at home as it may even adversely affect the prospects of world peace. Easy as it may be to let the population grow, it is indeed difficult to provide the newly born children with education and other provisions that enable them to lead a happy and respectable life. It should, however, be noted that population control is as much a national as it is a trans-national problem.

August 1, 1974

FAMILY PLANNING

In the context of economic development, if we fail to maintain some equilibrium between population growth and production, especially in the agricultural sector, it is certain that all our efforts at development will be nullified. At the same time it will also bring about ever deepening problems of poverty, destitution, denudation of forests, forced occupation of forest land, soil erosion, in brief the problem of environmental pollution. It is in the light of such a realisation that we should make a consistent effort, while we still have time, to expand the family planning programme both in the cities and in the villages.

September 24, 1972

DEVELOPMENT

Simultaneously we have been engaged in laying down the economic infrastructure by building roads, extending communication networks, instituting social services and harnessing our water resources. Development, however, is a slow process and demands not only a willing attitude on the part of the people but also capital, managerial skills and technical know-how, which at present we lack in particular.

January 5, 1970

PREFACE

In the light of man-cultivated land ratios in the different regions of the country, over-population is already a problem for Nepal. As the current population projection indicates, we will have a population of over 25 million within the coming three decades. This is what I call the "coming second Nepal." Committed as we are to provide for the basic needs of the masses progressively, this is also a nightmare for the planners and responsible decision-makers. With regard to population question, therefore, a state of national emergency already exists in Nepal. Over-population is already here, and it is going to be felt more clearly in several areas of programming and management.

It seems to me that it is high time to take corrective measures in a concerted way to delay the coming of "third Nepal." We have two immediate tasks before us. Firstly, we have to adopt policies and measures that would slow down the pace of population growth so that the birth of "third Nepal" is pushed forward to a more manageable time and secondly, however frustrating the consequences may look, design and make the best "welcome mat" we can for the ineluctable 12-13 million Nepalese that will be here by the year 2000 A.D.

The problem is complex. The suggested solutions are over-simplistic and based mostly on mechanical thinking. Like the six blind men's description of an elephant, prescriptions based on individual disciplinary interest are often heavily biased and dogmatic. Again, to extend the elephant analogy further, each of the blind men's description of the elephant is based on his perceptual reality--the reality of his touching and feeling the elephant--we know that the elephant he describes is not a total picture, it is only a partial reality. In this

regard, realizing the need for a more "total approach," the Workshop-Conference on "Population, Family Planning, and Development in Nepal" held in Berkeley did try to define the over-population problem from various perspectives and interests.

Anyone who will read this Conference Proceedings will agree with me that it was a success in this attempt. I should emphasize, putting the term "success" in the scale of successes, that it was a "success" only at the lower end of the scale. More such successes are needed, and I hope that more conferences such as this are held, with participation by a broader spectrum of "knowledgeable" people. A note of caution, however, interdisciplinary cross-currents are all right, but the number of real and/or imaginary variables determining the population should not be stretched to such an extent that it compounds confusion and the decision-makers become hesitant to take any measures at all!

Honorable Govind Prasad Lohani
Chairman, Population Policies
Coordination Board
Member, National Planning
Commission

FOREWORD

The University of California staff was delighted to host the Workshop-Conference at Berkeley on Population, Family Planning, and Development in Nepal as a part of the Berkeley campus activities of the AID-funded Nepal-University of California FP/MCH Project. Perhaps our greatest satisfaction was that almost half of the Conference participants were Nepalese-- including both representatives of HMG in Nepal and Nepalese colleagues currently studying or working in the United States. We would like to express our deep appreciation to His Majesty's Government of Nepal and to the Agency for International Development for working closely with us in planning the meeting. The importance of the Conference was highlighted by the participation of senior level staff of HMG and AID, which helped create the atmosphere for serious, meaningful dialogue.

Among the representatives of HMG who attended the Conference were Mr. G. P. Lohani, Member of the National Planning Commission and Chairman of the Population Coordination Board; Dr. Mohan Man Sainju, Rector of Tribhuvan University; Dr. G. S. L. Das, Chief Planning Officer, Ministry of Health; and Dr. Badri Raj Pande, Acting Chief of the FP/MCH Project of Nepal.

AID was represented by Dr. Ray Ravenholt, Chief, Office of Population and Humanitarian Assistance; Mr. Henry Hendler, Deputy Assistant Administrator; Mr. Carter Ide, Deputy Director of the Office of Public Affairs and formerly USAID Mission Director, Nepal; and Mr. William Trayfors, Chief, Population and Health Division, USAID, Nepal.

While it was not the intent of the planners of the Workshop-Conference to attempt to initiate specific changes in the family planning, population, and development policies of Nepal, it is hoped that the numerous suggestions generated in small group discussions and

in the research reports will prove helpful to Nepal. In the time since the meeting in Berkeley, a follow-up Conference on the Implementation of Population Policies was held in Kathmandu, jointly sponsored by the Population Policies Coordination Board, HMG; Ministry of Health, HMG; and the Nepal-University of California FP/MCH Project. A recent report of this later meeting is available in Berkeley and Kathmandu.

While many people in Berkeley contributed greatly to the Conference, I would like to extend a special note of appreciation to Professor Kingsley Davis for his extremely insightful Keynote Address and suggestions for the Conference; to Ms. Victoria Marsick, whose energy and creativity contributed immeasurably; to Professor Andy Fisher for his planning and organizing skills; to Professor William Griffiths for his generous administrative and moral support; to Gary Matkin and the entire staff at University Extension for their usual high quality support services; to Mrs. Marguerite Augustine for her expert editorial assistance; to Jonathan Eubanks for his skill in capturing on film many Conference highlights; and to Beverly Keizer and Margaret Saarni for dedicated assistance above and beyond the call of duty.

Robert A. Miller
Campus Coordinator
Nepal-UC FP/MCH Project

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DEMOGRAPHIC REALITY AND POLICY
IN NEPAL'S FUTURE

KINGSLEY DAVIS, PH.D.*

We are here to talk about Nepal's population, its relation to Nepal's future, and what deliberate policy can do to make that relationship conform to what is desired by the Nepalese. This may seem a difficult task, and in truth it is not simple. But, as with many tasks, a good share of the complexity can be cleared up if the issues, or problems to be faced, are clear to begin with. It is a clear statement of the issues that I shall strive for in this opening address.

First, a word about the nature of population policy. Like all other interventionist policies, it involves doing something that will keep things from happening that we do not wish to happen, and which instead will bring what we want to happen. Such action always involves an expectation of what would happen without policy. This is the high box in Figure 1. We have a mental picture of what would probably happen if no policy were to intervene. This is the result we hope to avoid. We also have a picture of what we would prefer to see. This is the goal. Curiously, the goal is often somewhat hazy. We tend to have a clearer picture of what we wish to avoid than what we wish to attain.

To get the expectation--that is, to estimate the probable future without intervention--we have to rely on a knowledge of the past. This is one place where science comes into the picture. We base our expectation on relationships or regularities observed in the past.

* Ford Professor of Sociology and Comparative Studies
University of California, Berkeley

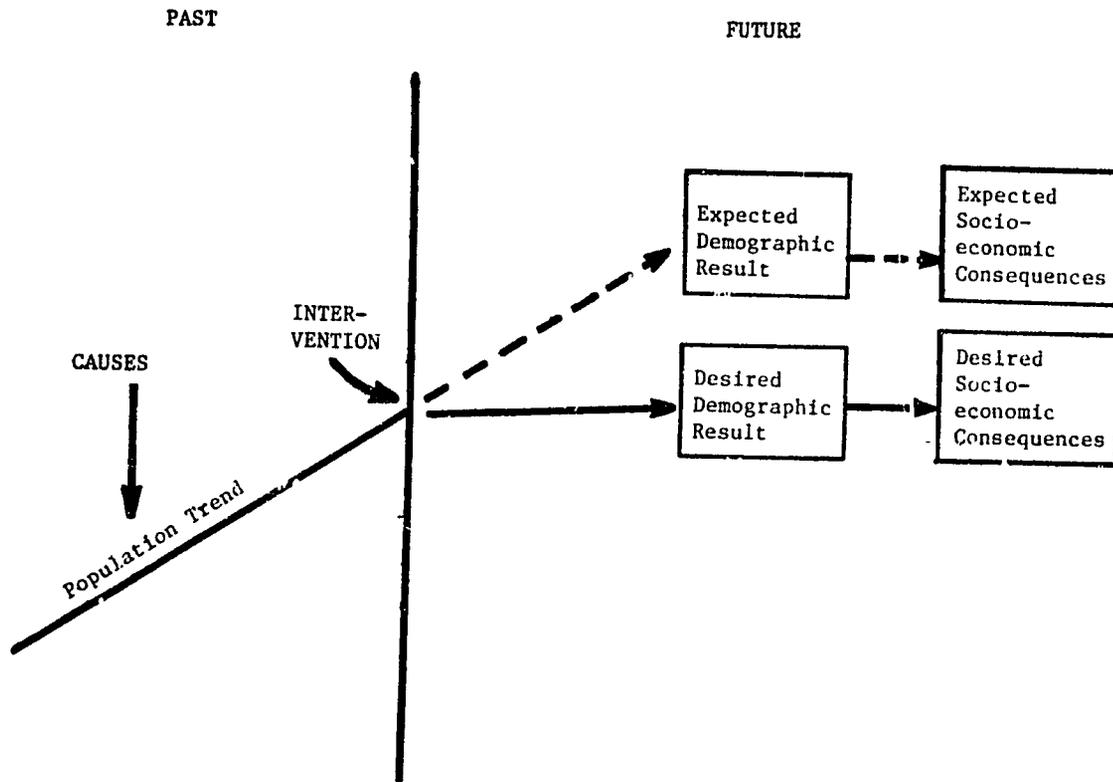


FIG. 1. Schematic Representation of Population Policy

We say that if certain things occur, then such and such other things will also occur. Any projection without the "if" is a form of quackery. But in population policy, the expectation has a double character. First, there is the demographic expectation. This is what we expect to happen, population-wise. Second, there is the expected socioeconomic consequence. Thus, in order to develop a scientifically based expectation, one must have a theory of why a certain demographic trend is probable in the absence of policy to deter it and a theory of why this demographic trend, if it occurs, will produce the consequences alleged.

Population policy means, however, that one is going to do something to alter the trend. This requires a theory as to how the policy will operate on the causes of the trend so as to change the trend from what it would be otherwise to what we want it to be. But since it is not only the demographic trend that is being altered, but also the socioeconomic consequences, we must have: a theory of why the new demographic trend aimed at by policy will have socioeconomic consequences more desirable than the demographic trend that would occur without our intervention.

Of course, any government that interferes so much that it adopts a population policy is interfering in hundreds of other ways as well. The influences on the population trend are not, therefore, simply the policies adopted to influence that trend but also those adopted for other purposes but which nevertheless affect the population trend. For example, every country today that has an anti-natalist policy intended to reduce the rate of population growth also has a public health policy which has the effect of increasing the rate of growth (other things equal). We may designate these two types "intentional population policy" and "unintentional population policy." Both are different from "customs," folkways, mores, and institutions. These become policy only when the government deliberately enacts, supports, or backs them in some way.

Adoption or pursuit of a policy does not guarantee its success. In some countries, merely writing a policy down on paper--neatly printed and with the official imprimatur--seems to be mistaken for implementations of the policy. A given policy may be adopted but not executed. Or it may be executed but not adequate to alter the causes at work. Or it may be executed and adequate in itself, but canceled by other policies. Social scientists tend to become cynical about policies achieving the purpose for which they are intended. I am, as is well known, quite skeptical about population policies. But skepticism per se is of no value, it is the grounds for skepticism that count.

By virtue of the possibility of failure or partial failure, there is a second kind of expectation that should be included in our diagram, but it is not included because of its confusing character. This is the expectation of what will actually happen with policy--that is, with policy of a specified type. Of course, this tends to be different from that of the officials or partisans deciding on the policy in question. They may believe that the policy will actually accomplish what it is supposed to accomplish. Our second type of expectation is that of the observer rather than the policy-maker. For the observer, policy itself is part of the objects under study.

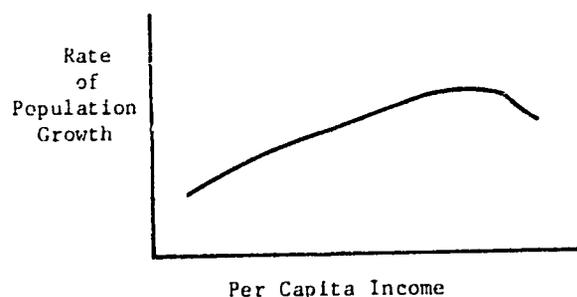
The reason for failure of policy, however, is not merely ignorance or lack of science. There is often some other goal that has priority over the professed goal. There are thus "hidden agenda." Obviously, confusion or conflict of goals tends to make policy confused and inefficient. As a consequence, much clarification of policy depends simply on clarification of goals rather than gaining more factual information.

WHAT CAN WE EXPECT IN NEPAL?

Let us now discuss Nepal in regard to these major elements in population policy. We can begin with the expectation of what will probably happen. What can we expect in Nepal? I am going to discuss

this with present policy assumed as well as with a more stringent policy assumed.

What is the expected population growth in Nepal? Since Nepal is a developing country we can begin by looking at how developing countries are growing in general. Between 1970 and 1975 such countries have had, as Table 1 shows, next to the fastest growth they ever had. In absolute terms, however, they have had the largest increase ever in 1970-75. The United Nations expects this growth to continue. Its classification is different from mine, but Table 2 shows it expects a continuance of high rates of growth. How does Nepal's population growth compare? Between 1961 and 1971, it grew by 22.8%, according to the censuses. It thus grew more slowly during that decade than less developed countries generally, but not by very much. If this is accurate, then the reason may be that Nepal is less developed than the average developing country. If that is truly the reason, then we may expect the rate of growth to pick up in the next decade, because the countries near the lower end of the development scale show a lower rate of growth than those in the middle. Although the differences on the average are not great, the growth rates during the recent period have shown an attenuated, inverted U-shape in relation to degree of development.



This means that as countries at the lower end of the developmental hierarchy move up in development, they will tend to generate a faster population growth unless such a result is successfully avoided by deliberate policy. Regionally, the correlation between development

Table 1

Rate of Population Growth, Developed and Less Developed Areas

	Population Gain (Millions)		Increase per Decade (Percentage)	
	Developed	Less Developed	Developed	Less Developed
1940-50	28	222	4.3	13.9
1950-60	104	384	14.0	21.6
1960-70	117	533	12.1	26.4
1970-75*	102	602	9.2	23.9

* Data for 1970-75 are given on a decade basis for comparability.

Table 2

Projected Population Growth, Developed vs. Less Developed
Countries, According to United Nations,
Medium Variant

	A. Population (Millions)			
	<u>1975</u>	<u>1980</u>	<u>1990</u>	<u>2000</u>
More Developed	1,132	1,181	1,278	1,361
Less Developed	2,835	3,192	4,001	4,893
	B. Rates of Change (Percent per Decade)			
	<u>1975-1980</u>	<u>1980-1990</u>	<u>1990-2000</u>	
More Developed	8.91	8.17	6.50	
Less Developed	26.75	25.35	22.27	

Source: United Nations, World Population Prospects, 1970-2000,
as Assessed in 1973 (March 10, 1975).

and population growth is shown by the following figures:

	% Population Growth <u>1960--73</u>	\$ United States Per Capita Income <u>1970</u>
Asia (excl. South West Asia and Japan)	33.6	110
Africa	38.5	190
South West Asia	44.8	370
Latin America	45.1	520

In addition to looking at all developing countries, we can look at particular ones to get an idea of what is in store for Nepal by way of population growth. Obviously, no country is exactly analogous, but we are looking for a stage of development that is similar. Let us try Sri Lanka (Ceylon).

Analogy with Ceylon

It is impossible to find (in data going back to 1871) a point when Sri Lanka was as little developed as Nepal is today. In 1871 the percentage urban though higher, was roughly comparable to that of Nepal today. There is, however, no use going back that far, because demographic relationships at that early date bear no resemblance to those found today. Instead, let us start in 1945 when Sri Lanka had 11.4 percent urban and 50.6 percent of its male labor force in agriculture. It was more developed than Nepal is today, but things happen faster now than they did in the 1940's.

Sri Lanka in 1945 had a crude death rate of 22.0, very close to that for Nepal as estimated in 1971. It had a birth rate of 36.7, somewhat lower than the rate of 43 as estimated for Nepal in 1971, but doubtless this was due to an underregistration of births. What happened after that? The death rate dropped precipitously. See Figure 2, comparing Ceylon and Sweden. The birth rate tended to rise slightly for the next ten years, then began a slow but somewhat fluctuating decline, being still 29.5 in 1972. As a result, the natural increase almost doubled.

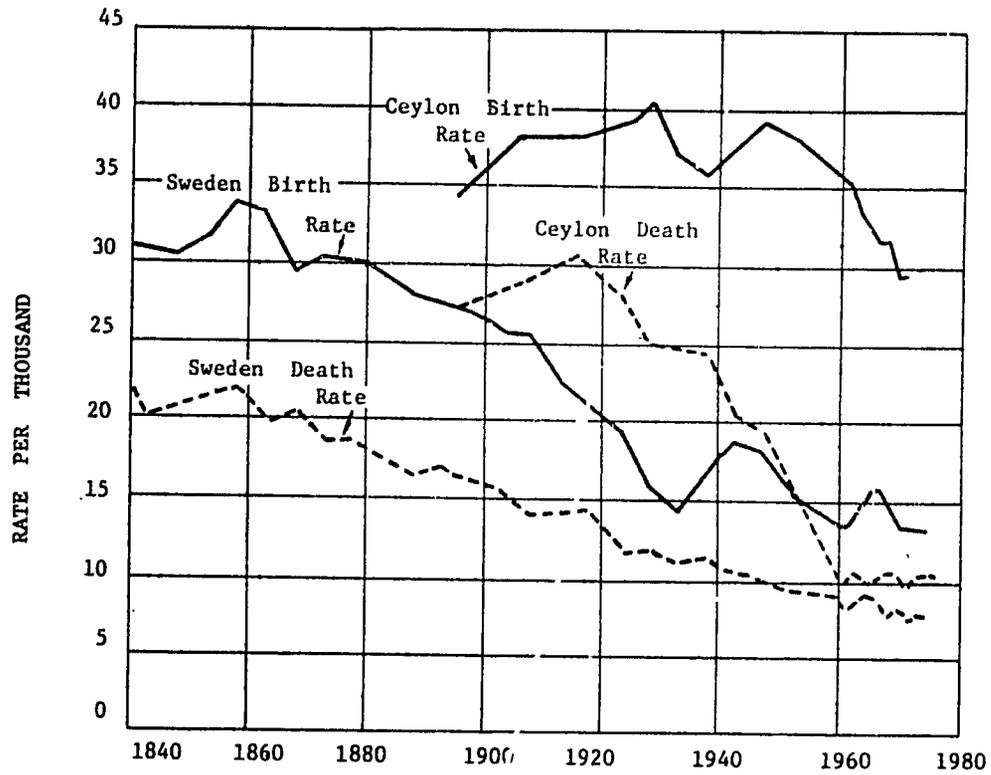


Fig. 2. The New Demographic Pattern in Less Developed Countries: Ceylon vs. Sweden

Table 3

CRUDE VITAL RATES IN SRI LANKA, 1945 AND AFTER

	Birth Rate	Death Rate	Natural Increase
NEPAL			
1971 (est.)	43	23	20
SRI LANKA			
1945	36.7	22.0	14.7
1946-49	39.6	15.4	24.2
1950-54	38.5	11.5	27.0
1955-59	36.6	9.9	26.7
1960-64	35.1	8.5	26.6
1965-69	31.8	8.1	23.7
1970-72	29.6	7.6	22.0

Notice that the slight birth rate decline after 1950 was matched for fifteen years by the death rate decline, so that the high rate of natural increase was maintained. Finally, however, the crude rate became so low that further large proportional drops in deaths made little difference compared to the smaller proportional drops in the much higher birth rate. Between 1955 and 1970 the death rate dropped by 30.6 percent, but this was only 3.3 points. The birth rate fell by only 21.2 percent, but this was 7.9 points. So, eventually, the birth rate exercised much more influence on population growth through natural increase than did the death rate. If the estimates of Nepal's 1971 crude birth and death rates are accurate, and if after 1971 they follow the same path that Sri Lanka's did after 1945¹, and if we exclude migration, the population of Nepal will grow as follows:

	<u>Population (1,000's)</u>	<u>Five-Year Increment</u>
1971	11,556	
1975	13,019	1,462 ²
1980	15,337	2,318
1985	18,037	2,700
1990	21,198	3,161
1995	24,485	3,287
2000	27,993	3,508

It may be objected that we have stacked the cards by taking Nepal's estimated birth rate to begin with. Instead of Nepal's registered rate, as in the case of Sri Lanka. Since there is no registered rate in Nepal, it is hard to know what else to do. If we take the Census Bureau's uncorrected estimate of the birth rate as a starting point, it is obviously too low, being equal to the estimated death rate.

Analogy with Taiwan

It can be argued that Sri Lanka had no family planning program until very late, and hence is not indicative of what might happen in Nepal. All right, let's take Taiwan, which since 1964 has had a family planning program, although only a quasi-official one. Here

¹Three-year average centered on 1945.

²Four-year period.

again we are strapped as to when to begin, because, even less than Sri Lanka, we cannot go back to a time when Taiwan was as little developed as Nepal is today. In 1927, Taiwan came nearest having the same vital rates as were estimated in 1971 for Nepal. Its death rate had already started down before that, but its birth rate did not start down until about 1950. By 1950, Taiwan was already 52% urban. It was therefore at the stage where birth rates in the past have virtually always been reduced. It can be seen that by 1964, when the birth control program began in Taiwan, the people were already far along the path to modernization. The birth rate had been dropping since 1951.

But disregarding all that, let us say that after 1971 Nepal's death rate will decline as it did in Taiwan after 1927, and its birth rate will decline as it did in Taiwan after 1958. The results are given in the second column of Table 4. The population increase is certainly less than according to the Sri Lanka model (the first column of Table 4), because the birth rate (which, remember, we took from 1958) moves down much more rapidly than it did after 1945 in Ceylon. But since there are only 17 years from 1958 to the present, we cannot project Nepal's birth rate on out to the year 2000 on the basis of Taiwan's rate after 1958. The figures after 1986 have to be estimated. I simply kept the average natural increase found for the 1975-1986 period in the model. The natural increase was relatively unchanging in the model during that period.

The United Nations Projections

The Medium Variant of the United Nations projection for Nepal is shown in the third Column of Table 4. As can be seen, the figures fall between the Sri Lanka and the Taiwan models, although they start off with faster growth than either of those models show. In the more distant future, the United Nations assumes a fast drop in fertility.

The three variants are all shown in Table 5. Actually, there is not a great deal of difference between them.

Table 4
NEPAL'S PROJECTED POPULATION (000'S) ACCORDING TO THREE MODELS

	Sri Lanka Model	Taiwan Model	U.N. Medium Variant	Nepal Planning Commission
1971	11,556	11,556	11,556	11,556
1975	13,022	12,520	13,786	12,586
1980	15,324	13,599	15,465	14,011
1990	21,089	(16,320)*	18,530	(17,589)#
2000	27,729	(18,801)*	21,339	

*Calculated by assuming same average natural increase after 1986 as during 1975-1986.

#Extrapolated from 1986 estimate by applying same growth rate as 1981-1986

Assumptions: In both of the country models it is assumed that in Nepal in 1971 the birth rate was 43 and the death rate 23. Then for the first model, it is assumed that the change in these rates will be the same as in Sri Lanka after 1945 (a three-year average centering on 1945 being used). In the second model it is assumed that the change in the birth rate will be the same as Taiwan's after 1958 and in the death rate the same as Taiwan's after 1939. (Since the time after 1958 to the present is only 17 years, the assumed birth rate was extended by extrapolating the decline between 1967-1971 and 1972-1973).

Table 5
FUTURE OF NEPAL'S POPULATION
ACCORDING TO THREE UNITED NATIONS VARIANTS

	Low	Medium	High
1971	11,556	11,556	11,556
1975	13,942	13,986	14,075
1980	15,335	15,465	15,837
1990	18,082	18,530	19,435
2000	20,571	21,339	22,757

Source: United Nations, World Population Prospects, 1970-2000, as assessed in 1973 (March 10, 1975).

Discussion of all Three Bases of Projections

The interesting thing about all three bases of projections is how high they all are. Every one of them envisions a formidable increase in Nepal's population during the period from 1971 to the end of the century. The sample census to be taken next year will tell us which one of these models the country is following.

The ten-year increments, and the total increment, between 1979 and 2000 are shown in Table 6. The Taiwan model, which posits an extremely rapid fall in the death rate and a drop in the birth rate characteristic of a country becoming highly industrialized in the last 20 years, adds 7.5 million. Remember, these are projections that have some family planning program efforts built into them. Both in Sri Lanka and in Taiwan such efforts were present in the period used for the model--in fact, during most of the period (and a widely touted effort at that) in the case of Taiwan. The United Nations models not only have an assumption of fertility limitation efforts in them, but an assumed high success of those efforts as well. The projections are therefore what we may expect if Nepal's family planning effort has a modest success.

Table 6

ADDED POPULATION ACCORDING TO THE THREE MODELS

	Sri Lanka Model	Taiwan Model	U.N. Medium Variant
1970-80	4,024	2,299	4,165
1980-90	5,765	2,721	3,065
1990-2000	6,640	(2,481)	2,809
Total (1970-2000)	16,429	7,501	10,039

Source: Table 4.

The Consequences of Expected Population Growth

There are two ways of judging the socio-economic consequences of population growth in a particular country. One way is to take the circumstances of the country at the beginning into account, and imagine how extra people (along with other socio-economic changes judged probable) will affect those circumstances. This is difficult, because what to attribute to population change and what to attribute to other changes is hard to parcel out. Another way is to take a country that, with roughly comparable circumstances at the start, has had a population growth of the dimensions projected, and see what happened. This is also difficult, because of the problem of finding a country with roughly comparable circumstances at the start and because of the changing world situation in which countries now live. I propose to use both of these methods. Let me start by describing what I perceive to be the present circumstances in Nepal, on top of which the projected population growth would be put.

Nepal is not a new, or pioneer land, but an old one long exploited under conditions of high-density intensive agriculture. The world is just completing its Golden Age. This Age was made possible by two things: First, the tapping of the earth's store of fossil fuels accumulated during billions of years. Second, the discovery, exploitation, and settlement of new continents by the carriers of the new technology which gave rise to the use of fossil fuels. Any country which has not yet participated greatly in these two bases of the Golden Age--that is, which is not a pioneer country like Canada or New Zealand, or an industrial country like Belgium or Czechoslovakia, or both--is in very difficult circumstances.

Nepal is such a country. It is not a pioneer country in the sense of land and resources hitherto used only in a primitive way, awaiting the transformation of modern technology to permit its settlement. It is an ancient country long settled by people with

a complex handicraft and intensive agricultural technology. It is not like the Americas or like Australia-New Zealand at the start of their population expansion. To be sure, there are resources still to be exploited--notably hydroelectric power, tourist attractions, and some agricultural land in the Terai--but these when exploited, would barely make possible a reasonable level of living for the people already in Nepal, much less for those projected still to come.

To show how un-pioneer-like Nepal is, let us look at agriculture. With 93 percent of its male labor force engaged in agriculture, necessarily the circumstances of agriculture are an important part of Nepal's current circumstances. In 1971 there were 162 males engaged in agriculture per Km^2 of agricultural land (420 per square mile). This means that about 473 agricultural persons are dependent for a living on each square kilometer, or 1225 per square mile. This is, of course, an Asian pattern associated with wet-rice and other labor-intensive agriculture. The current number of males engaged in agriculture per Km^2 of arable land in the United States is under 2 (5 per square mile). Nepal's figure is more than Sri Lanka's and close to Taiwan's earlier in Taiwan's history.

A country as wholly agrarian as Nepal must start from agriculture. It has nowhere else to start from. There is no possibility whatever that people can reach a decent--not high, just decent--level of living if there are 1,225 of them per square mile of agricultural land (473 per Km^2). There is no possibility when the average size of farm is 1.23 hectares (3 acres). (If this is a mean, most would be smaller.) From an agricultural point of view (and hence from an economic point of view), Nepal is not going to be overpopulated sometime in the future. It is already severely overpopulated. It is of no use to talk about opening up new lands in the Terai. As Dr. Beyer will point out in his paper, there is only enough potentially usable land for about two years of population growth. Besides, it is admitted that the loss of land through erosion in the hills

Table 7

AGRICULTURAL DENSITY IN NEPAL AND SELECTED OTHER COUNTRIES

<u>Males Engaged in Agriculture per Unit of Arable Land</u>					
	Per Km. ²	Per Mi. ²		Per Km. ²	Per Mi. ²
<u>Nepal</u>			<u>South Africa</u>		
1964	147	382	1950	18	47
1971	162	420	1960	13	34
<u>Sri Lanka</u>			<u>Costa Rica</u>		
1950	69	178	1953	13	35
1960	67	173	1960	12	30
<u>Taiwan</u>			<u>Puerto Rico</u>		
1950	147	380	1950	34	87
1960	130	335	1960	22	57
<u>Egypt</u>			<u>France</u>		
1949	156	404	1954	11	29
1971	171	442	1960	8	21

just about balances out the new lands added in the Terai. When it is added that Indians are coming into the Terai as well as Nepalese, it is clear that the Terai is no solution to Nepal's severe agricultural overpopulation.

There is only one way for Nepal's overwhelmingly agricultural population to go, if it is to raise its level of living. That way is out of agriculture. But to leave agriculture and stay inside of Nepal will be virtually impossible if the population grows at the rates suggested in the models. The reason for this is that Nepal is at such an early stage of development. It is experiencing a rate of population growth that generally characterizes a later stage of development, because most countries did not lower their mortality so fast at such an early stage when they were already so densely settled. Even to maintain the present high density in agriculture would require a huge exodus from agriculture, because the natural increase is so high. In the process of development, all countries eventually reduce the absolute number of people in agriculture. It would be ideal for Nepal to do this, but it is impossible within the foreseeable future.

To back up these statements, let us think what would have to happen if the present population in agriculture were to remain steady, much less be reduced. Suppose that the entire natural increase of the agricultural population left the farms. With the United Nations Medium Variant, the population that the non-agricultural sector would have to accommodate in the next 15 years (that is, from 1975 to 1990) would be 4.3 million. This would represent a growth in the non-agricultural sector, from this source alone of 5 1/2 times in 15 years! The total increase in the non-agricultural sector would be 4.5 million, or 5.8 per person in that sector to begin with. Of course, the non-agricultural population would be growing under its own steam as well. There is absolutely nothing in the present economy of Nepal that suggests the non-agricultural sector can in

15 years absorb 5.8 new persons for everyone who is there now. If they come and it fails to "absorb" them, the unemployment will doubtless be massive. One of the things a society cannot tolerate for long--especially a non-agricultural population--is large unemployment. It will revolt and drive out the government in power. It will suffer an absolute dictatorship rather than go on enduring massive unemployment.

We reach the same conclusion by looking at the rural and urban population. Suppose that the entire rural natural increase migrated to the towns and cities. Nepal is one of the least urbanized countries of the world, with 4.0% of its population urban according to the 1971 census. If the natural increase of the rural population moved to the towns and cities, the increase in the urban population in the 15 years between now and 1990 would be, according to the United Nations Medium Projection, 4.3 million, from this source. This would represent, from this source, an increase of 6.2 persons in the towns and cities for every one who is there now. But, again, the urban population itself would be increasing from its own natural increase as well. This, added to the rural migration, would give the urban population an annual growth rate of 13.3 percent. There is no country in the world whose urban population has grown at such a high rate. It would double the urban population every 5.6 years. This is 3.3 times as fast as the urban population of South Asia as a whole grew during the 25 years from 1950 to 1975.

One does not have to imagine the consequences. One can simply take some Asian countries where the urban population has been growing rapidly, see what the effects are, and triple those effects for Nepal under the conditions assumed.

squatting. In the cities of Asia, as in those of Africa and Latin America, millions of people live on land that does not belong to them in shacks they built themselves out of waste materials.

Enjoying minimal "urban services" or none at all, the squatters in some cases make up to a third to a half of the city population, depending on the severity of measures taken to stop them. Urban Delhi has an estimated 500,000 people in 300 squatter colonies.

Housing. But even apart from squatters, housing is crowded and poor. In Hong Kong "bed space" is a distinct housing category, and per capita household size is less than six feet per side. In Bangkok, the number of persons per household (6.5) exceeds that of the countryside. Twenty-four percent have more than nine members, and forty-nine percent combine economic activity with residential use. In Indonesia, the estimated number of houses needed to be built annually will rise from 1.9 million in 1971 to 319 million in 1981 and 11.0 million in 2001. Nobody expects them to be built. In Bangkok, "a recent estimate put the need for additional construction of all types of dwelling units at 42,000 per year over the next ten years. The cost for constructing the low income units alone would amount to 35 times the present yearly government expenditure."³

But, of course, these cities are merely growing at about 4% a year, not at the 13.3 percent we have envisioned for Nepal.

What Can Be Done?

Given the projected population growth--which, may I remind you, assumes a family planning program,--what other alternative is there to this unprecedented and disastrous inflation of the urban population? The only alternative is emigration out of Nepal or stacking up people on the agricultural land. But in today's crowded world there are few places that the Nepalese could go. Their closest neighbor to the north does not admit immigrants. Few other nations would welcome hordes of unskilled Nepalese. It is too late for

³Sidney Goldstein, The Demography of Bangkok (Bangkok: Institute of Population Studies, Chulalongkorn University, 1972) p.37.

emigration to serve as a solution to Nepal's population problem. Usually, it is not a solution anyway. As for stacking people still more densely on the agricultural land, this seems cruel indeed. It would create the highest agricultural densities ever known, because it would be on top of an already high agricultural density. The land is not that rich. Much of it is vertical. The solution implies an abject poverty surpassing anything we have ever seen, or disgraceful reliance on international charity. It also means destruction of the land, because the marginal and delicate lands of the country would be inevitably overrun with people, so that a loss of this invaluable resource would occur.

It may be argued that Nepal can increase agricultural productivity per unit of land. Yes, but only if a high rate of input of energy is possible. The price of energy has risen sky high, and it will take at least 15 years to get much of the potential hydroelectric plants installed. The world is being fed now by oil, gas, and coal. (See Figure 3.) Nuclear energy at present uses more fossil energy than it produces. It is a net loser, and it is burning up a valuable and limited resource, uranium. Why put all that effort into simply having more people? There are other disadvantages of a social and environmental character that I won't go into.

With the projected population growth there is no alternative to a combination of extremely crowded and worsening rural poverty combined with massive and disorderly migration to the cities. In view of the consolidated and comprehensive further attack on mortality that is getting under way, there seems no doubt that mortality decline will be a factor contributing to the massive growth projected. Nepal's mortality decline from its present level will surely match that of Taiwan and Sri Lanka. This means that, since massive emigration is impossible, if the ominous population burden of the country is to be avoided or at least alleviated, the most successful fertility limitation program ever known will have to be

carried out. Let us look at present policy in terms of this great need.

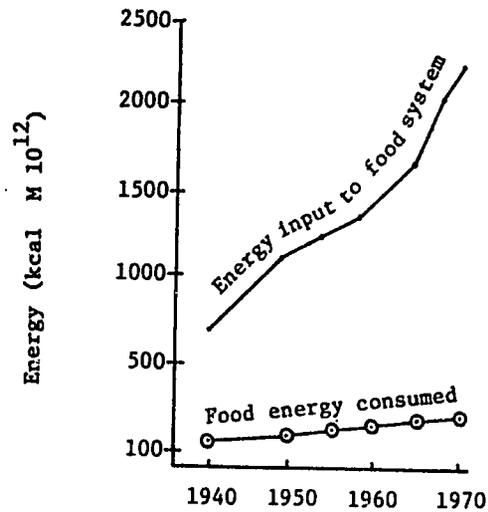


Fig. 3. Energy Input into the Food System of the U.S.

Source: J.S. and C.E. Steinhart, "Energy Use in the U.S. Food System," Science, Vol. 184 (April 19, 1974), p.308.

The Target of the Present Fertility Limitation Policy

What is the target of the program? In the latest 5-year plan, the crude birth rate to be aimed at is as follows:

1976	42
1977	41
1978	40
1979	39
1980	38

In other words, the crude rate is to be reduced by 1 point per year, which means an increasing rate of population growth. This is almost

identical with the rate of reduction in Taiwan's crude birth rate during the four years after 1958 and almost that of the next four years. Most people would consider that quite an accomplishment, and indeed it would be.

But the trouble is that there is no guarantee that this target will be met. The birth rate may actually rise if the health measures now contemplated are instituted, and if strenuous efforts are made to improve the income of the common man and relieve some of the poverty of the lowest classes. Furthermore, it has to be remembered that the population growth projected according to the Taiwan model is--despite the improbability that that model can be met--quite high. The increase is such that, if the rural population were stabilized during the next 15 years, the population of cities and towns would increase to the point where in 1990 there would be 3.7 persons in towns and cities for each one there now. The rate of growth would be such as to double the town and city population every 7.9 years. Since Kathmandu would probably grow as fast as, or faster than other cities and towns, this means that its population today would be four times greater in 15 years than it is now. That is, we are now assuming the family planning program to be as effective as it was plus a much more advanced society and economy than were in Taiwan, which is a tall order.

I would not be surprised if the population actually increases rather than decreases its growth rate during the next fifteen years. To explain why I would not be surprised requires that we take cognizance of the role of medical improvements and the age structure in the change. As we are aware, an all-out medical effort is now being made in Nepal with the infusion of funds, personnel, and organizational expertise from international agencies and foreign missions. Many people do not understand the process of change that occurs in the death rate under such circumstances, and its effects. In Nepal, for example, the crude death rate is guessed to be about 22.8 per

1000 per year. If correct, this is a very high death rate, because the population is quite young. According to the census data, the population of Nepal has been growing younger.

Percent

	<u>1954</u>	<u>1961</u>	<u>1971</u>
< 14.	33.1	37.6	40.4
> 40.		20.5	20.5

(Admittedly, the data give only a rough indication, because there is under-enumeration of children.) In the future, with the all-out health effort, the age structure will grow still younger until about 50% are under age 15. Why? Because the main saving of lives will be in the infant and childhood ages. The forthcoming rapid decline in mortality will therefore act as a sharp rise in the birth rate. It will feed more young people into the population. This, with continued very high fertility, will give the country a very young age structure.

If Nepal had a birth rate as low as its present death rate, the resulting age structure, in the long run, would have only 18.1% under age 15. But if within the next decade or so, as is quite possible, we give Nepal a modern low mortality--say from the recent 1961-70 life expectancy of 40.9 years (about that of the United States in 1850)--to a life expectancy of say 65 years, the crude death rate will be extremely reduced--far lower than that ever experienced in the history of the industrial nations. It has reached 4.5 per 1000 in Taiwan. The reason for this is that with a modern low mortality, practically nobody dies under age 40. Survival to that age in the United States is about 96%. If only a small proportion of the population is over age 40, very few will be dying (compared to a country with similar mortality where the proportion may be as high as 50%). In other words, a rapid reduction in mortality, combined with continued high fertility, gives a country an age structure that causes its crude death rate to decline much faster than its mortality declines.

We can therefore expect the crude death rate in Nepal to fall from the recent estimated rate of 22.8 per 1000 to about 4 to 6 per 1000 if the effort to reduce the country's mortality is successful. The rate in Sweden or the United States is currently about double this figure and will climb rather than fall as the population ages. If this low crude death rate were to be achieved while the present birth rate continued, the rate of natural increase would be about 3.8% per year and would double the population in 18 years. This is a rate characterizing a good many underdeveloped countries today. But it would be hitting Nepal at an earlier stage of development than it hits most other underdeveloped countries. Further, it would be hitting a country that already has an unusually crowded and impoverished situation.

In short, if the growth of Nepal's population should rise in rate instead of declining as the models imply, the consequences would be even worse than those I have shown would follow from the models. The stress and strain would be worse. There would be unprecedented urbanization without commensurate social and economic development. There would be development without progress, expansion without improvement, employment without production. The result could bring such chaos that only a tight dictatorship with ironclad discipline could keep order in the country. The relative freedom enjoyed now would be a thing of the past.

What Can Be Done?

The obvious task, then, is to do something that has not been done before in modern times--to bring down the birth rate drastically and quickly by deliberate intervention in a country as agricultural, as poor, and as early in its stage of development as Nepal. What are the prospects of this happening?

It seems to me that a standard family planning approach will

not prove adequate despite the excellent efforts put into it. Why not? Well, one trouble is a false assumption that comes automatically with the "health context." In medicine, there is not much problem of motivation. Sick people want to get well, and well people want to avoid getting sick. When a scientific medical service is offered, then, people will generally take advantage of it--in fact, they tend to overcrowd the services and agitate for more. They will often support compulsory measures for public health. Accordingly, when birth limitation is put in the health context, a service is offered people--means of limiting fertility; but except in a few cases, there is no felt need on the part of the people. They want children. Having children is not an illness to be avoided by medical intervention, but rather a normal thing to be sought for. Therefore, people seeking birth control means are not likely to crowd "clinics."

Faced with this difficulty, the tendency is not to alter the basic assumptions and try a new approach; it is rather to try to bolster the same approach in superficial ways. Thus, family planners set out to "motivate" people--that is, make the propaganda stronger urging every couple to use contraceptive means. But the people are not stupid. They know what their individual interests are in the social and economic contexts in which they live. In addition, the family planners make a commendable effort to train the health personnel better in contraceptive matters. An effort is made to get the health workers out of "clinics" and into households.

Beneficial as some of these efforts may be, I think they are not enough, because the fundamental assumption--that people will necessarily avail themselves of this service if only it is offered in the best manner--is not realistic. Under the circumstances, such an approach is most "successful" at a time when urban-industrial conditions and the opportunities for vertical mobility have gone so far that there is a big and widespread demand to cut down fertility. But Nepal is very far from reaching this stage yet.

Since Nepalese people have strong incentives for having children, it is unproductive simply to offer them means for not having them. Therefore, what has to be added are strong incentives for not having them. Collective goals that involve social change are seldom achieved without building in new real incentives. Talk will not do it. People know how to resist propaganda. If they are to cut down the number of their children, it must be to their interest to do so as they perceive it (not as a health worker perceives it).

Within the foreseeable future, Nepal will be very short of medical services. It will have to concentrate its efforts on preventive public health and emergency cases. It cannot supply all the people with services to take care of their minor aches and pains. Therefore, within the medical context--since the demand for medical attention is great--to give first priority in ordinary therapeutic medicine to those who are limiting the number of their children would represent a substantial incentive.

In the overcrowded condition of Nepalese agriculture, with even subsistence hard to obtain, cash is extremely scarce and yet quite necessary to make improvements. Therefore a cash payment--say ten rupees per month or possibly more--to couples foregoing pregnancy, would not only constitute a powerful incentive for avoiding pregnancy but would benefit the economy as well. This is a policy that the World Bank recommends trying.

Special educational fellowships for men and women remaining unmarried might be an additional incentive. Nepal cannot yet educate all its youths. It must select. One basis of selection (among those qualified by talents) could be postponement of marriage. This would automatically tend to give high prestige to people who marry at a later age than usual. Since the illegitimacy rate is low in Nepal, policies delaying the age at marriage might well have considerable influence.

Abortion as a back-up measure would be another possibility. Even when illegal, abortion has often been crucial in the early stages of fertility decline. Among the means provided for couples wishing to curtail childbearing it has a key place.

Notice that all the examples I have mentioned have been positive incentives, not negative sanctions. Presumably the latter would be provided if the positive incentives did not prove great enough. An Asian country that has adopted stronger measures than those mentioned above is Singapore.

Singapore began with a conventional family planning program. Fertility fell rapidly until 1969, but then the drop almost stopped. So the government instituted measures designed "to establish the two-child family as a social norm and to promote sterilization as a method of family limitation."⁴ Among these measures were the following:

[In 1972] higher government hospital delivery fees with each additional child; abolition of paid maternity leave after three children, and abolition of priority for large families in the allocation of subsidized Housing and Development Board flats. [In 1973] further increases in government hospital delivery fees for higher order children; lower priority in primary school admission for the fourth or higher birth order children; and permission under certain conditions for families living in Housing and Development flats with three or fewer children to sublet rooms. [Also] a new regulation---whereby immigrant workers earning less than Singapore \$750 per month must seek the permission of the Work Permits Office to marry Singapore citizens.⁵

⁴Wan Fook Kee and Margaret Loh, "Singapore," Studies in Family Planning, Vol. 5 (May 1974), p. 163. See also Saw Swee-Hock, "Singapore: Resumption of Rapid Fertility Decline in 1973" ibid., Vol. 6 (June 1975), pp. 166-169.

⁵Swee Hock, op. cit., p. 168.

Not surprisingly, Singapore's fertility resumed its downward course, falling by 8.1 percent between 1972 and 1973, and by approximately 8.4 percent between 1973 and 1974.

Of course, a population control program in a vacuum makes no sense and probably won't succeed no matter how ingenious. I assume that other policies designed to improve the quality and productivity of the population could be simultaneously followed in addition to the Health and Population programs. Here are some examples.

Mass Literacy. This gives women new interests and horizons to take the place of preoccupation with children.

A Modernized Handicraft System. This could take better advantage of the remarkable talents of the Nepalese people.

Elimination Of All But Structural Unemployment. The problem of unemployment and underemployment can, I believe, be solved by strenuous and admittedly difficult effort.

Opening Up The Society To Talent. Every agrarian society has obstacles to the selection of talent. Economic development comes faster if these obstacles are minimized.

Conclusion

If this combination of thorough population policy and inter-related economic and social policy is pursued vigorously, with full realization of what the goal is and why it is being undertaken, I see no inherent reason why it could not succeed. It might be that Nepal could set an example in a world where there are many less developed areas in similar circumstances. It would appear there is little harm in trying.

DESIGNING A POPULATION POLICY FOR NEPAL

GOVIND PRASAD LOHANI*

It was not until the sixties, when the census data revealed changes in the population variables between the 1952-54 period and 1961, that the elite and the policy-makers of Nepal became aware of the existence of serious population problems in the country, although for the earlier six or seven decades, various other perceptible phenomena had been suggesting these problems, of course only impressionistically. The people in the hills and the mountains had been reclaiming the marginal lands, the forest, and the natural pasture areas for agriculture. Livestock were competing with humans for the scarce land and forest resources. Signs of growing environmental deterioration were clearly visible through soil erosion and landslides, growing ferocity of floods in the slopes and the lowland, and thinning-out of forests nearer to human settlements. A large number of people (especially of the depressed communities having smaller size land-holdings and deeply in debt) started migrating seasonally to India in search of jobs and for trade to supplement family income from agriculture, handicrafts, livestock and herd-raising. By the beginning of this century, many were seeking service in the then British and later British and Indian army, and the importance of income from these sources had been increasing in many hill districts. Since most of the seasonal or casual migrants used to be adult male, the sex-age ratio of population in most of the districts in the hills and the mountains must have assumed marked characteristics. Many

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hill-people, perhaps after years of seasonal migration or in the military service or working in the tea-estates, used to take their families along, and settle down in Burma, British-India, and even as far as Malaysia, Singapore and HongKong. These international migrations, the permanent as well as the temporary ones, must have appreciably relieved the economy of the hills and the mountains from excessive population pressure.

The large-scale opening-up of the Terai region in the last two decades has now changed the migration pattern. This has been caused by malaria eradication, construction of the East-West Highway and the North-South roads, implementation of irrigation projects and agricultural development programs, establishment of a few large and medium-size industries, and numerous small-scale industries, and so on. Before that, the highlanders did not consider Terai to be a suitable place for settlement in view of malaria, predominance of swamps and deep forests, inhospitable climate, a very unfamiliar topography, and an alien type of socio-cultural environment. They rather preferred to go to India and Burma and end up as laborers, watchmen, or settlers in the foothills taking up the familiar occupations of farming, livestock and dairy business, etc.

Terai, the economically most potential region of the country, was very sparsely populated in the past and the entire western segment and some pockets in the central region too, are still so. In those days, the population of Terai almost entirely consisted of primitive tribes (Tharus, Dhimals, etc.) and the historically very old inhabitants in some pockets, particularly in the areas around Kapilvastu, Lumbini, Janakpur, Simrongadh, Surkhet, Bang, Makwanpore, Hanumannagar, Jaleshwer, Sirha, Biratnagar, etc.

The construction of the railroads in Northern India in the sixties and seventies of the last century, and the spread of the network

nearer to the Nepal borders opened a new vista to the economy of the Terai, and thereby, an unexpected opportunity for the ruling elite in the Kathmandu Valley and other corridors of power to acquire and accumulate monetary wealth. Forest and fallow lands in Terai were distributed in huge chunks by the Rana rulers among themselves and to their relations, favorites, and to hangers-on, to cash in on this bonanza brought about by railways, the revolutionary mode of transportation. Before this, the Terai had no significant commercial utility as a source of money income and, therefore, acquiring land in Terai was not a coveted issue among the near and dear ones of the Rana ruling circles.

Indians and the old Teraiwallah Choudharies and Zamindars were appointed by the estate-owners as contractors to clear the forest, prepare the land for cultivation, and raise marketable crops. They, on their part, started bringing in temporary laborers and tenant-tillers from adjoining districts of India for this work. Settlements of these people naturally sprang up near the railheads, and the focal points of these settled areas, in subsequent decades, developed into small commercial towns. Later, a few processing mills (the first set of industries) also were built. Other paraphernalia of trade and commerce followed in the late thirties and forties of this century.

After the end of the isolationist Rana regime in 1951, the development of the Terai got a great boost upward. It is significant that unlike other parts of Nepal, in the last hundred years, most of the Terai developed primarily as a market and export economy directly responsive to demand and price variations in India. The easy marketability of farm surplus in India, naturally, made it the main financial resource base of the national economy. And the influx of foreign currency through exports was followed by imports of foreign goods, alien life-styles, and many other things. Henceforth, owning a few score or more hectare of arable land in Terai meant wealth, power,

status and prestige, attainment of modern knowledge, and the adoption of the life-styles of the affluent West.

Little wonder that the big land-owners of Terai (mostly Ranas and their relatives, Brahmin priests, government and private officials, and other favorites) were the first generation of modernizers of sorts. Commercialization of the economy of Terai has had far-reaching consequences in the economic, social, cultural, and political developments in Nepal. The constant exchange of goods and services and free flow of people across the open border have largely shaped our trade patterns, the forms of customs administration, the citizenship, immigration and emigration rules, and the foreign exchange control and money management. There is unrestricted flow of population, ideas, and techniques between Nepal and India. This openness has had many demographic effects, influences, and future implications, too.

Until the end of the Rana regime and even during the decade after that, it was fashionable among many of the intelligentsia to consider Nepal as an underpopulated country confronted only with the problems of modernization and development, rather than that of overpopulation. The perspective of an elite belonging to the community of landed gentry or mercantile middleclass of Kathmandu could not be otherwise in those days. The vision about modernization and development was in itself almost devoid of social and broader content. Nobody bothered to examine the relevancy of many of the then popular elitist concepts in a predominantly rural and mountainous Nepal. Those were the days of the euphoria of higher education abroad, dogmatic assertions, simplistic designs of development, and vague pictures and prescriptions about change and transformation.

Gradually, those among the elite who had to confront practical problems of development and administration realized by experience the various real and formidable constraints on development and change.

The highly optimistic vision of an easy and early breakthrough in the modernization of agriculture, a fast industrialization, the establishment of a modern transportation network and the extensive use of modern energy sources, and also the unrealistic ideas of the political elite promising to provide modern social and welfare services and civil amenities to most of the people of the country in the near future--all these had to give way to more modest aims and goals. The exuberant spirits of the family planning enthusiasts of the sixties and early seventies have now settled down too. They no longer think in terms of dramatic effects in achieving lower birth rates and are now increasingly aware of the importance of the socio-economic variables that motivate married couples to control their family size.

The adoption of policies and the implementation of pertinent measures to influence and/or to respond to the critical population variables involve the whole spectrum of socio-economic development of a country. Therefore, demographic changes and implications, as well as policy measures and programs to affect the natural course of these variables towards the desired levels and directions can be comprehended only within the context of overall development of the country.

Malaria and epidemic control and the extension of medical facilities have significantly reduced mortality and morbidity in Terai and also, to some extent, in the hills and mountains. Infant and child mortality rates are also decreasing. Mobility of the rural people has also increased markedly in the last two decades and is going to increase at an accelerated pace in future. The age-structure of the population has been widening and has now an extremely broad base. Further, the upward shift of marital structure between 1961 and 1971 has favored a high crude birth-rate. These factors will surely contribute toward still higher fertility rates in future.

Terai, with two-thirds of the cultivated land and about 500 thousand hectare of reclaimable forest, is no longer a preserve of

aboriginals and old settlers. With the improvement in the fields of health and transportation and with the increasing pace of agricultural and industrial growth, Terai is increasingly attracting the very poor Nepalese of the hills and the mountains. Foreign nationals, including those of Nepalese origin living for long in India, have also been increasingly migrating to Terai. These factors have given a new dimension to the population problem in Nepal.

Encroachment on the forest areas of Terai and even on the environmentally critical forest of the foothills is on the increase. Forest areas are thinning out and vanishing rapidly in the Terai and in the over-populated hills and mountains. One of the things that has, perhaps, not changed much is the crude birth rate. This means a higher natural growth rate of population in the years ahead. This will not only swell the size of Nepal's population but will do so at an accelerated pace.

The birth of a Second Nepal in just about three decades from now seems inevitable. The planners will have to respond to the demands imposed by this reality. It is frightening to visualize the consequences--economic, social, environmental, and political too. More and more complicated problems cry out for urgent attention.

We can, however, delay the birth of a giant-size Third Nepal by adopting correct population and development policies right now and implementing the programs comprehensively and vigorously in the critical next three decades. It is, in fact, a race against time, a long and sustained war for survival. The development strategy and goals, the nature and pattern of administration and the political and social processes at the district, village panchayat, and ward levels will have to be geared to disentangle the country from the vicious circle of underdevelopment and rapid population growth feeding back upon each other.

The purpose of planning in less developed countries is not only the maximum increase in the Gross National Product; but its basic qualitative objective is to enforce those structural changes in society, without which it is not possible to have a broad development that effectively reaches the masses of a nation. Rapid growth of population, interalia, frustrates these objectives. Hence, population planning must be an integral part of a people-oriented development model. Such a development plan can be formulated and implemented successfully only by arousing the masses at the grass-roots--the poverty-stricken, small and medium farmers, artisans and laborers in the vast countryside and the low-income groups in the towns. For, it is the fertility variations of these people that really matter for the success of a population policy. The central issue of development in Nepal is, therefore, how to organize, mobilize, motivate and involve the masses for development and change.

The Problem in the Light of the Statistical Background

Land and population are both crucial elements of development since these are the fundamental bases of all economic activity. While it is not possible to expand the area of land in the country, it is, however, possible to effect certain changes in the nature of its utilization. The main factor affecting the use of land, besides technical, climatic, and exogenous ones, is population variation over time.

Over the period 1911 to 1971, the population of Nepal has increased by 5.9 million. During that period the growth of population has been recorded to be 104.93 per cent which yields an average annual increase of 1.74 per cent. Such a low annual growth rate over the past six decades is owing to higher death rates in general and extremely high infant and child mortality rates in particular. The great influenza epidemic of the twenties, the devastating earthquake of 1933, and the two World Wars took considerable toll in human lives. Furthermore,

the steadily growing net outflow of citizens to India, Burma, Malaya, etc., substantially affected the population growth rates. Moreover, since very little is known about the census techniques used and the data collection methodology adopted in censuses conducted prior to 1952-54, the validity of data derived from those censuses is also controversial. Further, in the absence of details about the sex, age, spatial and other characteristics, earlier census data are not of much use for analysis.

The first population census, based on international standards, was carried out in Nepal during 1952-54. Since then, population censuses have been conducted after every ten years on more improved lines.

Over the period of 19 years from 1952 to 1971 the population of Nepal has increased by almost 3.1 million, 0.93 million in the first nine years and 2.15 million in the next ten years. The average annual growth rate during 1961-71 was 2.07 per cent. The total population recorded in the various censuses is shown in the table below:

Table No. 1

Nepal's Population by Different Censuses

<u>Year</u>	<u>Total Population</u>	<u>Percentage Growth</u>
1911	56,38,749	-
1920	55,73,788	(-) 1.2
1930	55,32,574	(-) 0.7
1941	62,83,649	13.6
1952-54	84,73,478	34.8
1961	94,12,996	11.1
1971	1,15,55,983	22.8

The projection of future population has special importance in terms of national development since the size and the composition as

well as other qualitative aspects of the population are the key elements in any development planning aimed at welfare and higher incomes for the majority of the people. However, the paucity of reliable data regarding current annual birth and death rates makes it extremely difficult to project the future population. Nevertheless, the Central Bureau of Statistics has made some projections of the future population-by-age group for the period between 1971 and 1986 on the basis of certain assumptions and the available statistics. The population thus estimated is given below:

Table No. 2
Population Projections

<u>Age/Years</u>	<u>1971</u>	<u>1976</u>	<u>1981</u>	<u>1986</u>
Total	1,15,55,983	1,28,57,243	1,43,14,980	1,60,50,631
0 - 4	17,80,168	19,98,836	21,85,422	24,89,014
5 - 9	16,23,086	16,54,392	15,74,189	20,66,092
10 - 14	13,25,953	15,87,237	16,22,301	18,42,522
15 - 19	10,74,101	12,95,980	15,55,358	15,93,590
20 - 24	9,94,912	10,39,317	12,58,470	15,15,378
25 - 29	8,92,219	9,27,320	10,03,152	12,19,565
30 - 34	8,12,453	8,55,125	8,93,093	9,70,397
35 - 39	7,16,866	7,75,932	8,21,055	8,61,757
40 - 44	5,97,211	6,80,525	7,41,020	7,88,349
45 - 49	4,75,896	5,60,775	6,43,385	7,04,920
50 - 54	3,74,423	4,39,016	5,21,462	6,02,679
55 - 59	2,98,145	3,36,394	3,98,174	4,77,062
60 - 64	2,66,620	2,57,139	2,93,362	3,50,902
65 - 69	2,06,755	2,15,503	2,10,729	2,43,427
70 - 74	1,02,262	1,50,660	1,59,933	1,58,987
75 - 79	32,870	63,509	95,840	1,04,131
80 - 84	10,841	16,115	32,161	50,065
85 +	1,202	3,468	5,870	11,824

Based on the present estimates, the population of Nepal is expected to increase by 13,01,260, 14,57,737 and 17,35,651 respectively in each quinquennium from 1971 to 1986. In other words, the annual rate of population growth for different periods has been assumed to be as follows:

Table No. 3

Projected Population Growth Rates

<u>Period</u>	<u>Average Annual Growth Rate (Percentage)</u>
1971 - 1976	2.16
1976 - 1981	2.18
1981 - 1986	2.30

The above table shows a continuous increase in the annual growth rate of population. However, some tentative surveys and studies conducted recently suggest higher rates of growth in the last few years and further increase over those rates in the near future. According to these studies, the 1975 population (estimated at about 12.5 million) could double (a second Nepal) by the end of this century.

Classification of population by different age groups reflects specific characteristics of population. Broad division of the specific age group of population is very necessary to estimate the resource needs, the manpower supply, the employment problems, and the dependency burden on the national economy. Age structure of population, besides other characteristics, also indicates the likely trend in fertility in the future. The following table indicates the percentage distribution of population in 0-14, 15-59, and 60 years and over.

Table No. 4

Estimated Population by Age Group
In Percentage (1971-86)

<u>Age Group</u>	<u>Percentage of Population</u>			
	<u>1971</u>	<u>1976</u>	<u>1981</u>	<u>1986</u>
<u>All Age</u>	<u>100.0</u>	<u>100.0</u>	<u>100.0</u>	<u>100.0</u>
0 - 14	40.5	40.8	39.7	39.9
15 - 59	53.7	53.7	54.7	54.4
60 +	5.4	5.5	5.6	5.7

From the above table, it appears that by 1986 the number of children in 0-14 age group is expected to constitute about 40 per cent of the total population while the number of persons in 15-59 age group will be around 55 per cent. The 60 years and over age group will constitute very nearly 6 per cent. It is obvious that the needs of the different age groups of population vary and so does the contribution they can make in the economic and other fields in the country. Thus, while at one end a part of the population is a liability for a time, another part at the other end is the decisive force for development and change. While we have to invest considerable resources on the 0-14 age group, the 15-59 age group is the major creator of all wealth. The 60 + is largely a spent force, but the mature judgment of many people of this age group is invaluable for the decision-making process. Others of this age group will have to be taken care of for their past contribution.

Population Density Pressure of population on the available natural endowment is bound to increase with the growth in population. It is, therefore, necessary to study the impact of population pressure in terms of cultivated land, forest area, pastoral land, and water resources, since the larger portion of Nepal's land area is comprised

of mountains and hills and the extremely limited exploitable land-base in these regions has to support a sizeable portion of the population. According to 1961 census, the density of population in Nepal was 65 persons per square kilometre whereas in 1971 it reached 80 persons. In the context of its physical features these figures clearly indicate the growing population pressure in Nepal. The estimated density of population for various years in the land resources of the country is shown in the following table:

Table No. 5

Year	<u>Population Density per Sq. Km. of Land Area</u>		
	<u>Population Density in Total Area</u>	<u>Population Density in Cultivated Land</u>	<u>Population Density in the Forest Area</u>
1961	64.74	308.29	190.41
1966	70.68	336.58	207.88
1971	79.48	378.48	233.77
1977	88.43	421.10	260.09
1981	98.45	468.82	289.56
1986	110.39	525.69	324.69

From the above table, the 1961 population density of Nepal is estimated to almost double by 1986. Besides, the regional distribution of population in Nepal has a distinct pattern due to the specific topography and the economic history of the country. The regional distribution of population is shown in the following table.

See next page for Table No. 6.

Table No. 6
Population Density by Regions
(in Sq. Km.)
1971--1986

<u>Region</u>	<u>1971</u>	<u>1976</u>	<u>1981</u>	<u>1986</u>
<u>Nepal</u>	<u>79.48</u>	<u>88.43</u>	<u>98.45</u>	<u>110.39</u>
<u>Eastern Region</u>	<u>99.93</u>	<u>109.96</u>	<u>121.16</u>	<u>134.37</u>
Mountain	30.47	72.66	78.56	85.50
Hill	101.57	221.17	248.16	280.07
Terai	197.33	214.46	242.88	276.94
<u>Central Region</u>	<u>137.08</u>	<u>153.45</u>	<u>171.99</u>	<u>194.10</u>
Mountain	61.03	123.26	136.90	153.10
Hill	133.61	214.46	242.88	276.94
Terai	189.62	214.46	242.88	276.94
<u>Western Region</u>	<u>67.53</u>	<u>74.80</u>	<u>82.63</u>	<u>91.88</u>
Mountain	39.40	63.16	69.49	76.94
Hill	93.41	169.96	190.09	214.03
Terai	149.59	169.96	190.09	214.03
<u>Far Western Region</u>	<u>46.06</u>	<u>51.62</u>	<u>58.00</u>	<u>65.68</u>
Mountain	20.68	47.87	52.66	58.32
Hill	57.83	66.56	79.23	94.95
Terai	55.99	66.56	79.23	94.95

From the above table the central region of the country seems to be more densely populated than other geographic regions. Contrary to this, the population density in the western region is far below the national average. The very high density of the Kathmandu Valley is mainly due to the location of three towns in a small but highly fertile area.

Likewise, the Terai region is more populous than the mountain and the hill regions, although it contains less than 40 per cent of the total population of the country. Even in the Terai areas, the eastern Terai region has a higher population density than the far-western Terai which is comparatively far less populous. Besides the geographical reasons, the tempo and scale of the process of development also determine the settlement pattern of the population. In

the past, development activities were concentrated mostly in the central and eastern Terai region as compared with the western Terai and the hills (except the Kathmandu Valley) and mountains. Furthermore, the eradication of malaria in the Terai has led to the massive internal migration of the hill people for settlement in this region. In addition, influx of foreign nationals into the Terai areas has also stepped up in the wake of growing economic activities in the central and eastern Terai towns and the hinterlands. The combined effects of these phenomena during the last ten years have caused the average annual rate of growth of population to rise from 4 to 6 and even up to 7 per cent in some Terai districts of Nepal. Indeed, Terai has now become a melting pot of all sorts of developments.

In terms of cultivated land, pastures, and the main sources of fuel and wood, the mountain and hill regions seem to be facing an acute problem of population pressure. It is evident that the population density even in the Terai area, in terms of cultivated land, is higher than the average density in Pakistan and Burma and is very close to that of India. The density of population per square kilometer of cultivated land in Burma is 148 persons, in Pakistan 224 persons, in India 350 persons, and in Bangladesh 824 persons. In the mountains, the hills, and the Terai regions of the country, the density of population per square kilometer of cultivated land is 1174 persons, 1002 persons, and 336 persons, respectively.

Urban Population The urban population of Nepal has increased from 2.8 per cent of the total population in 1952/54 to 3.57 per cent in 1961 and to 4 per cent in 1971. So far, the problems of urbanization in Nepal are not so serious as in some other developing countries. However, the increase of urban population in the 11 towns in the sixties (1961-1971) by 24 per cent seems to be underestimated since the urban areas have extensively expanded outside the municipal boundaries in the recent years. Table 7 indicates the relative growth rate of population in 11 towns during 1961-1971. Ilam, Bhadrapur,

Hetauda, Bhairawa, and Butwal, which were considered as towns in the 1971 census, were not enumerated as urban areas in the 1961 census. Moreover, urbanization in Pokhara has taken place very rapidly in the last decade mainly because of expansion of the municipal boundaries and the opening up of two highways linking it with the Indian border and Kathmandu. During 1961-71, towns like Janakpur, Dharan, Rajbiraj, and Nepalganj have all exhibited increase of more than 45 per cent in population.

Table No. 7
Growth in Urban Population

<u>Town Area</u>	<u>1961</u>	<u>1971</u>	<u>Absolute Growth</u>	<u>Percentage Growth</u>
1. Bhaktapur	33,877	40,112	6,235	18.40
2. Biratnagar	35,355	45,100	9,745	27.56
3. Birgung	10,769	13,001	2,232	20.72
4. Dharan	13,998	20,503	6,505	46.47
5. Janakpur	8,928	14,294	5,366	60.10
6. Kathmandu	1,21,019	1,50,408	29,289	24.20
7. Lalitpur	47,713	59,049	11,336	23.75
8. Nepalganj	15,817	23,323	27,706	48.71
9. Pokhara	5,413	20,611	15,198	212.81
10. Rajbiraj	4,232	7,832	2,600	49.69
11. Tansen	5,136	6,434	1,298	25.27
12. Ilam	-	7,299	-	-
13. Bhadrapur	-	7,499	-	-
14. Hetauda	-	16,194	-	-
15. Bhairawa	-	17,272	-	-
16. Butwal	-	12,815	-	-
Total for Entire Kingdom	336,222	4,61,938		

Projected Population in the Fifth Plan Period During the Fifth Plan period (1975-80), the increase in population by age group has been estimated to be as follows:

See next page for Table No. 8

Table No. 8
Population Growth By Age Group In The Fifth Plan (1975-1980)

<u>Age Group</u>	1975			1980		
	<u>Male</u>	<u>Female</u>	<u>Total</u>	<u>Male</u>	<u>Female</u>	<u>Total</u>
0-- 9	18,05,263	17,70,735	35,75,998	20,11,893	19,61,086	39,72,979
10--14	7,94,374	7,59,308	15,53,682	7,98,594	7,89,087	15,87,681
15--24	11,90,150	10,95,779	22,85,929	14,24,748	13,29,033	27,53,781
25--34	8,51,056	8,93,708	17,44,764	9,35,956	9,19,827	18,55,782
35--44	7,00,526	7,25,141	24,22,667	7,40,697	7,88,043	15,28,740
45--54	4,95,058	4,84,597	9,78,655	5,66,707	5,73,282	11,29,989
55--64	2,91,074	2,89,912	5,80,986	3,39,553	3,37,226	6,76,779
65 +	2,06,645	2,33,112	4,39,757	2,31,079	2,62,687	4,93,766
Total	63,34,147	62,51,293	1,25,85,440	70,49,227	69,60,271	1,40,09,498

The above table shows an increase of child population in the 0-9 age group by 3,96,981. The 10-14 age group population is expected to increase by 33,999. This will require a considerable increase in the enrollment capacity of the primary, middle, and secondary schools. The number of persons in the working age group of 15 years and over is estimated to be 74,52,768 in 1975/76 and 84,48,838 in 1980/81.

Employment The execution of the Fourth Plan (1970-75) could absorb only a fraction of the additions to the labor force during the period. Since a sizeable part of the working-age population in an agricultural country like Nepal falls back upon the land and on the stagnant rural occupation, open unemployment has not posed a serious problem as yet. However, the growing distress in the rural areas, particularly in the mountains and hills, is clearly visible. During the Fourth Plan, there will be an addition of about one million to the working age population. Of this, about sixty per cent are expected to seek gainful employment in the rural and urban areas. The Fifth Plan cannot ensure a condition of full employment. It is

expected, however, to improve the present employment structure and help create conditions for higher employment in the future. The high fertility and birth rates of the fifties are now exerting pressure on the employment situation. The army of job-seekers is going to swell at an accelerated pace in the years to come.

Search For A Population Policy

The need for concerted action toward a comprehensive program of fertility control has now, obviously, become a non-controversial issue, at least among the elite of the towns. The crux of the problem, however, is how to approach those vast masses on a priority basis, who need family planning most urgently. No doubt, a clear base to start with is to know the current demographic situation in an objective and precise way--vital statistics, and so forth. But such base-line data and other basic statistics can only provide some light for planning and for comparison through time and place, but can never be a substitute for the major thrust required for the attainment of success. Research work to determine the fertility behavior of different ethnic, social, economic, geographic, professional, religious, and other categories of people and their response in this respect to various approaches is, of course, necessary for proceeding in a big way. The target population is the married couples.

In 1975, the size of the female population in the child bearing age group is estimated to be 2.7 million, and by 1981 it would reach three million, assuming that most of the female population in the 15-24 age group would marry. In the rural areas, however, it is rare for females to remain unmarried in the age group of 12 to 15 years, and they continue to bear children until about 45 years of age. Of the total married couples in the Fifth Plan period, about 2.5 million will have to be brought into the family planning program. All these cannot be provided with ready access to family planning

measures since the devices and the required materials, the financial and human resources, the network of organization and communication media to reach so many are strictly limited.

In general terms, the level of economic development and the standard of living of the majority of the people together with the changes in the pattern of social and cultural values determine the response toward a small family-size norm and the adoption of techniques to control the fertility rates. The rigidity of present values and social institutions makes it difficult to popularize the idea of planned parenthood. It takes decades to bring a total change in these old values. However, the process of spontaneous change in the outlook can be accelerated through a concerted program embracing most of the determinants of the consciousness and behavior patterns of the people. This calls for the development and expansion of educational facilities and health services, effective agrarian reform measures, and movements for enhancement of women's status and their participation in economic and public activities. All these developments strengthen and provide thrusts to the popularity of family planning measures. The combined effect of all these bring about a new stage of development and change in the broader sense. A family planning campaign can never go far in isolation. It must be looked at in a composite way.

Rapid growth in population jeopardizes our efforts towards increasing the Gross National Product by the erosion of savings and the diversion of investments. Moreover, it further widens the existing inequality in the distribution of wealth, incomes, and opportunities. Hence, vigorous efforts should be made to arrest the rate of growth of population. The current rate is estimated to be not less than 2.2 per cent.

Estimates of crude death rate in Nepal is 20 per thousand. Death rate is sure to decline further with the growing availability of health services. The new innovations in medicine and preventive as well as curative technology abroad, in future too, are going to reduce the death rate in Nepal. If the crude birth rate does not drop from the present level (estimated at 42 per thousand) by at least a few points in the next five years, the rate of growth of population will rise further.

It is estimated that in spite of our best efforts to influence the fertility and the crude birth rates in Nepal the population will double in the next 30 years. This will, no doubt, make the process of economic and social development quite difficult and slow in this period. Even if the economic growth is faster than the growth rates in population, the standard of living and the quality of life of the majority of the people will not reach the level where the birth rates generally start to decline. Moreover, the influx of foreign nationals into the country combined with the natural growth in population will overburden the agricultural sector, leading to a serious adverse impact upon the food balance and the external payments situation of the country. Unless agricultural output registers an average annual increase of about 2.5 per cent, Nepal will turn out to be a net importer of food grains within ten years. But to increase the present low per capita consumption along with further increase in the volume of exports will require a higher rate of increase in production. The existing facilities in the fields of health, education, housing, drinking water, etc., are grossly inadequate and any fast increase in the present population size might further worsen the situation.

Even if remarkable progress is made in fertility control, it will still take at least fifteen years to slow down the pace of population growth. The pay-back period of investments in the

population program is very long. As such, population policy is being formulated with a long-term effect. However, taking the direct and indirect benefits of preventing births into account, the cost involved in such a program is certainly justified. The non-economic gains are even more important.

Unrestricted immigration of foreign nationals frustrates the aim of family planning measures in Nepal. The density of population in the adjoining districts of India is up to five times higher than in Nepal Terai. This, among other things, induces the foreign nationals to migrate into this region. They also enter into the towns of Nepal in large numbers to seek employment and many of them come for permanent settlement. Introduction of a work-permit system is being considered to control such settlements. Agricultural lands in Terai have to be filled by Nepalese nationals as soon as possible in order to close the chapter for foreigners. A big resettlement program and a vigorous land reform campaign can accomplish this urgent task.

Internal migration from rural to urban areas is a natural process--the push and the pull effect, between the stagnant rural and the growing urban economy. This trend is expected to continue and the population growth rate of the urban areas is sure to increase in the years to come. Programs on town planning will be further expanded during the next five years. In the Fifth Plan, the Small Area Package Program aims at development of small towns in about 20 locations. Family planning services will be made more intensive in all the urban pockets of the country.

In view of the importance of changes in the population variables on the socio-economic development of the country, the National Planning Commission of Nepal formed a Task Force on Population Policy in May 1974 to prepare a report on the subject. The Task Force submitted its report to the National Planning Commission in September 1974. Following its recommendations, the Commission presented a draft report on population policy to the National Development Council. Subsequently, a chapter on

population policy has been incorporated in the Fifth Plan.

As the people of the country are both the ends and means of development, maximum possible utilization of manpower is imperative. But optimum utilization of manpower, consistent with the aims of broader economic growth and faster rise in the standard of living of the masses, demands a pattern of distribution of population in keeping with the present and future geographical distribution of the physical resource endowments of the country.

Nepal aims to realize the above objectives through the adoption of the following policies:

1. Achieve perceptible reduction in crude birth rate through such indirect but broad and basic determinants as social, economic, cultural and educational development and reforms, as well as through direct antinatalist and preventive programs of family planning and maternity and child health care.
2. Control the flow of immigration into the country to reduce this flow to insignificance.
3. Organize the internal migration from the hills to the Terai and also from rural to urban areas in a systematic way and on the basis of a set program.
4. In order to achieve an optimum spatial distribution of population it is highly desirable that population growth in Nepal should have direct correspondence with the differing resource endowments of different geographic regions. Especially, more attention should be focused on the necessity of increasing the density of population in the Western Terai and particularly in the Far Western Terai.
5. From the regional development considerations, it is desirable to develop small urban centers in hitherto unurbanized regions. Necessary civic facilities should be provided in the centers in hitherto unurbanized regions. Necessary civic facilities should be provided in the centers selected for such planned

urbanization.

In order to pursue the above objectives and also to establish effective coordination between the policies and programs of different ministries, departments, and institutions on matters pertaining to population changes, a high-level population policy council under the chairmanship of a member of the National Planning Commission was constituted by His Majesty's Government/Nepal in August 1975. This council consists of representatives from the ministries of Health, Law, Home Affairs, Panchayat, and Agriculture. The rector of the Tribhuvan University and the presidents of the Nepal Women's Organization and the Family Planning Association of Nepal, as well as the chief of the Family Planning/Maternal and Child Health are also members of this council.

In order to improve the data-base for planning, a citizen and vital registration system will be introduced very soon to record births, deaths, marriage and divorce, along with migration, immigration, granting of citizenship, etc. In the beginning, such a system will be established in 15 selected districts of the country. Furthermore, a mid-term population sample survey will be carried out in the fiscal year (1975/76) aiming to identify the present situation with regard to population, employment, migration, and the literary level in the country.

To assess the effectiveness of FP/MCH Program, a survey of the regular acceptors of family planning methods will also be conducted. A project on population education in the organized sector of the economy is also under way.

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THE POPULATION OF NEPAL

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Introduction

The objective of this paper is twofold. The first is to provide a background and description of the population composition of Nepal which includes the following characteristics: distribution and density, age-sex and marital structure, occupation, education, ethnicity, and religion. The second is to discuss the population processes (i.e., fertility, mortality, and migration) and their implications for population growth and the population problem of Nepal.

Population Composition

Distribution and Density. Over the decade 1961-1971 the population of Nepal has grown from about 9.4 million to a little over 11.5 million. Presently over half of the population reside in the Hills while about 40% and 10% reside in the Plain and Mountain areas, respectively. Population density which has reached 203/sq. mile nationally is rather unevenly distributed geographically. The Plains have the highest density at 360/sq. mile followed by the Hills at 242/sq. mile and the Mountains at only 53/sq. mile. Similarly, the urban population which constitutes only 4% of the total population is unevenly distributed, i.e., the three Kathmandu Valley towns account for almost 60% of the total urban population while the nine Terai towns make up about 38% of the total.

Age-Sex and Marital Structure. The age-sex pyramid of Nepal

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is typical of those countries characterized by high birth and death rates with an extremely broad base and consistently diminishing proportions through the remaining portion of the age structure (see Figure 1). The youthful and slightly masculine character of the population is evidenced by the fact that slightly over 40% of the population is less than 15 years of age and almost 50% are under 20 years of age; and the sex ratio is about 101 males per 100 females.

As seen in Table 1 the pattern of almost universal marriage for women in Nepal is quite apparent. The proportions "ever-married" reaches over ten percent in the 10-14 year age group, increases to slightly over three-fifths of the women aged 15-19 years and by the time Nepali women reach the ages 20-24 years over ninety percent of them will have been married.*

The proportions "currently married" follow the same pattern with age, however, as would be expected, widowhood begins to affect the distribution around ages 30-34 years where the proportion widowed is a little over five percent. This proportion almost doubles in the following age group and by the time women reach the end of their reproductive period at ages 45-49 years almost a fifth of them will have been widowed.**

Occupation. As would be expected, the predominately rural character of Nepal is reflected in its occupational structure. Almost 95% of the economically active population is employed in agricultural occupations (i.e., farming, fishery workers) while a little over 2% are categorized as clerical and sales workers and another 2% as production, labor workers (see Table 2).

*An application of Hajnal's technique indicates that the mean age at marriage for Nepali women in 1971 was 16.7 years.

**An application of Agarwala's technique indicates that the mean age at widowhood in 1971 was 40 years (for women up to the age of 50 years).

Table 1. Marital Status of Nepali Women by Age, 1971

Age (Years)	Total Women (in Thou- sands)	Marital Status				
		Proportion of Women				
		Never Married	Ever Married	Currently Married	Widowed ^{a/}	Divorced or Separated
6--9	651	97.7	2.3	2.3	.6	-
10--14	703	86.6	13.4	13.4	.4	-
15--19	547	39.3	60.7	60.2	.5	.2
20--24	466	7.9	92.1	91.1	.8	.3
25--29	456	2.6	97.4	95.4	1.7	.4
30--34	386	1.4	98.6	95.0	3.3	.3
35--39	386	1.1	98.9	92.0	6.7	.4
40--44	301	.9	99.1	86.6	12.2	.4
45--49	245	.8	99.2	80.6	18.4	.4
50--54	204	.7	99.3	70.8	28.3	.3
55--59	132	.7	99.3	66.6	32.6	.3
60 +	311	.6	99.4	44.4	55.0	.4

a/ Calculated as a proportion of "ever-married" women.

Table 2. Percentage of Distribution of Workers by Major Occupational Categories and Sex, 1971

Category	Total	Male	Female
Professional/Technical Workers	0.5	0.7	0.1
Administrative Workers	0.0	0.0	0.0
Clerical Workers	1.0	1.3	0.1
Sales Workers	1.2	1.5	0.5
Service Workers	0.7	0.9	0.4
Farming/Fishery Workers	94.4	92.8	98.2
Production/Laboratory Workers	2.2	2.8	0.7

Education. Literacy is extremely low in Nepal particularly among females. Less than 15% of the total population were categorized as literate in 1971, however, among males the proportion reached almost 25%, while among females the proportion was less than 5%.* Of the so-called literate population almost 80% had never gone to school and only slightly over 10% had completed a primary school education (see Table 3).

*1971 Census footnote.

Table 3. Percentage Distribution of Literate Persons by their Years of School Completed, 1971

<u>Schooling</u>	<u>Percent</u>
No. schooling	77.7
Primary (1-5)	11.0
Middle (6-8)	4.4
High (9-10)	4.7
Intermediate (11-12)	1.0
Graduate (13-14)	0.7
Post Graduate +	0.3
	<hr/>
Total	<u>100.0</u>

Ethnicity and Religion. There are at least 75 major ethnic groups with about 50 different languages represented in Nepal. Although the 1971 census did not include a question on ethnicity, it did include a question which asked for "Mother Tongue." Over half of the population reported their mother tongue as Nepali while about 12% indicated they spoke Maithali and another 7% Bhojpuri. The mother tongue of the remaining portion of the population was spread fairly evenly through another nine languages (see Table 4).

Table 4. Percentage Distribution of Population By Mother Tongue, 1971

<u>Mother Tongue</u>	<u>Percent</u>
Nepali	52.4
Maithali	11.9
Bhojpuri	7.0
Tamang	4.8
Abadi	2.7
Tharu	4.3
Newar	3.9
Magar	2.5
Rajkirati	2.0
Gurung	1.5
Limbu	1.5
Others	5.5
	<hr/>
Total	<u>100.0</u>

Officially Nepal is a Hindu Kingdom and this is obviously reflected in its religious composition. About 90% of the population is Hindu, while about 7.5% and 3% are Buddhist and Muslim, respectively (see Table 5).

Table 5. Percentage Distribution of Population by Religion, 1971

<u>Religion</u>	<u>Percent</u>
Hinduism	89.4
Buddhism	7.5
Islam	3.0
Others	0.1
Total	100.0

The Demographic Processes

Fertility. Any attempt to establish firmly the level of fertility in Nepal is severely limited by the data available for study. There is no national vital events registration system and no national population sample surveys have yet been conducted. The only source of national data on current fertility levels is the 1971 census. As with other censuses conducted in developing countries this census is characterized by substantial under-enumeration of births. For example, the uncorrected data indicate that the crude birthrate (CBR) for the nation would be about 23 births per thousand population.* The Central Bureau of Statistics (CBS) has recently applied a corrective technique to the raw data which revises the rate upward to about 43 births per thousand population, which is

*Additional measures of fertility from the census reflect the underenumeration of births, i.e., a marital total fertility rate for women 15-44 years of 3.3; a gross reproduction rate of 1.7; and a total number of children ever born to women aged 45-49 of 4. The magnitude of underreporting becomes quite apparent when these rates are compared to rates for other countries. For example, all of the rates approximate those of Korea and Taiwan--countries which are highly likely to have significantly lower fertility rates than Nepal.

certainly nearer the level to be expected in a developing country.

Other estimates of the CBR are available from an area and sample registration system. In Bara District where a pilot project on integrated health is being conducted, vital events are registered on a monthly basis in a population of about 246,000. Preliminary results from the raw data show a CBR of 41. A slightly lower CBR of 39 has been reported in a population of 7,577 in Trisuli District where a matching survey and registration system of vital events is being conducted as an evaluation component of the family-planning program. Although these estimates no doubt also suffer from under-enumeration of births, the available evidence would appear to indicate that the CBR for Nepal is in the range of 40-45 births per thousand population.

Estimates of other measures of fertility are available from sample survey data of four districts which are a part of the evaluation component of the experimental programs of the FP/MCH projects. These data indicate that the Total Marital Fertility Rate reaches 7.3 in the Hill Districts and 5.2 in the Terai Districts, while the mean number of children-ever-born to currently married women 40-44 years of age is 5.8 in the Hills and 5.5 in the Terai.

Mortality. Like fertility, the most recent national estimate of mortality can be obtained from the 1971 census after applying a corrective technique. The result of this application indicates that the crude death rate (CDR) is a very high 23 deaths per thousand population per year. If this estimate is accurate, Nepal has one of the highest death rates in all of Asia. Estimates of the CDR from the Bara and Trisuli study areas are slightly lower than the census at 17 and 19, respectively. It should be noted, however, that these rates are uncorrected for underreporting and no doubt represent a lower order of magnitude than the actual CDR for these areas. These rates, taken with the rate obtained from the census, would appear to indicate that the CDR for Nepal is within the range of 20-25.

The corrective technique applied to the 1971 census by the Central Bureau of Statistics (CBS) also provides an estimate of infant mortality, i.e., a rate of 172 infant deaths per 1000 live births. However, it must be pointed out that the estimate is based upon an assumed schedule of child mortality and not upon the actual number of infant deaths, since the actual child survivorship in the census data was far too high as a result of considerable underreporting of childhood deaths. Additional estimates of the infant mortality rate are available from two earlier studies but are based on very limited population samples. The Nepal Health Survey (19 villages) reports a rate ranging from 130 to 208 and a study in Trisuli District (six villages) indicated that half of the children under age two died. This latter finding would give an infant mortality rate of at least 250. If these estimates and the census estimates are even partially reliable, infant mortality is higher in Nepal than in any other country in Asia.

Migration. As with fertility and mortality, data on migration in Nepal is extremely limited, and only very general estimates of population movements are available. For example, the 1961 census reports that about 330,000 Nepalese were absent from Nepal for at least six months of the year (the overwhelming majority of whom migrated out from the Hills), and that over 90% of this number were located in India (see Table 6).

A rough estimate of the magnitude of migration into Nepal is provided in Table 7. In 1961 and 1971 there were almost 340,000 foreign-born population in the country, 96% of whom had come from India. If it could be assumed ceteris paribus that the numbers of out-migrants in 1971 were roughly similar to the numbers in 1961, then the rate of net-migration in Nepal would be negligible.

The pattern of internal migration is generally reflected in Table 8. The primary stream of movement has been from the hills

Table 6. Nepalese Living Away from their Birthplace in Nepal and in Selected Countries, 1961

<u>Birthplace</u>	<u>Percent</u>
Hill	92.9
Teral	4.9
Kathmandu Valley	2.2
	<u>100.0 (N = 328,470)</u>

Table 7. Percent of Migrants in Nepal by Country of Origin

<u>Country</u>	
India	92.0
Malaya	3.9
Burma	0.9
China	0.3
Unstated	2.9
	<u>100.0 (N = 328,470)</u>

Table 8. Percent of Foreign-born Population in Nepal by Place of Origin, 1961-71

<u>Place of Origin</u>	<u>1961</u>	<u>1971</u>
India	96.0	95.6
China	2.4	0.4
Burma	0.3	1.9
Others	1.3	2.2
Total	<u>100.0</u>	<u>100.0</u>

and mountains to the plains, i.e., all of the hill and mountain regions show a loss of population over the last decade while all of the plain regions show a gain. The highest loss and highest gain occurred in the Eastern Hill and Eastern Plain, respectively. One of the primary reasons for this pattern was the eradication of malaria in the plains area which freed thousands of acres of land, which were formerly uninhabitable, for farming. While this represents a stream of population movement which resulted in

permanent settlement, Nepal is also characterized by massive seasonal movements of population which are temporary in nature. These movements are primarily from the higher hill regions in winter to the inner Terai and Terai areas, i.e., the plains. It has been roughly estimated that over one million people with their animals "trek down into the warmer hill valleys and plains to graze their flocks before returning in spring with salt and manufactured goods."* No data are available, however, to suggest the real magnitude of such seasonal movements, the estimate above being little more than conjecture.

Population Growth. Since very little is known about birth and death rates and an estimated range has to be given for these rates, net population growth must also be expressed in terms of an estimated range. Further, it is unknown whether Nepal is still a net exporter of population: recent happenings suggest that the rate of in-migration from India may have increased considerably. Hence, the most that can be said regarding population growth at the present time is that it probably occurs at an annual rate of between 1.5% and 2.5%. There is little reason to believe that this rate will not be maintained and possibly increased for two reasons: first, as mentioned above, the age structure is characterized by high proportions in the under 15 age group, i.e., about 40%. Hence, as the high numbers of women in this age group move into the marriageable and childbearing ages the contribution they will make to fertility in absolute numbers will contribute to maintaining a high CBR.^{*a} Second, with the mortality rate at such a high level and the prospect of additional health inputs imminent, a decline in mortality may be expected. It is obvious that if this decline is not matched by a concomitant decline in fertility, there will be a further increase in the rate of population growth and the consequent pressures on the economy,

*M. Weiner, "Political Demography of Nepal," Proceedings of the Seminar on Population and Economic Development in Nepal, CEDA, 1972.

^{*a} See next page.

educational and health systems, resources, etc.

Several sets of population projections illustrate this point further. The first set of estimates* projects the CBR through 1980 assuming no change in age-specific fertility and a decline in the CDR from 19.8 to 18.7 (CBS estimate of CDR), and indicates that the current marital structure is conducive to maintaining the level of the CBR at about the same level as 1975. Two other independent sets of projections** which assume constant age-specific fertility rates also indicate that the CBR will not decline through the next five years but will be maintained at its current level. Thus, Nepal faces the very real prospect of a continued high birth rate over the next five years, and with declining mortality, increasing rates of growth unless the total fertility rate can be reduced. (It should

*a A recent study of the impact of shifts in the marital structure between 1961 and 1971 on the CBR indicates that the current structure is more favourable to a higher CBR in 1971 than in 1961. The authors state, "Unlike countries such as Korea and Taiwan where shifts in the marital structure have been favourable to a low CBR. Although there has been a slight increase in the age at marriage, over 90% of Nepali women were married by the ages 20-24 years in 1971. Further, the overall marital structure of 1971 is more favourable to a higher CBR than the structure at the beginning of the decade. This latter finding is primarily due to a decline in the incidence of widowhood which has increased the proportions of potential child-bearing women and, consequently, the number of births. Thus, it would appear that shifts in the marital structure over the past decade could have provided little impetus to a decline in the CBR of the country." John Stoeckel, Jayanti Tuladhar, B.B. Gubhaju and P.L. Joshi, "The Marital Structure and Birth Rate in Nepal," mimeographed paper, F.P. Research & Evaluation Unit, HMG, Nepal, 1974, pg. 7.

*Projections prepared by the Berkeley team for the 5th National 5-Year Plan of Nepal.

**See J.C. Sinquefield, "Some Population and Family Planning Target Projections for Nepal," Community and Family Study Center, University of Chicago, Series 1 (Constant Fertility); and IBRD and IDA, "Economic Situation and Prospects of Nepal," Asia Region, South Asia Department, 1973 (Unofficial Document).

be noted, however, that the official CBS estimates indicate that the CBR will decline between 1976 and 1980*.)

The population composition of Nepal and the demographic processes and their implications for population growth and the population problem of the country has been discussed. Nepal has been characterized as highly rural with over half of the population located in the Hills. The population is very young with 40% under the age of 15 years and marriage occurs on the average at a fairly early age with 90% of all females married by the age of 20-24 years.

As would be expected, the majority of males and females in the labor force are employed in agricultural occupations; the religious structure is made up primarily of Hindus; and the educational structure is characterized by very high proportions with no education.

Fertility and mortality estimates set the CBR and CDR around 40-45 and 20-25, respectively, with the resulting rate of growth in the range of 1.5-2.5%. Migration would appear to make little contribution to this rate, i.e., a very crude estimate of net migration indicated that it would be negligible. It was pointed out, however, that internal migration over the last decade had been substantial.

Because of the extremely high proportions in the youthful segment of the population and the existing marital structure, projections of the CBR over the next five years indicate that the CBR will be maintained at its current high level if a decline in age-specific fertility does not occur. If this level is maintained and mortality

*The estimate prepared by CBS assumes a constant sex-age adjusted birth rate and does not take into account the proportions in the marriage structure which accounts for its difference from the other sets of projections. See: HMG, National Planning Commission Secretariat, CBS, "Population Projections for Nepal," 1971-1986.

declines as expected then, increasing rates of growth will be produced. This has obvious implications for the population problems of Nepal since this will result in even greater pressures upon the economy, educational and health systems, resources, etc.

* * * * *

SPATIAL DISTRIBUTION AND
CHANGE OF POPULATION IN NEPAL

MOHAN N. SHRESTHA*

Nepal is one of the smallest and most densely populated countries in Asia. It is predominantly an agricultural country. Over 96 percent of the total population lives in the rural areas, and over 94 percent of the economically active population is engaged in primary activities such as agriculture, hunting and fishing. Centuries of natural increase and various invasions have given rise to migrations penetrating into every corner of the country capable of sustaining life even at a subsistence level. Inaccessibility is not a barrier to human migration. The rugged mountains of remote areas have already been fundamentally altered into productive fields. It is this human occupancy that gives the character and significance to geographic regions, and the processes behind this reveal the essence of human ecology.

The population of Nepal in 1971 reached a total of 11,555,983 with an average density of 211 persons per square mile. This density figure is nearly half the average density of population in South Asia--almost equal to the density of China, 3.6 times higher than the density in the United States, and 7.2 times higher than the density in the Soviet Union. Within the country, the population is very unevenly distributed between the Mountain and Hill, the Inner Terai and the Terai regions, reflecting the usability of the land and the variation in climate. Each of these geographic divisions can be further divided into the western sector, central sector and eastern sector. The Kathmandu Valley stands out as a separate region because of its distinct regional characteristics, such as urbanization,

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intensive land-use, historical and cultural background. These divisions roughly correspond to the drainage basins of Karnali, Gandaki and Kosi rivers respectively. The Kathmandu Valley is drained by the Bagmati River.

The Mountain and Hill region covers 71.8 percent of the total area of the country, and supports 58.7 percent of the total population (Table 1). The average density of population in this region is 172 persons per square mile. The towering peaks of the Great Himalayan Range and the high valleys with harsh climate dominate the northern landscape. Except in a few districts, population here is very sparse (8 persons per square mile in Dolpa, and 9 persons per square mile in Tribrikot and Manang), and seasonal migration is very common. South of this Great Himalayan Range, there is an intricate system of hills and valleys averaging about 50 miles in width. The Mahabharat Range in the south is the only well defined range of mountains that extends from Mechi to Mahakali rivers. This region has been the traditional center of Nepalese population concentrations. A tremendous local variation in population density exists. Syangia, for example, has a population density of 633 persons per square mile, while the neighboring districts, Myagdi, Parbat, Baglung and Gulmi have 77, 166, 354, and 477 persons per square mile, respectively (Figure 1). There are also equally significant intersectorial differences in population density. The Eastern Mountain and Hill Region has a higher density of 205 persons per square mile, whereas the Central and Western Mountain and Hill Regions have a lower density of 177 and 113 persons per square mile, respectively. This variation indicates a definite advantage in the eastern part of the country which receives higher rainfall.

Between the Mahabharat Range and the Churia Hills lies the Inner Terai. These longitudinal valleys, known as "Duns" are not

a contiguous region. Sindhuli and Udaipur constitute the Eastern Inner Terai, Makwanpur, Chitwan and a part of Nəwal Parasi make the Central Inner Terai, and Dang-Deokhuri makes the Western Inner Terai. The Churia Hills are not so forbidding as the Himalayan Mountains of the north, but nevertheless, they have served as a natural barrier between the Mountain and Hill Region and the Gangetic Plain due to the prevalence of malaria. In 1956, a malaria eradication program started, and since then the population of the Inner Terai has been increasing very rapidly. It covers 9.9 percent of the total area and sustains 7.4 percent of the total population. The average population density is 158 persons per square mile and has a tendency to increase toward the west. But the difference of population density from east to west is not as significant as in the Mountain and Hill or the Terai Region (Table 1).

The Terai Region south of the Churia Hills is the northern extension of the Gangetic Plain, and is very fertile. It covers 18.3 percent of the total area and supports 33.9 percent of the population. The density of population is highest in the east, 525 persons per square mile, and decreases toward the west following the rainfall distribution pattern. The Eastern Terai receives around 70 to 75 inches of rainfall, while the Western Terai receives only 30 to 35 inches. The climate in the Western Terai is rather marginal with some summers excessively rainy, causing floods, and other summers remaining very dry. The average density, at present, is 138 persons per square mile. Thus, the density pattern is directly related to the agricultural potential of the land, which in turn is determined by the relief and the water supply.

In Nepal, where agriculture is the main source of livelihood, the population density is most meaningful when calculated on the basis of cultivated land rather than the gross area. It indicates the real population pressure on land. Department of Forest, HMG,

Nepal, has recently published reports on forest statistics covering 36,876 square miles or 67 percent of the total area of the country. These reports show that an area of 11,307 square miles is cultivated, which constitutes 20.6 percent of the total land. Out of this total 27.3 percent of the cultivated land is found in the hills and 36.7 percent in the Inner Terai and the Terai regions (Table 2).

The northern mountains and some areas within the hills and plains are not covered in these reports owing to the lack of large scale maps and aerial photographs. Although there was a significant time lag between the time the aerial photographs were taken and the reports were published, they are the only accurate, scientific and extensive reports available. The surveys cover most of the agricultural area, therefore they should provide a reliable picture of agricultural density, at least for that time period. According to these reports, the average density for the whole country (using the total population) is around 1,022 persons per cultivated square mile. The density in the hills is 1,049 persons per cultivated square mile, whereas it is 989 persons per cultivated square mile in the plains. The cultivated area must have increased since this study started. If we consider the time lag and other areas not covered under this survey, the above density figures should be considered as inflated. A density of 850 persons per cultivated square mile can be considered as a fair estimate of agricultural density in Nepal. Though, these figures do not show a significant difference in agricultural density between the hills and the plains, the pressure on land in the hills should be considered much higher because of the relief and low productivity.

POPULATION CHANGE

Though the government of Nepal first started to keep a record of population in 1911, a scientific enumeration was started only

in 1952. The census was completed in two parts. The census of the eastern part of the country except Mohotari was completed in 1952, and the census of the central and western parts of the country including Kathmandu Valley and Mohocari were completed in 1954. In 1961, only a few district boundaries were changed, while in 1971, the number of districts were increased from 55 to 75 and new district boundaries were established. Hence, a comparative study of growth patterns at district level becomes very difficult. Furthermore, there exists an unknown margin of error in each census due to underenumeration and inability to control data accuracy. Estimates of population of earlier dates are unreliable, and are not considered in this study.

In 1952/54, the population of Nepal was reported to be 8,473,478. When this figure is adjusted for 1954, the total population becomes 8,552,678. This figure increased to 9,412,996 in 1961 and to 11,555,983 in 1971. The average annual rate of population growth from 1961 to 1971 was 2.1 percent which is comparable to other South Asian countries. From 1956 to 1966, a national sample health survey was conducted by the Department of Health, His Majesty's Government of Nepal, the University of Hawaii and the Doodley Foundation. This study estimated the population of Nepal for 1971 to be 12,200,000 with an annual growth rate of 2.7 percent.

Accurate accounts of vital statistics are not available, nor are there any reliable sources of information on in-migration and out-migration. Only estimates based on different propositions can be made. Emigration data for 1971 are not available. In 1961, 328,460 persons were reported to be absent from the country for at least six months or more. Most of them were from the Mountain and Hill region. More than 90 percent of the migrants had gone to India, while others had gone to Malaysia, Burma, and other countries. The magnitude of immigration is about the same (337,620 persons

born outside the country which would include foreign born Nepalese also). Ninety-six percent of the people came from India, while the remainder migrated from Malaysia, Burma, and China. So the net migration of people remained negligible at the national level, but it still made a tremendous impact on regional population growth patterns and the economic structure. In 1971, there were 337,448 persons born outside the country which showed no significant increase from the 1961 figure. If there are no significant changes in migration from Nepal in 1971, we could say that the population growth is mainly due to the excess of births over deaths.

The average annual growth rate of population between the geographic regions is remarkably different. The Mountain and Hill region, with the exception of the Kathmandu Valley, is experiencing a rather slow population growth. The Inner Terai and the Terai regions, on the other hand, are growing much faster (Table 3). Between 1961 and 1971, population in the Eastern and Western sectors of the Mountain and Hill Region increased only 0.8 percent per year. In the Central Mountain and Hill Region, population increased 1.7 percent per year. Highest growth occurred in the Central and Western Inner Terai followed by the Western Terai, Kathmandu Valley and Eastern Terai (Figure 2).

The most important factor producing such a variation over geographic regions within the country is migration. Since the 1950's people from the Mountain and Hill Region have been steadily migrating toward the plains in the south. The main reasons for such steady migration are:

- (1) increasing pressure on agricultural land intensified by low productivity and soil erosion,
- (2) decline of traditional trade with Tibet,
- (3) the opening of new fertile lowlands in the Inner Terai and Terai regions through the eradication of malaria, and

(4) the lack of alternative employment sources.

Immigration is another source of population growth at the regional level. Most of the people immigrating to Nepal have settled in the Terai region (Table 4). Ninety-six percent (322,718) of all the immigrants came from India, mostly from neighboring states--Bihar and Uttar Pradesh. The second source of immigration has been from Burma and Malaysia. During the British period, large numbers of Nepalese migrated into these countries in search of job and land. Now quite a few of them and their children are returning to Nepal owing to the recent political changes in these countries. In 1971, 6,364 people came from Burma and another 6,131 came from other Asian countries, such as Malaysia, Pakistan, Bangladesh etc. In the same period, 1,534 persons immigrated to Nepal from China, particularly from Tibet. Most of the Tibetan Chinese immigrants have gone to the Mountain and Hill Region and the Kathmandu Valley. Some have settled in the Central Terai. Figure 3 shows the regional distribution of native and foreign migrants.

SOME CONSEQUENCES OF POPULATION PRESSURE

Major consequences of unrestricted population growth have been widely discussed in demographic literature, so only short remarks will be made here with reference to Nepal. With constant fertility, the projected population of Nepal in 2001 is 22 million and with declining fertility, the projection is 16.7 million (Centre for Economic Development and Administration, 1971). How the second alternative goal can be reached is still a matter of conjecture. If the population reaches 22 million by the turn of the century, there will be 9.2 million dependent people and 12.8 million people will be in the labor force. Even if we assume a 10 percent shift in occupation structure during this period, more than 10 million workers will still be left in the agricultural sector. Is there enough land

to accommodate all these people without putting too much stress on the environment? Can food supply be increased fast enough not only to keep the present standard of living by offsetting the population growth, but also to increase the standard of living?

Evidences of environmental stress due to the steady increase of population without any significant shift in the economy have been noticed already. With more and more people searching for land to cultivate, wooded hill-tops have been cut down and terraces have been extended to the tops of these hills. As these fields become less productive and severely depleted through poor agricultural practices and soil erosion, people move to new areas and clear new forests for their livelihood. In one of the surveys by the United Nations, it was pointed out that the wide-spread deforestation has caused a significant loss of rainfall, particularly in western Nepal. Soil erosion, flooding, and silting are added consequences of extensive deforestation.

With the recent migration of people from the Mountain and Hill Region to the Inner Terai and Terai, abandoned houses are appearing in the hills (Okada, 1970), and large scale deforestation is going on in the southern plains. These new migrants are not only encroaching into the forest areas but have also moved into game sanctuary areas, chopping away trees and underbrush. To circumvent the government regulations, trees are destroyed in secrecy through girdling. Such unrestricted human encroachment in these forests has led to the decline of wild life, such as elephants, tigers, wild buffalos, rhinoceros, and various species of birds and aquatic life. (National Planning Commission, 1972). If this process of migration and deforestation continues for another decade or so, the Mountain and Hill Region, especially the western sector, will turn into a wasteland incapable of supporting human life. The Inner Terai and the Terai will be overcrowded farm lands, and the whole forest eco-system will be destroyed.

Between 1965 and 1969, it was estimated that the amount of land under rice cultivation increased by 20 percent, and the amount of land under maize and wheat cultivation increased by 30 percent. Almost all of this new land is located in the Terai, and the increase in rice and maize production during this period was almost entirely the result of increased cultivated land rather than increased productivity. Only the production of wheat has substantially increased through improved seeds and methods of planting. At present, Nepal has a grain surplus which is exported to India every year, but in a few years, this will no longer be possible as production will have to be more than doubled for domestic consumption alone.

With the present rate of economic development, which is around 2 percent a year, the requisite rapid increase in production is not very likely. Agriculture is still in the primitive stage. The introduction of new technology in agriculture will doubtless increase the production, but with increased efficiency the labor requirement in agriculture will decline. An alternative employment source must be created. Such a transformation in economic structure is not possible within a short period unless a concomitant drastic change in the political and economic system also occurs with it. There are many other obvious implications of this demographic change. Changes in education, nutrition, and social services must be considered side by side. Hence, major policy decisions must be made now before it is too late.

Migration of people from the Mountain and Hill Region into the Inner Terai and Terai Region is inevitable. But the government must be able to direct the new settlements and carry out a massive campaign of afforestation in the hills, and also introduce a wide range of horticultural crops. Agricultural practices must also be improved significantly by introducing new improved seeds, fertilizers and contour cultivation.

In a country like Nepal, government decisions will be the only way to accomplish anything. Therefore, the decision-making body in the government should establish and evaluate national priorities and introduce a wide range of well integrated programs. To reduce the present rate of population growth is a necessary but not a sufficient condition for a higher rate of economic growth and a better quality of life. Actually, the long-term advantage of investment of capital in fertility control may be much higher than the expected return from other economic investments.

REFERENCES

1. Central Bureau of Statistics, Results of National Population Census, 1961, Vols. I and II, Kathmandu: National Planning Commission Secretariat, His Majesty's Government, 1967.
2. _____, 1971 Population Census of Nepal, Vol. I, Kathmandu: National Planning Commission Secretariat, His Majesty's Government, July 1973.
3. Centre for Economic Development and Administration, Seminar on Population and Development, Kathmandu: CEDA Study Series, Seminar Paper No. 2, Tribhuban University, 1971.
4. Department of Forest, Forest Statistics for the Terai and Adjoining Regions, Kathmandu: Department of Forest, Forest Resource Survey, His Majesty's Government, 1967.
5. _____, Timber Resources and Development Opportunities in the Lower Bheri & Karnali Watersheds, Kathmandu: Department of Forest, Forest Resource Survey, His Majesty's Government, 1969.
6. _____, Forest Statistics: Hill Region, Kathmandu: Department of Forest, Forest Resource Survey, His Majesty's Government, 1973.
7. Ehrlich, Paul R. & Ehrlich, Anne H., Population, Resources and Environment, San Francisco: W. H. Freeman & Company, 1970.
8. Gurung, Harka, "Geographical Foundation of Nepal," The Himalayan Review, Vol. I, 1968, pp. 1-9.
9. Karan, P. P., Nepal: A Physical and Cultural Geography, Lexington: University of Kentucky Press, 1960.
10. National Planning Commission, Fourth Five Year Plan, 1970-1975, Kathmandu: His Majesty's Government, 1970.
11. _____, Nepal: National Report on Human Environment, Prepared for the U.N. Conference on Human Environment, Stockholm, 1972.
12. Okada, F.E., Preliminary Report on Regional Development Areas in Nepal, Kathmandu: National Planning Commission, His Majesty's Government, 1970.

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SPATIAL DISTRIBUTION AND CHANGE OF POPULATION IN NEPAL

(Maps and Tables only)

by

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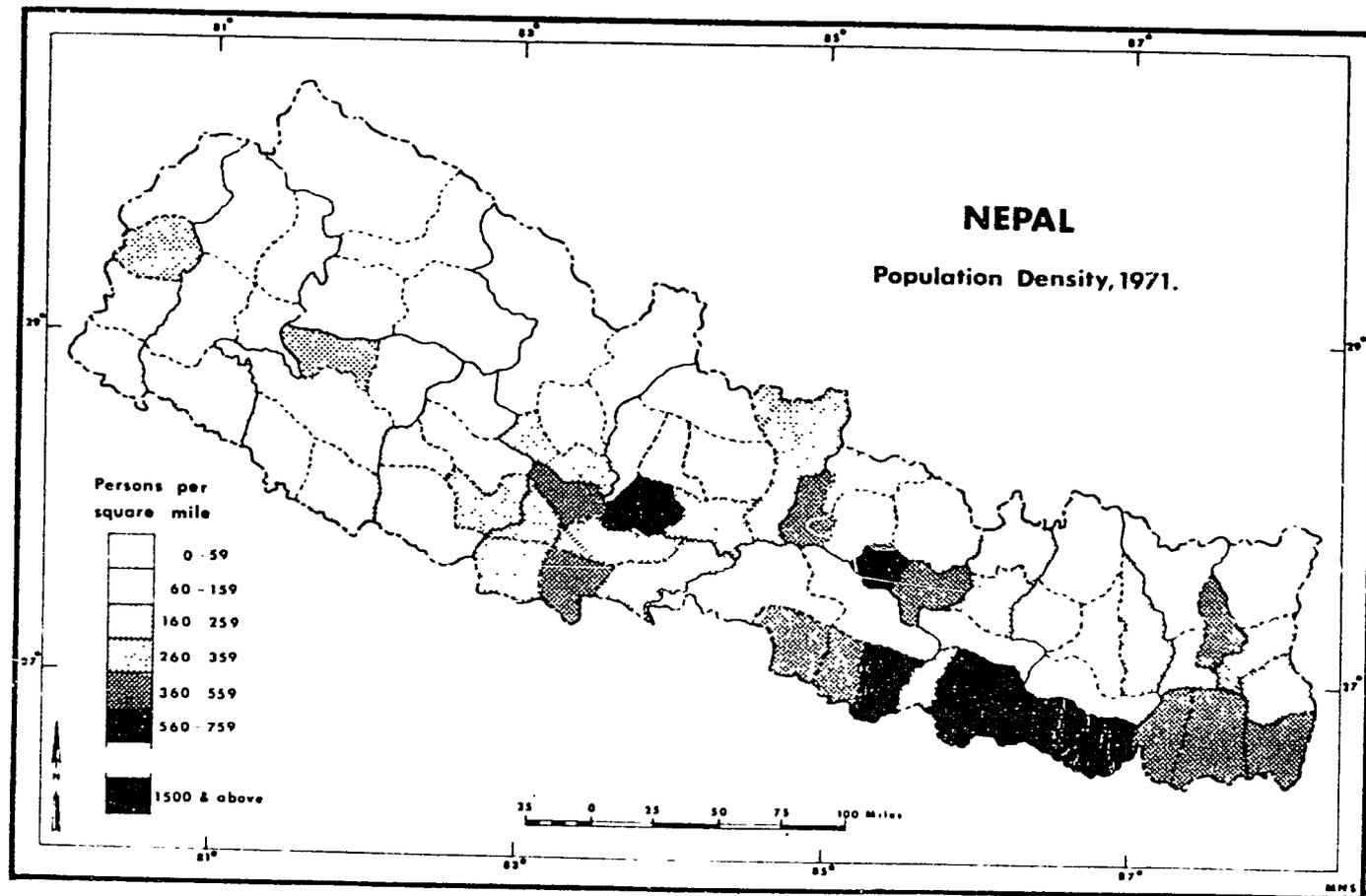


Figure 1

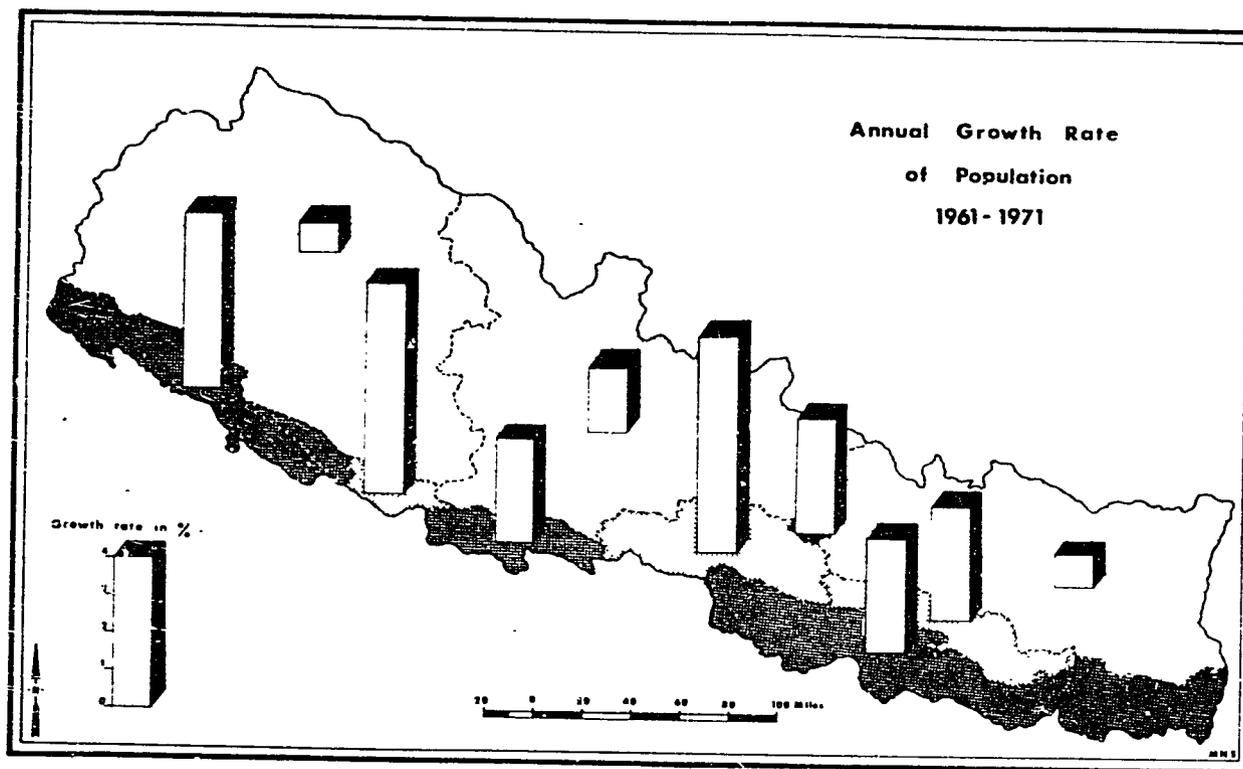


Figure 2

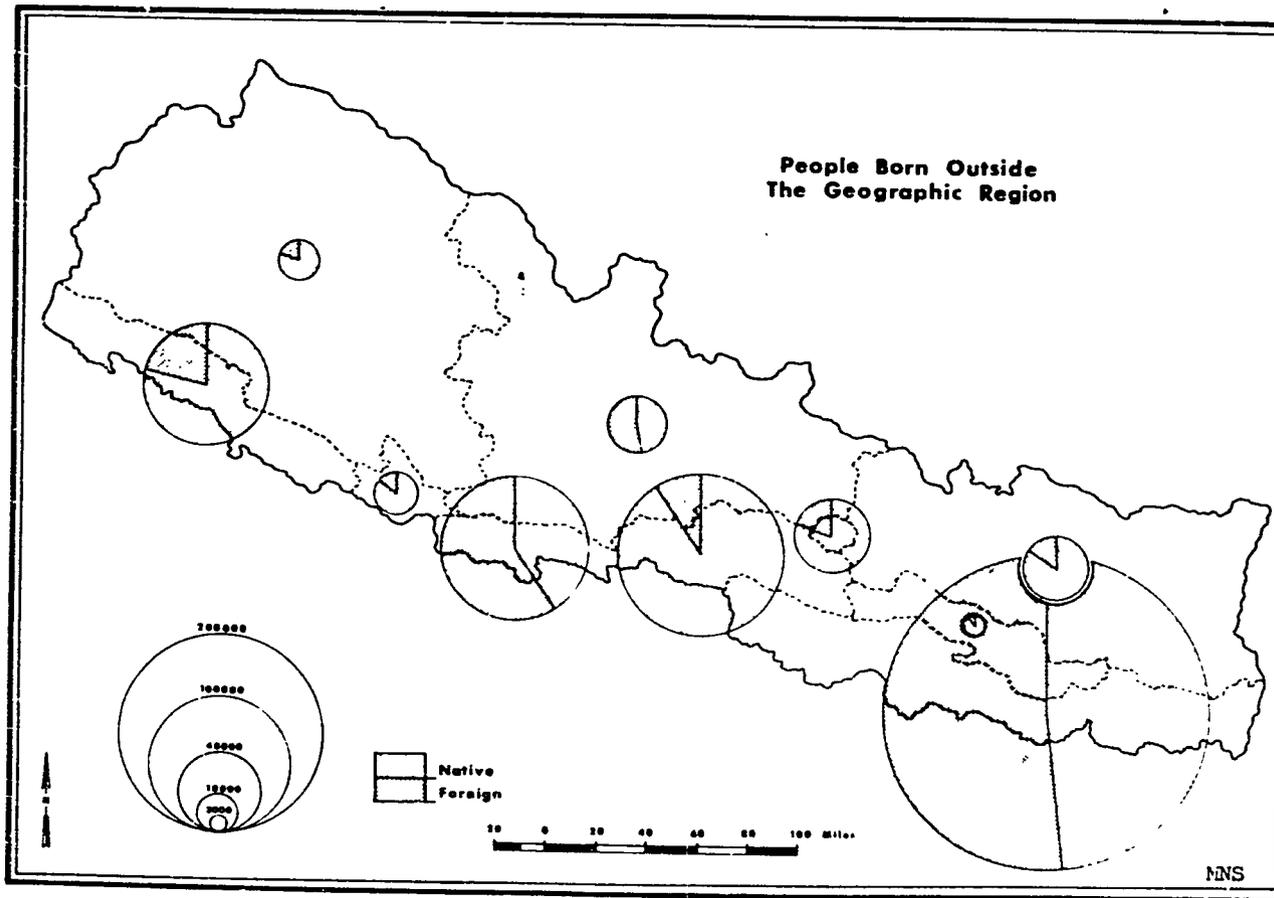


Figure 3

Table 1. Population by Geographic Regions of Nepal, 1971.

Geographic Region:	Area in sq. mile	% of the total area	Population 1971	% of the total pop.	Density per square mile
A. MOUNTAIN AND HILL	30 447	71.8	6 786 220	58.7	172
I. Western Mt. & Hill	16 198	29.5	1 834 128	15.9	113
II. Central Mt. & Hill	12 999	23.7	2 296 941	19.9	177
III. Kathmandu Valley	295	0.5	618 911	5.3	2 098
IV. Eastern Mt. & Hill	9 955	18.1	2 036 240	17.6	205
B. INNER TERAI	5 381	9.9	848 535	7.4	158
I. Western Inner Terai	861	1.6	167 820	1.5	195
II. Central Inner Terai*	2 568	4.7	420 684	3.6	164
III. Eastern Inner Terai	1 952	3.6	260 031	2.3	133
C. TERAI	10 042	18.3	3 921 228	33.9	390
I. Western Terai	3 078	5.6	425 242	3.7	138
II. Central Terai*	1 300	2.4	521 836	4.5	401
III. Eastern Terai	5 664	10.3	2 974 150	25.7	525
NEPAL	54 855	100.0	11 555 983	100.0	211

* The area and the population of Nawal Parasi were adjusted between the Terai and Inner Terai regions.

Table 2. Amount and Per cent of Population Change by Geographic Regions

Geographic Region	Intercensal Increase				Natural Growth Rate, 1960	Average Annual Growth Rate	
	Number		Per cent			1952/54-61	1961-1971
	1952/54-61	1961-1971	1952/54-61	1961-1971			
A. MOUNTAIN AND HILL	600 529	724 923	-	13.3	-	-	1.3
I. Western Mt. & Hill	181 309	136 045	12.0	8.0	2.1	1.6	0.8
II. Central Mt. & Hill	197 379	350 439	11.0	18.0	2.3	1.5	1.7
III. Kathmandu Valley	48 995	158 921	11.9	34.5	2.3	1.6	3.0
IV. Eastern Mt. & Hill	177 906	149 518	10.4	7.9	2.0	1.1	0.8
B. INNER TERAI	60 009	312 026	-	55.4	-	-	4.7
I. Western Inner Terai	9 292	69 213	10.4	70.1	2.1	1.4	5.5
II. Central Inner Terai*	46 279	176 448	23.4	72.2	2.6	3.0	5.6
III. Eastern Inner Terai	4 438	66 365	2.3	34.3	2.1	0.3	3.0
C. TERAI	495 773	1 036 038	-	35.9	-	-	3.1
I. Western Terai	36 362	153 691	15.5	56.6	2.2	2.1	4.6
II. Central Terai*	52 178	121 479	15.0	30.3	1.1	2.0	2.7
III. Eastern Terai (excluding Mohatari district)	337 451	760 868	24.3	34.4	1.8	2.4	3.0
Mohatari	69 782	**	16.7	**	2.1	2.2	**
NEPAL	1 156 371	2 142 987	-	22.8	-	-	2.1

* The area and the population of Nawal Parasi were adjusted. ** Mohatari was included in Eastern Terai.

Table 3. Population Born Outside the Geographic Region, 1971

Geographic Region	Born in the same Geographic Region	Born outside the Geographic Region	Born in Foreign Countries
A. MOUNTAIN AND HILL	6 699 872	63 698	22 650
I. Western Mt. & Hill	1 825 270	7 093	1 765
II. Central Mt. & Hill	2 276 844	9 390	10 707
III. Kathmandu Valley	586 151	26 440	6 320
IV. Eastern Mt. & Hill	2 011 607	20 775	3 858
B. INNER TERAI	700 735	133 390	14 410
I. Western Inner Terai	155 282	10 757	1 781
II. Central Inner Terai*	288 890	119 525	12 269
III. Eastern Inner Terai	256 563	3 108	360
C. TERAI	3 311 007	309 833	300 388
I. Western Terai	349 029	60 128	16 085
II. Central Terai	413 073	44 281	64 482
III. Eastern Terai	2 548 905	205 424	219 821
NEPAL	10 711 614	506 921	337 448

* The area and the population of Nawal Parasi were adjusted.

Table 4. Land under Forest and Cultivation

Geographic Region	Total land Surveyed in Square mile	Forest	Cultivated Area	Other
A. HILL	23 694	13 756	6 471	3 467
B. INNER TERAI & TERAI	13 182	7 272	4 836	1 074
NEPAL	36 876	21 028	11 307	4 541

THE ECONOMIC PARAMETERS OF A
POPULATION POLICY IN NEPAL

JOHN BEYER*

INTRODUCTION

This paper will explore the interaction of economic parameters and population growth and the design of a population policy in Nepal. While it is not yet possible to assign a cause and effect relationship between population growth and economic development, there does appear to be a number of associated parameters which in turn should influence the design of a population policy.

These interactions take two basic forms. The first is the effect of population growth on economic growth and development. The effects are several--in terms of both the level of development as expressed by per capita income and the quality of development--and will be examined for Nepal. The conclusion of this examination is not a surprising one, namely, that the level and quality of Nepal's economic development would be substantially improved with a reduced population growth rate. On the other hand, a reduced population growth rate will not, in and of itself, lead to desired improvements in the level and quality of development.

The second form of interaction to be addressed is the impact of economic development on changes in fertility. The demographic transition of Nepal--from high mortality and fertility to low mortality and high fertility, then to low mortality and fertility--will depend in large measure on significant growth and redistribution of income, combined with much improved social services which can influence fertility change. To accomplish these changes

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at the present level of development, and in the face of severe resource constraints, is the principal challenge of Nepal's planners.

The paper concludes with a brief discussion of potential research tasks on the interaction of economic tasks and the design of a population policy in Nepal.

The Impact of Population Growth on Nepal's Economic Growth

It would appear readily apparent that one of the basic components of a national population policy is a clear understanding of the impact of population growth on demographic changes that are and will occur on the level and quality of economic development. It would be desirable to trace these relationships in quantitative terms, presumably through some form of dynamic mathematical model. Efforts in this direction have been done for other countries,¹ and on a partial basis even for Nepal.² However, since it is generally recognized that the nature of the relationships between demographic characteristics and the many parameters that affect the structure and growth of a national economy remain uncertain, and particularly in the context of Nepal where the data requirements for establishing such quantitative relationships are clearly not available, this approach must, for the present, be set aside. This paper therefore attempts to examine the relationship between population growth and economic development mainly in qualitative terms. Nonetheless, the conclusions and observations which emerge from this examination appear to be sufficiently persuasive to merit serious consideration in the defining of a national policy for Nepal.

Nepal's population growth impacts on its economic development in two distinct ways. One is the impact on the absolute level of economic development, or as most commonly expressed,

on per capita income. The other form of the impact is on the quality of economic development, in economic terms other than measured by per capita income. Each of these impacts of population growth will be examined in turn.

Impact on the Level of Development

In examining the relationship between Nepal's population growth and the level of its economic development it is helpful to begin with a clear understanding of the nature of the Nepal economy. Described below are six characteristics of Nepal's economy which I feel encompass the basic considerations in outlining the relationships between population growth and economic development.

1. It is a low productivity economy, as indicated by the very low per capita income (variously estimated between \$75 and \$90), the predominant role of agriculture--75 percent of gross domestic product, over 90 percent of the labor force, and 75 percent of exports--and very low agricultural yields.

2. It is a low growth economy, reflected in the nominal change in Gross Domestic Product (2 percent in real terms between 1964 and 1972), near stagnation of agricultural output (less than one percent growth during 1964-1972), and declining agricultural yields.³ The latter, of course, is a particularly serious concern since Nepal's ability to continue the growth of output and employment through expansion of area under cultivation is approaching physical boundaries, which means that for the future increased income and employment must come almost entirely through growth in agricultural productivity.

The explanation for low-growth and low productivity in

Nepal is a multi-faceted one. Indeed, some of the reasons lie in the other characteristics described below. In addition, however, are two other significant factors: the virtual absence of technological change in agriculture and the failure of the economy to bring about structural shifts in output and employment, mainly from agriculture to manufacturing. The absence of these factors not only explains in large part the near stagnation in per capita income but also affects other development processes which are generally considered to be associated with falling fertility rates--urbanization, female participation in modern sector labor force, level of literacy, and so on.

3. It is a resource poor economy. Nepal has no proven mineral resources of an economic concentration; its forest resources, though considerable in area, are of low value mixed hardwoods; and cultivable land is scarce as suggested by the small average farm size of 1.23 hectares. The one natural resource which Nepal has in abundance is the water flowing through several major river systems into India. Though the hydroelectric and irrigation potential of these river systems is substantial, Nepal lacks the other resources required to transform water into an economic good, at least within the next 15-20 years.

4. Nepal is a labor surplus economy. With populations at approximately 12.3 million in 1974 and growing at a rate in excess of 2 percent annually, labor surplus is reflected in the comparative growth rate of population and Gross Domestic Product, the small average farm size, and in the substantial seasonal migration and permanent immigration of Nepalese to India in search for employment. The high growth rate of population and the young age structure point toward an accelerated growth in addition to the labor force with the consequence that

the labor surplus condition is likely to become accentuated over the coming 10 to 15 year period.⁴ As will be discussed in a subsequent section of this paper, the consequences of this accelerated labor force growth are likely to be felt more in terms of the quality of economic development than in terms of the impact on the absolute level of per capita income.

However, an important consequence of this accelerated growth in the labor force is that more capital is required simply to maintain the same level of productivity in the economy--often referred to as capital widening in contrast to capital deepening. The faster the rate of labor force growth the more scarce capital must be used simply to maintain present levels of productivity and income. This is often referred to as demographic investment, which for some developing countries may constitute as much as two-thirds of total fixed capital formation.⁵ Preliminary computations for Nepal, based on assumptions of a 2.3 percent population growth rate and a capital output ratio of 3.0, indicate that approximately 90 percent of Nepal's capital formation during 1964-1972 was used simply to keep pace with the rate of population growth at present levels of income. For the Fifth Plan targeted income growth, the demographic investment is likely to be about 60 percent. This represents, for a capital scarce economy, a very substantial investment in demographic change alone, and by implication, a loss of potentially higher per capita income.

5. As a corollary to the labor surplus characteristic, it is apparent that Nepal is a capital scarce economy. This is reflected in the very low ratio of gross capital formation to GDP (estimated roughly at about 5 percent) and the very low level of economic and social infrastructure on a per capita basis compared to other countries. Conclusions of

several recent papers on Nepal also indicate that domestic savings--the generation of surpluses from income which are available for investment--are not only low in an absolute sense, but will become an increasingly severe constraint on the rate of economic growth.⁶

Rapid population growth is often cited as one of the reasons why developing countries have lower rates of saving than would otherwise be desirable, on the grounds that marginal rates rise with growth in family income which in turn is owing in part to smaller sized families. There is, however, no consensus on the relationship between the rate of population growth and savings.⁷ The savings being considered in this context is that which takes place within the household, and too little is known about household savings behavior in developing countries to reach any conclusion about the relationship between changes in family size and savings. Moreover, in virtually all developing countries (and this is certainly the case in Nepal), savings by the household sector constitutes a very small part of total domestic savings.

Nonetheless, the relationships between population growth and savings may be of importance in Nepal in a different way. That is the effect which population growth has on the level of savings in the public sector. The public sector is the principal source of domestic savings in Nepal and is likely to continue to be so. As the Government approaches an upper limit on its capability to tax or generate revenue through other mechanisms (this capability being bounded by political considerations, technical factors, or simply low average level of income which do not permit significant increase in taxation), the rate of growth of public sector income will decline. In contrast, public expenditures for basic economic and social services will continue to

accelerate with growth in population, and particularly with the changing young age structure and its impact on educational services, so that the ability of the Government to generate savings may in fact be seriously compromised. Projections recently undertaken indicate very different levels and rates of growth in public sector revenue on the one hand, and outlays for current services in the social services (i.e., population related) sectors on the other hand.⁸

6. Nepal is a dependent economy, a characteristic indicated by the labor migration to India, the high proportion of Nepal's trade with India (85 percent), the role of foreign aid in the Government's development program (about one-third of total budget expenditures and more than 50 percent of the development budget), and Nepal's unique economic relationship with India. The recent behavior of prices and the scarcity of commodities in India has reinforced Nepal's economic dependency on India.

Nepal's economic dependence on India places Nepal in a difficult position in terms of formulating a comprehensive national population policy. A problem emerges because of the potential for the migration of Indians to Nepal. The probability of accelerated migration of Indians into Nepal could well emerge because of India's own very serious rural poverty and population problems, particularly in the northern states bordering on Nepal (Bihar and eastern Uttar Pradesh). Since migration has already been identified as a component of a comprehensive national population policy,⁹ it is likely that Nepal will have to face the choice of trade-offs that will be involved in attempting to moderate this migration pattern with some change in economic relationships with India, with the latter almost certainly entailing significant economic costs to Nepal.

The above characteristics of Nepal's economy are certainly anything but encouraging. Nonetheless, recognition and understanding of these characteristics provides a basis on which a national population policy must be developed. Nepal's low level of development, combined with virtually stagnant economic growth, when juxtaposed to the relationship between population and natural resources, imposes on Nepal difficult choices for the future. One of the most critical choices would appear to involve alternative levels of commitment to reduction in fertility rates and alternative levels of per capita income.

This choice between commitments to reduce fertility rates and the implied alternative levels of per capita income is readily demonstrated in the relationship between natural resources--which in effect constitute Nepal's economic base for future income growth--and population growth. Threshold points are being reached in which the relationship between human beings and the physical environment which produces employment and income are beginning to deteriorate. In the absence of any significant change in technology in the use of natural resources, this threshold point is likely to become more serious in Nepal.

This is most apparent in the Hills where the sequences of population pressure have led to the cultivation of land on increasingly steeper slopes and more marginal land plus the introduction of increased livestock, which in turn has led to erosion and subsequent permanent loss of land. The growing demands for energy have accentuated this sequence by simultaneously reducing forest cover and utilizing livestock wastes for fuel rather than for soil nutrients. This pressure between population and natural resources is most vividly illustrated by the very small average farm size in the Hills--less than half a hectare in 1968¹⁰--which can only continue to decline over time,

or alternatively, involve significant movements of population.

Traditionally, there have been several outlets which have enabled families in the Hill areas to avoid the threshold between population and the resource base, and in effect avoid impingement on their standard of living. These outlets have included seasonal migration to India for part-time employment in the generation of cash income. Household surveys in the Far Western Hills have indicated that one of every three households had one or more members migrating to the Nepal Terai and/or India for seasonal employment.¹¹ A second outlet has been recruitment to the Indian and British armies. Although relatively small in number (roughly 50,000 in the late 1960's), the cash income which is generated through this outlet is relatively substantial, and almost certainly has a trickle-down effect into those families and communities which may not immediately have individuals who are in one or the other of these military services. Officially recorded Gurkha remittances, estimated between \$5 and \$6 million annually, are a partial indication of the income transfer which is occurring.¹² The most important and most recent outlet, of course, has been the movement of Hill people for permanent settlement in the Terai. This has particularly accelerated in the last 10 to 15 years as malaria control has become more effective and as pressure in certain Hill areas has reached the point where alternatives in the Terai are clearly more attractive than an expected decline in the standard of living in the Hill communities.

For the future these traditional outlets are likely to become increasingly less effective, with the consequent result that the threshold point between the natural resource base and population growth will become increasingly more apparent. The opportunities for resettlement in the Terai are certainly limited. According to recent reports,¹³ there are only approximately 325,000 hectares

of land suitable for cultivation which is not yet under cultivation. Assuming an average farm size of 2.5 hectares, and an average family size of 5.0, this additional land could accommodate approximately 650,000 people, which is equivalent to less than three years' increment of population growth for Nepal. Certainly more land than the 325,000 hectares will be settled and brought under cultivation but this land will be marginal and of low productive capability, which in turn is likely to lead to serious erosion and possible permanent loss of land. The implication is clear. The opportunities for resettlement in the Terai are extremely limited and in time this outlet will in effect be closed. Another outlet, recruitment in the British and Indian armies, is also phasing out. And finally, the opportunities for employment in India, while still available, are likely to become increasingly difficult. The reason for this is that India is itself facing several years of very difficult economic problems, with unemployment and rural poverty possibly being more intense than they are in Nepal.

When one combines the characteristics of Nepal's economy, the closing of the traditional outlets for excess population in the Hill areas and the likely path of population growth, it would seem reasonable to conclude that a reduction in population growth could well lead to a higher absolute level of economic development (per capita income) than would be the case without a reduction in population growth. While this conclusion cannot be demonstrated quantitatively, it would appear that the combination of the above factors presents a strong case for formulation of a national population policy as an integral component of increasing the level of economic development in Nepal.

Impact on the Quality of Development

Up to this point, we have examined the impact of population growth on Nepal's economic development in terms of its likely effect on the absolute level of development, or per capita income. Population growth may also impact on Nepal's development in other ways which affect the quality of that development--in other words, in ways not reflected in per capita income--and which in the longer term may constitute the more persuasive arguments for a strong population policy.

Population growth, particularly in the set of economic circumstances described above for Nepal, affects the quality of economic development in several ways. One of the most obvious is the quality of social services that are available to the majority of the population. Given the financial resource (public sector savings) constraints identified earlier, the claims on basic social services, particularly education and health, are likely to mean that efforts are extended principally to a broader coverage of population rather than to a deepening of the quality of the services provided. This in turn may have a perverse effect on fertility rates. For example, if the range of educational services in proportion to total adult population declines--or as a more likely situation, that the absolute numbers of individuals classified as illiterates increases--this in turn could well lead to a perverse impact on fertility rates, recognizing that education and literacy tend to be closely associated with declining fertility rates.¹⁴

An entirely different area in which population growth affects the quality of development is the problem of unemployment, or serious underemployment. Obviously, there are many factors which influence the problem of employment in a developing country, including Nepal; these factors range from policies which favor capital-

intensive technologies, the neglect of investment in agriculture, as well as other public instruments and programs and policies which fail to recognize the relative availability of capital and labor. Nonetheless, rapid population growth, with its attendant acceleration in the growth of the labor force, is a major factor in explaining the problem of unemployment.

While Nepal does not have the kind of open unemployment that is faced by many developing countries--such as Jamaica, Colombia and other Latin American countries, where open unemployment rates may be as high as 20 to 25 percent of the economically active population--there is no question that Nepal faces unemployment problems. As discussed above, Nepal is a labor surplus economy, with the degree of labor surplus being reflected in very low agricultural yields, high degrees of seasonal migration and the other traditional outlets to India, and recruitment in the British and Indian armies. Recognizing the difficulties of accurately measuring the degree of surplus labor, it is understandable that no acceptable estimate has yet been made for Nepal. However, one indication--and it serves only as an illustrative order of magnitude--is the 1967 Ministry of Economic Planning study which indicated surplus labor ranging between 30 and 50 percent.¹⁵

The employment problem is almost certainly to become accentuated in Nepal. Over the next 10 to 15 years it is reasonable to expect more open unemployment in Nepal's major urban areas, particularly given the rapid growth of younger educated individuals where corresponding employment opportunities are not developing. More importantly, given the rather pessimistic outlook for growth in agricultural productivity and the limited opportunities for development of land not yet cultivated, it would appear that the labor surplus problem within the agricultural sector will become increasingly serious.

There are two consequences of this employment problem which feed back on the fertility rate itself. One consequence is that the greater the degree of labor surplus, and hence unemployment or underemployment, the more likely the share of low income families will be and hence the greater probability of higher fertility rates which tend to be correlated with lower income families. The second consequence is that a serious unemployment problem reduces the opportunities for women, particularly in urban areas, to be employed. Consequently, this is another factor retarding the decline in fertility rates, since it is generally accepted that one factor influencing declining fertility rates is accelerated participation of women in the labor force in full time employment.¹⁶

A third area in which population growth impacts on the quality of economic development concerns the distribution of income. This is admittedly a difficult subject to address with much confidence in the case of Nepal since so little is known about the distribution of income. Admittedly, there are wide divergences regionally as expressed in average farms output. These figures indicate rather wide discrepancies between Kathmandu Valley; for example, the Eastern Terai versus the Western Terai, the Western Hills versus the Eastern Hills, and so on. However, little is known about the distribution of income within regions or by income classes on a national basis, though I suspect that the perverseness in the distribution of income within any one of these regions is as marked as it is among the regions. One indication is the results of the 1968 farm management survey which reported 62 percent of Hill households having a net farm income of Rs. 540 or less, while 10 percent of Hill households have an average net farm income six times larger. Within the Terai about one-fifth of the households reported average incomes almost 10 times greater than the average income for the bottom 50 percent of households.¹⁷

These indicators, crude though they may be, suggest a rather perverse distribution of income in Nepal.

Despite limited knowledge about the distribution of income in Nepal, there is a fairly persuasive argument that population growth can have a perverse impact on the distribution of income. If one assumes that a more equitable distribution of income is a national development objective--which at least in principle has been the case both in the Fourth Plan and the new Fifth Plan--then clearly any further adverse impact on the distribution of income must be considered as a socially undesirable development factor. The sequence of the argument is relatively straightforward; a rapid population growth leads to an increased labor force, which in turn may lead to labor surplus conditions which in turn restrain the growth of wages relative to the return to other factors of production. Should this sequence of arguments materialize, it means that the distribution of income shifts towards other factors of income, in relative terms, so that the labor force is worse off than it would be had there been a lower rate of population growth.

The relationship between population growth and income distribution can also manifest itself in Nepal in a continued fragmentation of very small land holdings. The tendency for families, particularly in Hill areas who are on the edge of economic survival, may well be to sell their land so that initial fragmentation may in turn lead to acquisition by those who have already comparatively large land holdings. Again, there is a perverse relationship between population growth and the manner in which it affects this particular qualitative aspect of development, since as we will see later, there is an apparent relationship between low income families and high fertility rates. Consequently, to the extent that income distribution becomes more perverse as a result of population growth, the more difficult it will be to accomplish declines in fertility rates.

A final and possibly minor qualitative effect on development resulting from population growth concerns nutritional standards and their impact on physical and mental development of Nepal's population. Again little is known about the nutritional status of Nepal's population, although one could reasonably surmise that Nepal is basically a nutritionally deficient country. Given the likely trend in the growth of agricultural output and the likely low, if not stagnant, growth in per capita income, the opportunities for an improvement in the nutritional standard in Nepal do not seem very promising, so long as the rate of population growth continues as it has.

Impact of Economic Development on Population Growth

Thus far we have examined a set of economic parameters, which are influenced by the growth of population. There is also a reverse relationship, in the sense that the rate and level of economic development can potentially influence the rate of population growth, mainly through the decline in fertility rates. This relationship is not one which can be demonstrated definitively and certainly not for Nepal. Nonetheless, the growing literature on the examination of the so-called demographic transition of developing countries--the transition from high mortality and fertility rates to low mortality rates and high fertility rates and ultimately to low mortality and fertility rates--has increasingly looked toward a relationship between the level of economic development as expressed principally in per capita income and fertility decline. The high correlation between certain levels of income and fertility decline does not express a cause-effect relationship. However, given this correlation it is certainly worth the effort of policy makers to examine the implications of this relationship and what impact it may have on the design of a national population policy.

Recent studies which have attempted to draw the relationship between income levels and fertility decline suggest that fertility begins to decline significantly in developing countries when per capita incomes reach approximately the range of U.S. \$500.¹⁸ There are surely several subsidiary factors that can explain this correlation of a certain level of per capita income and declining fertility, particularly factors which influence fertility rates and are also associated with higher levels of income. These would include increased female participation rates in the labor force, higher degree of literacy, and higher urbanization rates.

Whatever the specific parameters may be that influence this correlation between a high level of income and fertility decline, the conclusion for Nepal is not very promising, given its very low level of per capita income and given the likelihood that the rate of growth in per capita income will be, at best, no more than one or two percent per year. Does this imply that Nepal will continue to be burdened with high fertility rates for several generations? The answer is by no means clear, though certainly not optimistic.

One of the implications of this apparent relationship between high income levels and fertility decline is that Nepal should design a population policy that attempts to focus its population and family planning services precisely on those segments of the population which have already achieved comparatively high levels of income and on those segments now perceiving rapid changes in their standard of living, even though their absolute level of income may still be relatively low. The research implications of such a policy are immense at first glance because they mean that one must be able to identify these particular population segments. It means, for example, that rather than widely disperse family planning services, that they be highly selective--geographically, ethnically, and economically--focusing on high income families

that presumably would be more responsive to reduction in family size, or on those families experiencing or perceiving rapid growth of income. Population target groups which come to mind include major urban areas, rural landlords and those 10-20 percent rural households whose incomes are in the range of \$300 or more per year, participants in new irrigation projects (whose incomes may double or triple within a few years), new cash-crop farmers, and so on. There is, however, a potential adverse implication built into this particular population policy approach, and that is it could further accentuate the unequal distribution of income.

Another important factor which normally accompanies economic development and is judged to have a significant effect on fertility rates is the status of women in society.¹⁹ Some of these relationships were mentioned earlier in the paper--access to better education (which presumably influences attitudes toward birth control) and participation in the labor force, particularly in urban areas and in non-agricultural sectors. One would expect higher female labor participation rates to be associated with higher ages of marriage and shifts in preference for family size.

Another element in the relationship between economic parameters and fertility decline concerns the distribution of income. The recent World Bank study on population policies in economic development demonstrates a highly significant relationship between decline in fertility and more equal distribution of income. Based on an analysis of 64 countries the study concluded "that each additional percentage point of total income received by the poorest 40 percent is associated with a reduction of 2.9 points in the general fertility rates."²⁰ Recognizing that there are many factors in such a statistical analysis which are difficult to isolate, nonetheless this finding does suggest that policies which will influence a more equal distribution of income may lead to a sharper reduction in the

fertility rate. Thus, aside from what other reasons may lie behind the objectives in Nepal to bring about a more equal distribution of income, it may well be that this objective can also yield important benefits by having a positive impact on the rate of fertility decline.

A Research Agenda on Economic Parameters and Population Policy

A useful way in which to conclude this overview of the relationships between the economic parameters and population policy for Nepal is to identify certain priority research areas that can improve the understanding and knowledge of social scientists and Nepal's policy makers on these key relationships. Throughout this paper we have recognized that the interrelationship of certain economic parameters and population change, though apparent on the surface, are inherently difficult to measure. That is, the quantitative relationship between these parameters and population growth and in turn the design of a population policy is yet to be determined. One of the priority research areas in Nepal would be to try to bring about quantitative relationships between population growth and its impact on both the absolute level of economic development (per capita income) as well as on the qualitative factors of development discussed above. The principal reason for wanting to establish this quantitative relationship, it seems to me, is to be able to demonstrate on a continuing basis to Nepal's policy makers in numbers rather than in words, that there is a most serious economic problem ahead for Nepal so long as fertility rates do not decline soon and substantially. There are numerous subresearch tasks that would fall within this broad research objective. Admittedly, this is a broad and open-ended research task dependent on a data base which is far from adequate, but it is one which, in my judgment, needs to be addressed.

A second research priority is to examine in depth the multitude of household surveys that have been undertaken in Nepal as products of many different other research studies. The basic sources of household data include: (1) the 1968 farm management survey, (2) the Rastra Bank rural credit survey, (3) the Rastra Bank urban household survey, (4) the ARTEP household survey, (5) the CEDA household survey of the Far Western region, (6) the Schroder-Sisler survey of the Pokhara region, and (7) the Bishop survey of the Jumla region. These household surveys represent a wealth of information which has hardly been tapped, and the availability of the 1971 population census further enhances the value of these surveys by providing a recent and reasonably detailed demographic framework for generalization of survey results. The data contained in these household surveys could be of potential use for several elements of the design of a population policy. One such potential use would be a more definitive definition of the distribution of income in Nepal, and hence for the identification of key target groups for family planning services. Another potential use of this information would be a systematic analysis of various parameters that have been examined statistically in other countries, or on a cross-sectional basis among developing countries, to see whether these same parameters explain variations in fertility rates among families. There may also be other potential uses of these household surveys that could influence the design of a population policy. To my knowledge there has been no systematic effort to examine the potential of these surveys, let alone to extract from them the relevant information that might be potentially useful in the design of an examination of the economic parameters that influence population policy and vice versa.

I have indicated in another paper²¹ that these household surveys could serve a variety of other economic planning functions as well, and that an important initial task could entail the

preparation of an inventory of these household surveys. There may be other surveys of which I am not aware that could be added to the above list. This inventory would include a description of (1) the sample size, location, and sampling method, (2) the variables on which data were collected, (3) the method of data processing, (4) the summary of the results, and (5) the present form in which the raw data are available and where located.

One other research need which strikes me as being a high priority that affects the relationship between economic development and population concerns migration. Much more needs to be known concerning the motivation for migration and the parameters which influence specific migratory decisions, whether this migration takes place on a seasonal basis, within Nepal (such as from the Hills to the Terai) or from Nepal to India on a permanent basis. Equally important in this analysis of migration--and the analysis is really to examine the determinants of migration--would be to identify what accounts for the migration of Indians to Nepal--where they have come from, what their economic status was, their current economic environment, sources of income, etc. Admittedly, the latter is a very sensitive and potentially difficult research task. Yet it seems to me that any national population policy for Nepal must take into account migration, both internally, whether on a seasonal or permanent basis, as well as externally. At the same time it is quite clear that knowledge about migration patterns and the determinants of migration is very limited.

FOOTNOTES

¹ One illustration of a multi-parameter simulation model--similar to the Coale-Hoover models--incorporating the interrelationships of population growth and economic development is Robert R. Nathan Associates, Population Growth Rates and Economic Development in Nicaragua, Washington, D.C., November 1967.

² In the 1971 seminar on population and development in Nepal, a form of the GE-TEMPO population model was applied to Nepal. The model itself was not published, and was most likely a generalized model for developing countries, absent the specific relationships for key economic parameters for Nepal. See CEDA, Seminar on Population and Development, Kathmandu, 1971.

³ During the period 1965/66-1967/68 through 1971/72-1972/73, average yields of foodgrains were estimated to have declined by an average annual rate of 1 percent. Yields of oilseeds, jute, and potatoes also declined by annual rates of 1-2 percent.

⁴ This judgment of an accelerated growth in the labor force is based on a review of population and labor force characteristics of other developing countries. The National Planning Commission report, Population Policy of Nepal, incorrectly assumes a constant population to labor force ratio during the period 1971-2000.

⁵ Timothy King, et al., Population Policies and Economic Development, Johns Hopkins Press, 1974, p. 29.

⁶ See, for example, John Beyer, Resource Mobilization for Development in Nepal, Kathmandu, January 1973.

⁷ King, op. cit., pp. 27-28.

⁸ Beyer, op. cit.

⁹ National Planning Commission, op. cit., pp. 13-14..

¹⁰ Ministry of Food and Agriculture, Farm Management Study in Selected Regions of Nepal, 1968-69, Kathmandu, 1971.

¹¹ Charles McDougal, Village and Household Economy in Far Western Nepal, Kathmandu, 1968, p. 47.

¹² The figure is partial in the sense that it does not include remittance from Nepalese in the Indian Army, nor does it incorporate transfers in kind (presents, gifts and personal items such as radios, clothes, etc.).

¹³ International Bank for Reconstruction and Development, Agricultural Sector Survey of Nepal, December 1974.

¹⁴ See, for example, King, op. cit., p. 47 and Appendix A.

¹⁵ Ministry of Economic Planning, Mobility of Agricultural Labor in Nepal, Kathmandu, 1967, p. 27.

¹⁶ King, op. cit., p. 51.

¹⁷ Ministry of Food and Agriculture, Farm Management Study in Selected Regions in Nepal, 1968-1969, Kathmandu 1971. Another indication of the distribution of income is the pattern of land ownership, where 3 percent of rural households (landlords) are estimated to hold 27 percent of cultivated land with an average holding of 17.7 hectares, compared to an average holding of 1.6 hectares for the other 97 percent of rural households. M. A. Zaman, Evaluation of Land Reform in Nepal, Department of Land Reform, Kathmandu, 1973, Table VII.

¹⁸ See, for example, Frank Wm. Oechsli and Dudley Kirk, "Modernization and the Demographic Transition in Latin America and the Caribbean," Economic Development and Cultural Change, April 1975, p. 394. Oechsli and Kirk included 116 countries in their cross-sectional analysis. Data from King, op. cit., p. 47 and Appendix A suggest that the Asian experience has been different with most countries experiencing a rapid decline in birth rates by the time they had reached a per capita income of \$200.

¹⁹ United Nations, Population Change and Economic and Social Development, World Population Conference, Bucharest, August 1974, p. 54. See also King, op. cit., p. 51.

²⁰ King, op. cit., p. 48 and Appendix A.

²¹ John Beyer, Economic Research Needs for Nepal, March 1975, unpublished, pp. 9-10.

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POPULATION ANTHROPOLOGY IN NEPAL:
PAST, PRESENT, AND POTENTIAL

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INTRODUCTION ¹

"Social science" may be defined as the study of Mankind, particularly Man's Society and Culture. All participants of this conference are "social scientists" in one way or another. We focus our attentions broadly on Man, or Mankind, and on the serious problems encountered in our era by Man's innate and well-proven capacity to perpetuate the species Homo sapiens. More specifically, we are interested in Nepal, and therein in the future of the cultural subspecies Homo nepalensis, "Nepalese Man."

This conference has been designed to facilitate and promote international understanding and interdisciplinary intellectual cross-fertilization (to use an analogy we all know), and as my contribution I intend to speak briefly about social science and specifically about anthropology--its place and its contribution (past, present, and potential) to the study of human fertility and to the implementation and evaluation of Nepal's population and family planning efforts.

The social sciences incorporate a large number of distinct disciplines. Anthropology is only one of them. Others are

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sociology, psychology, economics, cultural geography, education, political science, religion, history, human ecology, and to a large degree the study of population, family planning, and public health. But anthropology is one of the richest and most eclectic of the social sciences. It borrows freely from its sister sciences and from the natural and physical sciences in the pursuit of scholarly perfection and in the application of knowledge to the social good. It embraces a variety of disciplines such as cultural, social, and physical anthropology, linguistics, and archaeology, to name the most dominant. It also embraces the relatively new and related disciplines of medical anthropology and population anthropology. This presentation is about the latter. In all of this, anthropology has a basic and fundamental goal: the understanding of Man and Culture.

Considering the title of this conference, "Population and Family Planning in Nepal," the population anthropologist would tend to think very broadly, holistically, as the topic touches on or encompasses virtually every facet of human life and the perpetuation of the species. He would look widely for the answer to such questions as "What is going on here?" and "What, why, and how does the social and cultural life of a people affect population dynamics?"

The anthropologist of Nepalese population, specifically, would look for meaning to the plans and goals of the nation's family planning and maternal and child health (FP/MCH) program, and certainly far beyond that to such related social and cultural phenomena as vital statistics and mortality rates; to migration--both seasonal and permanent, internal and external; to health and medical practices--traditional, ritual, and modern; to education and value systems; to economics and political systems; to transportation and communication; and so forth. The list is long.

He would seek to elicit trends, patterns, norms and meaning from one or more of these facets of human life and culture in a multi-ethnic society, and to establish their relationship to the overall population dynamic of Nepal. Finally, he would seek to advise policy makers of his findings and perhaps suggest courses of action designed humanistically for the betterment of life.

Just what is "population anthropology", and what benefit is the anthropology of Nepali population dynamics? What can population anthropology contribute toward a better understanding of human fertility, and toward the successful implementation of a family planning and population program in Nepal?

The answer to these questions is the focus of the rest of this paper: (1) to introduce the field of population anthropology in general terms, (2) to review several contributions to the population anthropology of Nepal to date (from a select bibliography), and (3) to discuss some potentially productive working relationships which can and perhaps should be encouraged between anthropologists (or social scientists generally) and the population and family planning experts of Nepal. (4) Finally, I will say a few words regarding anthropology and population policy.

"POPULATION ANTHROPOLOGY" - WHAT IS IT?

Population anthropology is a subject which is broad in its scope and in some respects quite nebulous and fluid. It is basically the study of those aspects of Man and Culture which bear on population dynamics, and it embraces such diverse topics as norms about fertility, social organization and residence patterns, folklore, human biology, religion, economics and labor migration. The goals of population anthropology are several, including the general enrichment of knowledge about fertility patterns in Man, improving Man's appreciation and understanding of population

dynamics, and providing useful information for policy planners and decision makers.

A more detailed definition would involve a long list of topics. Several noted anthropologists have written on the subject.² To appreciate the scope of the discipline, see Appendix I, "Classification Scheme," below. That outline was designed for purposes of classifying a very large and steadily growing bibliography on population anthropology.³ It is perhaps more suggestive of the discipline's scope to date than it is definitive or exhaustive in its coverage. It lists eight broad categories:

1. Items of general theoretical interest
2. Methodology
3. Population history
4. Ecological approaches to the study of culture and population
5. Specific factors
6. Population policy and planning
7. Consequences of population size and distribution
8. Depopulation

These categories are in turn subdivided into 21 subcategories, some of which are even further refined.

The largest overall category is number 5, "Specific Factors Related to Reproductive Behavior and/or Population Growth." It covers a wide and diverse range of population-related interests and research conducted by anthropologists, although it may not be the most important category from other points of view. It includes such subcategories as:

- the study of biological factors impinging on population dynamics
- the study of practices and beliefs about sex, pregnancy, birth, and normative forces--that is, values and customs and various religious and social factors which affect human fertility

- the study of marriage practice, family structure, and social organization
- the study of economic, ethnic, and sociopolitical variables
- and the study of the whole question of social change which includes modernization, westernization, industrialization, economic development, nationalism, and for South Asia such other factors as Sanskritization and other forms of acculturation involving various population groups however they are defined.

Number 6 on the classification outline, entitled "Population Policy, Planning and Family Planning Services," is directed toward:

- policy considerations
- applied studies of fertility control
- family planning services
- and larger questions of the consequences of population policies and family planning systems; that is, the evaluation of policy, plans, and their implementation.

None of these eight large categories is necessarily discrete; that is, they cannot be isolated or self-contained, but instead they overlap with one another. For example, some information of potential benefit to population planners may derive from research conducted on normative forces (category 5D). This would involve the study of social norms such as those in Nepali society which bear on the perceived need or motivation for a certain number, spacing, or gender of children in the family. The potential benefit from anthropological research on normative forces for planning and policy-making is discussed later in this paper.

There are a number of exemplary studies on population anthropology such as the works of Moni Nag, Steven Polgar, Susan Scrimshaw, and others.⁴ One which deals specifically with South Asia is

David Mandelbaum's Human Fertility in India: Social Components and Policy Perspectives.⁵ Mandelbaum's work demonstrates the applicability of the anthropological perspective on population planning and policy for India. It is suggestive of one approach to policy questions, and given its focus on Nepal's neighbors to the south, it has salience and relevance in the fact that many of the variables, problems, and attempted solutions are familiar. Without giving a full-blown review or critique of the book (since justice is best served by reading it yourself), I will only indicate its general outlines and some perspectives.

The book begins with an overview of the Indian population problem, the problem of "Too Many Babies: The Nation's Concern" (Chapter 1), and introduces the reader to the scope of the problem, to programs, policy, plans, and to research about the problem. Chapter 2 deals with "Personal Motivations and Cultural Considerations," and addresses the all important question of motivation for controlling fertility; that is, the questions of perceived need, demand, and standard practices regarding fertility control. Motivation or demand is important to consider because without adequate knowledge of these factors, population planning runs the risk of being formulated on insufficient premises. Mandelbaum's third chapter is entitled "Social and Cultural Differentials" and is the very meat of the anthropological perspective, being a discussion of social and economic status, religion, residence and family patterns, and education. Chapter 4 deals with "Traditional Methods of Limiting Fertility," and delves into the cultural norms and practices which regulate the time, place, and spacing of coitus, and the practices of abortion. Chapters 5 and 6, using the findings expressed in the preceding chapters, concludes with suggestions to planners and decision makers based on the sociocultural perspective.

One of Mandelbaum's important points is that more attention should be given to the female sector of the population. He suggests that higher levels of education for girls would result in a greater knowledge of health and nutrition and later marriage. These in turn should reflect positively in slowing the population growth rate.

Throughout his discussion, Mandelbaum relies heavily on research and policy statements generated by a wide variety of planners, practitioners, and social scientists. He also draws on a wide and holistic anthropological literature concerning South Asia and population dynamics generally. His book is an excellent summary and appraisal of the practices, planning, and implementation of policy affecting population dynamics and human fertility in India.

POPULATION ANTHROPOLOGY IN NEPAL

Turning to Nepal, I will begin by discussing some historical trends in anthropological studies, followed by comment on the present and potential contributions of population anthropology.

The Past

Up to 1970, anthropological books on Nepal were primarily restricted to general ethnographic studies and community studies focusing on specific population groups, and mostly on various ethnic groups of the mountains, hills, and valleys. For example, books appeared on the Newars, Gurungs, Magars, Sherpas, and Limbus, et cetera.⁶ During this period, Dor Bahadur Bista published his book, People of Nepal,⁷ which is a useful compendium of general ethnographic information on a large number of Terai, middle hill, and northern border peoples. This kind of general ethnographic work continues to attract students of anthropology, both Nepalese

and foreign. Numerous dissertations are now available, or being written, and new books are forthcoming on a far wider variety of ethnic and caste groups.⁸

These sorts of studies will continue to be important. They allow us insight into the general and specific characteristics of social organization, religious systems, and economic and political phenomena. More importantly, taken together they provide baseline data on patterns of settlement and population distribution, and on the values and norms regarding family, clan, and caste. They are not, however, focused on population dynamics per se, but nonetheless they do allow comparative insight into multi-ethnic, multi-caste, and multi-cultural phenomena in Nepal. They provide valuable material for more focused studies of population dynamics such as the economics of the family, fertility characteristics, population migration, and other aspects of social and cultural stability and change.

Recent Research on Fertility and Population

Of more importance to population anthropology and to population specialists in Nepal are several recent and forthcoming studies which deserve close attention. The list of studies which follows is not complete, but represents some of the recent and on-going research which, if not already available, will probably be printed or published soon. There are two types of research: (1) that which deals with certain causal factors or determinants of fertility, and (2) that which discusses the effects or consequences of population change on resources and economics. The potential for further population research by anthropologists will be addressed later.

(1) Research on Causal Factors

Little is available in published form which explicitly discusses causal factors affecting fertility in Nepal, but several

potentially important studies are either under way or are in the analysis or write-up stages of preparation. At least two female researchers are dealing specifically with women's roles in Nepalese society. Lynn Bennett-Campbell is investigating the social and symbolic role of Brahmin-Chhetri women and has already published on health and family planning attitudes and practices among these women.⁹ Ellen Andors is preparing a dissertation on women's place in an ethnic hill population, focusing particular attention on socialization and child-rearing practices. She has already published on female youth associations and is preparing another piece on female socialization.¹⁰

The researches of these two women have the potential of revealing some of the normative factors which reflect on fertility among various population groups. They should shed light on some of those sociocultural factors of Nepalese women's lives which may help explain motivation for the acceptance, or the rejection, of family planning values and services.

Melvyn Goldstein has recently studied marriage types and fertility among a high valley population in northwestern Nepal.¹¹ His work is directed primarily at polyandry, that form of marriage where two or more men share a common wife. He discusses adaptive strategies from the theoretical perspective of cultural ecology. Goldstein's work provides us an example of the type of study that can be expanded and proliferated throughout Nepal to explain adaptive strategies in marriage forms and their effects on fertility. This research strategy is applicable not only to polyandrous peoples, but equally well to polygynous peoples (where a man takes more than one wife), to monogamous peoples (where there is a single husband and wife), and to celibacy (where marriage is denied or abrogated).

Creighton Peet is presently preparing an analysis of his recently concluded study in Dolakha District, eastern Nepal, concerning the economic cost and value of children in Nepali Society. His study is part of a larger cross-cultural investigation directed by Moni Nag of the International Institute for the Study of Human Reproduction.¹² Although the data are not yet available, this research should prove to be invaluable in furthering our understanding of societal motivations toward having children.

Robert Miller of the Nepal-Berkeley Family Planning Project, although not an anthropologist, has prepared a significant little micro-ethnographic study of factors involved in decision making about family planning in a polygynous Nepalese family. His study provides us with food for thought about socioeconomic and prestige factors which the husband of several wives must consider when adopting a modern family planning strategy. It is also informative about the dynamic interplay between family planning field workers and their clients.¹³

What can we learn from these and other research focused on the causal factors which affect fertility? For one, anthropological investigations like these illuminate some of the key traditions and norms, and explain some of the important adaptive strategies involved in entering marriage and parenthood. Policy makers who are aware of the diversity of sociocultural factors which affect decision making about marriage type, family size, and family planning services are better prepared to develop economic, educational, health, and other programs offering viable alternatives to high fertility. Knowledge and appreciation of these adaptive strategies and norms enhances the likelihood that humanistic policies and population programs aimed at promoting lower national fertility can be successfully designed and implemented.

(2) Research on Effects

A recent field study by Alan Macfarlane falls under the heading of studies which investigate the effects or consequences of population change. In 1968, Macfarlane wrote about "anthropology's failure" to meet the population crisis.¹⁴ In 1972, he completed a dissertation based on research in central Nepal concerning the population and economics of an ethnic hill group.¹⁵ His research was carried out in a village near Pokhara, but his overall conclusions regarding the crisis of too much population and too few resources are applicable to ethnic and caste populations throughout the middle hills of Nepal.

Macfarlane's approach is also ecological in nature. He sums it up as:

a study of the relationship between man and his resources in a particular setting. . . . The pressures correlated with fertility and mortality are particularly stressed since I believe it to be demographic fluctuations which underlie many of the social and economic changes in the area. The general conclusion of the study is a familiar one. Increasing population is destroying the natural environment, and erosion, underemployment, incipient inequities, and a decline in the protein value of diets are only some of the symptoms of decline. 16

His is, in short, a study attempting "to show the way in which demography and anthropology might make some contributions to each other" in the form of a combined sociocultural and demographic analysis.¹⁷

Macfarlane's work is divided into two main parts, the first of which deals with "Population and Health." There he discusses population change, age/sex structure and migration, fertility statistics, social structure and fertility, mortality statistics, and illness. Given his detailed analysis of these variables he concludes that:

the overall position that emerges from the discussion . . . is that population is growing moderately rapidly despite fairly low birth rates and fairly high death rates. It is likely that it will grow even more rapidly in the near future. 18

Turning to his second major theme, "Agriculture and Economics," Macfarlane discusses land and forest resources, capital assets, labor, income, consumption and expenditure, surpluses, land distribution, and population growth. His aim is "to see how population has affected resources in the past and the likely reserves for the future."¹⁹

Macfarlane's overall conclusions paint a bleak picture for the subjects of his research and for other hill populations which suffer the same predicament of a growing inverse relationship between population and resources. A thorough reading of his demographic and socio-cultural data, his analysis of present conditions, and his predictions for the future should spark considerable discussion among those who espouse his pessimistic views and those who do not. Such discussion, at the least, should increase our awareness of the causes and effects as well as the type and scope of the larger Nepali population and resource situation.

There are several other studies which have dealt with population movement as a consequence, in part, of an imbalance between population and available resources in Nepal. April Putnam is preparing a dissertation on population movements and interethnic interaction in the Inner Terai (Rapti Valley).²⁰ Barry Bishop is preparing a study of trade and population movement in the upper Karnali watershed of western Nepal.²¹ And, Christoph von Fürer-Haimendorf's new book, Himalayan Traders, although not focused on population dynamics per se, is also informative about the effects of population growth and resource decline among certain northern border groups, and about

the impact of national and international factors on trans-Himalayan life and trade.²²

The Potential for Population Anthropology in Nepal

Turning now to possible future contributions of population anthropology to Nepal, I see potential in both direct and indirect ways in three major areas.

(1) First, the descriptive ethnographer, who up to now has made up the majority of the anthropologists in Nepal, is in a good position to supply useful sociocultural data on the causes and effects of population stability and change. This is essentially an indirect role, but it is, nonetheless, an important one.

Appendices Nos. II and III, entitled "Determinants" and "Consequences of Population Dynamics" are taken from a discussion prepared by William Cousins for a world population conference on "The Cultural Consequences of Population Change" held at Bucharest, Romania in 1974.²³ I have included them because they indicate a number of areas of interest which the general anthropologist can explore to the benefit of population experts.

Data on causes, or determinants, of population stability and change may range from general factors such as cultural heterogeneity, or variability and diversity, within a national population, to attitudes, values, norms, and knowledge about sexuality and reproduction, to marriage and family norms, and to the conception and role definitions about men and women in society.

Appendix IV, "Factors Supposed to be Related to Fertility. . .," is taken from a book by Moni Nag which discusses factors affecting human fertility in nonindustrial societies.²⁴ Particularly in the right hand column are a number of topics in which anthropologists

are intrinsically interested. Ties between these and specific fertility phenomena in the middle and left columns are indicated by the lines.

In addition to concentrating some or all of one's efforts on specific topics, such as those indicated in these appendices, interested ethnographers can augment their regular descriptive studies by collecting valuable statistical and demographic data with the use of simple survey and interview techniques. This is a more direct approach to the need. Some of these kinds of data can be gathered in a few weeks, or even a few days among small groups, and can provide other population anthropologists and project workers with a steadily expanding bank of useful and otherwise hard to get information. Such surveys can be as simple as a village or regional census or genealogical accounts--which most anthropologists collect anyway.

Appendix V gives an example of one of the simpler data-gathering forms (entitled "Fertility Survey Form").²⁵ Completion of a form like this on a random sample basis, or by covering all members of a defined or bounded population group, then made available to population experts at a central location for analysis (say, at the family planning offices in Kathmandu or Berkeley) would eventually provide the project and the government with invaluable data. If the descriptive ethnographer is even more interested, or is tending toward population anthropology as a field for further or special inquiry, he might prefer a more detailed questionnaire, such as the one prepared by Moni Nag for use in his larger study of the cost and value of children in society,²⁶ or another prepared for the Institute of African Studies.²⁷ The Center for the Study of Man at the Smithsonian Institution in Washington, D.C. also has good materials on population study by anthropologists.²⁸

(2) A second and even more direct application of anthropology

to population is in applied or "action" anthropology. This work combines the academic with the practical in a more direct application of anthropological interests, expertise, and experience to specific problems or program areas. For example, the Family Planning Project might consider using an applied anthropologist to conduct research on the administration and/or the content of the family planning program.²⁹ Or, alternately, national or private agencies could provide the financial incentive for applied research directly on problems or concerns articulated by family planning and population experts. Several research designs have been recently proposed by private, philanthropic, and government agency anthropologists to study, for example, the factors affecting acceptance or nonacceptance of family planning services, the implications of rapid population growth for development, and the use of indigenous healers and village medical practitioners in national medical, agricultural, and family planning service programs.

To digress for a moment, this last suggestion deserves attention. Mobilization of the private sector into family planning, medical, and agricultural programs has been discussed by a number of developers, anthropologists, medical professionals, and government personnel in Nepal. The idea is to make better use of the indigenous and traditional village-based healers and practitioners for purposes of prescribing and dispensing modern preventive services for family planning, curative treatments for common diseases, and agricultural seeds to upgrade diet and health standards. Interested villagers could be easily and quickly trained, and motivation would result from the potential profits available to them as petty entrepreneurs. Given their wide availability, as contrasted with a relative nonavailability of trained medical doctors and pharmacists in many of the remote village areas, the mobilization of indigenous healers, it would seem, would enhance the place of modern health values and medical practices by exposing more people to their good effects.

A recent application of this theme by a German team comprised of a medical doctor and an ethnographer has been conducted in a village near Trisuli Bazaar. The team, collaborating with a local shaman healer, conducted medico-ethnographic field work to investigate the culturally conditioned factors involved in the conceptualization of illness and in the communication between the patient and the healer.³⁰ It takes little imagination to see the potential for applying this sort of collaborative approach to advance modern healing practices and to provide family planning and other government services widely in village Nepal.

There are many more services that the applied or population anthropologist could provide directly to the family planning program, particularly in the fields of research and evaluation, and in training.

(3) Finally, there is a growing interest and a great potential in Nepal and elsewhere for implementing interdisciplinary and international team research in the study of population dynamics. Recent growth and development of the Tribhuvan University system of Institutes provides ideal centers for the organization, implementation, and oversight of team research. The services of these institutes, and of the various ministries and departments of the Nepal government, hold great potential for providing excellent support. They, as well as anthropologists and other social scientists, should be encouraged to participate together in furthering the study of population dynamics in Nepal.

CONCLUDING REMARKS

To conclude, a brief comment is due concerning the relevance of sociocultural research to policy making in family planning.

Appendices VI and VII, "Policy Implications" and "Socio-cultural Questions", list some of the findings and conclusions of the 1974 Bucharest population conference mentioned earlier.³¹ They focus on the importance for policy makers to understand and appreciate societal norms regarding reproductive behavior, to understand the needs of people undergoing social or national transformation and modernization, and to understand the potential ramifications of national policy in humanistic terms. Anthropology addresses these needs and articulates many of the concerns and questions that policy makers and family planning program workers and directors have concerning the social ramifications of population dynamics.

POSTSCRIPT

The field of population anthropology is growing rapidly. Consequently, it has been difficult to find and analyze all of the recent and on-going work in this field from Nepal within the framework of this paper and given the time constraints encountered in its preparation. The author is now preparing a more complete bibliography of population anthropology for Nepal and would appreciate hearing from researchers and authors in this field and receiving any further relevant material. Write c/o Donald A. Messerschmidt, Box 1070, Saratoga, Wyoming 82331 U.S.A.

FOOTNOTES

¹ I am indebted to Dr. Robert Miller, Campus Coordinator of the Nepal-Berkeley FP/MCH Project, who invited me to attend and speak at this important conference, and to Victoria Marsic and her able assistants who secured some of the references necessary to prepare this discussion of population anthropology in Nepal. I also want to thank my many colleagues and friends in Nepal, Europe, and America who responded so quickly to my questions about their research and writings on population anthropology. Melvyn Goldstein of Case Western Reserve University and William Douglass of the Smithsonian Institution's Center for the Study of Man have been especially helpful in discussing ideas, reading early drafts of the paper, and in providing me with several excellent references. Finally, I sincerely appreciate the time and support given me by my employers of the past few months to prepare for this conference: Abt Associates, Inc., of Cambridge, Massachusetts, and the Department of Anthropology, Case Western Reserve University, of Cleveland, Ohio.

² A few of the better known titles include Frank Lorimer (editor), Culture and Human Fertility: A Study of the Relation of Cultural Conditions to Fertility in Nonindustrial and Transitional Societies (Paris: UNESCO, 1954); Alan Macfarlane, "Population Crisis: Anthropology's Failure," New Society (Oct. 10): 519-521; Moni Nag, Factors Affecting Human Fertility in Nonindustrial Societies: A Cross-Cultural Study (HRAF Press, 1968), and Steven Polgar, "Population History and Population Policies from an Anthropological Perspective," Current Anthropology 13:203-221. These titles are merely suggestive of work done in the field on an international scale. Obviously, a more complete bibliography would fill many pages.

³ John F. Marshall, Susan Morriss, and Steven Polgar, "Culture and Natality: A Preliminary Classified Bibliography," Current Anthropology 13 (2): 268-269.

⁴ See footnotes 2, 3, 24, and 29.

⁵ Berkeley: University of California Press, 1974.

⁶ Gopal Singh Nepali, The Newars: An Ethno-Sociological Study of a Himalayan Community (Bombay: United Asia, 1965); Bernard

Pignede, Les Gurungs: Une Population Himalayenne du Nepal (Paris: Mouton, 1966); John T. Hitchcock, The Magars of Banyan Hill (New York: Holt, Rinehart and Winston, 1966); Christoph von Fürer-Haimendorf, The Sherpas: Buddhist Highlanders (London: Murray, 1964); Lionel Caplan, Land and Social Change in East Nepal: A Study of Hindu-Tribal Relations (Berkeley: University of California Press, 1970).

⁷ Kathmandu: His Majesty's Government, Department of Publicity, 1967.

⁸ Recent studies of caste groups include: A. Patricia Caplan, Priests and Cobblers: A Study of Social Change in a Hindu Village in Western Nepal (San Francisco: Chandler, 1972); Victory Doherty, Kinship and Economic Choice: Modern Adaptations in West Central Nepal, Ph.D. Dissertation (University of Wisconsin, 1975); John N. Gray, Rituals, World-View, and Behavior Among the Chhetri of Nepal, forthcoming Ph.D. Dissertation (University of Hawaii); Peter Prindle, Socio-Economic Relationships of a Brahmin Village in East Nepal, Ph.D. Dissertation (Washington State University, 1974). Other recent and miscellaneous general ethnographic studies include: Rex Jones, Kinship and Marriage among the Limbu of Eastern Nepal: A Study in Marriage Stability, Ph.D. Dissertation (University of California, Los Angeles, 1973); Donald A. Messerschmidt, The Gurungs of Nepal: Conflict and Change in a Village Society (Warminster, England: Aris and Phillips, 1975). This list is incomplete. Several other recent works are listed in the footnotes below.

⁹ Lynn Bennett-Campbell, research on The Social and Symbolic Role of Brahmin and Chetri Women in Nepal (forthcoming Ph.D. dissertation, Columbia University) and "Pregnancy, Birth and Early Child Rearing: Health and Family Planning Attitudes and Practices in a Brahman-Chetri Community," Research-um-Action Project, Paper No. 9 (Kathmandu: UNICEF, Department of Local Development, 1974).

¹⁰ Ellen Anders, research on The Life Cycle of Gurung Women: Child-Rearing Practices and Later Socialization in a Gurung Village (forthcoming Ph.D. dissertation, Columbia University) and "The Rodighar and its Role in Gurung Society," Contributions to Nepalese Studies (Journal of the Institute of Nepal and Asian Studies, Tribhuvan University, Nepal) 1 (2): 10-24. Also, "Women in Gurung Society," manuscript (n.d.).

¹¹ Melvyn C. Goldstein, "Fraternal Polyandry and Fertility in a High Himalayan Valley of Northwest Nepal," manuscript

(forthcoming); also, "A Report on Limi Panchayat, Humla District, Karnali Zone (Nepal)," Contributions to Nepalese Studies (Journal of the Institute of Nepal and Asian Studies, Tribhuvan University, Nepal), Summer 1975. See also Goldstein's "Stratification, Polyandry and Family Structure in Tibet," Southwest Journal of Anthropology 27 (1): 64-74.

12 Creighton Peet, research on the Economic Cost and Value of Children in Four Societies: Nepal, directed by Moni Nag, International Institute for the Study of Human Reproduction, Columbia University (forthcoming).

13 Robert Miller, "Family Planning Decision-Making in a Polygynous Family: A Case Study," manuscript, 1975.

14 Alan Macfarlane, "Population Crisis: Anthropology's Failure," New Society (October 10), pp. 519-521.

15 Alan Macfarlane, Population and Economy in Central Nepal: A Study of the Gurungs. Ph.D. Dissertation, University of London, 1972 (forthcoming in 1976 as Resources and Population: A Study of the Gurungs of Nepal, Cambridge University Press).

16 Macfarlane, 1972, Population and Economy in Central Nepal... pp. 22-23.

17 Ibid.

18 Ibid.: 418.

19 Ibid.

20 April Putnam, research on the movement of people and multi-ethnic interaction, tentatively titled: Changing Patterns of Multiethnic Interaction in the Nepal Terai (forthcoming Ph.D. Dissertation, University of Michigan).

21 Forthcoming dissertation on Migration in the Karnali Zone of Nepal (University of Michigan).

²² New York: St. Martin's Press, 1975.

²³ Center for the Study of Man, Smithsonian Institution, "Cultural Consequences of Population Change," Report on a Seminar held in Bucharest, Romania, August 1974.

²⁴ From Moni Nag, Factors Affecting Human Fertility in Non-Industrial Societies: A Cross-Cultural Study (HRAF Press, 1968, p. 167).

²⁵ Ibid, p. 168.

²⁶ See footnote 12.

²⁷ A. Molnos, "Questionnaire [on Fertility] to Social Anthropologists and Other Experts," Institute of African Studies, University of Nairobi, Kenya (n.d.).

²⁸ For example, Robert A. Hackenbert (editor), "Population Dynamics as a Field for Anthropological Research," Proceedings of a Conference held at the Center for Continuing Education, University of Chicago, May 1971, sponsored by The Center for the Study of Man, Smithsonian Institution.

²⁹ Susan C. Scrimshaw, "Anthropology and Population Research: Application in Family Planning Programs," a paper presented at the 71st Annual Meeting of the American Anthropological Association, Toronto, Canada, December 1972.

³⁰ Gerhard Heller (MD) and Andras Hőfer, medico-ethnographic research investigating culturally conditioned factors involved in the conceptualization of illness and the communication between patient and practitioner (a forthcoming publication of the South Asian Institute, University of Heidelberg, Germany). See a comment on this research in the Nepal Studies Association Bulletin, June 1975, #8, p. 10.

³¹ See footnote 23.

APPENDICES I - VII

- I. Population Anthropology/Classification Scheme
- II. Some Socio-Cultural Determinants of Population Stability and Change
- III. Socio-Cultural Consequences of Population Change
- IV. Factors Supposed to be Related to Fertility Directly or Indirectly (Nag. 1968)
- V. Fertility Survey Form (Nag. 1968)
- VI. Some Implications of Population Behavior for Policy Makers
- VII. Questions for Further Analysis.

Appendix I

POPULATION ANTHROPOLOGY/CLASSIFICATION SCHEME *

- I. General
 - A. Overview of culture and natality (including reviews, theoretical works, and suggestions for research)
 - B. Bibliographies
- II. Methods in the study of culture and natality
 - A. General
 - B. Boundaries and sampling
 - C. Data collection
 - 1. Data from archeological excavations (including human skeletons)
 - 2. Written records, historical and contemporary
 - 3. Interviewing
 - a. Census
 - b. Sample survey
 - c. "KAP" (knowledge, attitude, and practice of family planning) studies
 - 4. Genealogical method
 - 5. Other
 - D. Data analysis and techniques of population estimates
 - E. Examples of demographic studies of small communities
- III. Population history
- IV. Ecological approaches to the study of culture and population
- V. Specific factors related to reproductive behavior and/or population growth
 - A. General, and multiple factors
 - B. Biological factors
 - 1. Genetic fecundability and infertility
 - 2. Fecundability and age (including reproductive span and adolescent sterility)
 - 3. Infertility due to disease, nutritional deficiencies, etc.
 - 4. Postpartum infertility and lactation
 - 5. Population regulation in animals
 - C. Practices and beliefs about sex, pregnancy, and birth

Source: Marshall, John F., Susan Morris, and Steven Polgar, 1972, "Culture and Natality" A Preliminary Classified Bibliography" Current Anthropology, Vol. 13, No. 2, pp. 268-269.

1. General
 2. Coital frequency (including seasonal variation)
 3. Abstinence (including postpartum abstinence and prolonged breast-feeding)
 4. "Indigenous" contraception, abortion, and infanticide (for introduced birth control methods, see VI)
- D. Normative forces (cognitive/affective factors)
1. Norms regarding number, spacing, and sex of children
 2. Perceived child mortality and past depopulation
 3. Norms regarding roles of family members
 4. Religious-moral-ethical beliefs and values (for religious affiliation per se, see V.F.3)
- E. Marriage, family structure, and local organization
1. Marriage and patterns of conjugal union (including age at marriage, stability of unions, remarriage, number of spouses, etc.)
 2. Family structure
 3. Descent
 4. Residence and local organization
- F. Economic, ethnic, and sociopolitical variables
1. Education
 2. Class, caste, and other social stratification, and social mobility
 3. Religious affiliation (aggregate studies; for analysis of individual beliefs and values, see V.D.4)
 4. Economic organization (including requirements for labor)
 5. Political organization
 6. Culture contact (including exploitation by dominant culture, colonialism, power balance among societies, warfare and feuding, spread of new diseases, etc.)
- G. Social change (including modernization, Westernization, industrialization, economic development, nationalism, etc.)
- VI. Population policy, population planning, and family planning services
- A. Reviews, theoretical discussions, and position papers
 - B. Policy considerations
 1. Population policies
 2. Strategies of providing family planning services
 - C. "Applied" Studies of birth control use (including decision process, response to specific techniques, anticipated consequences, etc.)
 - D. Services

1. Administration and facilities (including personnel, training, costs, distribution of supplies, etc.)
 2. Communications (including case findings, mass media, group discussions, etc.)
 3. Evaluation of program effects
- E. Consequences of population policies and contraceptive use
- VII. Consequences of population size and distribution
- A. Effects of population density on individual behavior (see also IV for effects on subsistence patterns)
 - B. Complexity and functioning of social organization
- VIII. Depopulation

Appendix II

SOME SOCIO-CULTURAL DETERMINANTS OF POPULATION STABILITY AND CHANGE *

This list is suggestive of some of the general socio-cultural factors which may either encourage or discourage fertility; it is a demonstration of the cultural nature of population behavior.

Premise: If one wishes to change population behavior with optimum effectiveness and minimum disruption as a consequence, it will be necessary to make sensitive and detailed field studies of these areas of life in particular cultures.

A. General Factors

1. Cultural heterogeneity (affects the degree of variability with respect to the other factors within a society)
2. Attitudes, values, norms, and knowledge about sexuality and reproduction.
3. Marriage and family norms (age, exogamy/endogamy, spacing, legitimacy, polygyny)
4. Conception and role definitions of males and females

B. Fertility Encouraging Factors

1. Positive value of marriage, family life, and procreation
2. Children as assets for household production units
3. Positive sanctions for fertility and negative sanctions against infertility
 - a. Childbearing as a moral act
 - b. As an act of creativity, accomplishment and competence
 - c. Procreation as expansion of self
4. Male preference (for lineage continuity and religious reasons)
5. Value of children
 - a. For the family and lineage (replacement and continuity, carry on ancestor worship, social security, emotional satisfaction and warmth, may add to family stability,

* Adapted from William Cousins, 1975, "Culture and Population: Some Socio-Cultural Factors in Population Stability and Change," a discussion and analysis of eleven papers on The Cultural Consequences of Population Growth prepared by scholars of the so-called Third World seminar on population at Bucharest, August 1974. (Scholars present at the seminar represented South, Southeast, and East Asia, South and Central America, Africa and Eastern Europe.)

parents' parents become grandparents, enhanced power & prestige. . .)

- b. For women (status validation, independence from in-laws, novelty and entertainment, healthy males mean woman can become mother-in-law, security in old age...)
- c. For men (status validation, enhanced prestige & power, security in old age)
- d. Extended family as supportive network to care for all children born

C. Fertility Discouraging Factors

- 1. Those having direct effect
 - a. abortion
 - b. infanticide
 - c. coitus interruptus
 - d. other methods...
- 2. Sexual Abstinence
 - a. during nursing
 - b. during post partum
 - c. in grandparenthood
 - d. on certain religious days or ceremonies, or specific times and places...
 - e. widow remarriage prohibited
 - f. abstinence as a value in itself
 - g. observance of "safe period"
- 3. Separation of Spouses
 - a. separate male and female quarters
 - b. lengthy visits of wife to parental home
 - c. single-sex migration
- 4. Education, especially for women, tends to delay marriage
- 5. "The "isolated" nuclear family

Appendix III

SOCIO-CULTURAL CONSEQUENCES OF POPULATION CHANGE *

These six categories of consequences of population change are suggestive, not conclusive.

A. Consequences on the family and kinship

1. Is there a trend toward nuclear families especially in cities, and a weakening of joint, extended, and polygynous family structures?
2. "Incomplete kinship units" emerge as a consequence of migration, based upon the nuclear family or a mixture of nuclear family and kinsmen.
3. A paradoxical consequence is that life expectancy tends to be increasing at the same time that extended families are declining and changing toward the small nuclear pattern. The result is more aged people in a society just when the family is less able to care for them. The "social problem of the aged" will emerge in societies where previously aging was seen not as a problem, but as a natural enhancement of prestige.

Economic Roles

4. In urban areas, the family is no longer a unit of production with all members, including women and children, having important economic roles. As a result:
 - a. Father becomes wage earner
 - b. Women and children become dependents or wage earners

Women's Roles

5. Population growth and modernization will lead to an expansion of extra-familial roles for women.
6. There is likely to be a tendency for an altered marriage age for women with the emergence of more roles outside the family and more education for women.
7. The decline in infant and maternal mortality rates should affect the sense of insecurity, lack of control, and fatalism--particularly of women in "traditional high mortality cultures."

* Adapted from William Cousins, 1975, "Culture and Population: Some Socio-Cultural Factors in Population Stability and Change," a discussion and analysis of eleven papers on The Cultural Consequences of Population Growth prepared by scholars of the so-called Third World seminar on population at Bucharest, August 1974. (Scholars present represented South, Southeast, and East Asia, South and Central America, Africa, and Eastern Europe.)

8. The acceptance of the small family norm along with modern contraceptive technology will increase the sexual and reproductive freedom of women, which will in turn affect the concept of womanhood in a culture as well as the roles of women.
9. During the process of cultural redefinition of women's roles and the concept of womanhood, there is likely to be role conflict and even anomie.

Norms

10. One result of, and index of, urbanization and modernization and a weakening of the traditional kinship structure will be the increasing freedom for individuals to select their own marriage partners.
11. Migration tends to disrupt the family cycle.

Age, sex, kinship roles

12. Family role definitions are diffused and changed by acculturation resulting from in-migration.
13. Family roles are changed both at home and in the new location when incomplete kinship units or individuals migrate; e.g.,
 - a. remaining females may head households
 - b. different adults care for remaining children of migrating parents, or
 - c. the father's and husband's roles in matrilineal cultures may become more central if only his nuclear unit moves.
14. What may the consequences be of an increasing number of older people and of children in the family as life expectancy increases and infant mortality declines?
15. Population growth, modernization and development lead to the settlement of nomads which can result in a change in their kinship structures.

Fertility

16. The migration of young married men results in separation from their wives for long periods during their wives' most fecund years which tends to lower fertility through involuntary spacing.
17. Migration results in a decrease in marital stability and an increase in divorce, with a consequent lowering of the fertility of women.
18. When urban migrants with increased income return to their villages, they will raise the standard of living of their families, which will lead to a decrease in mortality and an increase in family sizes.

B. Consequences of the Socialization System

1. With the increase in sheer family size, there will be changes in the socialization function with respect to:
 - a. the individuals and groups responsible for socialization, e.g., do siblings, peer groups, adults other than parents, and/or schools become more important?
 - b. the adequacy, form, and content of socialization--are there any predictable differences in these?
2. There is likely to be a conflict between "traditional," elitist educational systems, based upon western oriented models which stress achievement and individualism and the perceived needs of the society for cooperation and collective effort. The result may be alienation of the educated class from the rest of society.
3. The increasing school age cohort places increasing strain upon the formal educational system because of the limited material resources as well as the limited number of trained personnel.
4. As the society modernizes, schools and the mass media will play more important roles in the socialization process.

C. Economic Consequences

1. There is a high dependency ratio consisting primarily of children and young adults, which requires heavier outlays for simple maintenance, education, and training for the future.
2. There is little capital accumulation for development since population increase absorbs it and the goal of the economy becomes subsistence.
3. Population growth tends to decrease savings and generates pressure to use surplus for services and other fields "not directly productive" economically.
4. It prevents increase in per capita income.
5. It draws peasants from a subsistence into a money economy where poverty becomes a more intense problem.
6. High levels of unemployment and underemployment.

Migration "drain"

7. Migration robs rural areas of able young men from the labor force.
8. Emigration from country leads to "brain drain."

Urban Growth

9. There tends to be a rapid growth of cities, mainly through in-migration.

10. Rural to urban migration results in such urban problems as housing, public services, unemployment, slums and squatter settlements, transportation, and disease.

Man-land ratio

12. Land fragmentation through inheritance of smaller and smaller shares.
13. Pressure on land and increases in density lower land-man ratio.
14. Intensifies the search for resources which could mean displacement of certain ways of life, e.g., that of indigenous peoples or of nomadic peoples.
15. A vicious circle of migration and poverty results from population growth. People leave rural areas for the city because of low productivity and poverty, then because many vigorous and ambitious leave, productivity declines even further.
16. High population density may cause people to occupy formerly "uninhabitable" land with resultant human suffering from natural disasters, such as in Bangladesh.

D. Political consequences

International

1. International repercussions on power alignments, resource allocations, economic aid.
2. "Threat of perpetual dependence upon foreign aid."
3. Size seen as a factor of national prestige, labor force, military strength.

National

4. Size seen as a factor of political power or political threat by ethnic, religious, regional, socio-economic, nationality, and family groups within the society.
5. High density leads to "economic strain" which in turn could lead to "political strain."
6. "High density facilitates political organization."
7. High proportion of youth associated with political radicalism and revolutionary movements.

Urban

8. An increasing problem of the educated unemployed--especially in cities.
9. A breakdown of traditional social controls with migration to the city.
10. Urban migration leads to "social problems such as unemployment, juvenile delinquency, over-crowding, poverty, threats to health, illegitimacy, alcoholism, marital instability..."

11. Strain on urban social services.
12. Returning migrant is an agent of modernization.

E. Consequences for Social Stratification

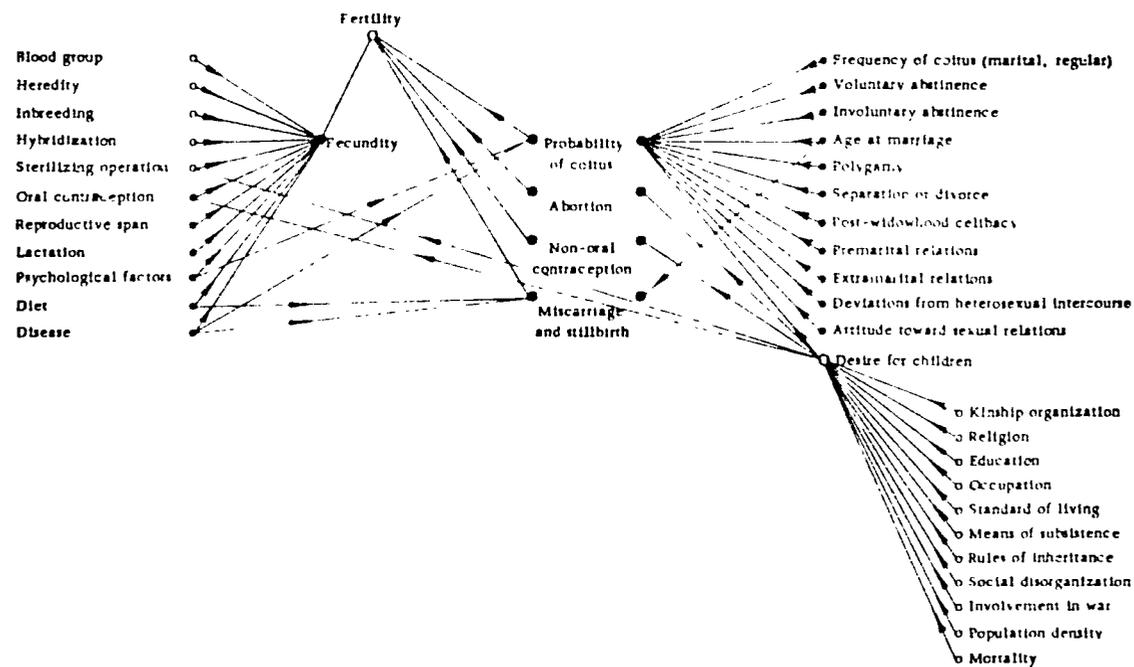
1. Is there an inverse correlation between socio-economic status (caste and class) and fertility? Which social class tends to have the lowest fertility? And, are there rural-urban fertility differences?
2. The actual number of poor increases at a faster rate than that of other categories which means an actual and a proportional increase in those living in poverty.
3. Migration and urbanization tend to weaken traditional systems of stratification based upon status ascription as
 - a. members of particular caste and classes change life styles and identifying names and labels, and
 - b. more achieved statuses evolve based upon universalistic criteria.
4. Migrants to the cities tend to be drawn from two different strata--poor people from economically depressed areas on the one hand, and school and college graduates on the other. In each class the migrants face problems of underemployment and unemployment.
5. Population increase, particularly among minority groups and the poor, tends to become defined as a problem by the elite.
6. As a result of population change, migration, urbanization, and modernization, consensus declines on the traditional values which underlie the system of stratification; at the same time the proportion of poor people increases.

F. Consequences on Religion

1. As migration, modernization, and urbanization occur, so does secularization, and religion begins to emerge as a separate institution rather than as a way of life.
2. Consensus on norms and values declines and social deviation and innovation increases.
3. The world will be explained more and more in secular, scientific terms rather than sacred terms.
4. Evangelical, nativist, neo-orthodox religious movements arise.

Appendix IV

FACTORS SUPPOSED TO BE RELATED TO FERTILITY DIRECTLY OR INDIRECTLY¹



¹ Factors marked with solid dots are fully or partly covered in this study. All possible interrelations among the factors are not shown.

Appendix V

FERTILITY SURVEY FORM

No.: Sex: Age: Birth order: Marital status: Mate's age: 1. 2.
(date of and age at death, if deceased)

Name Ethnic Group Kin Group Education Occupation Birthplace Relationship to Self

Self:

Mate 1

Mate 2.

Order of Conception of Offspring	Name	Sex	Date of Birth	Age	Date of Death, if Deceased	Specify if Abortion, Miscarriage, or Still-birth with Date and Fetal Month	Marital Status	Remarks
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								

Age(s) at marriage

Period(s) of regular sexual union with dates
(with each mate, if more than one)

Age at menarche

Age at menopause

No. of own siblings born alive

No. of father's siblings born alive

No. of mother's siblings born alive

M	F

Periods with dates of widowhood, divorce, absence of mate, abstinence, etc.

Occasion Periods with dates

- 1.
- 2.
- 3.
- 4.

Measures taken for preventing conception

Attitude towards limitation of birth.

History of any disease affecting fertility:

Coital frequency in the past month

General health:

Desired no. of sons: daughters.

Name of investigator:

Remark about reliability

Date of investigation:

in Moni Nag, Factors Affecting Human Fertility in Nonindustrial Societies: A Cross-Cultural Study. (HRAF Press, 1968)

Appendix VI

SOME IMPLICATIONS OF POPULATION BEHAVIOR FOR POLICY MAKERS *

1. Expectations and norms are the key determinants of reproductive behavior.
2. These exist in such groups as families, lineages, clans, ethnic groups, neighborhoods, and villages. [and castes]
3. Such groups are the real socio-cultural units within which people live and behave.
4. Thus, if one wishes to change reproductive norms, it is necessary to identify, understand, and work with these groups at different levels.
5. The norms of reproductive behavior are part of the total system of norms of these groups; therefore, changes in one part result in changes in another.
6. One of the reasons for norms of high fertility is the need for economic, social, political, and psychological security felt by individuals as members of these groups.
7. Thus, if one wishes to change fertility norms, it is necessary for these groups to have alternative ways of meeting their needs for security.
8. This means that programs for deliberate fertility limitation must be undertaken as part of integrated, holistic development programs at the local level.
9. In order to minimize the unanticipated consequences of deliberate change and to respect the rights of people, it is necessary to:
 - a. have knowledge of the local cultures and
 - b. involve the people honestly and openly in development programs which affect them

* Adapted from William Causins, 1975, "Culture and Population: Some Socio-Cultural Factors in Population Stability and Change," a discussion and analysis of eleven papers on The Cultural Consequences of Population Growth prepared by scholars of the so-called Third World seminar on population at Bucharest, August 1974. (Scholars present at the seminar represented South, Southeast, and East Asia, South and Central America, Africa, and Eastern Europe.)

10. Such involvement should not be simply manipulative--i.e., for purposes of getting the cooperation of local groups in the implementation of programs designed for them by others. The involvement of local groups should begin with the formulation of policy and programs so that they taken into account the people's own perception of their social, cultural, economic, and political situation.

Appendix VII

QUESTIONS FOR FURTHER ANALYSIS *

1. Is birth planning on a large scale possible without westernization or a radical change in the world views of the people in transitional societies? Birth planning carries with it the implication that humans can control nature, which may conflict with traditional conceptions of nature as beyond human control.
2. Is the isolated nuclear family the inevitable result of population change and modernization?
3. As traditional societies modernize, the transformation proceeds at different rates in different parts of the culture, resulting in lags and discontinuities. Is one of these the tendency for traditional controls upon fertility to become weakened before modern contraceptives are adopted, resulting in a temporary increase in fertility?
4. How can societal needs for birth planning be linked with the psychological, social, and micro-economic needs of the people in a way which minimizes manipulation and traumatic cultural disruption and optimizes people's conscious participation in the development process?
5. Does population growth result inevitably in the "homogenization" of cultures within a society?
6. One focus of anthropological studies should be norms of child-bearing: Who should have children? When should childbearing start, when should it cease? What is the desirable interval between children? How are these norms changing?
7. As the sheer size of the family increases due to increasing life expectancy, what changes can be expected to occur in the following:
 - a. Family type (size, number of spouses, authority and locality patterns).

* Adapted from William Cousins, 1975, "Culture and Population: Some Socio-Cultural Factors in Population Stability and Change," a discussion and analysis of eleven papers on The Cultural Consequences of Population Growth prepared by scholars of the so-called Third World seminar on population at Bucharest, August 1974. (Scholars present at the seminar represented South, Southeast, and East Asia, South and Central America, Africa, and Eastern Europe.)

- b. Family functions (e.g., reproduction, socialization, subsistence, social control, social placement, affection.)
 - c. Roles, role relationships, and functions (e.g., age, sex, kinship, succoring, socialization, subsistence, social control).
8. What specific recommendations can anthropologists make for collecting reliable and acceptable census figures in a heterogeneous transitional society?
9. What specific practical recommendations can anthropologists make for effectively redefining reproductive norms in transitional societies? Society has never left fertility to the individual to decide, but the problem is how to restructure norms without violating the principle of respect for the individual in his/her culture.

* * * * *

A REVIEW OF FAMILY PLANNING & MCH PROGRAMME IN NEPAL

RADRI RAJ PANDE*

"May your progeny cover the hills." this used to be the way of conveying good wishes to a friend or relative in Nepal. And indeed the progeny have been very successful in bringing about this state of affairs. The growth in population in Nepal has been as follows:

Table 1

Years	Population	Difference
1968 B.S. (1911)	5,639,000	
1977 B.S. (1920)	5,574,000	- 65,000
1987 B.S. (1930)	5,534,564	- 41,440
1998 B.S. (1941)	6,283,649	+751,085
2008/10 B.S. (1952/54)	8,473,478	+2,189,829
2018 B.S. (1961)	9,413,220	*940,342
2028 B.S. (1971)	11,555,983	+2,142,163

Source: Central Bureau of Statistics

For the first time in 2018 B.S. (1961), the census was carried out in a scientific manner. Looking at the figures, the decrease in population during 1920 may be due to recruitment of Nepalese soldiers

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Paper presented at All Nepal Medical Conference, March, 1975.

in the war, but the decrease in 1930 cannot be explained convincingly. However, the increase in population in 1941 is noteworthy in spite of heavy loss of lives during the great earthquake of 1934.

Looking into the future prospects, the Central Bureau of Statistics has made long-term projections at an average growth rate of 2.20% per annum as quoted in the table below:

Table 2

1975	12.6 million
1980	14.0 million
1985	15.6 million
1990	17.4 million
1995	19.4 million
2000	21.7 million

The implication of such an increase in population growth on food supply, education, health and other social services can be of utmost importance. In the case of food supply, it has been shown that if the present trend of food grain production, population and food demand were to continue, the present cereal surpluses would decline drastically and Nepal would become a net importer of food by the end of 1980. In the case of education facilities, it would be necessary to expand the present facilities for primary school 2.3 times by 1981 and 2.5 by 1986 and to increase teacher training facilities by 40% by 1976 and by 77% in 1981. As regards hospital facilities, 2113 additional beds will be needed within 25 years even if the present ratio of hospital bed to population ratio were to be maintained. This means that 85 additional beds per year will be required just to maintain the present ratio. There will also be greater demand for housing as urbanization grows in the coming decades along with the economic development. Thus it must be realized that even to maintain the

present ratio, which is far from satisfactory, increased resources will be necessary. And we have to travel a long path to achieve improvement in standard of living.

Family Planning Movement in Nepal

Concerned with the increase in population growth and its implication for the health of mother and children, some doctors and social workers joined together to form the Family Planning Association of Nepal in 1959 under the auspices of the Nepal Medical Association. Those were the days when family planning could not be discussed freely in public and the word aroused suspicion in the minds of the people.

However, with patience and hard work on the part of the founder members of the association, it started gaining public support. It must be agreed that this voluntary organization generated awareness of his need to start a family planning program on a national basis in Nepal.

National Family Planning Programme

"In order to bring equilibrium between the population growth and economic output of the country, my government has adopted a policy of family planning" -- thus declared the enlightened monarch, the late King Mahendra, in 1965 and soon the family planning service was provided as part of Maternal and Child Health Services under the Directorate of Health. In 1968, His Majesty's Government decided to run the National Family Planning and Maternal and Child Health Program in a more expansive and integrated way, under a semi-autonomous board called the Family Planning and Maternal and Child Health Board under the Ministry of Health. The Family Planning & MCH Project executes the policy decisions made by the Board.

The activities of the project are shown in the following tables:

Table No. 3

TOTAL COUPLES WHO ACCEPTED DIFFERENT METHODS OF CONTRACEPTION BY YEAR

FISCAL YEAR:	1966/67 <u>2023/24</u>	1967/68 <u>2024/25</u>	1968/69 <u>2025/26</u>	1969/70 <u>2026/27</u>	1970/71 <u>2027/28</u>	1971/72 <u>2028/29</u>	1972/73 <u>2029/30</u>	1973/74 <u>2030/31</u>	total
<u>Methods</u>									
1. IUD acceptors (for the first time)	1806	2614	1183	1109	711	1168	607	862	10054
2. Vasectomy acceptors.	N.A.	1062	3292	3895	4441	3990	4161	5166	25910
3. Pill Acceptors (New)	13	200	1355	10263	13496	15868	24056	27166	32417
4. No. of Pill cycles distributed	13	203	8133	36329	62865	86831	125179	202590	523142
5. Condom acceptors (New).	33	1256	1914	14480	18785	22908	35713	52075	147164
6. No. of Condoms Distributed	495	113130	172260	227636	327098	479326	725016	1233624	3278565
7. Laproscopic Sterilizations	-	-	-	-	-	-	558	810	1369
	1852	5132	7744	29740	37433	43837	65095	86079	276913
8. No. of Mobile Camps	-	-	-	25	101	88	91	103	408

Table No. 4

MCH ACTIVITIES BY YEAR

Fiscal Year :-	1966/67	1967/68	1968/69	1969/70	1970/71	1971/72	1972/73	1973/74	Total
Services:-	& before 2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	
1. Ante-natal mothers (New)	4905	3498	4042	5989	6119	8806	11100	13096	57555
2. Ante-natal mothers (Old)	6298	5003	6070	8654	9164	14862	17507	19706	87264
3. Post-natal mothers (new)	791	725	826	1254	1583	1835	2306	3231	12551
4. Post-natal mothers (Old)	456	570	630	900	1043	1442	2394	3157	10592
5. Infants (New).	10563	6695	8437	12094	13063	20502	29553	40585	14192
6. Infants (Old)	20294	13108	16291	19720	20918	31590	48944	67727	235892
7. Preschool Chil. (New)	15001	7737	10126	16405	21392	34393	56926	79199	241179
8. Preschool Chil. (New)	33097	14930	20687	26804	32605	48489	78147	121172	375931
9. Small-pox Vaccination	5582	6036	4361	10846	9891	13824	15220	29234	94994
10. BCG	5280	9315	10655	9192	14778	14778	15388	12929	86719
11. DBI Immunization	-	-	-	-	-	5089	27595	43766	76450
12. No. of deliveries at Gokarna	-	-	-	-	-	39	78	76	284
13. No. of Vasectomy mobile camps	-	-	-	25	101	88	91	103	408

Table 3

Total couples who accepted different methods of contraception by year.

(Source: Nepal FP/MCH Project)

Table 4

MCH activities by year

(Source: Nepal FP/MCH Project)

The Family Planning and MCH Project provides Services, free of cost, through a network of 224 clinics scattered in 74 of Nepal's 75 districts and by this fiscal year, it will cover all the districts of Nepal. This is not to say that the service has reached every nook and corner of the country, but at least almost all the districts have been covered. This alone is quite an achievement, because the number of clinics has been increasing as given below.

Table 5

	1966/67	67/68	68/69	69/70	70/71	71/72	72/73	73/74
Clinics	12	27	41	60	86	141	181	224
District Office	0	0	0	25	25	30	30	32

(Source: Nepal FP/MCH Project)

The presumed service area of these clinics is in a radius of three miles on the average, though in each case, the area served is affected greatly by natural terrain and communications. In addition to the clinic-based activities, a series of mobile clinics is organized each year, which, in general, emphasize terminal methods (vasectomy and leparoscopic sterilization). Recently the contraceptives services

have been extended through all existing health facilities -- hospitals and health posts in addition to the regular FP/MCH clinics. The Family Planning Association has been active mainly in the field of information and education.

Some Constraints

The most important constraints on the ever expanding activity of the family planning and MCH project have been technological because of lack of tried and proven methodology for bringing about sufficient declines in fertility through family planning programmes. There are no ready-made methods to be successfully applied in all countries. Another important constraint is the difficult terrain. Due to the geographical condition of the country, distances are great, both vertically and horizontally, and the transportation network is not well developed. It takes days to reach one point from the other after crossing hills, ascending and descending. This creates great problems, not only in providing service, but also in provision of continuous supply of drugs and equipment. Besides, the hills population is not concentrated in one area, but resides in isolated clusters quite apart from each other. This makes the cost benefit analysis of service a mockery. It must also be understood that the job of a family planning and MCH worker is not over just at one visit, he has to go to the field again and again for motivation and follow-up.

Target setting

During the Fourth Five-year Plan period, the target of the family planning and MCH Project was to provide contraceptive service to 15% of the fertile couples, i.e. to 365,000 couples, and to provide services to 500,000 children under the age of five, and 86,000 ante-natal and post-natal women. For the next Five-year Plan, it is proposed to set up the target in terms of reducing the crude birth

rate and the infant mortality rate by certain points. It has been calculated that the number of family planning methods users and acceptors necessary to achieve a reduction in the crude birth rate by four points between 1976 and 1980 under selected death rates is given in the following table:

Table 6

Year	Reduction	Recuuction	Births that need to be prevented BNP	No of 100% effective users	Total no.of acceptors
1975					
1976	22	42 to 41	12759	61,114	140,000
1977	21	41 to 40	61114	66,263	140,000
1978	20	40 to 39	66263	67,535	140,000
1979	19	39 to 38	67535		140,000
1980	18	38			

Source: Nepal FP/MCH Revised Five-year plan
(unpublished).

Impact of family planning

Sometimes questions are asked regarding the impact of the family planning program on reducing the birth rate. But how is it possible to know the impact when there is no registration system of vital events yet in the country? There are no correct base-line data for comparison. In a society where the norms, beliefs, and cultural and religious factors are in favor of a large family, and where a son is a necessity to light the funeral pyre at one's death to attain salvation in the next life, it will be quite some time before family planning becomes a way of life enough to make any impact on reducing the birth rate effectively. It must be remembered that the family planning

programme is not similar to any eradication or control program of health services. Indeed, the social cultural values of the individuals influencing the behaviour need to be modified to bring about any change in the fertility behaviour. Besides, it must not be forgotten that in Nepal the infant mortality rate is very high and has been estimated to be 175 to 200 per 1000. How can a couple be expected to limit the family size without being assured that the children will not die untimely death? Thus, it is so important to reduce infant mortality rate to bring impact in family planning programme.

However, endeavor has been made to evaluate the achievement of the family planning programme in Nepal by calculating the actual number of effective users and the percentage of the target obtained during 1970-74. By taking 42 as the crude birth rate (CBR), it was found that roughly 40% of the total target necessary to reduce CBR from 42 to 38 was obtained between 1971 and 1974. Thus, very roughly, the actual number of effective users may have contributed to a decline in the CBR of 1.6 points, i.e. the CBR might have been reduced from 42% to 40%. If it is so, this might have had considerable impact on the national economy of the country, because one birth prevented means lots of saving of resources.

New patterns in family planning program

In recognition of the need to develop more effective methodologies two new patterns have been evolved recently that need special consideration. In the first, the health aides, who are the family planning workers at grass-root levels are assigned to full-time house visiting in three districts to test the effectiveness of service at doorsteps in respect to acceptance and continuation of the methods. This seems to work better than in the case of the static clinic-based approach. In another method, the multipurpose health workers deliver package services in the form of integrated health service, including family planning. This seems to work well in respect to initial acceptance of the method.

Profile of acceptors of family planning methods

It is noted that couples with more than four children come forward to take advice in the use of contraceptives. Very few couples come early enough with the idea of spacing birth. The following table is useful:

Table 7.

	<u>Characteristic</u>	<u>Vasectomy</u>	<u>Pill</u>	<u>IUD</u>	<u>Condom</u>
Mean age	Women	31.7	29.9	30.7	27.6
	Men	37.4	34.7	34.8	31.7
Fertility					
	No. of living children	4.9	3.7	4.0	3.2
	No. of living sons	2.8	2.0	2.3	1.8

(Source: FP/MCH Project)

This means that there is much to be said for promoting a sterilization program in Nepal. At the same time, the women of Nepal have to be more motivated for spacing the births.

The future

It has been established that in a country like ours, the infant mortality rate has to be lowered to make contraception a favorable proposition. Thus it is necessary that more efforts should be made to reduce IMR by at least 25% during the next Five Year Plan period. Also it is important that the crude birth rate be reduced effectively to curb population growth before it is too late. The new revised plan for the next (Fifth) Five Year Plan, submitted by Nepal FP/MCH Project, has set out details to reduce IMR by more stress on immunization and rehydration and to reduce the crude birth rate by accelerating the sterilization programme.

For the success of the family planning program, it has to be a way of life. Community participation is of vital importance. The existing laws and regulations regarding marriageable age of girls, termination of unwanted pregnancy, measures to elevate the status of women in society, measures to check the flood of immigration, etc., are to be modified appropriately. It should be realized that the family planning program is not the responsibility of the Ministry of Health only, but a concerted effort is required by the Health, Education, Finance, Agriculture, Information and Broadcasting, and Law Ministries, etc. Efforts must continue, however, to improve the quality of maternal and child health services, and family planning service is provided as integrated family planning and MCH Services.

The medical profession has always been committed to preserve life, now is the time for the profession to take the lead in preventing pregnancies. Let us vow to prevent births equal in importance to the vow to prevent deaths, if not more so. This will help not only in the contribution to nation building by providing healthy manpower of good quality, but also in the economic development of the country, so that human dignity is maintained if not elevated.

THE NEPAL FP-MCH PROJECT
DELIVERY OF FAMILY PLANNING SERVICE:
A DESCRIPTION

JERALD L. YOUNG, M.P.H.*

Introduction

It has been only since January 1970 that Nepal established a high priority program designed to deliver various means of fertility control to a large number of Nepalese. The reason this date is selected is because it was the time when high level district Family Planning Officers (FPOs) were assigned to 25 of the total of 75 districts in Nepal. This event placed a new and important priority on family planning and, in effect, elevated the program status from a few clinics to a national program. This date also indicates just how recent the nationwide delivery of family planning services is in Nepal.

Nepal, like most countries, has adopted the traditional health approach to delivery of family planning services. Services are delivered through the Health Ministry clinics by workers who are controlled by policy determined by the Health Ministry and whose promotion and advanced training is given through regular Health Ministry channels. Even though the government family planning program comes under a specialized agency called "The Family Planning--Maternal and Child Health Project," it is viewed as a part of the Health Ministry and the Health Ministry's delivery system.

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Nepal's experience with national service delivery systems is limited. It was only in 1950 that the country emerged from a century-long isolation from the rest of the world. The 24 years since 1950 is a short time for a nation to develop the experience and skilled manpower required to organize and manage efficient and effective nationwide service delivery systems.

Observation will quickly reveal, however, that of all government agencies which have attempted to develop national service delivery systems the Health Ministry is among the most successful. The Health Ministry's Malaria Eradication Program is widely recognized as a success. The Smallpox Program has also been largely successful in eliminating this dreaded disease from the Nepalese population. These programs and others bear strong evidence that even in a difficult environment, such as that of Nepal, effective delivery of services is entirely possible.

A great new challenge, however, faced health planners when they began to deliver a family planning service. The usual approach model of setting up an organization to attack a disease and control it was no longer entirely adequate. For the first time planners were not dealing with a disease that could be brought under control through only minimal involvement of the human populace. Family Planning required an organization and program plan that included dealing with one of the most important decisions that human beings make, i.e., whether or not to adopt some artificial means of altering their fertility. Thus the delivery of a family planning service introduced the need for behavior change on the part of the individual members of the society. The family planning delivery system then had to deal with this new concept and become an organization whose goal was not only to deliver a service, but also to effect social change.

The Environment for the Family Planning Service Program

Any service delivery system always must operate under the limitations and restraints of the environment in which it is located. In Nepal this environment is particularly severe. Mountainous terrain, low literacy levels, deep-rooted cultural and traditional values, widespread and scattered population, extreme lack of communication facilities, and an extremely small manpower and financial base from which to draw--all constitute the familiar list of restraints and limitations under which any delivery system must operate in Nepal.

In addition to the macro-environment, the family planning service delivery and social change system must also operate within the limitations and restraints imposed by being confined in a health context. Medical values dominate, family planning is regarded as a disease to be conquered along lines similar to those that conquered malaria and other diseases.*

Finally, in the case of Nepal, family planning is delivered through a combined program along with maternal and child health services. This means that workers at all levels, from the central administrators and planners to the village workers, must make priority decisions, sometimes daily, about whether more priority (and time) should be placed on family planning activity or on maternal and child health activity.

This is the environment within which family planning activity must operate in Nepal. It is not an easy activity, but given the restraints and limitations, it is an activity that is operational and after nearly four years of national effort shows some significant

* For a detailed discussion of family planning delivered through the health context, see Fields, James, Institutionalizing Family Planning: The Health Context, July 24, 1974 (Draft Paper).

progress. Progress has been made toward delivering a service which is beginning to have some limited effect on fertility behavior among an increasing number of Nepalese.

What is the program in Nepal? First, we will describe the delivery system, second, we will describe the personnel that operate the system, and third, we will discuss the recording and reporting procedures that monitor what the personnel do in the system.

The Delivery System

Introduction. Family Planning service in Nepal is delivered through clinics and through a field delivery program. When the program began, services were delivered only through clinics, but it was soon discovered that most village people were not willing to come to clinics to get family planning service. Even though family planning clinics were located in Health Posts, Health Centers and Hospitals where many people go for treatment of various illnesses, they still did not take advantage of the availability of family planning services at the clinic. The reasons for this have not been researched, but it is commonly accepted that the percentage of persons who go to health facilities for a purpose other than family planning, but who also accept a family planning method, is very low.

Nepalese planners recognized this phenomenon early in their program development. About the same time that the Family Planning Officers (FPOs) went to the districts (January 1970) the field delivery of services also became a high priority emphasis for the Nepal program.

The field delivery of services added an entirely new dimension to the family planning program. This effort began the long process of carrying the messages and means of fertility regulation directly to the people of Nepal. For the first time a serious campaign was launched which was designed to affect fertility behavior through social change

techniques. This campaign is now the major family planning effort. Clinics presently serve mainly to provide MCH services once or twice each week. Their role in providing family planning service has been largely relegated to the resupply of a few continuing clients.

The Area System of Field Work. After several attempts to organize the field work program along the most efficient and effective lines Nepalese planners finally decided, during the summer of 1972, that the best approach was to assign each field worker individually to a geographic area. The ideal was to select areas which were easily accessible to a clinic and to the assigned workers, where the population was concentrated, where the number of fertile couples was high, where positive attitudes toward family planning existed or could be developed, where the area was of sufficient size to provide a worker with a challenging, but not overly challenging, work load, and which could be expanded when necessary.

The "area" system of field work was developed during a summer-long seminar (1972) in which all senior Nepalese planners and foreign advisers participated. The seminar resulted in the reorganization of the field program along area lines and in a plan to introduce the program in the districts and clinics throughout the country during the fall of 1972. The area system will be described in detail later, but the plan to introduce it is also instructive and deserves further comment.

The Introduction of the Area System. Near the end of the seminar which created the area system the four Regional Family Planning Medical Officers were invited to come to the Central Family Planning office. The area system and plans for its introduction were again discussed in detail. These men gave valuable criticism and gained a complete understanding of the concepts that constituted the area system. Once their commitment to the new system was achieved, they and a "team" of

trainers* went to the four regional headquarters. Each region's district Family Planning officers were then called to the regional office and the program was again discussed in detail. The system was again exposed to valuable criticism while the FPOs were gaining an understanding of the concepts involved.

Finally, the "teams" split into two "subteams" of two persons each. Each "subteam" went back to a district with a family planning officer, then, on a rotating basis, helped each FPO train the workers in at least one clinic under his charge. The reason the subteams had to rotate was because there were about six FPOs from each region who needed help in introducing the area system. The final step in this process was for each FPO, then on his own, to introduce the new system into all of the remaining clinics in his district.

This process of introducing the area system is detailed here because we believe it provides a workable model for introducing major organizational change in Nepal. The model begins from where the idea is developed to the stage where workers at the lowest level begin to function in the prescribed manner.

The entire process finally took about a year to complete in all aspects. More positively, however, the area system had been introduced to well over three-fourths of the workers of the country only months after the initial ideas were being proposed at the beginning of the summer seminar.

Components of the Area System. Project policy requires that workers spend all non-clinic days working in their areas. Workers usually spend one and sometimes two days per week assisting in an MCH clinic. Since the Nepalese work week is six days, this leaves from four to

* These "teams" of four persons each were made up of the Central Project planners and trainers, plus foreign advisers, who had participated in the summer-long seminar.

five days each week for a worker to spend in his area.

The Priority Couples Survey. Any family planning field delivery system requires a basis for planning the field activities of workers. Without this, workers can only haphazardly contact, educate, motivate and provide contraceptives to fertile couples. This approach is inefficient and extremely wasteful of the worker's time. Nepalese planners therefore adopted a population survey known as the Priority Couples Survey.

The concept of a population survey is well suited to the area system of field work. The first task the family planning field worker is asked to do in his assigned area is to conduct the PCS.

Information is collected in a systematic numbered way and includes the names and ages of parents and all children, and whether or not a couple is currently practicing family planning. This information is recorded in the PCS book and eventually a priority A, B, C or X is assigned to each couple. The ratings A, B, and C designate the priority the couple has for family planning education/motivation. The letter "A" designates that the couple is highest priority and the letter "C" designates lowest priority. The letter "X" designates no priority, i.e., the couple has no need for family planning.

Priorities are based on a numbering system that gives numerical credit to a couple for information that is believed to be related to motivation to practice family planning. Some of the factors believed to be related to a higher motivation to accept family planning are: a higher number of sons; older (but still fertile) age of the mother; a larger total number of children; and older ages of children, especially sons. The more a couple falls near the upper end of this spectrum, the higher priority they receive. Also, the presumption is made that they will be more highly motivated to accept a method of family planning and should receive greater attention during the field workers' education/motivation visits.

The Education/Motivation of Clients. The second major task of field workers is to concentrate on the education and motivation of the persons living in their assigned area. A good deal of education has, of course, already been accomplished by the time formal education/motivation begins. While conducting the PCS, questions inevitably arise and workers try to handle them as best they can without unduly hindering the progress of the PCS.

The education/motivation process focuses in two directions. One, it tries to educate those opinion leaders whose positive support is necessary for changing the behavior of the village people, and two, it provides direct information about family planning and contraception to fertile persons living in the area. This bi-level approach is, of course, extremely complex, involving all the varied intricacies of human interaction. The factors which influence village people to change their fertility behavior has been the subject of extensive writings throughout the world. The process is no better understood in Nepal than elsewhere.

In order to increase the probability that the education/motivation will be successful in an area, workers are encouraged to remain in a single assigned area for at least a year. It is believed that one of the most important factors which influence the acceptance of family planning in an area is the people's perception of the worker who delivers the service. In order for the worker to be well known and to establish quality and trusting relationships in his area he must devote much effort over an extended period of time. In fact, the FP/MCH Project has often tried to select workers for training who come from the area where they will eventually be assigned. This has both positive and negative merit, but does provide a worker who is known and, hopefully, trusted by the area's residents.

When a worker goes to the field to do education/motivation, his initial planning base is the Priority Couples Survey. He first checks

the PCS for the location and priority of fertile couples and then plans his education/motivation from this information. The PCS is especially helpful in the beginning of his education/motivation campaign. But as the worker meets people for the second or third time and records the outcome of each visit, this then becomes a new information base for planning his future field work. By using the PCS and then building a visitation information base the field worker builds up a theoretically sound basis for planning each day's field work in the most efficient and effective manner.

When the worker meets a potential family planning acceptor, his education/motivation approach varies depending on his perception of the client's needs. His perception may vary all the way from the person who is hostile toward family planning to the person who is ready to accept. Approaches used by workers include:

1. The MCH Approach Workers emphasize the availability of MCH services at the nearby MCH clinic. This approach is often used when the client has children who are ill. Family planning is discussed, if it seems appropriate, after the potential client has been satisfied that there is help for his/her sick children at the MCH clinic.
2. The Family Planning Approach Workers emphasize the need for the potential client to practice family planning. They usually recommend a particular method commensurate with the client's family situation and contraceptive needs.
3. The Economic Approach This approach is used more often with men than with women. The worker stresses the economic burden of having more children and how the practice of family planning can help alleviate this burden.
4. The Opportunity Approach The worker stresses the greater opportunity for all members of the family, but especially education for the children, if the couple practices family planning.

5. The Inheritance Approach This approach stresses the notion that the more sons a family has the more division of the land and other property there will eventually be.
6. The Nation/Society Approach The worker emphasizes the need for people to practice family planning because it will be beneficial to the nation and to society. This approach is seldom used with ordinary villagers or women. It is more often used in discussions with political leaders and other influential people.
7. The Counter Fate Approach Many people counter a worker's comments on family planning by saying that bearing children is determined by God and fate, i.e., there is nothing that can be done about it. The worker tries to counter this by emphasizing that God also wants the children to be healthy and happy and would approve of people taking steps to control fertility.

These approaches are, of course, never as clear-cut as we have outlined them here. A worker may use several approaches in one visit to a client. This breakdown simply lists the major areas of concern that workers use in their education/motivation programs in their assigned areas.

In order to most effectively utilize the approaches described above, the worker also needs educational materials, and contraceptives for persons who wish to begin using them. When going to the field, workers carry colorful, descriptive pamphlets about each of the four major program methods (pill, condom, IUD, and vasectomy). They carry pills and condoms and an acceptor's registration card which is filled out on each new pill client. They carry appointment cards which are given to clients who wish to go to a FP/MCH clinic for either family planning or MCH services, or both. They also carry a diary or the PCS booklet for the purpose of keeping a

record of all education/motivation visits. And finally, they carry a few simple medical items such as aspirin, vitamins, treatment for scabies, bandages for wounds, and iodine. Each worker wears a uniform which is easily recognizable by the village people. All these materials and items constitute the "tools of the trade" for the family planning field worker.

As we mentioned earlier the education/motivation process is, worldwide, one of the least understood phenomena in changing the fertility behavior of people. Nepal is no exception. The ways in which family planning field workers manipulate their resources effectively to encourage the fertile couples of their area to use continuously some method of family planning are as varied as the workers themselves.

The Follow-Up of Clients. As soon as the education/motivation process begins in an area and couples begin to adopt some method of family planning, follow-up also begins. Under the area system all new acceptors (especially pill and IUD acceptors) are to be followed up 5 to 15 days after becoming an acceptor. The reason for this flexible follow-up schedule is so that the follow-up can be efficiently coordinated with the education/motivation process. Workers usually have their areas divided into several (5-10) sub-areas and a monthly routine is established for them. Each day they are assigned to work in a different subarea on a continuous rotation basis. Each day they are in the subarea they do all the needed follow-up and as much education/motivation as time permits.

Follow-up has several functions:

1. To handle side effects. Except for weight gain,* Nepalese complain of all the usual side effects from taking the

* In Nepalese society weight gain is considered a positive attribute and a sign that a person is healthy.

pill and wearing the IUD. If a worker revisits the client soon after she begins using the pill or IUD,* he can reassure her that any side effects she is experiencing are probably temporary. He can also encourage her to continue taking the pill. Workers also try to follow up all vasectomy clients to ensure that no serious complications develop.

2. To seek out and dispel rumors. Rumors get started and spread quickly. A worker must always be alert to these. He must try to find the source of the rumor and try to correct any wrong information before it has done damage to his program.
3. To dispense new supplies. The area system is designed to resupply clients in the field. When a woman becomes a new acceptor she is given one cycle of pills. During the first follow-up visit, five to fifteen days after acceptance, she is given a second cycle of pills, and then again followed up about one month after acceptance. By this time she has presumably consumed her first cycle of pills and perhaps started on the second. At this time she is given two more cycles of pills if there are no serious side effects. She is then sufficiently supplied so that she need not be followed up again until the end of the third month after her initial acceptance. She is then given three more cycles of pills so that she will not need further follow-up until six months after initial acceptance. After the sixth month, follow-up women normally receive three additional cycles every three months.

This ideal routine is, of course, only partially workable. Some women need follow-up more frequently than the prescribed amount. Workers must continuously

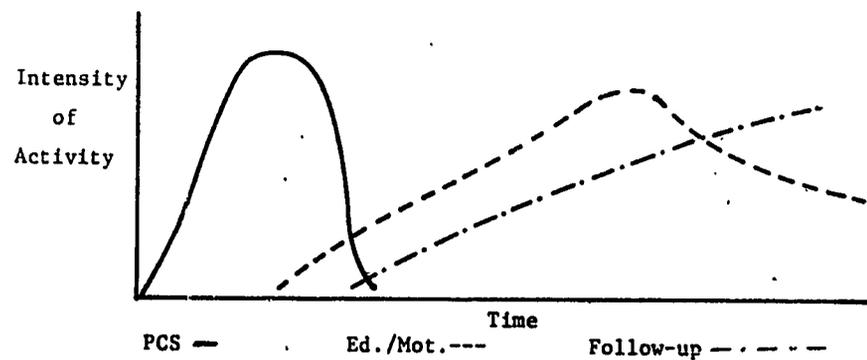
* The number of IUDs inserted in Nepal is so small that it rarely requires any worker time.

assess how often they should visit an acceptor and how many cycles she should receive at each subsequent visit.

Under the area system the resupply of condoms is not as organized as the resupply of pills. Workers do, however, carry condoms to the field with them and give supplies to those married men or women who request them. There is, however, no detailed and prescribed follow-up routine.

4. To encourage continuous use. Implied throughout the last section was the concern that contraceptives users continue using them over time. This is a basic goal of the follow-up program. Workers try to assure women that are having side effects from the pill that they are probably temporary and will "go away" after a month or two. They encourage acceptors to continue regular use of the contraceptive they are using.

The Dynamics of the Field Program. These three areas of emphasis (PCS, education/motivation and follow-up) of the field program are all dynamically interconnected. A schematic diagram helps to understand the relationship between them.



As the field worker begins to work in his area he first places most emphasis on the PCS. But as the PCS nears completion the intensity of activity in education/motivation increases but less rapidly over time. Very soon after education/motivation begins, follow-up will also begin because the education/motivation emphasis will very shortly begin to result in new acceptors. The intensity of the follow-up program begins to rise slowly but steadily, increasing as more persons become acceptors. The follow-up will eventually require enough worker energy to affect the intensity of the education/motivation program which at this point begins to decline. Finally the education/motivation program will drop to a fairly constant level of intensity and the follow-up will also level off as the number of continuing acceptors in that area rises to a fairly constant level.

Eventually a worker will have worked his area to the point where he can no longer efficiently gain any new acceptors and essentially does only follow-up or maintains those persons who have become acceptors. At this point a decision to expand the worker's area may be considered. He then begins the entire process over again, with one difference, he will continue routinely to follow up those persons who are continuing acceptors in his previously assigned area.

Personnel of the Program

The main work force for this field and clinic program is made up of over 600 Health Aides (HA), 80 Auxiliary Health Workers (AHW) and approximately 35 Assistant Nurse Midwives (ANM). These are the workers who provide most* of the manpower for running the FP-MCH and family planning clinics and all of the manpower for the family planning field program. Beyond this there are the supervisory and administrative personnel whose major role is to give support to the clinic and field workers.

* The Project also employs a few staff nurses and Public Health Nurses who work mainly as clinic supervisors. Their number however is very small.

In essence, our discussion of personnel will be limited to the area, clinic, and district levels and will not include the regional and national levels.

The Health Aide. The concept of the Health Aide was newly introduced when the FP/MCH program began. The reason for creating this new category was to expedite the selection and training of workers. The minimum qualification for training is an eighth-class education and at least 18 years of age. Training lasts only six or seven weeks. These criteria can be met relatively easily and it is possible to train a fairly large number of workers to do family planning work in a relatively short period of time.

The HA group is about half male and half female. Most are married although female HAs are often unmarried when they are selected for training. Nepalese culture favors a domestic life for women, especially after marriage. It is therefore difficult for the married village woman to leave home and go away for training.

The training time of HAs is devoted about one-half to the clinic and one-half to the field program. Emphasis is placed on the practice of skills required for assuming an effective clinic and field role, although a good deal of the training is given through lectures and rote memorization. Upon completion of training the HA is expected to be able to:

1. inform a prospective client about all the family planning methods and MCH services offered through the program;
2. organize their work toward an effective field program in their area;
3. fill out all the various forms that are required to register clients and to record the results of work done both in the clinic and in the field;
4. dispense both MCH and FP medicines and give instruction

- in how they should be used; and
5. sterilize equipment.

The HAs make up most of the work force which is dedicated to the delivery of family planning* service in Nepal. Any degree of success toward changing Nepalese fertility behavior, at least in the near future, will depend primarily on the work they do. Other factors which influence fertility behavior, such as a rise in literacy and income, urbanization and the changing role of women, have only minor impact in Nepal.

The Auxiliary Nurse Midwife. This worker is the lowest level regular female health service worker. This category of worker was again born out of the reality of the Nepalese situation. There was a need in the delivery of health services for a large number of female health workers who could be trained fairly quickly in the delivery of basic MCH and midwifery services. The minimum education requirement (8th class) for this worker was also necessarily low because of the very small number of women in Nepal who have received many years of formal education.

Because the family planning program in Nepal is also combined with MCH it was natural for some Assistant Nurse Midwives (ANMs) to work for the Project. However, the number of ANMs in Nepal is still so few and the demand so great that even after six years the Project employs only about 35 of these workers.

Their training (1 1/2--2 years) focuses on basic health with major concentration on curative, MCH and midwifery skills, and limited emphasis on preventive medicine. Their family planning orientation is only a minor part of their overall training and does

* In the new Integrated Health Services Project which is presently in the experimental stage, another lower level worker (Junior Auxiliary Health Worker) has been employed, but they are not yet a part of the regular health service.

not include field delivery of family planning service.

Upon completion of their training ANMs are expected to be able to:

1. assume responsibility for preparing for and running an MCH clinic or work cooperatively in same with other senior health personnel, namely, AHWs, Nurses, PHNs, and Physicians;
2. supervise lower level workers (HAs), both in the clinic and in the field;
3. handle all family planning skills described in the section on Health Aides, including doing field work if assigned to an area; and
4. perform pregnancy examination and delivery.

Within the Project this category of worker plays another very important additional function. It provides the opportunity for female Health Aides to aspire to higher training and position once they have had several years experience working in the Project. Most of the ANMs who after training will be employed by the Project have, in recent years, come from the ranks of female HAs.

The Auxiliary Health Worker. The Auxiliary Health Worker (AHW) is the male counterpart to the Assistant Nurse Midwife (ANM). Like the ANM, he is the lowest level regular* male health service worker. His status, while theoretically equal to the ANM, is in fact slightly higher. His training lasts for two years and the minimum education level for entrance into the AHW school is to have passed the tenth class.

His training consists of basic health care with major emphasis

* In the new Integrated Health Services Project which is presently in the experimental stage, another lower level worker (Junior Auxiliary Health Worker) has been employed, but they are not yet a part of the regular health service.

on curative medicine and the skills required for running a health post clinic. Limited training is also given in preventive health care. His family planning orientation is short (only about two weeks) and does not include any appreciable exposure to family planning field work.

Upon completion of his training the AHW is expected to be able to:

1. perform all the tasks assigned to the HA and ANM (except deliveries); and
2. assist in performing vasectomy operations.

The AHW was originally brought into the family planning program to help fill needed manpower requirements, especially to operate MCH clinics in the more remote areas where there were no nurses (of any type) or physicians. From time to time he has also filled a supervisory function, especially as a supervisor assistant to the FPO. In addition, he has fulfilled a major need in assisting doctors during vasectomy camps. His future role in the FP/MCH Project is, however, uncertain. In the next Five-Year Plan there is no planned increase in the number of AHWs working in FP/MCH while there are expected to be substantial increases in the number of ANMs and HAs.* This may reflect the opinion that the role of the AHW in the Project is not as important as it once was. The rank of the new category worker, the intermediate supervisor, is expected to be filled by promoted male health aides. This leaves the AHW in a tenuous position and one that may not be most conducive to his career opportunities. As ANMs become more plentiful, the AHWs' specialized skills will become more valuable in the regular health service than in assisting the Project to run its MCH clinics.

* See Fifth Five-Year Plan, Section on Personnel, FP/MCH Project.

The Family Planning Officer. The FPO is the senior FP/MCH worker in the district. His role is both technical and administrative. The minimum educational qualification to become an FPO is a BA or BS degree. This high level category of worker was introduced into the FP/MCH program to give a high status* to the program at the district level, to serve as overall supervision of FP/MCH activities, and to coordinate FP/MCH activities with other district level programs.

The FPO's training consists of three months of training in all aspects** of district level FP/MCH activity. Upon completion of his/her training the FPO is expected to be able to:

1. coordinate the district FP/MCH Program;
2. supervise the clinic and field program;
3. prepare budgets;
4. administer all aspects of the program;
5. educate district and local leaders about the FP/MCH Program;
6. evaluate the progress of the clinic and field program;
7. train (through inservice programs) all levels of workers in family planning*** skills; and
8. maintain cooperative and productive relationships with other members of the district development and political community.

These officers are essential to the overall program. They serve as the interface between the ongoing district, clinic and field action program and the higher level regional and national

* Equal to other district programs such as education, agriculture and panchayat development.

** Includes training in contraception, administration, finance, communications, evaluation, clinic and field operations, procedures and management, supply, program policies, supervision and basic population and demographic concepts.

*** Most of the technical training in MCH skills is done by more highly trained medical people such as ANMs, AHWs, Nurses, PHNs and Doctors.

planning, policy and administration function. It is through the FPO that FP/MCH planning and policy becomes operational through action programs. Perhaps even more important, the FPOs serve as guardians of the status of the FP/MCH program in the districts.

These four* categories of workers make up the majority of the district FP/MCH district team. The composition, coordination and cooperation of this team determines in large measure the success of the district program. Their values and priorities are largely determined by the environment in which they work. As mentioned earlier they are primarily oriented toward medical values. This, of course, has major implications for the priorities they set, the goals to which they aspire, and the very image they hold of themselves. It also has major implications for the type of service they deliver to the people of Nepal.

The Program Data Monitoring System**

We have described the FP delivery system and the personnel who operate it. The last major area we will describe is the recording and reporting system that monitors the quantitative levels of achievement of the district program.

* Not included here are the new intermediate supervisors. This category of district worker became operational after this writer left the Project in the Fall of 1972. Therefore I do not feel qualified to discuss their role.

** For more detailed descriptions of the data monitoring system the reader is referred to:

1. Fields, J. Description of the FY 1971-72 Nepal FP/MCH Achievement Reporting System. August 1972, Univ. of Michigan Report No. 6 (mimeo).
2. Fields, J. Description of the Nepal FP/MCH Client Registration System up to July 1973, August 1973, Univ. of Michigan Report No. 7 (mimeo).
3. Fields, J. Tool for Field Work Supervision, the New Monthly Clinic and Individual Report Form, September 1973, Univ. of Michigan Report No. 8 (mimeo).

Data are reported from several sources. Records are kept on new and continuing acceptors of the pill, IUD and vasectomy, on the inputs and outputs of each clinic. All this data is compiled at the end of each month at the clinic. It is then usually* forwarded to the District Office where it is examined for completeness and accuracy and then forwarded on to the central evaluation office.

The Client Data. All clients, except condom recipients, have individual cards filled out on them when they become acceptors. The card has a "face sheet" which, after completion of the process of filling out the card, is torn off and serves as the record of information on the client that is sent to the central evaluation office. The card itself is retained in the clinic or occasionally by the worker in his home. Cards are filed according to area and sometimes by subarea. Each worker can then quickly leaf through the cards for his area, or that day's subarea, and quickly select the clients in that area who need follow-up. He then takes those cards to the field with him.

The client cards contain the usual demographic and personal information. One card is used for females and another for males. The essential difference between the two cards is that the female card includes 12 questions that must be responded to positively before a woman receives either the pill or IUD. Some of the questions are method specific, so not all questions need be asked of each individual client. The questions include:

1. Has the client been seriously ill?
2. Has the client had jaundice?
3. Has the client swelling in the feet and shortness of breath?
4. Has the client had swelling of the leg veins during pregnancy?

* Sometimes the data is sent directly from a clinic to the Central Evaluation Office.

5. Does the client have severe headaches?
6. Has the client had epilepsy?
7. Does the client have knots in the breast?
8. Has the client regular menstruation?
9. Has the client had intermenstrual bleeding?
10. Has the client had normal quantity of menstrual flow?
11. Has the client had a menstruation since delivery, in the last 12 days, longer than 13 days?
12. Does the pelvic exam show normal?

These questions are asked by paramedicals before they dispense pills to any client. They also assist the physician in screening a client for an IUD insertion. If a woman responds positively to all the relevant questions for the pill, then she can be started on pills without seeing a doctor. If there is a negative answer to any question, then the client is supposed to be referred to a doctor before she is given pills.

No card is filled out for condom clients. The reasons are that condom clients are numerous and tend to be sporadic in their continuation. Trying to keep track of them after initial supply is a problem. Also, because of the stigma associated with the condom, clients are often reluctant to come to a clinic if they have to wait around to be asked a long series of questions before they are given any condoms.

All clients (including condom) are registered in a method specific registration book. In each of these books a client registration number plus the name and address of each client is listed. For condom and pill clients it includes whether or not the client is a new or old acceptor, and how many cycles of pills or condom pieces were given. For pill clients the book also includes the date the client is to receive resupplies.

The client cards and registration books contain client specific information. Other client specific information is recorded in the PCS book in the diaries of field workers. This client specific information includes the information necessary to establish a priority for a couple and the outcomes of education/motivation visits to priority couples. This was discussed earlier and need not be elaborated here.

The Worker and Clinic Data. Individual worker data is summarily reported each month on the Individual Monthly Progress Report. Seventeen different items appear in this report. These seventeen items constitute the important input and output measures of an individual field worker. Input measures include:

- a. number of motivation visits;
- b. number of couples surveyed (PCS);
- c. number of follow-ups (pill, IUD, vasectomy);
- d. number of pills and condoms distributed; and
- e. number of days worked in one's own field area.

Output measures include:

- a. number of new acceptors (method specific);
- b. number of continuing acceptors (pill, IUD, vasectomy); and
- c. number of fertile couples in the worker's area.

Clinic data are summarily reported each month on the Clinic Monthly Progress Report. This form contains the same information as the Individual Monthly Progress Report but combines the inputs and outputs of the several workers assigned to that clinic into total summary figures. For example, the number of new pill acceptors on the Clinic Monthly Progress Report includes all the new pill acceptors from the areas of all the workers who are assigned to that clinic plus other acceptors who come from places other than the assigned areas. Specifically, the clinic form includes information on:

- a. progress in the total family planning work of the clinic (9 items);

- b. progress in the maternal and child health service of the clinic (7 items);
- c. the number and description of sterilization camps (7 items);
- d. number of condoms and pills distributed to shops, panchayats and other organizations (2 items);
- e. progress in education and publicity (7 items);
- f. the amount of family planning work done in the assigned areas (only) around the clinic (9 items);
- g. the number of continuing pill, IUD and vasectomy family planning users who are registered through this clinic (3 items); and
- h. information about the number of workers, their positions and number of days each worked (3 items).

These two reports plus the individual client face sheets make up the service information (excluding budget, supply and administrative reports) that is reported each month to the central Evaluation Divisions. These reports constitute the information which serves as the basis for monitoring and evaluating the performance of the service delivery system and the personnel who operate it.

Conclusion

What we have described is a service delivery system, a system that has the mandate to provide as many Nepalese as possible with means to control their fertility. No attempt has been made to detail the successes or failures of that system. Also, no attempt has been made to describe the levels of the service delivery organization that exist above the district levels. Instead, this paper focuses on the district, clinic and area level programs. As we mentioned earlier it is at these levels that planning and policy become translated into action toward service delivery. We have not talked about the people for whom the service is delivered,

nor have we discussed the perhaps most important of all issues, the relationships and interactions of the field workers and the people they serve.

We have described three major aspects of the delivery system, the tasks performed, the people who perform the tasks, and the recording and reporting system that monitors the system's operation. It is, of course, the dynamic interrelationships of all these parts working efficiently and smoothly together that determine whether the system is capable of delivering effective service. And, whether that capability is translated into an effective program to reduce fertility among Nepalese depends on whether the Nepalese are ready and want to do so.

* * * * *

EXPERIMENTAL FAMILY PLANNING PROGRAMS IN NEPAL

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Introduction

It has been the policy of His Majesty's Government of Nepal to maintain as far as possible a philosophy of experimentation in family planning programs. This philosophy is expected to continue in the future with the implementation of new experimental programs.

The experimental programs which have been proposed include the following: (a) A village-based field worker approach where the duties of the worker will include in addition to family planning activities (i.e., motivation and distribution of contraceptives) provision of limited immunization and rehydration services in an effort to reduce infant mortality and thus encourage adoption of family planning; (b) Altered staffing patterns where husband and wife teams and more elderly and mature women are recruited as family planning workers and their performances compared; (c) An intensive worker approach which will include the utilization of other government extension workers and volunteer women combined with varying levels of mass media and education input; (d) A commercial distribution of contraceptives approach where selected commercial channels will be utilized to provide contraceptives; and (e) Approaches which will test selected models of FP/MCH service delivery particularly as they relate to the utilization of manpower in areas of poor communication and difficult terrain.

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Experimental Programs

There are currently three experimental family planning programs being conducted (one each) in (1) Banke -- located in the western plains with a total population of 126,000, 17% of which are covered by the program; (2) Nuwakot -- located in the central hills with a population of 173,000, 27% of which are covered by the program; and (3) Bara -- located in the central plain with a population of 233,000, all of which are covered by the program. The objectives of these programs, their organization and achievements are discussed below.

Banke and Nuwakot

Both of these programs, which are directly under the Family Planning Project and are non-clinic based, were started in January of 1971 and have continued through 1975 with identical objectives. These are to develop a system for estimating various fertility measures and to identify the type of field work that would lead to an increase in the number of acceptors and in higher continuation rates.

Ten panchayats were selected in both of these areas and a health aide assigned to each. The health aide's duties involve motivating married couples to adopt family planning, providing contraceptive supplies, following-up all acceptors, and recording birth and death events in each household. All of these activities are carried out during his or her monthly visit to each household in the area. Supervision of these activities is conducted regularly by an intermediate supervisor and periodically by the family planning officers in the areas.

Bara

This program (also non-clinic based), under the direction of the Integration and Community Health Section of the Department of Health, began in mid-1973 as a part of an ongoing experiment in the inte-

gration of all semi-autonomous preventive health organizations, (These include in addition to FP/MCH, the Malaria, Smallpox, Tuberculosis, and Leprosy Projects.) The primary objective was to test "whether the FP activities assigned to a multipurpose worker are within his capabilities and compatible with the rigid schedule presently required (the worker is also responsible for malaria and smallpox surveillance) or are special FP field workers required to achieve the level of continuing acceptors necessary to reduce the level of fertility?"*

The two health aides (H.A.) who were attached to each of the 11 Health Posts in the district were utilized as unipurpose workers and assigned on a random basis to areas of four to five thousand population (referred to as Veks) at varying distances from the health post. They had no clinic responsibilities and followed essentially the same field tour pattern as the multipurpose worker (referred to as junior auxiliary health worker or JAHW), i.e., 20 days in the field and 10 days at the Health Post for submitting reports, leave, etc. The health aides were responsible for motivating priority couples, supplying and resupplying pills and condoms to the interested couples, the follow-up, including the treatment of simple side effects, referring clients for vasectomies or IUD insertions and to the M.C.H. clinic as necessary. In the Veks where the health aides were working (i.e. 22 Veks) the JAHW was responsible for simple case finding and giving an initial supply of condoms. At least once per month, the JAHW reports the results of his family planning work to the health aide for follow-up. In the Veks where there are no Health Aides (approximately 44 Veks) the JAHW was responsible for all family planning activities as outlined for the health aide.

*Richard Johnson, An Overview of the Integration of Health Services Project: A Focus on the FP/MCH Component in Bara District, mimeographed paper, Dept. of Health.

All of these field staff are supervised and guided by the auxiliary health workers on a fixed schedule and periodically by the health assistant at the health post. The supervision of the health post and its field activities is undertaken by the district level paramedical supervisor and the medical officers on a planned schedule.

Comparison of Program Achievements

Three criteria for comparison have been selected to provide an assessment of the achievements of the programs. These are: the proportions of the eligible population reached; the age and parity composition of pill acceptors; and the cumulative continuation rates of pill acceptors. The second and third criteria necessarily focus only on those women who are pill acceptors, since comparable data on acceptors of other methods is not yet available. Although this is a short-coming of the analysis, it should be noted that pill acceptors account for over half of all acceptors in the Bara and Nuwakot programs, and almost half in the Banke program (See Table 1).

Table 1. Distribution of Family Planning Methods Accepted by Program.

Methods	P R O G R A M		
	Bara	Nuwakot	Banke
Pill	52.2	58.4	48.2
Condom	45.6	40.7	51.4
Vasectomy	1.7	0.9	0.3
IUD	0.5	-	0.1
Total	100.0	100.0	100.0
(N)	(7608)	(1214)	(1086)

It should be emphasized that this comparison of achievements is intended only as a description and in no way represents an evaluation of the differences in effectiveness of the programs. Adequate data are not yet available to achieve that objective. Additional data would be necessary on other factors which may contribute to the achievements, e.g., differences in the social and demographic composition of the populations, migratory patterns which affect availability of eligible couples, variations in timing of recruitment of staff, staff characteristics, and timing of follow-up.

As seen in Table 2 the estimates indicate that both Bara and Nuwakot have reached similar proportions of eligible fertile women for family planning, i.e., about 17% and 16%, respectively. In contrast, the Banke program has recruited almost double the proportions of these two programs.

Table 2. Estimated Married Fertile Women, Family Planning Acceptors, and Proportion of Fertile Women Reached by Program.

	P R O G R A M		
	Bara	Nuwakot	Banke
Estimated Married Fertile Women.	45226	7674	3597
Total Number of Family Planning Acceptors.*	7608	1214	1086
Proportion of Fertile Women accepting.	16.8	15.8	30.2

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* These data refer to the first ten-month period of operation of each of the programs, i.e., 2028 Magh to 2029 Kartick (Mid Jan. 1972 to Mid Nov. 1972) for Banke and Nuwakot and from 2030 Ashad to 2030 Chirra (Mid June, 1973 to Mid April, 1974) for Bara.

Tables 3 and 4 present the proportions of pill acceptors in the three programs by their age and number of living children, respectively. Banke has the highest proportion of pill acceptors under the age of 30 years (almost 60%) followed by Nuwakot (a little over 40%) and Bara (slightly over 35%), while the mean age of acceptors was 29 years in Banke, 31 years in Nuwakot, and 33 years in Bara. Further, as would be expected, Banke also has the highest proportion of acceptors with a two-child family or less; i.e., almost 40%, followed by about 30% and 26%, respectively, for Nuwakot and Bara.

Table 3. Contraceptive Pill Acceptors
by Age and Program.

Age of Women (Years)	P R O G R A M		
	Bara	Nuwakot	Banke
15 - 19	2.0	2.9	4.7
20 - 24	11.5	14.9	25.9
25 - 29	22.8	24.8	28.4
30 - 34	27.6	25.7	25.2
35 - 39	20.9	22.3	13.0
40 - 44	10.7	8.7	2.4
45 - 49	3.3	0.7	0.4
50+	1.2	-	-
Total	100.0	100.0	100.0
(N)	(4640)	(1014)	(792)

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Table 4. Contraceptive Pill Acceptors
by Number of Living Children
and Program.

No. of Living Children.	PROGRAM		
	Bara	Nuwakot	Banke
0	1.1	3.9	6.1
1	7.7	7.2	17.1
2	17.1	18.7	16.2
3	26.6	18.8	19.1
4	23.2	19.1	19.0
5	14.2	14.7	10.3
6	6.5	8.6	7.1
7	2.1	4.8	3.1
8+	1.2	4.1	1.9
Total	100.0	100.0	100.0
(N)	(4649)	(1018)	(770)

Table 5 presents the cumulative continuation rates of pill acceptors for selected periods in the various programs. The data required for calculating these rates were collected from the acceptor's clinic cards kept in the respective health centres of Bara, Nuwakot, and Banke. Although data were not available on the characteristics of age and number of living children of acceptors for the areas within Bara, (i.e., JAHW only Veks and EA & JAHW Veks) data are available on continuation rates for these two areas and are included in the discussion.

Throughout all ordinal months the Banke program shows the highest continuation rates followed by the Nuwakot and Bara programs, respectively. At the end of the 12-month period over half of the women in Banke were still using pills, while only about a third were still using in Nuwakot, and slightly less than a quarter in Bara.

Within the Bara program those areas which included a JAHW plus a HA have higher rates of continuation throughout the period than those areas where the JAHW was working alone. By the end of the 12-month period slightly over a quarter of the women in the areas with a JAHW & HA were continuing while about a fifth of the women in the areas with a JAHW alone were continuing.

Table 5. Cumulative Pill Continuation Rates at Selected Ordinal Months by Program.

Ordinal month.	P R O G R A M									
	B A R A						N U W A R O T		B A N K E	
	J A H W		J A H W + H A		T O T A L		Rate.	N.	Rate.	N.
	Rate.	N.	Rate.	N.	Rate.	N.				
1st	70.5	2655	78.4	2111	74.0	4766	75.8	1022	86.1	833
3rd	50.5	1499	60.3	1331	54.8	2830	61.9	669	74.4	659
6th	36.1	842	43.4	756	39.3	1598	48.0	479	65.9	527
9th	25.8	466	33.1	402	29.0	868	38.8	368	60.3	448
12th	19.9	190	26.6	122	22.7	312	32.3	286	55.3	401

1. JAHW refers to Junior Auxiliary Health Worker.
2. HA refers to Health Aide.

In summarizing the achievements, it is quite obvious that on all criteria Banke performs ahead of the other two programs. However, it should be noted once more that additional analyses will be necessary to account for the reasons for Banke's higher performance.

Table 7. Ratio of Children-Ever-Born to Currently Married
Women by Age in Selected Districts of Nepal, 1975

Age of Women (Years)	Hills						Terai					
	Districts											
	Kaski		Gorkha		Total		Parsa		Dhanusha		Total	
	Ratio	N	Ratio	N	Ratio	N	Ratio	N	Ratio	N	Ratio	N
15 - 19	0.2	(178)	0.2	(224)	0.2	(402)	0.5	(139)	0.3	(171)	0.4	(310)
20 - 24	1.3	(365)	1.3	(346)	1.3	(711)	1.5	(273)	1.5	(267)	1.5	(540)
25 - 29	2.7	(320)	2.6	(326)	2.6	(646)	2.8	(244)	2.8	(240)	2.8	(484)
30 - 34	4.1	(303)	3.8	(248)	4.0	(551)	3.9	(210)	4.3	(231)	4.1	(441)
35 - 39	5.2	(243)	4.9	(207)	5.1	(450)	4.9	(202)	4.8	(171)	4.8	(373)
40 - 44	5.9	(190)	5.8	(183)	5.8	(373)	5.6	(148)	5.4	(160)	5.5	(308)

Table 8. Mean Age at Marriage by Woman's Age
in Selected Districts of Nepal, 1975

Age of Women (Years)	Hills						Terai					
	Districts											
	Kaski		Gorkha		Total		Parsa		Dhanusha		Total	
	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N
15 - 19	15.1	(178)	15.1	(224)	15.1	(402)	8.2	(139)	12.1	(171)	10.4	(310)
20 - 24	15.4	(365)	15.8	(346)	15.6	(711)	11.2	(273)	12.8	(267)	12.0	(540)
25 - 29	15.7	(320)	16.2	(326)	15.9	(646)	11.5	(244)	12.9	(240)	12.2	(484)
30 - 34	16.5	(303)	16.1	(248)	16.3	(551)	11.9	(210)	12.4	(231)	12.1	(441)
35 - 39	15.7	(243)	17.0	(207)	16.3	(450)	13.7	(202)	13.6	(171)	13.6	(373)
40 - 44	16.1	(190)	17.1	(183)	16.6	(373)	12.7	(148)	15.7	(160)	14.2	(308)

Table 9. Proportions of Children-Ever-Born Surviving by
Age of Mother in Selected Districts of Nepal, 1975

Age of Women (Years)	Hills						Terai					
	Districts											
	Kaski		Gorkha		Total		Parsa		Dhanusha		Total	
	%	N	%	N	%	N	%	N	%	N	%	N
15 - 19	81.6	(178)	90.2	(224)	86.5	(402)	76.3	(139)	79.3	(171)	77.6	(310)
20 - 24	86.1	(365)	83.9	(346)	85.0	(711)	76.4	(273)	74.4	(267)	75.5	(540)
25 - 29	83.9	(320)	82.1	(326)	83.0	(646)	76.2	(244)	72.0	(240)	74.1	(484)
30 - 34	80.9	(303)	81.5	(248)	81.2	(551)	71.0	(210)	76.9	(231)	74.2	(441)
35 - 39	75.2	(243)	78.6	(207)	76.7	(450)	67.6	(202)	70.5	(171)	68.9	(373)
40 - 44	73.3	(190)	75.5	(183)	74.4	(373)	67.5	(148)	70.7	(160)	69.1	(308)

the panchayats were selected on the basis of a PPS* sample design. An interview schedule was administered to all currently married women aged 15 to 44 years** in all households of each of the wards in the first three months of 1975. These women will be treated as a panel and re-interviewed regularly on an annual basis (plus at any other time during the year when program specific problems arise). Among the kinds of information collected from these women are: a complete pregnancy history, including incidence of infant and child mortality, stillbirth, and abortion; social, economic, and demographic characteristics; norms of family size, including desired and ideal sizes; family planning knowledge and practice; and the amount of time the husband has been out of the household.

Extreme care was taken to insure that the most reliable data possible were collected. The ratio of interviewers to supervisors was five to one and each supervisor was responsible to a Family Planning Project staff member. All interviews were checked in the field by the supervisors and project staff and a ten percent re-interview of the total samples conducted by the supervisors to assess consistency of response. In addition, all women who reported an interval of more than three years between any two birth events were reinterviewed and pregnancy history reconstructed to minimize as far as possible the under-reporting of pregnancy events.

Preliminary Findings

Tables 6 & 7 present a summary of a portion of the data collected on fertility in the Hill and Terai districts. As seen in Table 6 the total fertility rate (interpreted as the total number of children a woman would bear by the end of her child bearing period if she produced children at the prevailing age-specific rates) in the Hill

*John Stoeckel, "Population: Demographic Trends, "Chapter 3 in Disaster in Bangladesh: Health Crisis in a Developing Nation, ed. Lincoln Chen., Oxford University Press, New York, 1973, pg. 21.

**The number of women interviewed in each district is as follows: Kaski - 1,599; Gorkha - 1,534; Parsa - 1,216; Dhanusha - 1,240.

districts reaches a very high 7.3 births per woman. This rate is comparable to rates found in a highly fertile population in Bangladesh during the late 1960's* In contrast the rate in the Terai districts is considerably lower by slightly over 2 births per woman. It should be noted however that these differences may be more apparent than real. While additional analyses will have to be performed to assess the possible contribution that socio-economic factors and practice of family planning may have in these differences, the total fertility rate in the Terai may be partially a function of underreporting of birth events. In general the Terai population was much less cooperative in the interview process than the Hill population, and it was the consensus of the interviewers and supervisors that reliable recall of birth events by the Terai population was open to question.

This latter explanation of the impact of poor recall on the magnitude of difference in the total fertility rates is challenged somewhat by the results presented in Table 7 on the ratios of children-ever-born (CEB) by age in the two populations. In this instance, the differences are rather small, although the Hill population still has a higher completed fertility (i.e., the ratio of CEB to women at the end of the child bearing age 40-44 years) at 5.8 CEB to 5.5 CEB in the Terai. If poorer recall by the women in the Terai did occur then it would also be expected that it would be reflected in the CEB measure as well. Since the differences in CEB are rather small it may be inferred that the total fertility rate in the Hills is indeed higher than in the Terai, and since it is a measure of current fertility, not a measure of past reproductive performance, it may also be inferred that some factors are presently operating to produce this difference. One such factor that will be investigated, in addition to differences in socio-economic status and family planning, is the impact on fertility that returning Gurkha soldiers have in this population. While it is still a hypothesis, it is expected that those Gurkha soldiers who have been away

*John Stoeckel, "Population: Demographic Trends," Chapter 3 in Disaster in Bangladesh: Health Crisis in a Developing Nation, ed. Lincoln Chen., Oxford University Press, New York, 1973, pg. 21.

from their wives for extended periods of time may tend to make up their time out of exposure to reproduction with higher levels of reproductive performance. If the numbers of returning soldiers is substantial enough in the hill samples,* then this could account for a portion of the difference in the fertility rates.

Table 8 presents a comparison of the levels of mean age at marriage for women in the Hills and in the Terai. In both areas the mean shows a direct relationship with the age of women; and throughout the entire age structure the mean age at marriage is lower among the Terai than the Hill women.

The largest and smallest difference in mean age at marriage for Hill and Terai women occurs in the youngest and oldest age groups, respectively. In the youngest age group the mean is slightly over 15 years for Hill women and about 10-1/2 years for Terai women, while in the oldest age group the mean is slightly over 16-1/2 years for Hill women and a little over 14 years for Terai women.

Since women in the Terai marry at early ages it would be expected that their completed fertility would be higher than women in the Hills. The present data indicate the reverse to be true and further analysis which will provide marriage duration specific fertility rates will be conducted to assess the contribution that age at marriage may make to completed family size.

The remaining table presents survivorship rates for children-ever-born by the age of mother. (See table 9.) In both areas the proportion of children surviving generally declines as the age of mother increases. However, child survivorship throughout all age groups of mothers is

*It should be noted that the two Hill districts are two of the prime recruiting areas for British Gurkha soldiers.

higher in the Hills than in the Terai. In the Hills over 80% of the children-ever-born have survived for women through the age of 34 years while in the Terai on the average about 75% of the CEB have survived for the same age group of women. Proportions surviving in the older age groups of mothers drops below 70% in the Terai while in the Hills about three quarters of the CEB survive. As with the differences in fertility, additional analyses of the mortality data will be conducted when the remaining survey data are processed in an attempt to identify the factors which account or contribute to these differences.

Summary

The non-clinic based experimental family planning programs in Bara, Nuwakot, and Banke districts have been discussed as well as the evaluation approach which will be utilized for future experimental programs. Specific attention was given to (1) a comparison of the achievements of the three programs and, (2) a presentation of the preliminary findings of the new evaluation approach. In the former, the data indicated that the Banke program recruited higher proportions of eligible women, women in the younger age groups, and with smaller families, and had higher rates of continuation for pill users than either the Nuwakot or Bara programs. In the latter, the baseline data collected from the four survey areas (two in the Hills and two in the Terai) indicated that fertility and survivorship of children were higher in the Hills than in the Terai, while age at marriage was lower in the Terai. It was noted, however, that for both sets of findings additional analyses are necessary to determine the reasons for the differences.

* * * * *

AN APPROACH TO EVALUATION OF THE
EFFECTIVENESS OF HEALTH AIDES IN
RECRUITING AND MAINTAINING
CLIENTS ON ORAL CONTRACEPTIVES

BADRI RAJ PANDE*
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The Family Planning Program in Nepal in the public sector started in 1963 in a limited manner. In 1968 a semi-autonomous body was formed under the Ministry of Health to expand family planning by integration into maternal and child health services. In 1970 a target was chosen of providing family planning services to 15% of the married couples by the end of five years, apart from giving wider publicity for acceptance of the program. By the end of the five year period, the target of providing family planning service to 15% of the married couples has been achieved in terms of number of acceptors. However, it is difficult to know how much impact the program made on reduction of the crude birth rate. In this context, it is natural for the government to be concerned over developing more effective methodologies for delivery of family planning services.

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Family planning is a way of life. It is something which cannot be forced for acceptance by the couple. The couple has to be motivated long enough to allow for consideration and decision-making before acceptance of the method. In a country like Nepal, whose rural population is largely illiterate, and where the customs, beliefs and norms are in favor of high birth rates, it is not an easy task to carry out the program effectively. Besides, the terrain is so difficult in hilly and mountainous areas that it takes days to travel over comparatively short distances. The rural houses in the hills are scattered in small clusters. Over 90% of the people are employed in agricultural work and they feel that more children mean more help for work in the fields. Obviously, the delivery of family planning services in Nepal is a very intricate job.

The health aides are the grass-root level workers, and are mainly based in the health posts and clinics. In such cases, an area of only three to five miles radius from the clinic is covered by the worker. There are 265 FP/MCH clinics and services are provided in all 75 districts of the country. The health aides are motivators who also make home delivery of conventional contraceptives and do follow-up of their clients besides carrying out their responsibilities in the clinics.

Apart from the clinic-based delivery system, experimental projects have been carried out in two Hill and Terai districts by assigning one health aide to a panchayat (with a population of about 3,000 people) to provide home-by-home motivation, delivery of supplies, and follow-up. These workers do not have any responsibility in the clinics; they are full-time house visitors.

There is yet another group of health aides who function as multi-purpose workers to deliver 'integrated basic health services' including family planning. At this time, six out of 75 districts of the country have an integrated health service program.

This paper discusses the relative effectiveness of panchayat-based and clinic-based health aides in recruiting women to accept oral contraceptives and in maintaining them as users.

Basic Assumptions

1. The oral contraceptives will continue to be the most important form of contraception used in Nepal for some years. Present targets call for 40,000 women to use oral contraceptives for a 12-month period beginning in Nepali year 2032 (1975-76).
2. The health aides will continue to be the most important category of worker in recruiting and maintaining oral contraceptive users.
3. While a majority of health aides are currently employed in clinics, it is administratively possible and feasible to transfer some of these to panchayats and also to recruit and train other field workers for panchayat-based services, if the current analysis indicates this to be desirable.
4. If the target of 40,000 effective (continuous use for 12 months) contraceptors on oral pills is to be met this year, each field worker should recruit sufficient women to maintain an average of 45 women, or two clinic-based health aides should have a panel of at least 90 women using pills over each 12-month period.

Purpose of Survey

A survey was undertaken to compare the effectiveness of panchayat-based and clinic-based health aides in recruiting and maintaining clients on oral contraceptives.

The reason for choosing oral contraceptives rather than all methods is that:

1. The pill is the method most associated with the health aide's activity in family planning.

2. While health aides also distribute condoms, this method is less effective and follow-up by health aides is much less vigorous.
3. Other methods of contraception in common use in Nepal are vasectomy, laparoscopy and intrauterine devices, but these methods are available at stated times and places and appear to have limited influence on the pill program. There has been little IUD interest over the last three years, and there had been no laparoscopic sterilization camps in the areas from which the data was collected up to the end of the Nepali year 2031. (Mid-April 1975.)
4. The record system and outline of duties for health aides emphasized the recruitment and maintenance of contraceptive pill users as the major family planning focus.

Methodology

1. For every client who accepts oral contraceptives, a record card is prepared and follow-up visits and further supplies, or discontinuation, are noted on this card.

Each health aide within the sample of clinic and panchayat workers was visited by the survey team and the following data on "pill" users only were extracted from his records.

- a. Age group of the woman.
 - b. First date on record card
 - c. Last date on record card.
 - d. Number of months of activity.
 - e. Number of cycles of pills distributed.
 - f. Number, names, and dates of entry and departure of health aides from the clinic.
2. Eighteen panchayat-based health aides were identified, eight in the Terai (Banke district) and ten in the Hills (Nuwakot district). All the health aides working in these panchayats had been in place for more than three years. This group was

accepted as representative of panchayat-based health aides.

3. For selection of a sample of the clinic-based health aides the following criteria were drawn up:
 - a. The clinic should serve a population representative of Hill or Terai rural people.
 - b. It should be maintained by one or two health aides.
 - c. It should not be in association with a hospital or major city.
 - d. The clinic should have been established some three years ago (2028-2029).
 - e. So far as possible eighteen clinics should be identified.

These criteria were handed to the Planning and Evaluation Division of the Family Planning/Maternal and Child Health Program of His Majesty's Government for identification of clinics.

Sources of Data

- A. For over three years the FP/MCH program has run pilot projects on panchayat-based workers in Banke and Nuwakot Districts. One health aide has been based in each of ten panchayats in both of these districts. In the 11th month (Phagun) of the year 2030, (Feb. 1974) an additional ten health aides were based in panchayats in Chitwan District. Banke district is in the Far Western Terai, Nuwakot district in the Central Hills and Chitwan in the Inner Central Terai.

Because of problems of supervision, the Chitwan Panchayat workers had inadequate records and Chitwan has not been included in this survey. In Banke eight workers had continued since appointment. Two workers had resigned and their records absorbed into the district clinic records. Therefore only eight sets of records were used from Banke. Records of all ten panchayat workers were available from Nuwakot district, thus making 18 in all from the panchayats.

B. Clinics identified for inclusion in the sample are shown in the following table. Some substitutions were necessary because it was not possible to obtain enough helicopter time for all visits, and one place was isolated because the monsoon had made the river impassible. Four substitutions were made in the sample of 17 clinics and these were matched with those that were inaccessible.

	<u>Sample as drawn</u>	<u>Clinic Substituted</u>	<u>Remarks</u>
<u>Hills</u>	1. Dolakha	--	
	2. Okhaldhunga	--	
	3. Bhumlutar	--	
	4. Sindhuli Madhi	Chaupauli	(From same area but 10 miles distant)
	5. Beshisahar	--	
	6. Dhading	--	
	7. Makwanpur (Not in hills)	Barabise	(Sherpa area)
	8. Palung	--	
<u>Terai</u>	1. Sanischare (Jhapa District)		
	2. Damak		
	3. Madhu Mall		
	4. Haraicha		
	5. Ithari		
	6. Bhutaha		
	7. Parasi		
	8. Lumbini	No substitute	River impassable
	9. Makwanpur (Hatiya)		

Data were compared on six broad issues

1. Effectiveness of worker by number of women who continue on the pill for 12 months or longer.
2. Effectiveness of worker by percentage who drop out within three months of accepting.
3. Effectiveness of worker by number of acceptors per year.

4. Age groups of women who are effective users (12 months or longer).
5. Relative effectiveness of clinic-based and panchayat-based workers.
6. Relative effectiveness of male and female health aides.

Table 1

Comparison of Percentage Effectiveness of Health Aides in Selected Clinics and Panchayats

		Clinic Terai n=1764 Hills n=1516	Panchayat Terai n= 726 Hills n=1275
A. Average number of acceptors per health aide per per 12 month period	Hill	36	39
	Terai	24	28
B. Percentage of acceptors who drop out within 3 months	Hill	60%	32%
	Terai	52%	20%
C. Percentage of acceptors who continue using 6 months or more	Hill	28%	52%
	Terai	28%	72%
D. Percentage of acceptors who continue using 12 months or more	Hill	10%	32%
	Terai	13%	55%

Table 1 gives a summary of percentage effectiveness. The number of acceptors under study was 3280 from 31 health aides working in clinics and 2001 from 18 health aides working in panchayats.

Table 1 summarizes the major findings.

Acceptors

The number of acceptors per 12 month period per health aide is remarkably similar. The panchayat-based workers knock on doors and actively recruit people into family planning, whereas the clinic-based workers spend less time in the villages and tend to deal with clients at the clinic. The acceptor figures are virtually the same for clinic and panchayat workers, but indicate more interest by women in the hills than on the plains. Reasons for this difference are not known but the important point for this study is that the full-time village worker is no more successful in recruitment than the clinic worker who spends less than half of his or her time in the village.

In the second part of Table 1 (Section B) dropouts in the first three months indicate significant differences between the two sets of workers. More than half of the clinic-based acceptors are lost at the end of three months, while less than a third of the village (panchayat) acceptors are lost in this time. Without further study, reasons can only be assumed, but the major program difference is that the panchayat worker gives more time to follow-up and personally contacts all pill users at regular intervals. Because he or she lives in the panchayat there is much less time spent in travel, for clinic workers must check in at the clinic on the days that they visit villages, and they usually spend only two hours or less in actual follow-up or recruitment.

Some indication exists in the data that panchayat workers provide their clients with more pills than do clinic workers. It seems that those women who have continued for a long period (more than 24 months) have had a "bank" or six to eight cycles of pills in their home. Women who have only one or two cycles appear to be more likely to drop out. More analysis of the data is required to substantiate this

observation. A reasonable hypothesis is that a woman with a "bank" of pills in her control is in fact controlling her own fertility, whereas if she has to rely on a month by month allowance of one cycle at a time she is under institutional control. The psychological factors involved in this situation appear to be worth serious study.

Section C of Table 1 presents another interesting aspect of this analysis of health aide performance. While there was a considerable difference between results from clinic and panchayat up to three months, there is very little difference in the drop-out rates between three months and six months in the two systems. The graph (Figure I) helps to make this clear. This relationship also holds true for the percentage of acceptors who continue using pills for 12 months or longer. In percentage terms there is a loss from clinics and panchayats of from 10%-20% between the end of the third month and the end of the sixth month, and a further loss of about 20% from both clinic and panchayat systems between the sixth and the twelfth month.

The variation between the systems occurs in the first three months, and can be attributed in part to follow-up, and possibly to other psychological factors. There was no difference in the type of worker or the amount of training given. More study is required to isolate with greater precision the variables concerned.

Table 2 gives another dimension on worker performance, the age group analysis of acceptors and drop-outs (see next page).

Section A indicates the percentage variation in acceptors. There is no variation in the percentage of women recruited under 30 years of age between clinic and panchayat-based health aides. There is a difference between recruitment in the hills and in the terai. In the hills a little over 40% of the women are under 30 years of age--which appears to indicate that the majority are concerned with completed family, and take contraceptives to avoid further pregnancies. If this is so, more permanent

Table 2

Comparison of Percentages in Various Age Groups
by Panchayat and Clinic Based Workers

Agency	Age Groups						n +
	15-19	20-24	25-29	30-34	35-39	40+	
A. Acceptors							
Hill - Clinic	2%	19	21	28	19	11	1516
- Panchayat	3	16	24	27	22	8	1275
Terai - Clinic	5%	22	27	28	12	6	1764
- Panchayat	4	22	29	27	14	4	726
B. Drop-Outs \leq 3 months as percentage in that age group							
Hill - Clinic	69%	64	61	59	56	54	906
- Panchayat	39	35	33	29	29	37	405
Terai - Clinic	66%	52	51	52	48	59	923
- Panchayat	27	24	19	17	19	29	145
C. Continuing Users for 12 months as percentage in that age group							
Hill - Clinic	6%	10	8	10	10	13	147
- Panchayat	28	25	32	35	34	34	412
Terai - Clinic	12%	14	12	11	13	15	220
- Panchayat	60	55	58	55	53	36	401

methods may appeal to the women, and men, who live in the hills.

In the terai (plains) the acceptance figure for women under 30 is 53% and 55% for clinics and panchayats respectively. This can be interpreted to indicate more interest in spacing of children than in

avoiding further childbirth. If this interpretation is correct, oral contraceptives and IUDs may be more popular than the more permanent methods. The close association between the clinic and the panchayat figures offers a measure of reliability since the populations are ostensibly similar and the input variables - health aides and oral pills - are also similar.

Section B of Table 2 gives the percentages of acceptors in that age group who drop out within the first three months. This is indicated graphically in Figure 2 in order to illustrate the superiority of the panchayat based health aide in maintaining acceptors through the critical first three months.* This advantage at the end of the first three months is maintained through to the end of 12 months as shown in Figure 3. The panchayat workers have retained 32% and 55% of acceptors for 12 months in the hill and terai respectively, whereas the clinics retain only 10% and 13% of acceptors for this period.

For those acceptors who continue using the oral pill for 12 months or more, the age group differential is similar to that of the initial acceptors. This suggests that efforts to recruit younger acceptors will result in a younger group of continuing users for 12 months or more. This stability in age group patterns over one year was not expected as it was assumed that older women would show a more stable usage pattern.

The Project has received several observations on the superiority of women health aides in recruiting and maintaining acceptors of oral contraceptives. It was hoped that the data would provide some definitive comment on the accuracy of the observations. However, the numbers of women health aides working on their own was too small to provide anything other than indicators. Controlled studies are required to provide data on performance difference by sex and age. Only one panchayat based worker

* In a personal communication Dr. John Davies of Population Services Incorporated informs the writers that the first three months have been the critical period in maintaining acceptors in the MITHURI programme in Sri Lanka. P.C. 1975

in this study was female, and only two clinics were run by female health aides. These are compared in Table 3.

Table 3

Percentage Differential by Age Group of Acceptance and Continuation Rates on Oral Contraceptives by Hill and Terai, and by Clinic and Panchayat Service

	Initial Acceptors			Continuing Users		
	N = 5280	Under 30 yrs.	30 yrs. & over	N = 1180	Under 30 yrs.	30 yrs. & over
Hill - Clinic	n = 1516	42%	58%	n = 147	37%	63%
- Panchayat	n = 1275	43%	57%	n = 412	39%	61%
Terai - Clinic	n = 1764	54%	46%	n = 220	55%	45%
- Panchayat	n = 726	55%	45%	n = 401	57%	43%

In each level of comparison the records of the female health aides are superior to the average for that area. No females were found among the panchayat health aides in the terai, but records of two female health aides working in Chitwan panchayats were available and are included for comparison. As they had worked for only 12 months and 14 months, respectively, the continuation record for 12 months is not comparable. These figures indicate that further examination of the effectiveness of female health aides is advised. (See Table 4 next page.)

There is difficulty in recruiting women, especially in rural areas, because His Majesty's Government requires at least eight years of schooling for entry into the position of health aide. Only a few women have this level of education and they are mostly in the younger age groups--about

Table 4

Comparison of Results from Female Health Aides with the
General Results (Almost entirely male health aides) by
Clinic and Panchayat

Location	Time Period				
	Average number of acceptors per health aide per 12 months	Percentage of acceptors retained after 3 months	Percentage continuing for 6 months	Percentage continuing for 12 months	
Panchayat - Hills	- General	39	68%	52%	32%
	- Female	56	82%	47%	47%
	- Terai - General	28	80%	72%	55%
	- Female 1	82	96%	56%	(only 14 months)
	- Female 2	117	95%	63%	(only 12 months)
Clinics	- Hills - General	36	43%	28%	10%
	No female records available				
	- Terai - General	24	44%	28%	13%
	- Female 1	28	65%	36%	19%
	- Female 2	27	61%	48%	23%

20 years of age. Once women marry they become concerned with their children and are not available for non-domestic employment. If women show themselves to be more effective than men in the work of motivating and educating people in the control of their fertility, ways may have to be found to recruit suitable women into the FP/MCH service delivery pattern, even given less than desirable education.

Summary of Findings

The above analysis clearly indicates that:

- (1) The number of drop-outs at 3 months is more in clinics than in panchayat based service.
- (2) The continuation rate for orals is consistently higher in panchayat based clinics after the initial drop-out at 3 months.
- (3) The percentage of continuing users in terai, in panchayat based service, is much higher than in hills and in the terai clinics.
- (4) The average number of acceptors per health aide for a 12 month period in the hills is higher than in the terai for both types of worker, in spite of difficult terrain in the hill area.
- (5) While the average number of acceptors per health aide is higher in the hills than in the terai for both service delivery systems, the percentage drop-out in the hills within the first three months is 10% greater than in the terai for both systems.
- (6) Acceptors in the hills seem to belong to comparatively older age groups (57% are over 29 years of age), thereby

indicating that contraceptives may not be used for spacing, and possibly are used after the couples have enough children. In the terai 55% of acceptors are under 30 years of age, suggesting more planning of families.

- (7) In spite of supposedly many socio-cultural drawbacks, the female health aides appear to do a better job in the recruitment and maintenance of acceptors' compared with the averages for health aides in this study.

FIGURE I
PERCENTAGE DROP-OUT RATES OF ACCEPTORS OF
ORAL CONTRACEPTIVES BY PANCHAYAT-BASED AND CLINIC-BASED

HEALTH AIDES IN HILL AND TERA.

N = 5,281

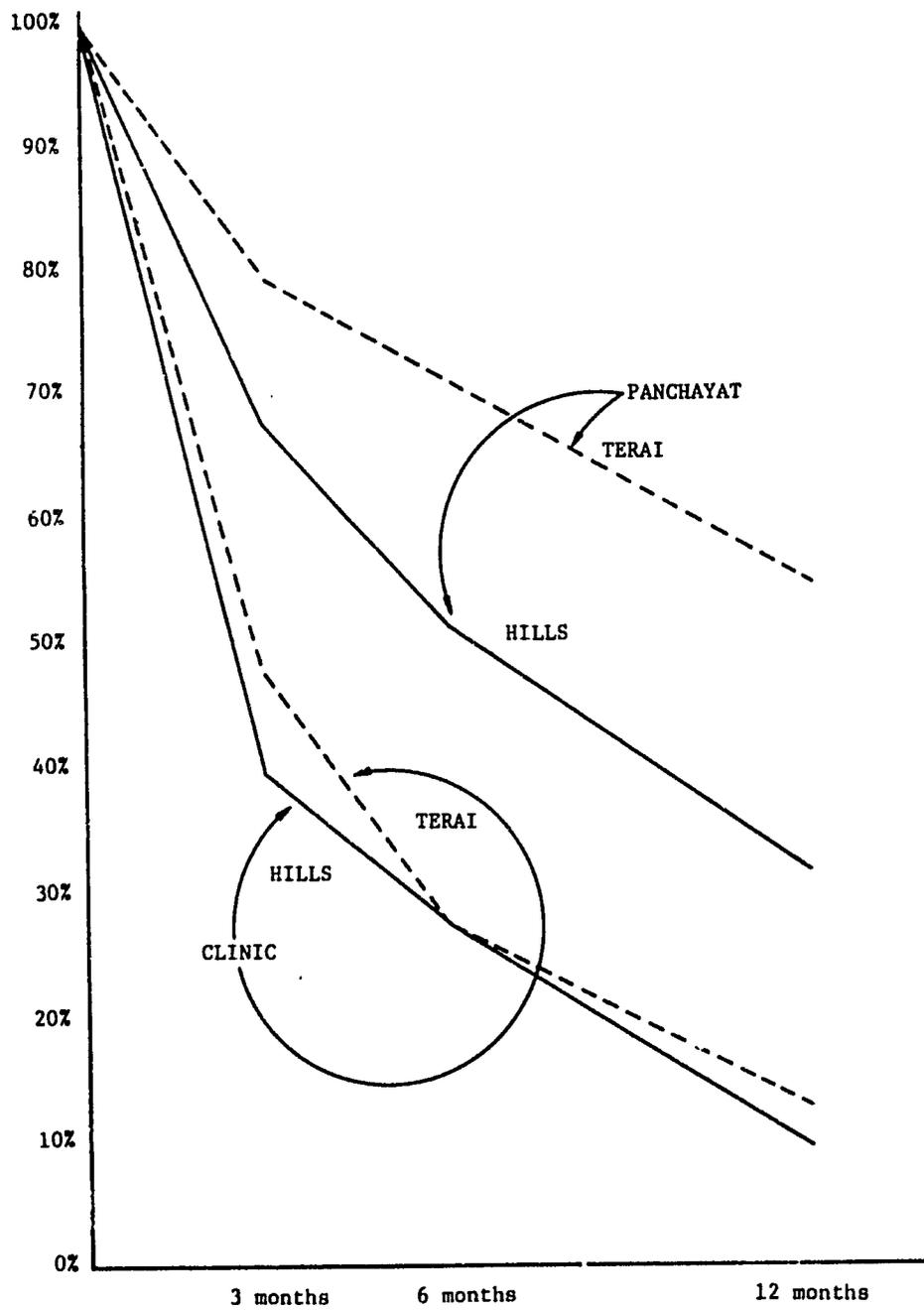


FIGURE 2

PERCENTAGE DROP-OUT WITHIN THREE MONTHS OF ACCEPTORS OF ORAL CONTRACEPTIVES BY AGE GROUP, PANCHAYAT AND CLINIC-BASED WORKERS, AND HILL AND TERAI POPULATIONS, EXPRESSED AS A PERCENTAGE OF ACCEPTORS IN THAT AGE GROUP

N =		AGE GROUP					
		15-19	20-24	25-29	30-34	35-39	40+
CLINICS	HILLS	36	292	318	420	283	167
	TERAI	90	383	479	496	210	105
PANCHAYAT	HILLS	36	202	303	344	286	104
	TERAI	30	161	209	197	101	28

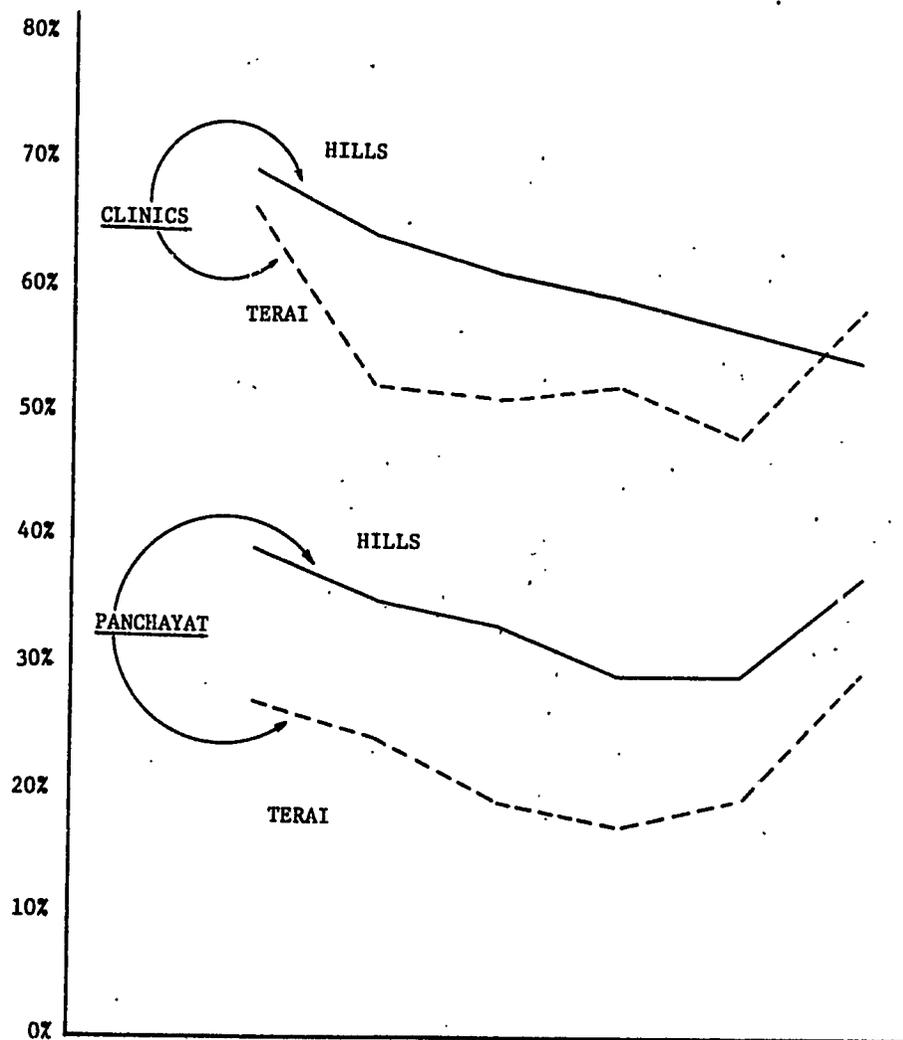
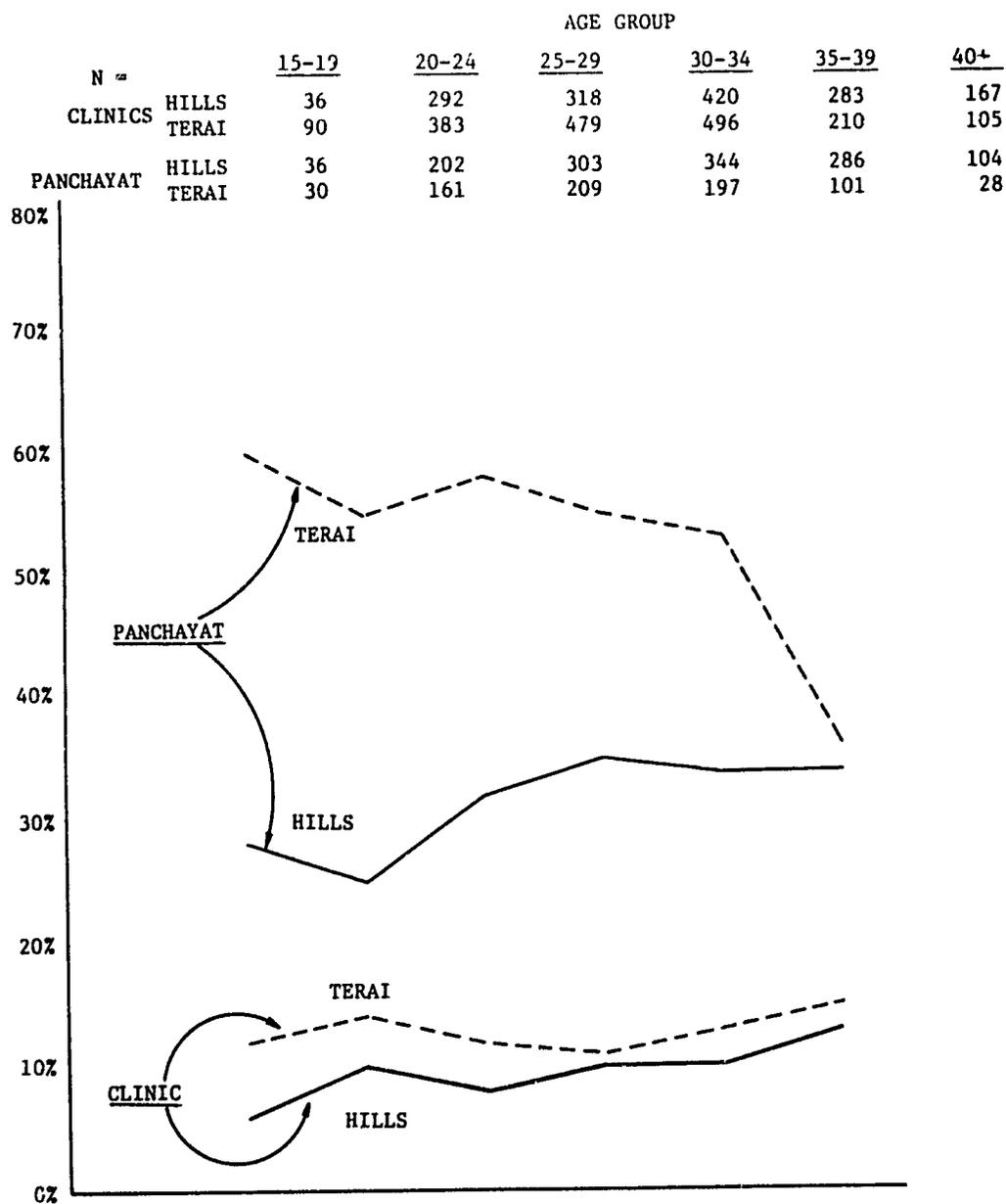


FIGURE 3

PERCENTAGE OF ACCEPTORS WHO CONTINUE USE OF ORAL PILLS THROUGH 12 MONTHS BY CLINIC AND PANCHAYAT WORKERS IN HILL AND TERAI AREAS EXPRESSED AS A PERCENTAGE OF ACCEPTORS IN THAT AGE GROUP



EVALUATION SYSTEM OF THE FAMILY PLANNING PROGRAM IN NEPAL

P. L. JOSHI*

Broadly speaking, evaluation of the family planning program in Nepal is concentrated on the following four different aspects:

1. Setting up the national target and looking continuously to see whether the target is being fulfilled;
2. Evaluating the ongoing program at various levels in terms of effectiveness and efficiency;
3. Conducting survey research to ascertain what is happening in the program and how to improve the program;
4. Analyzing routine statistics generated at the clinic level.

1. National Target and Achievement

When the family planning program was launched in 1966/67 (mid-July 1966--mid-July 1967), the objective was to offer contraceptive services to as many married couples as possible. That year, 1966/67, was spent in gaining experience about program difficulties and making plans and policies for the next year. With limited experience in 1966/67, a phased three-year plan was made for the period 1967/68 to 1969/70. The objective was to reduce the crude birth rate from an estimated 39.1 per thousand per year in 1967 to 38.1 by July 1971. It was estimated that this reduction would require the prevention of 13,000 births. It was planned to achieve 50% of the target by loops, 25% by vasectomy, 20% by condom, and the remaining 5% by contraceptive

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pills. This involved inserting 52,812 loops, performing 8,125 vasectomies, distributing 1,949,760 condoms, and 22,968 cycles of pills within three years.

After one year it was found to be almost impossible to fulfill the target in terms of the contraceptive delivery program as stated above. Thus, the program target was revised to offer family planning services to 16,000 married couples in the year 1969/70. Since then the target has been established to offer family planning services to a specified number of couples. When the nation's Fourth Five-Year Plan began in 1970/71, the target was to offer family planning services to 15% of the married couples by the end of 1974/75, which amounted to offering family planning services to 312,000 married couples.

After establishing the program target at the national level, targets were set at the regional and district levels.

The allocation of the national target at the district level is carried out by looking at the achievements of all the existing clinics for the past two consecutive years, the number of clinics to be opened during the period for which the target is to be made, and the number of staff that will be available.

The target at the regional level is determined by totaling the targets at the district level.

The program objective for the Fifth Five-Year Plan, i.e. from mid-July 1975 to mid-July 1980, is to maintain the level of 60,000 effective acceptors per year, which is estimated to reduce the birth rate from 42* per thousand to 38 per thousand by the end of the Fifth Five-Year Plan period. In order to maintain the 60,000 effective acceptors,** the program will have to recruit the following new acceptors: 2,000 laparoscopy acceptors, 10,000 vasectomy acceptors,

*This is the revised estimate.

**Effective acceptors are those acceptors who continue the method for the 12-month period.

10,000 I.U.D. acceptors, and 100,000 - 120,000 pill acceptors per year. Condom acceptors are not taken into account since more emphasis is going to be placed on other contraceptive acceptors.

The national family planning program targets by year from the beginning year 1966/67 are shown in Table 1.

Table 1. National Family Planning Program Targets by Year

Fiscal Year	Total Clinics	Total Acceptors	Target Acceptors by Methods			
			IUD Acceptors	Pill Acceptors (a)*	Vasectomy	Condom Acceptors (b)**
1966/67	8	-	Targets not made			
1967/68	26	-	4,062	1,800	625	10,000
1968/69	40	-	3,000	2,400	4,000	10,000
1969/70		16,000	-	-	-	-
1970/71		18,000	-	-	-	-
1971-72		35,000	No targets by method			
1972-73		60,000	-	-	-	-
1973-74		80,000	-	-	-	-
1974-75		86,000	-	-	-	-

(a)* In fact, the target is made in terms of woman months of pill use which, in other words, is the pill distribution figure.

(b)** The target is made in terms of man months of condom use, assuming 15 condoms are needed for one acceptor for one month, taking into account the wastages also. In fact, if the above figure is multiplied by 15, then the target will be in terms of condom distribution figure.

As far as the achievement of the Fourth Five-Year Plan is concerned, it is almost certain that this program target will be fulfilled.

However, it is estimated that of all those 312,000 married couples, 56% will be condom acceptors, 32% pill acceptors, 8% vasectomy acceptors, 3% IUD acceptors, and 1% laparoscopy acceptors.

As of this time, the family planning program has been able to offer family planning services to 114,397 pill acceptors, 10,991 IUD acceptors, 29,154 vasectomy acceptors, 1,734 laparoscopic acceptors, 201,747 condom acceptors and 106 Depoprovera acceptors from the beginning year 1966/67 to April 1975. Thus the task which has been accomplished during the eight-year period to recruit the pill acceptors and IUD acceptors has to be achieved in the first year of the Fifth Five-Year Plan period. Therefore, it is obvious that a great deal of change has to be made in the program strategy. Emphasis is now being given to opening the panchayat-based clinic rather than the health institution-based clinic to boost the number of pill acceptors. (Panchayat-based clinics are those clinics where one staff is assigned to two or three panchayats or a population of 4,000-7,000. The panchayat is one political area having a population of at least 10,000.) Para-medical staff are going to be trained in inserting IUD's to boost the number of IUD acceptors. The number of mobile camps is going to be increased to boost the sterilization acceptors. In this way, various types of experimental programs are being proposed in family planning programs.

2. Evaluation of the Ongoing Programs

Evaluation of the ongoing programs is done mainly at two levels:
a) District level b) Central level.

a) District level--At the district level all the reports from the clinics as well as the individual reports are collected. The person in charge will see which clinic is doing the better job in recruiting the new acceptors and maintaining the continuing acceptors. He will know how much effort is being made in terms of motivational visits

and follow-up visits to boost the new acceptors and continuing acceptors. Thus, he is in a position to know where to do supervision and what to supervise. Besides the clinical reports the district office also gets individual reports. Thus, the person in charge of the district office is in a position to know who is doing a better job.

b) Central level--Besides looking at whether or not the target is being fulfilled in each district, the central office processes, tabulates, and analyzes the data to know which district is doing a better job by utilizing various evaluation indices. Those indices are calculated for the district activities, regional activities, and national activities. This kind of analysis is done every six months. The results are sent to the district office and the regional office as feed-back to them. The regional office can see which districts under its jurisdiction are doing a better job in recruiting the new acceptors and maintaining the continuing acceptors and what kinds of efforts are being made to achieve the task.

The organizational structure of the regional office is being strengthened so that the regional office will be in a position to calculate the various evaluation indices for the clinics and district offices under that regional office.

Various indices of evaluation are used to determine the quantity and quality of the work done. The first index is the number of new acceptors by method used. Another index is the number of continuing pill acceptors. If a pill acceptor has pills to continue for a particular month, then she is regarded as a continuing pill acceptor for that month.

The third index of evaluation is the number of sterilizations. Based on calculations with some assumptions it is estimated that 1 vasectomy = 3 IUD acceptors = 120 pill cycles distributed and 1200

condoms distributed.

This index of evaluation along with the other two indices for six-month intervals, from 1973 June to 1974 December at the national level are shown in Table No. 2.

Table 2. Evaluation Indices for 6-Month Intervals
from 1973 June to 1974 December

<u>Indices</u> Time Period	Condom Accep- tors	Pill Accep- tors	Vas- ec- tomy	Lap- aros- copy	IUD Accep- tors	* Total Accep- tors	* Cont. Pill Accep- tors	Equiv- alent Sterili- zation
1973 July-Dec.	19,247	11,475	1,511	187	319	32,739	13,970	2,904
1974 Jan.-June	32,828	15,691	3,655	623	543	53,340	17,758	6,085
1974 July-Dec.	34,717	14,335	1,391	82	532	51,057	20,681	3,051

* Continuing acceptors in any month are those who are practicing family planning methods in that particular month.

New acceptors are those who accept the family planning method for the first time in a particular clinic.

From the preceding table it is clear that the number of acceptors increased a great deal more during the period (July-Dec.) 1974 than it did in the period (July-Dec.) 1973, but the equivalent sterilization did not increase by the same proportion. In fact, the equivalent sterilization remains more or less the same. Hence, it is clear that the achievements in those two periods are more or less the same.

Apart from those indices, a birth-averted index is also used at the national level. It is estimated that 1 vasectomy prevents a total of 3 births forever, 1 IUD prevents .6 births for the first five years, and the distribution of 100 pill cycles in one year prevents 1.2 births in the next year.

These are the output indices. The input indices are the number of motivational visits and follow-up visits done, number of staff as well as number of days worked.

3. Survey Research

The program has been survey oriented from the year 1972-73, when the plan was made to undertake the pretesting of the family planning acceptors survey. Actual interviews were conducted with the acceptors who adopted the family planning methods from six clinics. This pre-test was done prior to undertaking the nation-wide acceptors survey in the year 1973/74.

The main objective of the acceptor survey was to learn how married couples accepting family planning methods were progressing, i.e. what kind of side effects they were experiencing, how long they were continuing with family planning methods, why they were terminating the methods, what were their reactions after adopting the family planning methods, and what kinds of improvement could be made before and after offering the family planning services.

The decision was made to contact 1600 pill and vasectomy acceptors plus 400 IUD acceptors who adopted the family planning methods between April 1972 and March 1973 (Apr. '72 to Mar. '73) by visiting 25 out of 181 clinics. The plan was to select 25 clinics, and then conduct 64 interviews from each clinic.¹ If the number of cases is less than 64, then all the cases are interviewed. In this way it is found that 1420 cases have to be interviewed so far as pill and vasectomy acceptors are concerned.² However, the actual interviews were done with 692 pill cases, 100 vasectomy cases and 101 IUD cases.

¹ The probability of a clinic being selected would be based upon the size of the pill and vasectomy acceptors recruited at that clinic during the period.

² For IUD acceptors the plan was to interview all the IUD acceptors in those 25 clinics along with all the IUD acceptors in Kathmandu valley.

Some of the far-away cases were not contacted. The classification of tried, not tried, and interviewed are given in Table No. 3.

Table 3 Classification of Interviewed, Attempted, and Not Attempted

	Interviewed	Attempted	Not Attempted	Total
Pill	692	386	68	1146
Vasectomy	100	99	75	274
IUD	101	60	239	400
	893	545	382	1820

From the above table it is clear that there were many cases in the column "Attempted, but could not be interviewed." The major reasons found for being so are "not at home" and "addresses incomplete." [Moreover, 38 cases who were interviewed, but whose information could not be processed because of some unavoidable circumstance, are also put in this column.]

Though the coverage of the sample cases cannot be regarded as satisfactory in this survey, the knowledge gained in this survey will help a lot in planning and implementing a similar type of survey in the future.

Some of the basic characteristics of those acceptors who were interviewed are given in Table No. 4.

Table 4 Characteristics of the Acceptor by Method

<u>Character- istics</u> <u>Method</u>	No.	Mean Age of the Accep- tors	Age of the Spouse	<u>Occupation of Husband</u>		Mean No. of Living Sons	Mean No. of Living Chil- dren	<u>Educ. of Client</u>		<u>Educ. of Spouse</u>	
				Agri-Ser- cul- ture %	vice %			Lit. Illit. %	Lit. Illit. %	Lit. Illit. %	Lit. Illit. %
Pill	692	29.9	38.1	63	18	2.1	3.9	18	82	63	34
IUD	101	30.2	37.8	80	25	2.1	4.0	33	67	80	20
Vasectomy	100	37.8	30.0	75	17	3.0	4.8	66	34	15	85

It is interesting to note in the above table that the mean age of the IUD acceptors and the pill acceptors is 30.2 years and 29.9 years respectively, while the mean age of the wives of the vasectomy acceptors is 30.0 years. The literacy rate for males (acceptors or husbands of the acceptors) varies from 66% to 80%, in contrast to the national literacy rate of 24% for males. Similarly, the literacy rate for females (acceptors or wives of the acceptors) varies from 15% to 33%, in contrast to the national literacy rate of 4% for females.

It was established that the pill continuation rate after one year was 36%. However, this continuation rate is based on only those acceptors who are interviewed. It has to be adjusted based on those acceptors also who are not interviewed. So, if this adjustment is done, it is expected that the continuation rate might be somewhat lower than the above rate.

In the year 1974-75 the laparoscopic sterilization follow-up survey and the knowledge, attitudes, practice and fertility surveys in four districts were conducted.

So far as the laparoscopic sterilization follow-up survey is

concerned, the plan was to interview all the clients who accepted the method. The total number of cases was 690. The total number of interviewed cases was 542. Thus, the percentage of interviewed cases was 79%. Out of all those cases it was found that 15 cases became pregnant even after the laparoscopic operation. Eight of them had already delivered the baby at the time of the interview. The range of time interval from the date of accepting the laparoscopic operation to the date of delivery was 12 to 20 months. Of the seven cases who were pregnant at the time of the interview, the date of the last menstruation period was noted. The range of time interval from the date of accepting the laparoscopic operation to the date of the last menstruation period was noted. The range of time interval from the date of accepting the laparoscopic operation to the date of the last menstruation period was 19 days to 8 months. The major side effects experienced were stomach ache, giddiness, weakness, backache, and irregular menstruation after the operation. Of all the interviewed cases, 37% reported no side effects. Sixty per cent reported at least one side effect and 3% were "not ascertained cases." However, 20% reported only one side effect: Of these, 4% reported only stomach ache, 3% only giddiness, 3% only weakness, 2% only backache, and 2% only irregular menstruation. Nineteen per cent reported a combination of two side effects and 21% reported a combination of 3 or more side effects.

K.A.P. and fertility surveys in four districts were conducted in

the year 1974-75 to gather basic information on the family planning program and the base line demographic data.

Research work is being conducted to answer some of the following questions.

- a. Whether the post-partum motivational program would be effective in increasing the number of family planning acceptors in a model maternity center established at the village level. So a model maternity center was established at a village level in Aug. '70 and a study is being conducted about that.
- b. What kind of side effects the contraceptive Depoprovera injection will have and how popular will it be among the village women? So far this contraceptive service has been given to 106 women and they are being closely followed up. It has been found that 96% of all the cases were above 24 years of age and 80% of the cases fall between the age group 25-35 years. Nearly 40% of them had previously used other contraceptive methods before adopting this method. The main reason for the discontinuation of this method is menstrual disturbances.
- c. What kind of staffing pattern and type of field work would increase the number of acceptors and result in better continuation rates in case of the oral contraceptive pill? Two areas were selected for study. The staffs working in those two areas were responsible for recording the birth and death events in each household covering about 1/5th of the total population. In one of those two areas six-monthly records of births and deaths were obtained separately by the staffs from the central evaluation division, and then events obtained from those two sources were matched. It was found that the staffs working in that area were able to detect only 60% of births and 62% of deaths in contrast to the detection of 74% for births and deaths by the staffs from

the central evaluation division in the year 1973/74. The crude birth rate was found to be 38.8 per thousand per year, and the crude death rate to be 24.4 in that year.

- d. How effective could the family planning program be if the present family planning and maternal and child health program were to be integrated with all other health programs, such as the malaria program, smallpox program, T.B. program, etc.? Initially, two areas were selected for study about this, and now the activities are being expanded to six other areas.

4. Analysis of routine statistics

The characteristics of family planning acceptors are analyzed annually. This kind of analysis is helping the program to find out what kind of acceptors are being recruited by the program from year to year. Some of the basic characteristics of the acceptors since the beginning of the Fourth Five-Year Plan: i.e., from 1970-71 to 1973-74, is shown in Table No. 5.

Table 5 Characteristics of the Acceptors
from 1970-71 to 1973-74

Method	Year	No. of Client	Mean Age of Client	Literacy		No. of Living Children	No. of Living Sons
				Illit-erate	Lit-erate		
Pill	1970-71	9458	29.7	72.2	27.8	3.4	1.9
	1971-72	10829	29.9	75.5	24.5	3.6	2.0
	1972-73	1843	30.0	77.8	19.7	3.6	2.0
	1973-74	2015	30.0	78.8	18.5	3.6	2.0
I.U.D.	1970-71	493	30.9	75.5	24.5	3.9	2.2
	1971-72	422	30.2	68.2	31.8	3.7	2.2
	1972-73	490	30.5	65.1	29.2	3.8	2.2
	1973-74	688	30.4	62.5	32.8	3.6	2.0
Vasectomy	1970-71	3270	37.9	34.5	65.5	5.4	2.9
	1971-72	2780	37.3	35.1	64.9	4.9	2.8
	1972-73	1353	36.9	32.3	67.4	4.6	2.8
	1973-74	1759	37.3	31.0	68.4	4.7	2.8

From the above it is clear that the mean age of the pill acceptors is more or less the same throughout the four-year period. The same is true for IUD as well as vasectomy acceptors. So far as the literacy rate is concerned, it decreased from year to year for pill acceptors, while the literacy rate for the IUD and vasectomy acceptors increased more drastically in the year 1973-74 than in the preceding years.

The number of live children and number of live sons of the pill acceptors are more or less the same throughout the four-year period. The same is true for IUD and vasectomy acceptors also.

Summary and Conclusion

At present, the evaluation activities are being concentrated on four different aspects. But originally, in the initial phase of the family planning program, the evaluation activities were concentrated mainly on generating service statistics, developing a service statistics system, and then analyzing the data. In the latter stage of the program, it moved towards more survey research. Plans are continuing to give more emphasis on survey research in the years to come.

References:

1. H.M.G., FP/MCH Project "Annual Reports of FP/MCH Project---from 1969/70 to 1973/74"
2. H.M.G., Central Bureau of Statistics "Population Projections for Nepal 1971 to 1986"
3. Population Projections by the Nepal/Berkeley team for the Fifth National Five-Year Plan of Nepal.
4. "Service Statistics System of the Family Planning Program in Nepal" by P. L. Joshi.
5. H.M.G., Ministry of Health "Fifth National Five-Year Plan Document."
6. H.M.B., FP/MCH Project "The Purpose and Procedure of the Survey Conducted in Trisuli" (from 1st to 4th report).
7. H.M.G., Central Bureau of Statistics "1971 Census, Vol. 1, II and III."

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THE INTEGRATION OF FAMILY PLANNING
INTO THE BASIC HEALTH SERVICE
DELIVERY SYSTEM:
A USEFUL STRATEGY FOR THE FUTURE?

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Introduction

The purpose of this paper is to promote discussion on the issues surrounding the strategy of integrating family planning activities with basic health care delivery systems.

The paper is not intended to be a comprehensive overview, but rather it is designed to focus discussion on what are believed to be the issues, and to compare the Nepal experience with several other important efforts in integration. It will specifically focus on the preliminary observations and methodology employed by Nepal in its integration experiments, i.e., the use of malaria field workers in delivering family planning services.

Historical Perspective

Background Few countries of comparable size and population are as culturally diverse and geographically inaccessible as Nepal. These facts complicate all aspects of development. While population density per se is not as yet at issue for Nepal as a whole, the problem of

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ecological balance is complex under conditions in which there are high fertility, mortality, and morbidity rates, large families, a young population, growing fragmentation of land holdings and increased pressure on land because of a high population to arable land ratio. Pressures against environmental limits are becoming increasingly manifest in the form of greater internal and external migration, and rising demands upon the government for social service. The need to evolve an effective intraministerial population policy is becoming increasingly apparent.

The health services are in a process of evolution. Modest efforts have been made to meet the broad community needs and the increasing public demand for health care, but for the most part, the advancement achieved has been the result of uncoordinated, semi-autonomous, mass categorical programs. Since the programs have been motivated by the need to tackle salient problems, advances for the whole country have been uneven.

In 1952 Nepal's population of 8.4 million was served by 33 modest hospitals and 12 dispensaries staffed by 12 physicians assisted by a few compounders and dressers. The focus of the following 10 years was on malaria eradication and development of hospital and hospital-based service.

The Third Five-Year Development Plan (1965-1970) marked Nepal's first significant step toward a more coordinated advance in dealing with the health and population issues. It called for the establishment of zonal health services, expansion of existing zonal and district hospitals, conversion of health centers into small hospitals, and the establishment of health centers in districts with no hospitals. Hospitals and health centers were to be linked with a constellation of static health posts each staffed by a cadre of paramedical workers. Continued high priority was planned for malaria eradication efforts, and provisions were made

for new programs in smallpox, TB, and leprosy control and in family planning and maternal and child health. In 1966 family planning services were introduced in several centers in Kathmandu Valley in which MCH services were already provided and clinics were held where intrauterine devices were made available. Subsequently, family planning services were nominally expanded to all institutions where MCH services were already organized and mass media motivational efforts began. In 1967 condom and pill distribution was begun on a limited scale within Kathmandu Valley. In 1968 a rapid expansion of family planning services was undertaken with the development of a new category of paramedical workers called the Health Aide.

The Fourth Five-Year Plan (1970-1975) just completed, suffered in part the fate of its predecessor. The Plan had been able to only partially provide the necessary thrust to meet the broadbased community family planning and health needs. The mass unipurpose categorical programs (malaria, smallpox, FP/MCH, TB and leprosy) were well under way, but at varying stages of maturity. By and large, the mass programs fared well; the malaria incidence has been brought to below levels of public health significance, and smallpox is virtually eradicated. The planned increase in the number of health posts from 33 (at the end of the Third Plan) to 351, construction of a number of 15- to 50-bed hospitals and an increase in the number of FP/MCH clinics to 250 were moving ahead despite shortages in manpower, management, supervisory and administrative capabilities to deliver effective services.

As with the Third Plan, overprogramming and underimplementation have been evident. However, a belated recognition of the importance of both the population and health issues and of a series of administrative deficiencies within the Ministry of Health have focused HMG on both the population and health sectors resulting in an organizational restructuring, some significant decentralization, efforts at formulating a much-needed population policy, and a new careful look at alternative health care delivery systems.

Despite the undisputed progress which has been accomplished within the population and health sectors, Nepal's difficult terrain, inadequate communications and transportation system, and shortages in general of economic, material and trained human resources--all have contributed to a situation in which the delivery of health and family planning services in Nepal remains limited and complicated. Ninety percent of the Nepalese today are without access to an effective system through which family planning or health service can be delivered. In the aggregate, it is estimated that only about 2% of the target population is actually practicing some method of contraception offered by the two family planning programs, the FP/MCH Project and the Family Planning Association of Nepal. Complicating the overall health and population problems is the fact that the vast majority of people in Nepal are rural residents who are geographically inaccessible and culturally difficult to reach.

Population and Health Status There are an estimated 2.3 million married couples of reproductive age in Nepal and approximately 560,000 births each year. Present estimates of the crude birth rate are up to about 43 births per 1,000 population. A very optimistic estimate of the demographic effect of the present family planning program efforts in the last year of the Fourth Five-Year Plan would translate into a reduction of about one point in the crude birth rate. From the 1971 census and other sources, the crude death rate is estimated between 18 and 25 per thousand population per year. Infant mortality estimates range from 172 to 250 infant deaths per 1,000 live births. If mortality remains at its present high level it is likely that present fertility rates are sufficient to bring about a doubling in the present population size within the next 30 to 35 years.

Lack of statistical data and the incomplete coverage of the health services makes it difficult or impossible to assess with real precision the size and distribution of health problems. It

is apparent from the limited service statistics and surveys completed that the most important groups of diseases common in developing countries are widely prevalent, affecting especially infants and children. Malaria, which until recently prevented farming in the agriculturally rich terrain, has been greatly reduced and smallpox is on the verge of eradication. Tuberculosis and leprosy remain highly endemic diseases. Desperately inadequate sanitation and unprotected water supplies make gastro-intestinal disorders, such as cholera, hepatitis, typhoid, paratyphoid and amoebiasis, serious and recurrent health problems. Regional problems, such as endemic iodine-deficiency goiter, persist.

Health and Family Planning Services Delivery Systems Pattern At present, under the Ministry and Department of Health there exist two different types of delivery services, and one experimental/demonstration program in delivery of services is evolving.

1. Categorical programs, including malaria, smallpox, TB, leprosy and FP/MCH. These programs are mass campaigns and unipurpose. While in some cases, they yield dramatic results when properly funded, staffed and directed, they tend to duplicate efforts with the result that they become expensive to operate beyond the initial "crash program".

2. General health services, mostly curative, in hospitals, health centers and health posts providing western medicine; and in Ayurvedic Hospitals and dispensaries providing traditional medicine. Government facilities are in some areas supplemented by missions and other privately operated health facilities. The private sector in the form of indigenous healers is widespread and provides the vast majority of curative care that the population receives.

3. Two pilot projects, described in more detail below, were begun and completed during the Fourth Plan period under the auspices and direction of the Department of Health as experiments in integrating categorical and general health and family planning programs. These pilots were efforts to maximize delivery of health services

to populations which did not have, and had little chance of gaining, access to such services under the above strategies of health care delivery.

The successes of the malaria and smallpox programs have been noted above. These striking achievements are the result of good leadership and administration, and a relatively well-defined task with known tools. The health and family planning services institutions, on the other hand, lack adequate physical facilities and are not well equipped, are concentrated in urban areas, are not accessible to the vast majority of people residing in the rural areas, and overall lack both technical and administrative skills as well as sufficient funding.

Integration

The Concept As noted above, increasing pressure on the land, rising aspirations, and persisting high morbidity and mortality patterns, most recently coupled with the recognition that widespread inflation will lead to no new increases and possibly severe cutbacks in public spending for social services in the ensuing years, has obliged planners to look more closely than ever at the traditional programs for health and family planning services, where expansion has meant large scale, expensive construction programs without significantly improving access, and to think more imaginatively about alternatives.

The basis of the "integrated" approach is that separate health and family planning programs may have a synergistic impact on people when they are combined, i.e., a combined impact greater than the sum of the separate parts. In addition, economies may be effected by combining some basic services rather than running or developing a separate network for delivering the services of each field. The cost savings may derive not only from the shared

overhead and other fixed costs, but also from the likely additional influence on people that may come from the interaction of the combined services.

One alternative has emerged: the planned evolution of a cost-effective, affordable, integrated health care delivery system, using and reallocating available resources and examining the options for broadening the delivery system so that a majority of the population has convenient access to a minimum package of information and services. This alternative has been tested, in part, during the last years of the Fourth Plan period. The concept of an integrated, basic, primary health care delivery system is based on efforts to substantially upgrade the minimal health and family planning services now available, rather than focusing on the high-cost, clinic-based systems now in use, giving care that Nepal cannot afford to offer to more than a few. The requirements for such a system were based on efforts to initiate minimal essential health and family planning services where currently subminimal or no services exist, and to extend the outreach of current services to the rural population now not being reached. Implicit in this basic thesis is an understanding that the system should have the potential for being broadly replicable within the available and probably available resources of the country. In essence, adapt the existing health and family planning service network so that it can be more effective in its combined form at low or no marginal cost.

The Pilot Projects HMG had succeeded in developing a very effective, highly motivated anti-malaria organization (NMEO). The organization created an extensive operational network reaching all populous parts of the country below 4,000 feet (the agreed upon anti-malaria activities operational areas).

The pilot studies technique was used to test the feasibility of integration as a management methodology. In recognition of NMEO's

managerial and administrative effectiveness and technical sophistication, plans for the integrated health service program provided for taking maximum advantage of the infrastructure created under the malaria eradication program wherever it existed, using it as a base or framework on which to build an expanded health and family planning service network.

To test the concept of an integrated health service two pilot projects, each using a different form of integration, were conducted in two districts which were considered broadly representative of the varied, distinct health and health service situations and of the geographic, communication, logistics, administrative and transport difficulties in the country. The pilot areas were Kaski District in Gandaki Zone in the hills and Bara District in Narayani Zone in the Terai.

The strategy was to begin with a "reasonable minimum" package of services (although this minimum could not for a long time be widely agreed upon) appropriate to the needs of the population, the financial capacity limits, and the human resource constraints.

The integration models tested depended upon the metamorphosis of the male unipurpose malaria field worker into a multi-purpose health and family planning worker (referred to as the Junior Auxiliary Health Worker or JAHW). The basic questions asked of the pilot projects related to 1) the capacity of this low level paramedical worker to perform the prescribed additional tasks, and 2) to the compatibility of the components in the "reasonable minimum" package of services.

The work format provided for the mix of services to be offered during a monthly domiciliary visit in which the Junior Auxiliary Health Worker, who is administratively attached to a health post, is in the field visiting a defined population for 20 consecutive days. He returns to the health post for an administrative debriefing

between day 21 and 25 and takes leave for the five last days of each month. Then the cycle begins again. This format provides that each household is visited every month.

This methodology differs significantly from the FP/MCH Project field methodology for delivering services. A schematic representation of FP/MCH Project activities in a typical district is shown in Figure 1. The health aides (HA) of the Family Planning Project staff the FP/MCH clinics and provide outreach services in only limited areas adjacent to the clinics. They spend slightly more than eight days per month working in his or her assigned area. This assigned area is chosen for its ease of access from the health post and is usually within one hour's walk from the health post. A typical work day consists of two and a half hours in the assigned area, one and three quarters hours in the clinic or health post in miscellaneous tasks (some of which may be servicing clients), and one and a half hours walking to and from his assigned area. During the two and a half hours in his work area he will on the average recruit one new acceptor and eight or nine other persons for family planning related activities. There may be anywhere from one to six FP/MCH clinics with one to two health aides in each clinic per district. Each district is the responsibility of a District Family Planning Officer (DFPO) who directs the functioning of each of the clinics and provides the supervision of the clinic staff. There are 30 such district level family planning officers, 15 nurses, 35 auxiliary nurse midwives (ANMs), 45 auxiliary health workers (AHWs) and nearly 600 health aides (HAs) in the FP/MCH Project. Recently, in recognition of the large gap in peripheral supervision (DFPO:HA is 1:30), 30 intermediate supervisors were created. The nurses are all posted in the Central Clinic in Kathmandu and the auxiliary nurse midwives are posted in either the District Clinics or the Central Clinic as are the auxiliary health workers. No auxiliary nurse midwives are posted in FP/MCH clinics outside Kathmandu.

FIGURE I
Schematic Representation of a Typical District
FP/MCH Project Activities
 Typical District

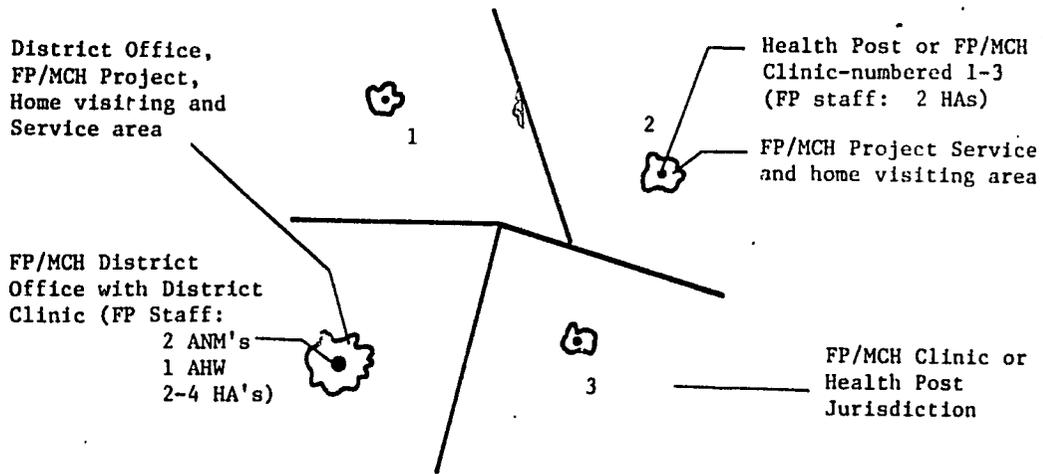
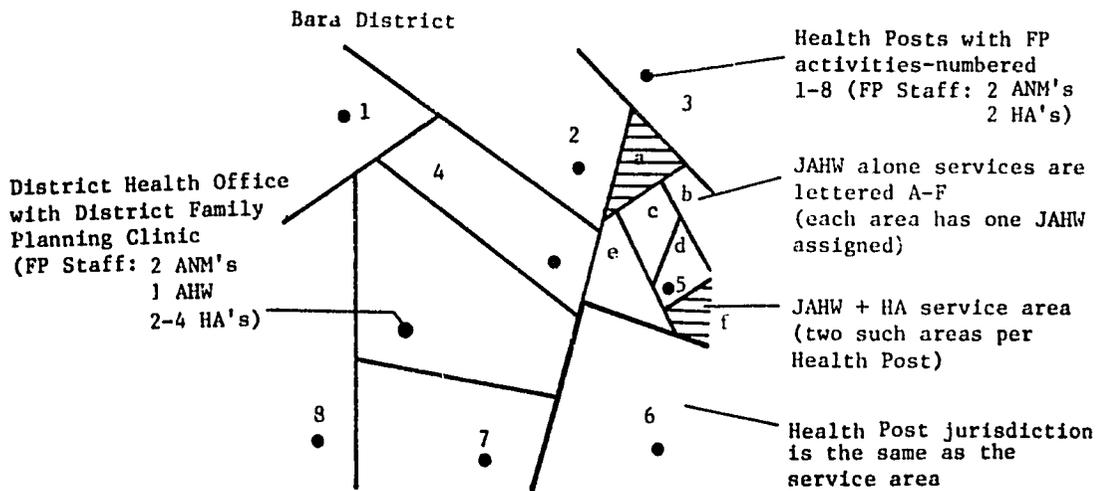


Figure II
Schematic Representation of a District
with Integrated Family Planning Activities
as Tested in Pilot Projects



In Kaski District, the specific model was designed to answer the question, "what additional tasks could malaria field workers perform while functioning under the time-tested, efficient, administratively well-supported and regularly paid malaria organization?" In this model, family planning services were offered by health aides in a fashion similar to that offered throughout the country by the FP/MCH Project, but managed, supervised, supplied and paid for through the Nepal Malaria Eradication Organization (NMEO). The basic intent was to leave the malaria organization intact. No new or additional funds were made available. No changes were made in the malaria organization, geographic or population jurisdictional responsibilities. The junior auxiliary health workers were asked only to provide family planning information and education during their monthly house visits and refer potential clients to the health aide attached to the health post. Two auxiliary nurse midwives were assigned to each of the health posts.

In Bara District, on the other hand, the direction and responsibility for the pilot project came from the Department of Health (DOH), the Integration and Community Health Section of the department offered guidance and supervision, and coordinated the concerned health project inputs involved in the minimum package. The intermediate structure is the Zonal Health Office headed by a Civil Surgeon, and the Zonal Hospital serves as the referral institution for the district. The peripheral tier is the District Health Office, headed by the Senior Medical Officer, and the District Hospital serves as the referral institution for the 11 health posts in the district.

Each health post serves a population of about 25,000 and the jurisdiction includes 10 to 12 village panchayats. The health post area is divided into three to seven veks or localities, each the responsibility of a single junior auxiliary health worker and each with an average population of five thousand people. A schematic representation of family planning and maternal and child health

activities in an integrated district is shown in Figure II. Program hypotheses are shown in figure III.

The integrated field activities at the village level are carried out by the junior auxiliary health workers in an attempt to provide total access of the population to the minimum package. They perform malaria surveillance and give presumptive treatment, do small-pox surveillance and surveillance for any increase in the incidence of other communicable diseases, do recordings of vital events (births, deaths, marriages and migration) and do case-finding of tuberculosis and leprosy with follow-up of treatment defaulters. Within the districts' 63 veks or localities under the jurisdiction of the 11 health posts, two experimental family planning service approaches were tested. In 41 of the veks the JAHW, in addition to the above tasks, was responsible for motivation of all target couples, provision of family planning supplies, resupply of these provisions and follow-up of clients. In 22 veks a full-time family planning health aide was assigned in addition to the JAHW. The health aide was responsible for providing family planning services to all target couples. The major difference between the activities of the health aides in the integrated areas and in the FP/MCH Project areas is that the health aide in the integrated areas was assigned to work only as a field worker to work in the field for 20 consecutive days, similar to the JAHW, and to have no clinic responsibility. Primary FP/MCH responsibility in the health post was undertaken by the newly posted ANMs. The JAHW, in the areas where health aides were assigned, was responsible for the identification of target couples, for providing family planning information, education and motivation, for supplying and resupplying condoms where appropriate, and for referrals to the health post and/or health aide during his monthly visits to each household. The JAHWs and health aides were supervised and guided by one of the auxiliary health workers (AHW) of the health post on a predetermined schedule. The differential performance was observed between veks with JAHW only and those with JAHW plus health aide.

The services rendered in the health post were: ambulatory medical care, including treatment and follow-up of tuberculosis and leprosy cases; family planning services including motivation, education, and dealing with contraceptive complications; organizing periodic vasectomy camps; and the MCH services of deliveries, antenatal and postnatal care of the mothers, and conducting children's clinics. On predetermined dates the District Medical Officer visits the health post to provide guidance and supervision of the paramedical staff. Outreach clinics are held once a month in four fixed locations in each health post area to provide greater access to health post and FP/MCH services. The Health Assistant in charge of each health post is assisted by two auxiliary health workers and two auxiliary nurse midwives. These nurse midwives are primarily involved in FP/MCH activities both in the health post and outreach clinics and during regular home visiting in the immediate area around the health post and in the outreach clinics. They function with the communities' traditional birth attendants to encourage their participation in FP/MCH activities. It should be noted that this is the first time an auxiliary nurse midwife was used in a rural health post and outreach clinic as well as in home visiting scheduled on a regular basis and in association with the traditional village midwives. The supervision of the family planning activities at the health post is the responsibility of a district level uni-purpose paramedical, the Family Planning Assistant.

Results of Family Planning Activities in the Pilot Areas In looking at the results presented below we must be aware of the inadequacies of the presently available data, and in general, caution must be exercised in using these data to avoid making generalizations which go beyond the actual data. During the short period of observation the demographic effect of family planning efforts was low in the integrated as well as the non-integrated districts; however, when performance of workers is measured some comparisons can be made.

The observations described are a combination of data extracted from the pilot project records, the report of the Evaluation of the Integration Pilot Projects (HMG/USAID/WHO), and the Nepal FP/MCH Project's preliminary analysis of source records in Bara District.

Comparison of two Terai districts, Sarlahi and Dhanuka, with Bara and one Hill district, Gorkha, with Kaski, and both with Nepal as a whole are seen in Table I. In 2030 (1973/74) comparing the maximum estimates of couple years of protection, the integrated health service in Bara achieved on a per capita basis 150% more than the non-integrated FP/MCH Project efforts in Dhanuka and 950% more than in Sarlahi. When compared on the basis of total acceptors per capita, Bara District was 5.2 times that of Sarlahi and 1.7 times that of Dhanuka District.

When compared with the performance and costs of family planning performance under the pattern which exists in the comparison non-integrated districts it appears that using part of the time, about 1/5 of the working hours, of a large number of JAHWs who visit all households in Bara District once a month is efficient. This provides total population access to family planning services, which the FP/MCH Project does not have, at relatively low cost. The large number of workers and their frequent regular contacts with a significant portion of the population largely outweighs, it would seem, (at least in terms of performance measured during this period per budget rupee expended) the limitations that such workers may have in terms of not being what might be considered ideal motivators, i.e., male, minimally educated, and being able to spend only a brief time on family planning discussions at any given household. It may well be that in the early stages of family planning house-to-house service delivery JAHWs are a most effective and efficient way to reach the easy acceptor group at the lowest cost. What happens after this group has been reached remains to be seen after the project attains further maturity.

Table I

Total Family Planning Performance
Selected Districts in 2030 (1973/74)

	<u>Sarlahi</u>	<u>Bara</u>	<u>Dhanuka</u>	<u>Kaski</u>	<u>Gorkha</u>	<u>Nepal</u>	
Total Acceptors/Couples of Reproductive Age	2.9%	15.1%	8.8%	9.2%	2.9%	3.8%	
HMG FP/MCH Expenditure (Rs)/Total Acceptors	146.48	38.18	36.28	90.08	141.74	88.76	(Rs/Acceptor)
Maximum Estimate of Couples Protected (during the year)/ couples of reproductive age	0.6%	6.3%	2.5%	3.1%	0.9%	1.4%	
HMG FP/MCH Expenditure/ maximum estimate of couple years of protection	742.57	91.92	129.58	246.91	442.46	239.48	(Rs/CYP)

Source: Evaluation of Integration of Health Services Project (HMG/USAID/WHO)

In Kaski, although the staffing and service pattern was essentially the same as the rest of the country (except for the addition of ANMs to health posts), the management system was modified and family planning information and education and referral were offered by the JAHW. Total acceptors and couples protected were both three times as great on a per capita basis as they were in the other hill comparison district. Costs per couple-year of protection in both integrated and non-integrated districts were higher in the hills than they were in the compared terai districts, as they were for all services which must be provided in areas where transport, communications and supervision is difficult and expensive. It should be noted that differences in the hill district performances may in part be attributable to the presence of a Family Planning Regional Office in Pokhara and the ethnic differences in the acceptability of family planning services between the districts compared.

Table II shows the comparison of performance of the combined efforts of JAHWs and health aides vs. JAHWs alone in Bara District. The performance, in general, in veks with both a health aide and a JAHW was significantly greater than for JAHWs alone in all parameters observed. Of particular interest is that there was a 100% increase in the number of continuing acceptors per vek 12 months after initial acceptance in those veks where both the JAHW and the health aide were assigned. It is obvious that while births prevented are increased with the combined efforts of the JAHW and health aide, the cost per family planning user per vek and cost per birth prevented also increases with the addition of unipurpose staff. These numbers must be used very cautiously since the period of analysis is short, and in those cost calculations is a probable understatement of births prevented causing an overstatement of costs per birth averted.

As a result of these pilot projects and while the integration process matures HMG plans now call for the carefully controlled development of a phased integration program based on these pilot

Table II

Comparison of Performance of JAHWs Alone and Health Aides
and JAHWs Together in Bara District, 2030 (July 1973-July 1974)

<u>Staffing Pattern</u>	<u>Total Accpt.</u>	<u>Mean Accpt. perVek</u>	<u>Cont. Accpt.</u>	<u>Mean Cont. perVek</u>	<u>12-mo. Cont. Rate</u>	<u>Cont.per Vek 12 mos. aft. accpt. 1/</u>	<u>Total CMP 2/</u>	<u>CMP perVek perYear</u>	<u>Births prvnt. per yr.</u>	<u>Cost per FP User/Vek</u>	<u>Cost per Birth prvnt.</u>
JAHW only (41 veks)	2666	65	785(29%)	19	19.89%	13	3945	96.22	7.5	Rs 29.60	Rs 138.13
HA+JAHW (22 veks)	2121	96	824(39%)	37	26.62%	26	4611	209.59	9.2	71.05	332.07
% diff. HA/JAHW veks vs. JAHW-only veks	-26%	+48%	+5%(+34%)	+96%	+34%	+100%	+17%	+118%	+23%	+140%	+140%

1/ Derived figure, calculated by applying 12-mo. continuation rate (col 5) to mean # of acceptors per vek (col 2).

2/ Couple months of protection, calculated by multiplying # of continuing acceptors for each ordinal month X # months of continuation.

Source: Nepal FP/MCH Project from data gathered from source records in Bara District and the Evaluation of the Integration of Health Services Project

studies, and in parallel, the expansion of the Family Planning/MCH Project and its experimental models beginning in the Fifth Plan period. Implicit in this plan to use the integration methodology is the reason for the decision. It is understood and accepted that what has been learned, albeit only a first phase of delivery system development, must be implemented as rapidly as possible; and second, that all that needs to be learned about the delivery of health and family planning services has not been learned, but that continued experimentation/demonstration is necessary and must continue in order to improve, refine, and broaden the capability of the system, and the search for alternative solutions to improve performance must continue. Most important in this plan is that the integration of some of the activities of the family planning program into the basic health care delivery system does not preclude the need for a strong, sophisticated family planning cadre and program effort if a demographic change is to be effected.

Other mixes of family planning staff as well as other geographic and population responsibilities are being tested in the "intensive districts" pilot projects by the Research and Evaluation Section of the FP/MCH Project. The results of these efforts will be reported by others at this meeting. The cost of these alternative delivery methodologies remains to be determined. Since the determination of cost-effective optimal staff input mixes is of great importance their results are awaited with great interest. Regardless of the final mix and population and geographic distribution of unipurpose family planning field staff, the benefits of large numbers of multipurpose workers added at low marginal cost to the cadre of workers providing family planning services has been demonstrated.

Other Experiments with Integration'

An extensive review of the world experience in the delivery of family planning services produced relatively little experience with

Figure III

Nepal Pilot Projects: Schematic Representation of Program Hypotheses

<u>Bara Dist.</u> JAHW Alone (All FP Services) + good manage- ment and administra- tion	<u>Bara Dist.</u> JAHW with Health Aide (Shared FP Services) + good manage- ment and administration	<u>Kaski Dist.</u> JAHW (I&E & referral) + good manage- ment and administra- tion	Non- integrated Hill District	Non- integrated Terai District	FP/MCH Project Activities Nepal as a whole
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Figure IV

Narangwal Project: Schematic Representation of Program Hypotheses

Family Plng. Service + Child Care (including nutrition) + Women's Services	Family Plng. Services + Women's Services	Family Plng. Services + Child Care (including nutrition)	Family Plng. Services Alone	Control Services
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Figure V

Danfa Project: Schematic Representation of Program Hypotheses

Standard MOH Services + Family Planning Srvc. + Health Education + Comprehensive Health Care	Standard MOH Service + Family Planning Services + Health Education	Standard MOH Service + Family Planning Services	Standard Ministry of Health (MOH) Service
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the integration of family planning programs with health services. Of greatest interest are the Narangwal and Danfa models. In addition, efforts in India, Sri Lanka, Indonesia, Ecuador, Afghanistan, Malaysia, and Bangladesh are in progress, but little data of the performance of these projects are available.

Both the Narangwal and Danfa projects have the same general hypothesis: attitudes towards and acceptance and practice of family planning will improve when it is combined with the provision of health services from which numerous subhypotheses are addressed.

The Danfa study is not yet completed and a vast majority of the Narangwal data have not yet been analyzed. This information is presented primarily to encourage discussion and should not be used to make any value judgments concerning the projects.

It is difficult to compare the findings of the two studies because they use different definitions and measures and cover different time spans and are operating in different environs. The Narangwal and Danfa models are schematically described in Figures IV and V. The most interesting finding of the Narangwal project is the relative success of the "family planning alone" service area. The "family planning alone" program out-performed the other modalities of family planning + childcare, family planning + women's services, and family planning + childcare + women's services. The most comprehensive system showed the lowest increment of acceptance and the greatest overall discontinuation rate. It was recognized that in the more comprehensive systems the staff was spending less time in family planning activities which needed to be controlled. The results available to date do not necessarily mean that the "family planning alone" program is more effective than the other programs. The "family planning alone" program was the last to start and the shortest to run. If the project were continued the "family planning alone" program may have reached a plateau earlier. In addition,

the programs were carried on in different time-spans, and conditions existing during the later years may have made the "family planning alone" program more attractive.

After 18 months the initial results of the Danfa project seem to suggest that family planning integrated with health is more effective than family planning services offered alone. The data at this stage, however, do not appear to support the hypothesis that the more comprehensive the program, the more effective the family planning program, but rather that an intermediate level of service was most efficient in maximizing family planning "success." It's too early to make final conclusions; however, to date the area which offered family planning alone has the poorest showing. In this project all areas offered family planning services from static clinics serving a fairly large geographical area containing numerous villages; whereas the Narangwal project staff had specific villages assigned and had frequent contact with the villages. In Narangwal, women's service workers visited each potentially fertile woman every two months. In areas offering childcare services each child was visited monthly for nine months and subsequently at systematically scheduled two to three month intervals. The Narangwal worker was multipurpose, whereas the Danfa family planning worker was unipurpose. In the Danfa study the team recognized early that it was the availability of services at the village level that increased acceptance.

These comparisons are crude and based on limited data. However, the differences are important, if confusing. The findings of these projects are difficult to compare.

Discussion

In the simplest form the question we are addressing is "should family planning be integrated with health services?" The only two studies that we can directly draw on for experience provide, from preliminary analysis of results, diametrically opposed answers.

Dissection of this question is frequently approached by cataloguing the effects of supporting health programs. Since effective health programs reduce death rate, increase life expectancy, decrease maternal mortality, extend the fertile period and reduce infant mortality, health programs contribute to the population problem. Therefore, less emphasis should be given to health programs and more to family planning programs. There is some question about how strong the relationships are between the "population explosion" and public health programs and the positive influence improved health has on socioeconomic development. Most important, however, are the ethical and political implications of the proposition. A Machiavellian strategy of reducing fertility by inhibiting the development of health programs and services must be considered inappropriate and unacceptable.

The Narangwal and Danfa studies hypothesized that deliberate improvement in health programs will reduce infant and child mortality. This in turn will have a positive effect upon the demand for family planning since reduced infant-child mortality results in a decline in desired family size. Therefore, it is cost-effective to support health service development as a means of furthering family planning ends.

Two important links in this reasoning must be scrutinized to better understand this argument. First, does a reduced infant and child mortality result in a decline in desired family size; and second, does a decline in desired family size lead to a demand for family planning. Reduction in infant and child mortality is an appropriate family planning goal if it can be shown that a reduction does indeed lead to a decline in desired family size. Numerous other development programs have also been correlated with a decline in desired family size and the demand for family planning. Thus, one could substitute such things as education, land reform, female employment, etc., for improved health programs. The present state of knowledge suggests that there are equally strong or stronger correlates than health programs leading to a decline in desired family

size. No conclusive evidence is available to justify outright extensive primary emphasis on health programs and services as a means of securing additional family planning acceptors from either the Narangwal or the Danfa projects. The Nepal pilot projects suggest that it is possible with a large, disciplined, unskilled staff that has good access to the target population to develop performance better than with a small, trained, ill-supervised staff with little access to the target population. It is, in addition, possible to develop increasing increments of performance with the addition of family planning program unipurpose inputs.

The malaria house-visitor is able to absorb into his structured house-visiting routine some additional tasks, including family planning, without undermining the effectiveness of either his malaria or other newly added work. It was demonstrated that the JAHW could provide additional services at a low cost. This pilot study demonstrated decreasing marginal cost per service. The major cost of the field service is walking to the home and back. Almost every service output measure examined required less expenditure per service in the integrated than in the nonintegrated areas. Total HMG expenditure per capita for health and family planning services were not significantly greater in the integrated areas than in comparison districts despite the larger volume of most services in the integrated area.

Total HMG expenditure for health in Nepal is 5.25 Rs per capita. In Bara and Kaski the expenditure per capita was 5.17 and 6.44 Rs per capita, respectively. In addition, within the integrated areas more direct services are delivered per rupee for all major program areas than in comparable nonintegrated districts. This is the result of a shift in expenditures from administrative activities to supervisory and direct service activities.

Organizational benefits are obtained in combining the health and family planning services. The advisability of integrating family

planning services into an organization which is not efficient or effective is of questionable value. Health services in many developing countries can be so characterized; however, the performance from the data presented suggests that not only does the FP/MCH Project obtain an infrastructure and outreach capability it did not possess at marginal additional cost, but also does so during the short period observed with an increment in performance above that of the FP/MCH Project.

Some of the increase in performance over the FP/MCH Project activities in the Nepal integrated milieu may relate to the integration of family planning activities primarily with preventive rather than curative health programs through the JAHW, and by the assignment of an ANM responsible for only FP/MCH activities to the health post and outreach clinics. In addition, the mature administrative and supervisory structure of the malaria infrastructure has provided many additional benefits such as getting people paid regularly and on time, having regular supervisory visits, expecting reports on time, etc., all of which contribute to improved work performance. Greater efficiency with respect to family planning performance might be possible from JAHWs if the minimum package were altered to delete such time-consuming and questionably useful efforts as collecting demographic data from their job descriptions (frequently fraught with errors and which might better be done by periodic sample survey), and the time used for additional family planning motivation.

Examination of the relationship of family planning staff to the larger organization of the Integrated Health Service in Nepal provides the opposite of what one might have expected. Rather than an incompatibility between curative trained staff and those trained in fertility behavior (not in the general sense considered an illness) one found greater behavioral expectations for the family planning staff in the more complete integrated administrative and supervisory network. Time was expected to really be spent in the field,

reports were to be completed on time, and performance was looked at. Early in the pilot projects this caused a great deal of distress among the newly integrated family planning staff.

A concern of family planning policy-makers is that family planning activities are being given a lower priority in the integrated environment, i.e., only 1/5 of a worker's time will be available for family planning work as compared to a total worker's time in the categorical program. Any dilution of effort is far outweighed by the sheer number of workers doing some family planning activities and distribution of contraceptives. In addition, the interest shown in the program goals, as measured by "JAHW alone" performance when compared to the "Health Aide alone" in nonintegrated areas is striking. The addition of AMMs to the health post staff and the continued use of health aides further raises the system's priority for family planning activities and performance.

In summary, the dilemma of the planner of how to get the biggest family planning output per budget rupee in Nepal is partially answered by the above dissertation. In general, it appears that the data are supportive of the integration of some portions of family planning activities into the general health structure not only for its economies in management, organizational components and cost, but also because of its built-in provision of extended out-reach capability and its probable replicability.

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DELIVERING FAMILY PLANNING SERVICES IN RURAL AREAS

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The stated topic for my discussion this morning is, "Delivering Family Planning Services in Rural Areas." I'll come to this first by devoting a little time to the subject that was discussed yesterday-- integration. Then, going beyond that, and I had to leave before that discussion was completed, but I did listen to the first presentations, and I did read Ken Bart's paper. This brings to mind that we are evolving through several stages in the delivery of contraceptives and family planning services. During the sixties these were largely distributed through clinics of one kind or another. The thing that I couldn't quite figure out from Ken Bart's article was what he is integrating with the health system. I think one should disaggregate the analysis by technology. What are we speaking of? Certainly, from the viewpoint of population/family planning, we heartily endorse making an abundant supply of pills and condoms available through all health service points. I didn't realize that there was any hesitation on this. Why should there be? In Nepal, with several hundred health service points, is there really an abundant supply of pills and condoms in each one? And where are they at the health service points? If there is not an abundant supply there and within the health service points, it's very important just how these are available. There are programs which are more or less intelligently constructed. There are family planning programs in a number of countries which are completely integrated with MCH and other services, and which perform very poorly. I was recently in Tunisia where considerable money has been made available for family planning but most of it has gone for construction of health facilities. I visited one of these MCH/FP centers. The first thing I noticed was that there wasn't much activity. This clinic had been completed about

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two months before I arrived. It's an excellent clinic--better than any I've seen in Washington. The salient finding was that it had about twenty women who had been sterilized lying in beds; and I thought, well, at least they're getting some use out of this clinic now. But on the way back to Tunis we learned somewhat obliquely that these were actually "ringers;" that these twenty women had actually been sterilized in the general hospital but had been brought over and put in the beds to impress us Washingtonians that the clinic was actually being used. Then I asked about pills and condoms - where were they? They led me through several rooms to the rear of the health facility, and there, sure enough, in locked cabinets were some outmoded pills and some outmoded condoms. Why they had to lock them up I don't know. I was thinking to myself how much more rapidly those condoms would be used if they took them out of the clinics and dropped them on the bars in Tunisia. Surely they'd be picked up and used much more quickly that way than having them locked up in the health facilities. And likewise the pills--why lock them up? If one is going to have contraceptives in a health facility, why not place them where the receptionist is so that anybody walking into the facility could pick up a supply? There are real problems in the intelligent use of health facilities for the dissemination of pills and condoms. There have been problems in other countries, likewise. One has to be careful not to let auditing and evaluations run ahead of service. In the Philippines we had a somewhat similar phenomenon--pills and condoms locked up very tightly, for the reason that they were audited very carefully to record what happened to every pill and what happened to every condom. The process sometimes becomes grotesque to where a great proportion of personnel time goes to unnecessary hoarding of supplies, passing them out in singles, recording who got them, and this kind of nonsense. We must simplify the action. But certainly we do wish to integrate contraceptives into the health systems. The fastest way to get health personnel to pay heed to family planning is by providing them an abundance of supplies that they can give out to their friends as well

as their patients. So, I trust that in Nepal there will be an abundance of pills and condoms in every health facility with generous distribution practice therefrom; perhaps using these facilities as storage depots for the supplying of distribution points beyond the health system. Then, of course, there should be integrated into the health system adequate services for the surgical means of fertility control---IUD's, sterilization, and pregnancy termination. With respect to abortion, as you know, we are limited by the Helms amendment so that AID cannot help you at the present time, but perhaps you can get help from the UNFPA or some other source. Certainly, as far as population funds are concerned, we emphasize the value of training an adequate cadre of health workers to provide surgical services through whatever health facilities there may be available. But, again, services are very scarce in most of these countries, including Nepal. Do all of your health facilities offer IUD and sterilization, at least? Why don't they? And how soon may they? You should be planning to make those services fully available. But, as was discussed yesterday, the health system in Nepal is reaching only about ten percent of the population. We're concerned about the other ninety percent; to go beyond, to really achieve countrywide availability of contraceptives.

Although I did not prepare a paper specifically for this topic for this conference, I did bring along copies of one of the latest Population Reports, "Contraceptive Distribution--Taking Supplies to Villages and Households," which actually should serve very well for our discussion this morning because it does update our knowledge about what is going on in this field through June of this year. It was published just a month ago, and I would urge all of you to read it, to come abreast of what's happening in many of the countries around the world; because, indeed, we recognize very urgently that we must go far beyond the current health systems. There has come an evolution in contraceptive technology during the last few years and in the understanding of contraceptive technology which permits a much more rapid countrywide action to attain full countrywide availability of

at least pills, condoms, spermicides, and information. In earlier years we were held back by the excessive alarmism with respect to oral contraceptives; excessive alarmism constrained distribution to the health system. But, in the last several years, this alarmism has ebbed and there is a more complete understanding that the health hazards of general availability of the pills are miniscule compared to the health hazards of non-availability of the pills; that the ordinary woman in the developing world is hundreds of times more likely to die from the complications of an unwanted pregnancy than she is from taking the pill for a year, even if she has no supervision at all. So, from a public health point of view we cannot justify not making the pill available because it presents a health hazard. If one is truly concerned about health hazards, about unwanted pregnancies, one must move to make contraceptives generally available far beyond the health system of Nepal. We've also had favorable evolution with respect to condoms, the old gray unlubricated condoms have not been in great demand around the world; but the simple changes of lubrication and coloring have made these a very much desired item in country after country. Not only in the developing countries, but these are in rather intense demand in the United States, as they have been in Sweden and Japan and in other developed countries. So, they have become really a very important element in the family planning scene and should be made full use of; they certainly should be fully available. They are the means of fertility control which can be most easily made available to your total population, although some people will continue to restrict the more general distribution and availability of all contraceptives because of supposed health hazards-- it's very difficult for anyone to really make out that the general availability of condoms constitutes a health hazard. We haven't yet had any reports of children dying because of them, or adults dying because of them either. They are very safe. We hear many stories that if made generally available, children will blow them up for balloons, as if this were something terrible. The best use of at least a few condoms might be to use them as balloons, to desensitize the public.

But, in fact, the use of condoms as balloons to date is more allegorical than actual fact. We have great difficulty finding people who have actually seen them blown up for balloons. I've tried it, and I've had a few others try it, but because of lubrication, it's kind of hard to blow them up for balloons because they don't work so good that way. Certainly, we would urge the general availability of condoms through all health services; but beyond that, certainly in every village, every panchayat in Nepal, they should be available. These programs are beginning to roll now, particularly in a number of countries where they have swept away the prescription requirements for pills--Pakistan, Bangladesh, the Philippines. The program in Pakistan is particularly noteworthy because they have moved to make pills and condoms available in more than 30,000 outlets at the very low cost of 2-1/2¢ U.S. for a month cycle of pills or dozen condoms. The findings in the last few months are that this program is moving very well. Nepal should move to achieve panchayat availability of pills and condoms and information as soon as possible. There are logistical problems, but even those can be solved by determined people.

As Bill Trayfors discussed, and some others, you've already tested this to some extent in Nepal in the distribution of pills and condoms by field workers to about 200,000 households; and within a relatively brief period of time, from 20 to 30 percent of couples of eligible age were on effective means. I would submit that getting the first 20 or 30 percent on effective means is really the most important action of each family planning program. One should not worry about 80, 90, and 100% until one has reached 10, 20, and 30 percent. And you're a long way from getting this availability and use throughout Nepal.

As I mentioned, family planning is evolving through phases. During the sixties all contraceptives and condoms were generally made available only through clinical supply points. Now we are moving in some of these countries to village availability--first clinic availability, then village availability. Then, if one really wants to go more quickly, it seems reasonable to make these available to every household---to

achieve household availability of non-clinical means of availability control: pills, condoms, and information. As detailed in this report, we have a number of countries where this is being done on an operations research basis. You've already done it in Nepal in upwards of 200,000 households--yet for some strange reason I've not yet understood, you are making available only one cycle of pills per visit, and you were visiting every month. I would submit that is a very wasteful use of manpower or womanpower. You would be far better off giving three cycles to every household and visiting every household in Nepal than by having these people go back every month to a limited number of households. You must achieve countrywide coverage as quickly as possible.

As family planning programs have begun to develop in developing countries, there has been a curious belief that the illiterate people of the developing world would not use something if it became available to them; whereas in the developed countries, it is assumed that the great majority of the population will take sensible steps to control their fertility if they have the opportunity to do so. Somehow, in the developing countries, the reverse assumption is made that if these people are actually going to use contraceptives, somebody is going to have to visit them--if not at least every week, every month--to cajole them and urge them and supervise them, and so forth. I think this is a basic error. I don't think we have any evidence to indicate that if one achieves ready availability that poor, illiterate people in developing countries will not learn to use them. You must keep in mind that just because someone is poor and illiterate does not mean they are stupid. They're just poor and illiterate. They're basically just as intelligent as the people in San Francisco. One of the experiments I want to do someday is to take 50 U.S. university professors and put them on half a hectare of ground, such as the peasant has in Nepal, with no more resources than the ordinary peasant has, and see how many of them could actually survive a year. I believe there would be a very high mortality among the university professors trying to survive for one year with the resources the ordinary peasant manages to get by with. Yes, I can assure you there are many Washington

bureaucrats who should have the same experience.

There's a great deal of talk about continuation rates with respect to the use of contraceptives in developing countries. Nobody seems to give a damn what the continuation rate is for University of California coeds and faculty members. Nobody knows--nobody cares. It's expected that they will use a mixture of methods to obtain the results they wish to obtain. If you give your peasants the kinds of options that these people enjoy, you will find that within a few years they, too, will use a mixture of available methods to obtain control of their fertility. The emphasis must be upon making available what they need, with some education, with some support, but not with a great deal of jawboning. We are moving now as rapidly as possible to test what happens when household availability of non-clinical means is achieved: in Egypt, in Korea, in Taiwan, and now beginning in Bangladesh. You've already begun in Nepal; I would urge you to strengthen your knowledge of what happens. If you can get 20 to 30 percent of your people using contraceptives and condoms, via household availability, it seems that right there lies your immediate challenge. Achieve household availability of these throughout Nepal. Put somebody who really wants to drive in charge of that program, and see that it's done before the end of this year. There's no reason why it should take five years, or ten years. This is the sort of logistical effort that can be done within a year. I've had great difficulty getting our team in Nepal to order up enough supplies for this action. We have a general formula: order enough pills for 10 percent of women of productive age for a year and enough condoms for 5 percent of equivalent males for a year, as a working supply. But in Nepal you have only one-third that many pills at present. You have only about 1.2 million cycles. You should have over 3 million cycles to have a good working supply. I'm told: "Well, we don't know if we dare to order more because we've got a storage problem in Kathmandu." Good! I want you to have a storage problem in Kathmandu! I want you to have contraceptives in sufficient supply to excite you to distribute them to all the districts, because until you get them into the districts, they won't get into the homes. Furthermore, if you do get overwhelmed with contraceptives in Kathmandu, we have a standing order that the USAID Population Officers are to move

out of their homes, live in tents, and store them in their homes until they get them distributed. A million cycles of pills takes only about 3,000 cubic feet. You could put...I haven't quite calculated the measurements of this room...but you could put six or seven million cycles in this room, so storage isn't that big a problem. I also hear, "We're worried whether AID will continue to supply contraceptives if we start them using them in large quantities." Indeed, you can't trust us. If I were in your shoes, I would order as many as I possibly can so you will have an adequate supply if we fail. Order up an ample supply for this year, an ample supply for next year, and then as soon as possible for the following year, so that you're at least one year ahead--then you've got some options; then you've got some flexibility. But if you sit with a miniscule amount, then you should indeed worry whether Congress will vote us the money, whether we'll be able to buy them or give them to you--if you have the supplies in Nepal you don't have to worry about us. So much for non-clinical distribution with respect to the availability of non-clinical methods beyond the health system.

Now, when it comes to surgical contraception---IUDs and abortion---necessarily these have to be made available in another manner. They do depend upon clinical competence, and you cannot hope to get full availability in 1975, but you can get far greater availability than you have now. And your first step should be to get really adequate services in at least all the urban places in Nepal, because when it comes to some of these methods the public does not need constant availability. You already have experience in Pokhara Valley: when you made good quality sterilization available women walked for days to get it. So, again, you can put much of the burden upon the public to come and get them if you provide good services. For sterilization, it's a once-in-a-lifetime experience. They can afford to go 20 and even 50 miles for a sterilization, because it's a one-time experience. They don't have to live next to it all of the time. Here it's a matter of training and supplies. We've come, I think, quite a long way in training and supplies, particularly in the development of mini-laparotomy equipment for every competent surgeon so that they can provide these services. Also, for sterilization and abortion which, again, we are not able to supply at the present time, a skilled

clinician providing these two services can make a living doing it. His action does not necessarily depend upon bureaucratic function. A cadre of skilled surgeons in Nepal would be providing these services on a private basis, making money doing it, and extending services on that basis. Now I would like to pause and answer questions.

Like most of you, perhaps all of you, I have a particular love of mountains, and on the one occasion when I have visited Nepal, I remember vividly the lovely snow-covered mountains off to the right when flying up from Dacca. I also remember very vividly, as a one-time farmer, marveling at the way in which they had managed to cultivate just about every inch of land at the top of the hills around Kathmandu. It not only bespoke remarkable ingenuity, but also a desperate need on the part of these Nepalese to find every bit, and use every bit, of arable land. There's no doubt of the intensity of the need to curb fertility in Nepal. Certainly, from the U.S. foreign assistance point of view, we feel a sense of great urgency with respect to moving as quickly as possible to help the very desperate people in developing countries gain control over their fertility. We begin to have some appreciation, I think, of the time frame and the money frame which is required to actually do this task. I believe, now, that the population program of the Foreign Assistance program needs to operate during the twenty years from 1965 to 1985. I believe the bulk of our essential work can be accomplished in approximately another decade. We also know that in countries where there is a strong commitment by the chief executive and key leaders to a population program, that it is possible to accomplish essential international population program assistance within about ten years. Really, it shouldn't take more than about ten years. In a number of countries, such as Taiwan and Korea, we have completed our bilateral assistance. We expect to be done within another three years in the Philippines, Thailand, Indonesia, Tunisia, and half a dozen Latin American countries. We also know now that if the program is well designed, as it has been in Indonesia and to some extent in the Philippines, it should not take more than \$1.00 per capita during that decade. In the case of Nepal, as Bill Trayfors has indicated, we have provided about six million dollars to date in

support of population/family planning in Nepal. The balance of the job should be done for about seven million dollars from the U.S., with some assistance from the United Nations and other donors. The job should be done within a decade, but in the case of Nepal, with slower start-up years and difficult terrain, it will take a little longer. By 1980 effective services should be fully extended throughout the country with widespread utilization; and if you really drive with the most effective means of fertility control, you could drop the birth rate, which last year was something like 43, below 30 for the year 1980. Even more powerful technology is coming down the track, which should facilitate that. In other words, my sense of time and money is that we should be planning to assist you strongly for another five years or so, and then terminate external assistance.

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DEMOGRAPHIC ASPECTS OF
HILL AREA DEVELOPMENT

DURGA P. OJHA*

Population growth and economic development are intricately related. A high rate of population growth requires a high proportion of national investment just to maintain the current level of per capita income consequently helping to retard the overall development which could have been achieved under a lower rate of population growth. A low rate of population growth in itself is not a sufficient condition for a higher rate of economic growth, but given that other necessary conditions of development are present, it could facilitate economic growth by making lesser claim on the available resources. More important than the effect on per capita income, population growth has other far reaching effects on the quality of development. A high rate of population growth increases the dependency ratio and consequently the potential for future population growth, requires more resources to be diverted to education, health and other social services, necessitates more jobs to be created for the increasing labor force, increases the pressure on the natural resources and food supply, and affects the income distribution pattern (3, Chap. 2). All these in turn, directly or indirectly, influence the future fertility rate and development potential of the country.

The various problems associated with a rapid population growth are already being manifested in Nepal. This is especially true for the Hill areas where the bulk of the Nepali population live and which, as a result of the past development policies favoring investment

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in the accessible areas, has remained more or less static in terms of economic growth. The population, on the other hand, has been steadily increasing, exerting more and more pressure on the limited land resource. Recently policy makers and planners have been greatly concerned about the deteriorating situation in the Hills and accordingly, regional development strategy has been initiated with development of the Hill areas as one of its major objectives.

This paper will briefly discuss the various effects of the population growth in the Hill areas (including the mountain region) and will try to assess the prospect of population control in general terms. Some major issues for deliberation in the conference will be raised at the end.

THE MAGNITUDE OF THE PROBLEM

The rate of growth of population has been increasing rapidly in Nepal during the last two decades as a result of the public health measures against communicable diseases, such as malaria, small pox, and cholera, which were the direct cause of high mortality. On the other hand, fertility, which is a function of a complex set of socioeconomic variables, has more or less remained constant. Consequently, the population growth rate which was less than 1% during the period from 1911 to 1952/54 increased to 1.4% in the fifties and 2% in the sixties. The growth rate is expected to increase further in the next decade. At the same time the overall performance of the economy has been very poor. The rate of growth of Gross Domestic Product from 1964 onward has been only 2.7%, implying a low per capita income growth of 0.7% per annum.

The overall rate of growth conceals a more important problem of inter-regional disparity between the Hills (which also includes the mountain region throughout this paper) and the Terai region of the country. The different geographical situations, topographical

conditions, accessibility, and the exploitable resource endowments have created different economic conditions in these regions. The relative advantage of the Terai in all these aspects was further reinforced by the malaria eradication in the early sixties which opened up large portions of the Terai for new settlements which had been inhospitable to human habitation. Development efforts in the past two decades were therefore mainly concentrated in the Terai and in and around Kathmandu Valley where the pay-offs to investment were high as well as visible. As a result a considerable amount of socio-economic infrastructure, which is a precondition for further development, has been created in the Terai, whereas the bulk of the Hills (excluding Kathmandu and Pokhara valleys) has been virtually isolated from these efforts. Since the potential for the economic development of the Terai has been greatly augmented, the inherent disparity between these two regions is bound to increase in the near future, even under a major shift in the development policy. Table I shows some of the major indicators of the inter-regional disparity.

During the late sixties most of the increase in the agricultural output has come from the expansion of the cultivated land rather than from an increase in the productivity. The expansion in the cultivated area has been almost exclusively in the Terai (1, p. 104). Since more than two-thirds of the GDP is contributed by agriculture, and considering the inter-regional disparity, it can be asserted that the Hill economy may have remained static or even been experiencing a negative growth in the past decade.

The Hill areas have been the traditional homeland of the bulk of the Nepalese people. The historical migratory trend indicates that some population pressure on the limited cultivable land resources was already existent in the past. The rapid rate of growth of population during the past two decades in the face of a

Table 1
REGIONAL DISPARITY BETWEEN THE HILLS AND THE TERAJ

Criteria	Hills	Terai	Kathmandu Valley
1. Land Area in % ^{a)}	74.8	24.8	0.4
2. Population in 1971 in % ^{b)}	53.6	41.2	5.2
3. Cultivated Area in 1968/69 ^{a)}	31.8	65.3	2.9
4. Food Grains Surplus/Deficit in '000 m.tons in 1970/71 ^{c)}	-149.0	+440.0	+3.0
5. Large Scale Industries (%) ^{a)}	nil	62.5	37.5
6. Population Density (1971) per hectare cultivated land ^{d)}	10.11	3.3	12.07
7. Localities with 10,000 or more population (1971) ^{e)}	1	20	3
8. Length of Motorable Road in % ^{a)}	34	57	9

Sources

- a) National Planning Commission, Fourth Plan (1970-75), His Majesty's Government, Kathmandu, 1972.
- b) Central Bureau of Statistics, Statistical Pocket Book of Nepal, Kathmandu, 1974.
- c) Ministry of Food and Agriculture, Agricultural Statistics of Nepal, Economic Analysis and Planning Division, Kathmandu, 1972.
- d) Gurung H.B., Regional Approach in Nepalese Planning, in Pradhan P. (ed.), A New Dimension in Nepal's Development, Center for Economic Development & Administration, Kathmandu, 1973.
- e) CBS, Census of Population by Zone & District, Kathmandu, 1974.

Note: Consists of north-south roads joining Kathmandu & Pokhara Valleys.

static economic situation seems to have completely disrupted the marginal balance of population and resources. This has had two important effects on the Hill economy. Firstly, more and more sub-marginal lands have had to be brought into cultivation to meet the increasing food needs and secondly, the migration from the Hills was accelerated.

Perhaps the most important negative effects of the growing size and the rate of growth of population in the Hills vis-à-vis the limited cultivable land has been the accentuation of the soil erosion problem. The high population/land ratio has necessitated the cultivation of steep hill slopes at the cost of the forest cover and vegetation. The growing needs for fuel-wood for the population and fodder for the livestock were the cause of further deforestation. The results of the extensive deforestation are being manifested now in the drying up of water springs near the villages, so that villagers need to travel longer distances to fetch fuel-wood and fodder, as well as in the occurrence of more frequent and damaging landslides. Besides these apparent effects, the soil erosion is bound to cause more damaging flash floods in the valley areas, general deterioration of the agricultural productivity owing to the washing away of the top soil, more silting and frequent floods in the Terai region, and in the long run a complete disruption of the ecological balance.

A marked shift of population has been observed in Nepal during the last few decades. There has been a heavy permanent migration from the Hills to the Terai, especially after the successful malaria eradication in the early sixties. This is indicated by the different rate of growth of population in the Hills and in the Terai. Although the total growth of population in Nepal was 22.76% during the 1961-71 intercensal period the increase in the Hill area was only 13.66% as against 41.58% in the Terai (2, p. 18).

The increasing trend in the migration from the Hills is also indicated by the 1971 census which reports 9.75% of the total population of the Terai had been born in the Hills as against only 2.5% in 1961 (4, p. 2). Although migration to the Terai has been acting until now as a safety valve for the growing population in the Hills, it is evident that this narrow stretch of land cannot absorb the continual growth of population indefinitely. Moreover, in the absence of a proper control and an effective resettlement policy, most of the migrants to the Terai have been squatters who indiscriminately destroyed the valuable forest resources. One estimate reveals that 50% of the forest area in the Eastern Terai has been depleted between 1954 and 1972 (2, p. 7), part of which is attributable to migration.

The dependency ratio of the Nepali population has also been changing significantly. The ratio has increased from 77 in 1952/54 to 82 in 1961 and 85 in 1971. About 40% of the population in 1971 were below 15 years of age.

Such a high rate of dependency imposes a heavy claim on the limited resources for investment in the country, since more public funds would be required to provide health, education, and other social services even to maintain their current level. On the household level, more resources would be required for feeding and clothing the increasing numbers and consequently the savings and investing capability would be adversely affected. Moreover, a high proportion of young-age population means a potentially high rate of future population growth.

Another important effect in the Hill areas (to a lesser extent even in the Terai), where employment opportunity in the non-agricultural sector is virtually nil, is the increase in the size of the labor force. Under the existing technology, the agricultural

productivity in the Hills has probably reached the maximum possible. Since all the new entrants to the labor force have to be absorbed in the agricultural sector, the overall effect would be a decline in the per capita labor productivity. Underemployment in agriculture will therefore be a significant problem for a considerable period, since all the potential members of the labor force for the next 15 years have already been born. The extent of the solution to this problem depends upon achievement in the developmental field rather than in population control measures. The objective of economic development is to uplift the material and social welfare of the population. National averages, like the rate of economic growth, per capita income, and even the rate of population growth, conceal the uneven distribution between the rich minority and the poor masses. Most of the developmental benefits are reaped by the rich, since they are the ones who are in a position to save and invest. Thus even when a nation may be achieving a high rate of economic growth, the economic condition of the majority of the poor people may remain unchanged or in some situations even deteriorate. Although there are no reliable statistics on income distribution in Nepal, it could be assumed that a high disparity in income distribution does exist. This is evident in the Hill areas, where 69% of the farm families are in debt (5, p. 108).

A high rate of population growth helps to generate and accentuate the income inequality. Population growth by increasing the labor supply restrains the growth of real wages. It also helps in further fragmentation of the already small size land holdings, which may worsen the income distribution. A study conducted by the World Bank observes that "the association of population growth and income inequality is likely to be accentuated by the inverse association between the birth rate and family income. . .". Findings confirm the theoretical expectation that high fertility countries tend to be those with less equal distribution of income. Faster

population growth makes for greater income inequality, but poverty itself is likely to encourage high fertility" (3, p. 36). The rapid rate of population, thus, not only dilutes the overall economic achievement but hits hard the majority of the poor people whose general welfare really needs to be enhanced.

THE PROSPECT OF POPULATION CONTROL

Population control is not an end in itself. Neither is it a substitute for economic development. A low rate of growth of population may help in accelerating the rate of economic growth, but it is not a sufficient condition for development. However, population planning is an essential and necessary element in the planning of economic and social development and therefore needs to be integrated within the overall framework of the development policy.

The historical experience of the presently developed countries shows that decline in the birth rate has lagged well behind the decline in the death rate and behind economic development itself. Death rates have moved downward in direct response to the increase in income, chiefly because of the accompanying improvements in diet. The birth rates fell only when a substantial part of the population developed a high level of economic motivation favoring small family size. In recent years scientific advances have made possible a rapid reduction in the cost of controlling communicable diseases and other direct causes of high mortality. Public health measures in developing countries have therefore been effective in rapidly reducing mortality. On the other hand, in countries such as in Nepal, the subsistence nature of the economy and the very low rate of growth have failed to create the motivation or the economic incentive among the rural masses that are required for reducing fertility. The low level of literacy, lack of adequate health services, low cost of rearing children in the rural areas, the role

of a son as an old age security, and above all, the very low level of income of the majority of the households which, under the given technology precludes the possibility of ever uplifting the material welfare--all these act adversely to motivate reduction in birth rates.

Therefore, the efforts towards fertility reduction alone through the provision of family planning services are bound to fail in their objective of creating a significant impact. There is no doubt that family planning services when provided may be used by certain groups of people (e.g., the relatively literate and economically well-off) in the service area who already have some motivation for small family size. Properly implemented programs with sufficient and capable extension personnel may also be able to increase the number of contraceptive users through intensive efforts of personal contact and persuasion. However, the experience in developing countries shows that once a family planning delivery system has been established in an area the number of users increases sharply in the beginning and then tapers off. This may be due to the initial response of members of a group who were already motivated towards a small family size but were not able to do so in the absence of the required facilities. If direct population control programs are to achieve any meaningful effect on reducing fertility it is the rest of the people, the majority, whose attitudes towards family size really need to be changed.

The most important factor in fertility reduction is, therefore, the uplifting of the general economic condition of the people, which in turn is directly or indirectly related to many other socio-economic variables such as health, education, employment, savings, investment, productivity, aspirations and attitudes, etc. When we look at the situation in the Hill areas of Nepal the problems of development are forbidding if not insurmountable. The relative inaccessibility and the lack of the necessary socio-economic

pre-conditions of development make the efforts for economic development very costly and difficult. The primitive characteristics of the isolated subsistence economy preclude the possibility of self-initiation of the growth process unless deliberate and well co-ordinated efforts are made by the central government. However, the available resources are limited, especially the institutional capacity of the government to effectively implement the planned programs.

Presently in most of the Hill districts we find a number of government development agencies represented in the fields of agriculture, health, education, land reform, cottage industries, etc. However, a recent survey on regional development conducted by CEDA shows that the impact of these agencies has been in most cases insignificant and probably a waste of resources. Besides the meagre budgets, an acute shortage of manpower was observed in all the agencies. Coordination among related agencies was completely lacking. The shortage of manpower was augmented by the difficulty in retaining the provisional staffs in the Hill districts, which was particularly true among the technical personnel. Solving these problems simultaneously throughout the nation in the immediate future is an impossible task. Accordingly, the study recommended a strategy for Hill area development through the implementation of a series of integrated rural development programs in selected small areas where all the necessary development input could be well provisioned and co-ordinated. This recommendation has been well taken by the Planning Commission and is incorporated in the Fifth Five-Year Plan under the title of Small Area Development Programs (SADPs).

The program content of the SADPs is visualized to include all the related aspects of development from physical input to social services. In other words, the program is expected to attack the development problems simultaneously and in an integrated manner. The main rationale of the SADP was that by limiting the size of

population and area covered and by coordinating the whole program under one management, as well as through the provision of adequate input, development of the selected regions could be more effective. The policy paper on the regional development has envisaged initiation and implementation of 20 SADPs during the Fifth Plan period. The contention of this paper is that for maximum effectiveness under the given resource constraint, population policies should be an integral part of the SADPs. Population policies should be more than only the direct service provided by the family planning delivery system; they should also be part and parcel of the educational and agricultural development programs.

The implementation of the SADPs is an experimental strategy primarily visualized for the Hill area development and consists of only a small fraction of the overall development program in the country. It is evident that the cost of rapid population growth on the present and future development is tremendous. Stephen Enke has estimated that prevention of one birth through the investment in family planning gives a 75 times higher rate of return over a period of 30 years than the same amount of investment in any other sector having a 15% rate of return (1, p. 18). Therefore, for serious efforts toward population control, much higher resources than hitherto (less than 1% of annual investment) should be devoted toward fertility control measures. Above all, as recommended in the case of SADP, a population policy should also be a vital component of the overall development programs and policies.

Under the given socio-economic situation in the country, especially in the Hill areas, the overall prospects for rapid economic growth and population control seem rather grim in the immediate future. A significant improvement can be visualized only as a long-term prospect. But at the same time some pressing problems of rapid population growth are already visible which must be taken care of through appropriate short-term and long-term policies.

SOME MAJOR ISSUES

Some of the policies and issues that are important and worth deliberating in this conference are listed below:

1. The total labor force of Nepal is expected to increase by 2.5 million between 1971 and 1985. If all these new entrants to the labor force are to be absorbed outside agriculture the non-agricultural sector needs to expand six times the present level. Considering the past performance of the economy this is an impossible task. The most important issue is, therefore, what type of development strategy needs to be adopted for their effective employment? The adoption of a massive rural development program could be a major solution. But given the present organizational capacity and the existing socio-political institution could such programs be effectively implemented?
2. One of the consequences of rapid growth of population would be the widening of the inequality of income. What measures should be taken to counteract this tendency?
3. How should the population policies be integrated into the overall development planning?
4. A well-planned resettlement policy in the Terai may be able to alleviate some of the problems of increasing pressure of population in the Hills. What should be the strategy of such a resettlement policy?
5. In view of the limited institutional capability for implementation of planned programs, should population control programs be concentrated intensively in selected areas or should they be made more extensive?

REFERENCES

1. Center for Economic Development and Administration: Seminar on Population and Development, Seminar Paper, No. 2, 1971.
2. Harkha Gurung: Population Aspects of Development, paper presented in the Seminar on Population and Development, CEDA, Kathmandu, 1974.
3. IBRD: Population Policies and Economic Development, Johns Hopkins University Press, Baltimore, 1974.
4. Ratna Rana and Y.S. Thapa: Population Migration in Nepal, paper presented in the Seminar on Population and Development, CEDA, 1974.
5. Nepal Rastra Bank: Agricultural Credit Survey, Vol. IV, Kathmandu, 1972.

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THE POPULATION FACTOR IN EDUCATIONAL PLANNING

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The relationship between education and human fertility, and hence the size and structure of population, looks rather complex. Population research indicates that differential levels of education of the masses of people have differential depressing effects on human fertility at various stages of socio-economic development. Thus it is not surprising that in developing countries which are at their initial developmental stage, whatever educational advance can be made would yield a less significant cut in the fertility rate than that which modest urbanization would probably achieve. While in developed countries with controlled population, further advance in the median schooling level acts as a force to make a deeper cut in the fertility rate than further urbanization would possibly achieve.

In the above comparison, population has been treated as the dependent variable, and levels of educational and socio-economic development and urbanization as independent variables. Within this frame of reference, too, it seems that the main effects of independent variables are not as significant as their interactional effects upon the size of population. But in the design and analysis of development plans, population can hardly be treated as the dependent variable. It is an independent variable, equally as important and co-extensive as other variables. Thus any plan, whether economic or educational, that overlooks the manipulability aspects of the population variable is intellectually a poor construct and pragmatically a dismal failure.

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Against these considerations, the case of Nepal will be analyzed with implications for policy formation and implementation. The analysis does not claim to be comprehensive in that it simply attempts to relate educational policy to population policy, and also may look somewhat parochial in that far from being a multi-disciplinary thought it represents some stray thoughts of an educator.

1. Given the low educational status of Nepal at the present time and assuming a most venturesome advance in the years ahead, it would be a wild fancy to assume that education in the sense of formal schooling will be the single best depressor of the fertility rate. The reason is obvious: what advance may be made will be (and needs to be) made in primary education, for at the present time not even half of the primary school-age population is in school; and primary education by its very nature is dysfunctional to effect any changes in attitudes toward better life. Recently under the new plan of education, the primary education period is being reduced from five years to three years, and it is further recommended that only 40 percent of the primary graduates should be sent up to the secondary level. . . . The long-term effect of this squeezing-in of education at the base and of lessening further educational opportunities would virtually close off any prospects of the Nepalese education's ability to create awareness to cut down the fertility rate. Thus population planners will have to seek some other alternatives rather than to expect that the intelligent toning up of the masses of people through formal schooling will act as a stimulus for fertility depression.

2. Nepal's educational plans have been neglecting so far to seek ways outside the formal system of education to educate the vast majority of young adolescents and adults in the fundamentals of knowledge (not necessarily the ability to understand and manipulate semantic symbols) including family planning. The relatively greater

emphasis given to formalized education is partially responsible for slowing the process of modernization, which in itself carries implications for a network of many more national activities than family planning alone.

3. At the secondary level, human anatomy and the biological processes are hardly taught as mandatory fundamentals of knowledge across the country. What information students get on these basics is simply incidental (accidental!).

4. Educational plans (and economic plans too) are designed under the constraint of the non-manipulability of the population factor, so what happens is that in the overall designing of the development plans this factor tends to get an uncertain value, or a value as furnished by the demographer. This sort of situation is symbolic of the virtual retreat of treating the population factor as the dependent variable. This is characteristic of the developing nations, and the case of Nepal is not different.

5. Rightfully, throughout the developing countries a philosophy of manpower-approach-to-education prevails, an approach which takes care of devising ways and means to feed the technological needs of nations in the process of modernization. But there are woeful experiences in that the analysis of these needs is too short-ranged to encompass the prospectives of the field to be changed, as per the consequences of the uncontrolled population factor. The case of Nepal is not different.

These considerations, if correct, then invite all planners, including the demographer, to venture out corporately beyond the traditional limits of futuristic planning, give differential values to the different factors including the population factor, build up several models of development, assess their relative costs and

benefits (both short-term and long-term), and make a selection of the rightfully judged alternative. An expediency of planning based on the perception of the field may require even an unusual investment-mix for purposes of development; for example, a heavy emphasis on fertility-reduction-education programs may be preferable to a heavy emphasis on the expansion of educational opportunities both horizontally and vertically. The gains to be accrued in per capita income which are due to successful fertility-control-education programs can theoretically be forecast and need to be taken into account when considering educational priorities. The problem is more complicated than merely projecting manpower or social needs while leaving growth of population a variable to be defined by nature.

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SOME COMMENTS ON
POPULATION EDUCATION

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INTRODUCTION

One of the most pervasive social problems today is the rapid growth of world population. There is a genuine realization on the part of planners in Nepal that Nepal's population problem is already affecting the country, and that this problem may indeed be very serious in the near future. The solution to the problems created by population explosion depends a great deal upon the willingness of people to direct their abilities and resources toward population planning, family planning, and individual reproductive responsibilities. In the development and implementation of effective population-related policies, population education is a must in the achievement of population adjustment.¹

Some objective evidence indicates that structural change in social institutions without intervening psychic change in individuals seems to have little or no effect on acceptance of birth limitation.² This attitudinal area should be given particular attention in programs aimed at increasing receptivity to the idea of family limitation. It is at this point that education must play a part in sensitizing upcoming generations to develop responsible attitudes toward population-related matters.

Although population changes have important implications for the educational programs at all levels of education, serious

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consideration on the part of educators to the possibility of some form of educational response to the population problem has begun only recently.³ Thus, it is not surprising that countries like Nepal have not yet fully explored the potential contributions and the possibilities of implementing population education programs. Attempts in this direction, at best, have been only sporadic⁴ and ineffectual. It is, therefore, high time for us to realize that Nepal cannot afford to experience the unmanageable magnitude of population problems before initiating planned approaches to attain a reasonable population adjustment. Population education is one of the potential approaches in this direction.

DEFINITION, PURPOSE AND CONTENT

The pace of population education movement has been so rapid that its nature and scope have not yet been clearly defined and accepted by all the concerned educators. For our purposes here, I have quoted the definition forwarded by Viederman. He defines "Population education" as the "process by which the student investigates and explores the nature and meaning of population processes, population characteristics, the causes of population changes, and the consequences of these processes, characteristics and changes for himself, his society, and the world."⁵ To put it in other words, "Population education is an attempt to create a deep, universal, action-guiding perception of the consequences of demographic changes."⁶ It should be clear that population education is not necessarily school instruction about the use of contraceptives. Instead, the major purposes of population education are to create population awareness in students; to develop in them responsible attitudes toward population matters; and to enable them to make rational decisions with respect to population-related matters. Thus, the proper content focus for population education is on the consequences for the society of population dynamics. The foci of

attention in population education should be on population dynamics, population characteristics and their relationship to policies for social and economic development, and population policies.

CURRICULAR APPROACHES

Population education does not have a distinct knowledge base yet. However, it represents a synthesis of knowledge from many fields, with its own structure and internal logic. Thus, the population education materials are best designed and prepared by an interdisciplinary team, including a population education expert.

The content of population education can be introduced into the school curricula in three different ways: namely, (a) infusing population education elements into the existing courses; (b) preparing separate units of study on population education to be added to the existing units in different curricula; and (c) introducing it as a separate course. Which of these three approaches might prove to be most efficient and effective is a question for empirical investigation. Considering the already crowded curricula and the additional burden of teacher requirement, some may want to rule out the third approach. However, it cannot be overemphasized that a well-designed separate course at the end of secondary education or at the beginning of college education may prove to be most expedient. The timing of the course should be such that it is offered when students are most ready psychologically to receive information on population. This is another area for empirical investigation. The "program infusion" approach is generally preferred by educators since it incurs least disturbance to the school curricula. The "separate units" approach is also equally feasible and is worth trying out. As the current educational plan requires both students and teachers to participate in some extracurricular activities, they might very well take up some worthwhile small population education projects.

Some⁷ have argued that the traditional nature of school environment in Nepal makes it non-conducive to introduce population education. I fully disagree with this view. In the first place, since population issues are concerns that affect all in their lives, the inclusion of population elements into the existing courses or its introduction as a separate unit may revitalize the curriculum. Given the adequate preparation of materials and minimal refresher training for the teachers, population education elements could be easily and beneficially included in the instructional program of a school, especially the subject areas like social studies, science, and health education.

So far, I have limited my comments to population education in school. This is precisely because I want to emphasize "population education" rather than "population control." For the development of responsible attitudes and rational decision-making capacity, education is required--not just advertisement. This same logic applies to population education outside the school.

Considering that only a limited percentage of teen-age population in Nepal receive formal schooling, it is necessary that high priority should be given to provide population education to these out-of-school youths. Moreover, there is some reason to believe that non-formal approaches to population education might be more efficient and effective; but it needs to be empirically verified.

Non-formal approaches to education provide excellent opportunities for the discussion of population issues. As for instance, population themes could be excellent discussion topics for cooperative societies, 4-H clubs, village assemblies, and even more so in functional literacy centers. Population literacy can be made an integral part of any learning system in a given community. Games and simulation exercises could be designed even for semi-literates.

For our purposes here, an appropriate strategy would be to first educate the "model figures", "idea men," "change agents" of a given locality in population matters. This will serve as a springboard for stimulating deliberations and wider dissemination of population information. Lastly, it needs to be emphasized that coordination on the part of all developmental agencies and workers is highly desirable in this new venture.

SOME PRE-REQUISITES FOR IMPLEMENTATION

Policies Related to Population Education

Some precise policies with respect to the nature, scope and means of population education need to be formulated, officially endorsed and publicly defended (I do not remember any statement referring to population education in the plan for 1971-76.) Communication and coordination between different agencies concerned with population planning are essential.

Curricular/Instructional

Following activities need immediate attention and action:

1. Definition and conceptualization of population education
2. Education of educational leaders concerning the potential contribution of education to the solution of population problems
3. Training of teacher educators
4. Training of teachers
5. Development of instructional materials and models
6. Research study on various problems related to population education

CONCLUSION

While concluding this short paper, I want to emphasize the fact that we have not yet explored the details of potential contributions and different dimensions of population education program. I suggest that in order to give some momentum to the initiation of a comprehensive population education program, Population Education Units be established in Tribhuvan University and Ministry of Education, respectively. The joint task force of these two units, along with the representation from other agencies related to population planning, should deliberate on this issue and design a relevant population education program for Nepal.

REFERENCES

¹ Southworth, W.H., "Whither Population Education" Journal of Social Health, 43: 152-3, March 1973.

² Miller, K.A. & Inkles, A. "Modernity and Family Limitation" Journal of Social Issues, 30: 167-88, Dec. 1974.

³ Wayland, S.R. "Population Education: A Worldwide Curricular Innovation" Educational Horizon, 51: 42-7, Feb. 1972.

⁴ Taylor, D. and Hamal, H. Population Education for Nepal, Chapel Hill: University of Carolina Population Center, 1974.

⁵ Viederman, S. "Population Education in the United States" Social Education, 36: 337-46, April 1972.

⁶ A definition proposed by Population Reference Bureau, as quoted by Southworth, W.H., op. cit.

⁷ See Taylor and Hamal, op. cit.

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SOME OF THE TRADE PROBLEMS
OF LANDLOCKED NEPAL

OMKAR LAL SHRESTHA *
T. K. JAYARAMAN *

Geographically sandwiched between India and China, Nepal's basic trade problems emanate from a huge commodity concentration and a high geographic centralization in its export trade. As presented in Table 1 below, over the period of ten years from 1960 through 1970, more than 98% of its total exports have been confined to India. Over the same period, its imports from India, even though showing some signs of gradual contraction, still account for over 90% of its total imports. The excessive dependence on one market for its entire foreign trade places Nepal in a unique and problematic situation. While the small size of the country impels Nepal to resort to international trade, its claustrophobic topography limits its option to trade with countries other than India. Trade with India thus presents itself to Nepal as a combined situation of monopoly and monopsony. Furthermore, India is also a transit country providing Nepal with an access to the sea. The cumulative effects of all these factors have resulted in weakening the bargaining position of Nepal as a trading partner in Indo-Nepal trade. None of the other 24 landlocked countries in the world appear to be subject to so many constraints on their foreign trade.

Looking at the export structure of the country, one notices that food alone defined as SITC Code '0', accounts for 60% of Nepal's total export earnings. But it has been seriously questioned whether Nepal is genuinely a food surplus country. This surmise is indeed substantiated by sporadic food problems in the hill regions

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Table 1

NEPAL'S GEOGRAPHIC TRADE CONCENTRATION

Year	Total Exports	Exports to India	Total Imports	Imports from India
1960-61	209,737	99.73	397,982	94.25
1961-62	265,221	99.50	444,414	98.93
1962-63	287,653	99.43	604,025	99.16
1963-64	291,171	97.87	604,557	98.52
1964-65	440,562	98.78	818,867	98.48
1965-66	375,106	98.77	781,989	97.64
1966-67	426,321	98.62	481,268	96.64
1967-68	392,980	98.33	477,776	92.33
1968-69	572,159	99.61	747,882	93.24
1969-70	489,247	99.16	854,671	91.62

Source: Quarterly Economic Bulletin, Nepal Rastra Bank, April 1974.

when the country's export data for the same year boasts of the bulk of food exports. The national income accounting definition of export ($EXP = TS - ADD$), thus represents the real export earning state of a country only when ADD truly reflects the total domestic demand. When ADD is an underestimate, the exports as a result become an overestimate. In Nepal's case, this appears to be true since there is a regional disparity in food consumption levels between the Hills and the Terai regions. The food surplus from the Terai region would have been, under normal circumstances of transportation, transmitted to the food-deficient regions of the Hills, but the lack of transportation facilities has been preventing the marketable surplus of the Terai reaching the inaccessible Hill areas. This has resulted in the transformation of the marketable surplus of the Terai into export to India. It is thus obvious that the exports to India from Nepal have an artificial appearance of domestic savings. In the event of improved transport facilities between the two regions, the surplus would be reduced substantially.

The Hill provides a mere 28% of the cultivated land for 58% of the total population. The ratio of man-to-cultivated-land is 3000 persons per square mile in the Hills as opposed to 880 for the Terai. A realistic population policy necessitates that the Hills be released from its staggering population and yet the instant impact of such policy could mean further reduction in the export volume, at least for the short run, resulting from a sharp increase in aggregate domestic demand otherwise suppressed.

Besides, in a separate study made by the author, India's elasticity of demand for Nepal's food has been found to be substantially greater than unity with respect to the ratio of India's national income to its agricultural income.¹ The income elasticity has been derived from the following behavioral equation:

$$X_F^D = 35.2062 - 11.9199 Y_{AG}^I / Y^I - 8.0704 P_F^X / DMP_F^I$$

(5.4765) (2.4013) (0.7271)

$$R^2 = .9319 \quad / \quad s^2 = 2.64$$

X_F^D = India's import demand for Nepal's food, SITC Code '0'

Y_{AG}^I = Agricultural income of India

Y^I = National income of India

P_F^X = Nepalese export price of food as faced by India

DMP_F^I = Domestic food price in India

The high income elasticity of Nepal's export demand for food indicates the susceptibility of Nepal's export earnings to the agricultural conditions in India. This renders Nepal's export earnings from food alone to India relatively unstable.

Nepal's total imports are likely to grow as a result of developmental efforts, whereas its major exports are subject to uncertainties in regard to total supply. Among these are weather conditions, unstable Indian demand, and growing domestic demand consequent to improvement in transport facilities with possible dispersal of population from the Hill to the Terai region. Nepal has been facing an adverse balance of trade for every year since 1956. Under these circumstances, if substantial improvement is not made in its exports in general and agriculture in particular, and if imports expand relatively faster, the indications are that the balance of trade of the country will grow even worse. So far, the deficits in the trade balance have been met by transfer of unrequited capital. The manner of meeting deficits by way of transfer of non-reimbursable capital can not be relied upon indefinitely.

Summing up, Nepal's main trade problems can be identified as:

- (a) Continuing trade concentration both in terms of market and commodity exports.
- (b) Increasing deficits in its balance of trade.

Both of the problems are likely to linger for some time to come. Both these problems are being structural in nature and long-run problems of the country and as such they require long-run remedies for their solution. Considering the trade concentration by market, trade diversification has been put forward as a solution to all problems, and it has been stressed as one of the cherished objectives in the past several development plans. However, it appears that there has not been any significant improvement towards that goal and Nepal's foreign trade concentration in terms of both commodity and market has remained virtually the same. This would require a critical study of the policies so far pursued with the intended objective of trade diversification.

One of the major policy instruments adopted to diversify Nepal's trade was the "Import Entitlement Scheme" initiated in 1962-63. The chief objective behind the scheme is to increase exports to the Third countries, rather than to India, by specifically reserving the incentives in respect of exports to the Third World countries only. Under the scheme, the exporters were allowed to import any commodities to the extent of 60% of their receipts from exports to Third countries, and the remaining 40% was to be spent on developmental goods.

The policy, for several reasons, did not appear to have yielded desirable results. The scheme stressed only the geographical aspect of diversification without considering commodity diversification. The incentives thus granted to the industries for exporting to countries other than India also led to a distortion of the country's

allocation of resources in a very unforeseen way. As Rashupati Rana² puts it effectively, the exporters took the opportunity to import materials, such as nylon fabrics and stainless steel, in large quantities under the scheme's provisions for free imports of any goods to the extent of 60% of export earnings. Then they added very little value to these commodities and exported them to India, which had closed doors to imports of the same nature from other countries.

In a way, these exports to India could be construed as constituting a departure from the traditional exports, but the diversification in exports was only spurious, to say the least. The export earnings were thus frittered away on unproductive goods and efforts which can be rightly called misallocation of scarce resources. This so-called diversification in export to India came to a halt when the latter put an end to the imports of both nylon fabrics and stainless steel goods from Nepal. These industries which purported to have added value domestically to the imports of these commodities disappeared overnight. This clearly brings out the undesirable manner in which resources were spent under this scheme until India stopped importing the goods referred to above. The domestic impact of these industries was very minimal in terms of generation of income, output, and employment opportunities, as the value added in these industries was very nominal.

Another aspect of the scheme which could be criticized is that 40% of the export receipts were supposed to be spent on so-called development goods. But these were not defined in any clear and concise way. This naturally led to importation of goods unconnected with export industries.

The import entitlement scheme covered only a small part of Nepal's foreign trade, since the proportion of trade with India

to total trade was substantial and it was excluded from the purview of the scheme. Consequently, the benefits from the scheme were confined to a small part of the total export sector. Had the scheme been drawn in a different way, such as promoting processed primary goods rather than agricultural raw materials without any geographical discrimination, the gains from the scheme would have covered the total exports sector and would have encouraged processed goods industries. Then the impact of the scheme in terms of generation of income, output, and employment opportunities would have been diffused throughout the entire economy. This would have laid a firm industrial base in the country and also would have met domestic demand for processed goods--at least partially, if not totally--which are now being imported from India. This would have reduced dependency on India in the long run. Furthermore, this would also have opened up markets in the Third countries when Nepal had gained experience in making processed goods to meet domestic demand. Thus, it appears that the twin objectives of reducing the country concentration and the commodity concentration in trade could have been achieved with greater assurance of covering the total export sector and of generating multiplier effects throughout the economy.

In regard to increasing deficits in the balance of trade of Nepal, as has been indicated before, substantial imports of capital and intermediate goods will be required for the developmental efforts of the country in order to lay a firm industrial base, as well as to provide an effective infrastructure in terms of power and transportation facilities.

It may be relevant to point out here that Nepal has a very high income elasticity of demand for imports of capital and intermediate goods as well as manufactured goods. One of the authors has estimated the income elasticity of demand for Nepal's imports

by SITC classification by using quarterly data for the five years from 1968 to 1972 and the results are given below.³

SITC Code	Imports	Income elasticity
3	Minerals and Fuels	15.21
4	Vegetables and Animal Oils	1.17
6	Manufactured goods classified chiefly by raw materials	3.62
7	Machinery and Transport Equipment	1.41
8	Miscellaneous Manufactured Goods	8.59

Nepal has no energy resources, and it has to depend on imports from India for coal in its various forms as well as kerosene and other petroleum products required. Similarly, for intermediate goods, such as iron and steel in its various categories and non-ferrous metals, Nepal's dependence on its neighbor and the Third countries has to continue for some time owing to the lack of mineral resources. Similar is the situation in regard to imports of electrical and non-electrical machinery and transport equipment.

Regarding imports of manufactured goods, though past behavior presents a high income elasticity of demand, there is scope for producing simple manufactured goods, such as soap and leather products, so as to reduce dependence on imports. In the short run, however, it appears that the deficits present in the balance of trade for the past several years would be likely to persist for some time as imports would have a substantial edge over exports.

Unless and until substantial energy and mineral resources are discovered in the country, the trend of deficits in the balance of trade cannot be reversed in the near future. Perhaps the extent of

deficit can be reduced to a tolerable level which can be met by way of capital inflow. One way of reducing the trade deficits is to encourage processing of primary goods to India and then importing them in processed form. It may appear that this would result in decline in export earnings because of reduction in exports of primary goods to India following the increase in domestic demand by the newly emerging processing industries, but the decline in export earnings would probably be offset by savings through the reduction in imports of processed goods. Apart from the gains in the limited sphere of exchange earnings and savings, a modern industrial base would be created, and it would indeed be an appropriate beginning to start with the primary processing industries in accordance with the principle of comparative advantage. The primary processing industries would not be expensive import substitution measures, as they do not militate against the economic criteria of allocation of resources. Further, experience gained in the production of simple processed goods, especially in the area of entrepreneurship and labor skills, in addition to the linkage effects both forward and backward, would augur well for industrialization of the country. As was pointed out earlier, new markets in the Third countries could be explored with confidence for processed goods, once ability to meet quality and other specification standards is achieved as a result of specialization.

In addition to the efforts in regard to promotion of earnings from visible items, efforts are needed to exploit the opportunities for earnings from invisible items. Here the importance of tourism can be stressed. Nepal offers unique tourist attractions. A proper exploitation of the natural endowments would strengthen the balance of payments position. The tourist industry has substantial forward and backward linkages for the economy and would also attract international investment in terms of hotel and resort facilities construction. An appraisal of efforts made in the area of tourist promotion and a bold and coordinated program are needed.

A discussion of the trade problems in Nepal would not be complete without reference to the bilateral trade treaties between the two countries. Nepal has signed three trade treaties with India during the past twenty-five years, and the present trade treaty expires in 1976. Hence, at this stage it will be useful to have an objective appraisal of the treaty provisions.

All three trade treaties have allowed free trade between India and Nepal. The Treaty of 1950, however, imposed restrictions on Nepal. These were: (1) that Nepal should adopt the same rates of tariff imposed by India as the minimum rates on her imports from Third countries, (2) that Nepal should not undersell her exports to India, and (3) this should be achieved by levying an export duty such that the landed price of imports from Nepal should not be less than the price of equivalent Indian manufactures.

Considerable criticism has been voiced against these provisions.⁴ A valid comment was made that since India wanted a common external tariff by requiring Nepal to adopt the Indian rates in regard to imports from Third countries, the association of Nepal with India would amount to a customs union and the benefits of a customs union can be realised at their best only when the association is one of equal status. If the members of a customs union have different levels of development, there is a likelihood of more gains going to the member country which is more advanced in economic development and larger in size and resources. Further, there is also the fear of emergence of economic dualism, in that the advanced country with a head start in industrialization may dominate the less advanced member country in manufacturing and reduce it to the level of being a supplier of primary goods alone.⁵ In the long run, there is also a fear of investment flows in terms of capital and skill both from within the region and outside the region being increasingly drawn to the industrial centers of the advanced member country. If these

polarization effects⁶ are allowed to grow, the political future of the association of the member countries of unequal size would be uncertain. In the theoretical literature on the subject, the remedies suggested are redistribution of gains from the advanced country to the less advanced countries, regulation of investment flows, and regional development, and all these are to be supervised by an effective supranational agency.

It may be seen that the Treaty of 1950 did not make any mention of these issues and it appears in hindsight that none of the signatories had any appreciation of the problems posed by a custom union. Only the next treaty signed in 1960 showed some understanding and sought to recognize the unequal status of Nepal in a trade association with India.

The second provision, namely that Nepal should not undersell India in her manufactures, also invited criticism on the ground that the emerging manufacturing sector of Nepal would not be able to meet the Indian competition anyway; but it was felt that wherever the efficient infant Nepalese industries are able to make any headway, they should be encouraged rather than discouraged and priced out of the market. Though theoretically the criticism is valid, realistically speaking, the manufacturing sector of Nepal was then an extremely small part of the total economic activity and hence the impact of this provision was minimal.

The Treaty of 1960 displayed an awareness of the critical atmosphere and hence a spirit of accommodation towards the less developed partner. Though the treaty deliberately uses the term "common market" toward which the trade relations were designed to move, there was no attempt to spell out the issues posed by a customs union let alone a common market, which is a far more advanced concept in that common market visualizes free movement of factors of production in addition to free flow of trade.

The Treaty of 1960 did not impose the need for Nepalese tariff structure to be in consonance with the Indian tariff structure and hence provided freedom for Nepal to have its own tariff structure against the Third countries. The Treaty of 1960 also enabled Nepal to impose protective duties or quantitative restrictions on imports from India so that the infant industries in Nepal could be able to overcome the initial handicaps of development.

Thus the Treaty of 1960 sought to meet the valid criticism of the earlier treaty by enabling Nepal to pursue an independent tariff policy against the Third countries and to pursue a policy of encouraging infant industries by providing protection against the imports from India. In essence, the association became one of a free trade area rather than a customs union, since it enabled both the partners to have different tariff structures against the rest of the world but permitted free trade between the member countries. Regarding the impact of the proviso giving freedom to Nepal to levy protective duties for the purpose of encouragement to infant industries, it appears there are no studies available to quantify the gains emanating from this freedom. Hence it becomes difficult to assess its quantitative impact. It appears such studies are needed so as to enable the policy decision-makers to arrive at appropriate decisions and make an effective case for or against a free trade area at the negotiation table when the treaties are to be revised from time to time.

The Treaty of 1960 was replaced by the Treaty of 1971. The new treaty imposed a condition that Nepal's exports to India should have at least 90% Nepalese materials or Indian and Nepalese materials. This particular provision has provoked considerable criticism in Nepal.⁷ It seems to have been influenced by the earlier Nepalese exports of nylon fabrics and stainless steel. Mention has been made that little value was added by the Nepalese exporters to those

exports so that they had no impact on the domestic economy in terms of generating income, output, and employment opportunities. In a way, the new provision can be looked on favorably as having a salutary effect on Nepalese production of exports with emphasis on the role of linkage effects in terms of a larger impact on the economy. But it is not clear as to why such a high percentage came to be imposed. Any economic activity, let alone export industry, in an emerging economy such as Nepal has to depend on certain tradable inputs. The nontradable inputs are limited to items like electricity, transportation, etc. Substantial requirements in terms of chemicals, cement and similar intermediate goods are needed if it is considered that the major components are domestic raw materials such as raw jute or tobacco or leather. Furthermore, in the case of exports, the standards of specification and quality are far stricter, and naturally more care has to be taken so that import content understandably would be at least somewhat higher than for goods meant for domestic consumption. In an infant economy like Nepal, 10% as the maximum permissible import content seems to be too low a figure. In the absence of an input-output table for Nepal, it is difficult to pin it down to a specific percentage. However, it appears reasonable to have a higher figure than the present one. It is therefore necessary to have further research done in this area also which will be useful to the policy makers before going to the negotiation table next year when the present treaty expires and the new one is due.

Indo-Nepal trade relations have thus been marked by free trade between the countries, which is to the advantage of both the countries as any restrictions on trade would lower economic welfare and result in misallocation of resources. The exception is in the area of protecting infant industries in order to overcome their historical handicaps. Nepal's trade relations with the rest of the world are not very significant at the moment, and it appears that

the present situation of free trade with India and freedom to have an independent tariff structure against imports from the outside world would be better than a customs union with India. In the event of a customs union, Nepal has to have the same tariff structure as India against the imports from the Third countries, and this is higher than the present Nepalese tariff structure. The trade diversion losses as a result of an upward revision of the present Nepalese tariff structure in keeping up with India's tariff structure or in accordance with the negotiated common external tariff scheme would have to be realized. Presently the proportion of Nepal's trade with the rest of the world being small, the trade diversion losses would be much smaller than otherwise.⁸ However, at the present stage of economic development, it appears far more desirable to have an independent tariff structure against the Third countries in order to have less restricted or free access to commodities from the rest of the world, which would be precluded under a customs union with India. Though the losses from trade diversion for Nepal are not substantial in the event of the formation of a customs union with India, it is questionable whether it is necessary at all to undergo such losses, even though minimal, especially when no additional gains are to be realized from such a formation since there is already free trade with the rest of the world.

FOOTNOTES

¹ Shrestha, Omkar, L., Foreign Trade Model of Nepal: 1960/61-1969/70: Some Aspects of Its Trade with India; Ph.D. Dissertation, University of Hawaii, 1975.

² Rana, Pashupati, S., Trade, Kathmandu: Center for Economic Development and Administration, 1972.

³ Jayaraman, T. K., Effects of a Hypothetical Customs Union in the Indian Sub-Continent, Ph.D. Dissertation, University of Hawaii, 1975.

⁴ Shreshtha, B. P., An Introduction to the Nepalese Economy, Kathmandu: Ratna Pustak Bhandar, 1966, pp. 161-63.

⁵ Mikesell, R. F., "The Theory of Common Markets and the Developing Countries," in Harrod, R.F. and Hague, D.C., (eds.) International Trade Theory in a Developing World, London: Macmillan, 1963, pp. 205-229.

⁶ Hirschman, A. O., The Strategy of Economic Development, New Haven: Yale University Press, 1958.

⁷ Lohani, P.C., "Indo-Nepal Trade and Transit Treaty of 1971," The Motherland, (Daily Newspaper), Kathmandu, August 23, 1971.

⁸ Jayaraman, T.K., op. cit.

DISCUSSION GROUP I

299.

TOPIC: CURRENT AND PROJECTED DEMOGRAPHIC SITUATION IN NEPAL

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Tom Poffenberger	Population Planning, University of Michigan
Mohan Man Sainju (Facilitator)	Tribhuvan University
Madan Shrestha	Education, Pennsylvania State
Mohan Shrestha	Geography, Bowling Green University
John Stoeckel	Demography, U.C.-Nepal Team
Basu Dev Uprety	Statistics, U.C. Berkeley

* Rotating among groups

QUESTIONS FOR CONSIDERATION:

- What information is necessary to statistically monitor the population of Nepal?
- How can the needed information be obtained?
- What is the current demographic situation in Nepal?
- What are the expected demographic trends in Nepal?
- What are the implications of Nepal's demographic trends for population policy development and the family planning program of Nepal?
- What are the current demographic research needs in Nepal?
- How important a factor is migration to Nepal's demographic situation?
- What type of evaluation and data collection should be a part of the family planning program?
- What is the likely trend of mortality and fertility under different kinds of policies?
- What are the effects of internal migration on regional development and urbanization?
- Is it possible and desirable to control the internal movement of people?
- Given the resources of Nepal, what is the optimum population of the country?
- Will Nepal become a net importer of food, and what implications will this have for the level of living?

DISCUSSION REPORT:

1. Neither the past nor the current and, thus, certainly not the projected future demographic trends in Nepal can be determined with any degree of accuracy because of a lack of reliable vital statistics.
2. Effective socioeconomic policy as well as population policy cannot be formulated without accurate demographic data. Such data are particularly important for planning and initiating health and family planning programs.
3. In view of this situation, it is imperative that baseline demographic data on Nepal be collected as soon as possible.
4. At least three types of data should be given priority:
 - mortality data, particularly infant mortality and early childhood mortality
 - fertility data
 - migration data
5. Several existing sources of data as well as planned data collection activities could be used more fully. These include:
 - a. The Sample Census Survey -- this survey will be conducted in the very near future and emphasize the collection of statistics on migration. Consideration should also be given to including questions on fertility and mortality.
 - b. The Citizen Registration Plan -- while this plan has not yet been implemented, and if implemented, will take approximately two years to complete, it has the potential of yielding valuable data on migration and fertility.
 - c. Family Planning Health Aides -- there are now about 1,000 Health Aides in the country. The possibility exists of using some or all of these HAs to collect vital statistics in selected Districts. Consideration should be given to using the HAs two working days each month to collect vital statistics in their areas.
 - d. Local Astrologers, Midwives, etc. -- in every village there are individuals who are consulted before marriages, who assist at birth and death ceremonies. In selected areas, the possibility exists of training these individuals to record vital events in their village.
6. The UNFPA or USAID are possible sources of funds for data collection activities.

7. There is a need to coordinate data collection activities in Nepal. Often one ministry of the government or one department is unaware of the data collection activities of another ministry or department. A central coordinating sub-committee, located within the newly formed Population Coordination and Policy Committee should be established. This sub-committee would monitor data collection activities, determine data collection priorities, and disseminate information about data sources to all branches of the government. The sub-committee would act as a clearinghouse on data collection activities. Thus it might be possible for one branch of the government, say the Family Planning/ICB Project, to add a fertility question to a survey being conducted by another branch of the government.
8. If national sample surveys prove difficult to conduct or too expensive, consideration should be given to surveys limited in scope but capable of providing prospective data over time.
9. While mortality, fertility, and migration data needs should be given priority, socio-cultural factors affecting fertility must also be considered. Little is known in Nepal about attitudinal and behavioral variables affecting fertility. The University and CFDA are institutions which can provide information in this area.
10. A series of detailed monographs based on data from the most recent census should be produced. These monographs should deal with mortality, fertility, and migration.

DISCUSSION GROUP 2

TOPIC: CURRENT DEMAND AND FUTURE EXPECTED DEMAND FOR FAMILY PLANNING SERVICES IN NEPAL

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QUESTIONS FOR CONSIDERATION:

- Why do families in Nepal at present produce a large number of children?
- How receptive might they be to having fewer children?
- How receptive is the population in Nepal to the available family planning services?
- What are the social and cultural supports for family planning acceptance and small families?
- What new conditions are causing an interest in smaller families?
- What are the social and cultural barriers to family planning acceptance?
- What effect does the role and status of women have on the acceptance of family planning?
- What types of educational and informational programs might best help overcome resistance to family planning and provide an understanding of the benefits of small families?

DISCUSSION REPORT:

After some discussion, the group arrived at two basic assumptions for further deliberations:

1. That unprecedented population growth is a serious problem in almost all developing countries, including Nepal. The reasons for that growth are manifold. They are social, psychological, cultural, political, and physical. The group felt that there is no set group of reasons which can serve in general as a base for a standardized approach to family planning in all communities, at least, not for some time to come.
2. That the so-called illiterate and poor members of a nation are fully aware of their problems and needs, and are concerned about their betterment. The only difference is that their frame of reference has not yet changed with the same tempo as is the case with those who deal with them in the context of new values or innovations.

Generated from these assumptions were two areas on which the group concentrated:

1. What are the factors which hinder the promotion of family planning programs in the developing countries? Pamavtar Yadav presented the summary of the group discussion in this area.
2. What can be done for the promotion of family planning programs? The summary of discussion for this part was presented by Marl Poffenberger.

The summaries for these two areas are given below:

1. Factors hindering the promotion of family planning programs:
 - a. Nepal's cultural and ethnic heterogeneity in language,
 - b. Lack of communication, both in terms of geography and language. The geographical topography makes it very difficult to reach the potential acceptors for delivery of family planning information and services. The linguistic variation hinders the development of educational material and training programs, and requires an

- increased and elaborate system of effort to reach the groups scattered in difficult terrain and speaking a variety of languages.
- c. High mortality: In spite of Dr. Ratcliffe's contention that fertility and mortality are two independent variables, the group felt that the mortality rate does have its impact on the mentality of the people and more so in Nepal where the mortality rate is high.
 - d. Status of women and their relatively less significant role in various decision-making processes, and relatively little participation in the newly emerging economic activities.
 - e. Field workers' high rate of turn-over and poor recruitment procedures.
 - f. Training of the field workers and those involved in their training is not adequate in terms of training content and time.
 - g. Less than adequate availability of family planning services in various parts of the country.
 - h. Little or almost no involvement and participation of local community in family planning and evaluation schemes.
2. Suggestions and Recommendations:
- a. A large number of Nepali couples are not practicing contraception even where services are available. This seems to be due, in part, to a fear of side-effects, supported by negative stories circulating in the community, and to a distrust of family planning workers who have come from outside the community.

Through better follow-up services the problem of side-effects can be diminished, and by Nepali communities' selection of local individuals for training as family planning workers to work in their own localities, more trust and confidence might be developed toward family planning workers and methods. Such a program of local selection might also enhance the prospects for community involvement in the family planning program. Ideally, the

family planning workers selected by the community might fit the following criteria: Married, with at least two children, and who are currently practicing family planning. It was also suggested that workers be at least 30 years of age and that some priority should be given to obtaining female family planning workers, or possibly husband-wife teams. Education and literacy should not be given high priority in the selection of family planning workers.

- b. A large number of Nepali couples seem to find both advantages and disadvantages in large and in small families. Family planning must assist these couples to decide for themselves that a small family may be advantageous by stressing the advantages of a small family while minimizing the importance of large families. The worker must allow the couple to draw such conclusions themselves rather than simply informing them that they should have a small family. In order to facilitate this approach, continuing emphasis must be placed on training the worker in carrying on such dialogues.

The family planning worker might also act as an organizer and change agent, contacting individuals in the community who are influential in developing and supporting community norms. Such leaders might be able to modify norms to be more acceptable and supportive of family planning.

- c. One reason which is sometimes given for the success of certain family planning programs has been the ability of staff to stimulate community involvement. However, in many nations such programs tend to be imposed on communities from the top without achieving local involvement. Action should be taken to experiment with new techniques for drawing local communities into local family planning efforts.
- d. Demographers have known for some time that delayed marriage has an important impact on lowering fertility. Socio-economic incentives for delaying marriage in Nepal need to be developed. Such an incentive might be the development of localized, cooperative cottage industries, possibly

organized through the Nepal Womens' Organization or the Village Panchayat System, where unmarried women could earn a cash income and where the cooperatives could offer cash incentives to delay the marriage of women employees. Such a local community co-op would also bring cash into the community and could be used as a locus for organizing other developmental projects. Such projects could include re-forestation and horticultural, public health, and educational programs, to name just a few. Such local co-ops could use production models developed in Kathmandu by a committee of social scientists, market researchers, and representatives from local village areas, to insure marketability of cottage industrial products. Furthermore, such a committee could give loans to villages or organizations interested in starting such ventures, with a minimum amount of "red tape."

- e. Finally, the group recommends that local family planning/maternal child health workers might be trained and equipped to use the vacuum technique for menstrual regulation. Data available seem to indicate that such a method would be well received in Nepal.

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DISCUSSION GROUP 3

TOPIC: THE SUPPLY AND DELIVERY OF FAMILY PLANNING SERVICES IN NEPAL

PARTICIPANTS:

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Prakash Uprety	Anthropology, Madison
Jerry Young	Population Planning, New Era

QUESTIONS FOR CONSIDERATION:

- How can family planning services best be delivered in Nepal?
- What are the implications of integrating or not integrating the family planning and primary health delivery systems?
- The relative advantages of certain contraceptive methods compared to others, with respect to each of distribution, use effectiveness, minimization of side effects, cost, storage, and client acceptability.
- What is the present role of international donor assistance in the family planning program of Nepal? How can this assistance be improved?
- What are the necessary types of jobs in family planning field work? What qualifications and characteristics are necessary or most suitable in the personnel who would fill these jobs?
- How can field worker performance be increased?
- What are the expected personnel needs for the family planning program and how can personnel best be trained?
- What kind of training programs could best help provide the needed personnel for supplying family planning services?
- What sort of supportive and supervisory system is required to recruit, train, and guide the field work aspects of an effective family planning program?

DISCUSSION REPORT:

The group started discussion with reviewing the existing supply and delivery of family planning services in Nepal. The areas of concentration for discussion were the following:

1. Concept of availability of family planning non-clinical distribution of contraceptives at household level.
2. Concept of maximum utilization of the existing health facilities to promote both clinical and non-clinical family planning services.
3. Continuous improvement and expansion of training activities.

In order to meet the growing demand for supply and delivery of family planning services in Nepal, the group makes the following recommendations:

1. that the family planning program be given top priority in national scale
2. that necessary action be taken for at least a year's supply in stock.
3. that serious consideration be made to remove the prescription requirement for oral pill.
4. that a unit be established in the FP/MCH to explore the possibilities of providing non-clinical distribution of contraceptives (oral pill, condoms, and others) on household leases.
5. that various kinds of incentives be explored to determine their feasibility for having impact on fertility behavior. Some of the incentives to explore being:
 - social incentive
 - cultural incentive
 - community incentive
 - incentive directed toward the workers
 - incentive directed toward the acceptors
6. that priority be given to the training of medical doctors in sterilization programs and of nurses in IUD insertion programs.
7. that the minimum educational requirement of the grass-root level workers be waived to have more local people to work for the FP/MCH program locally where necessary.

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DISCUSSION GROUP 4

TOPIC: NATIONAL GROWTH AND POPULATION PLANNING: THE MACRO-PERSPECTIVE
ON POPULATION POLICY IN NEPAL

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QUESTIONS FOR CONSIDERATION:

- What is the purpose of limiting population growth in Nepal? What are the implications of not limiting population growth in Nepal?
- What are various goals of national policy in Nepal, and among these, what are the priorities?
- What priority is placed on population policy vis-à-vis other national policies?
- What should be included in a national population policy for Nepal?
- The current economic plan for Nepal considers the question of future population growth. Are there additional features that should be considered?
- What further research needs exist in the area of population policy formulation?

*Rotating among groups.

- At the Bucharest Conference on World Population some delegates claimed that population programs distracted attention and effort from economic development. Need this be the case?
- Can national policy objectives in the areas of economic development, agriculture, education, and health be made to further national population policy objectives, and vice versa?
- What are the costs of limiting population growth in Nepal as compared to other programs of national development?

DISCUSSION REPORT:

1. The Premises: There was a consensus among the participants of this working group that the chapter on population policy of His Majesty's Government's 5th Five-Year Plan represented a comprehensive statement of the purposes of limiting population growth in Nepal. Furthermore, it was felt that, following earlier presentations during the workshop, there was no need to recapitulate the implications of not limiting Nepal's population growth. There remained the question, though, of just how evident the need of limiting population growth was to policy makers outside of the Government's Population Policies Coordination Board. It was stated as an observation that Nepal was not homogeneous with respect to the felt impact of its population problem. For certain sparsely populated areas, e.g. parts of the Western Terai, a higher population density was in fact considered desirable with a view towards curbing the uncontrolled settlement of these areas from across Nepal's border with India.
2. Relationship of Population Policy Goals to Nepal's Development Objectives: It was noted by the group that the major objectives of Nepal's population policy, namely,
 - (a) balancing Nepal's rate of population growth with a role of economic development considered feasible;
 - (b) influencing the spatial distribution of Nepal's population in accordance with the distribution of its physical resources; and
 - (c) maximizing the utilization of manpower,
 were in themselves supportive of the development objectives of the 5th Five-Year Plan. At the same time it was understood that the Plan's

overall objective of orienting economic activities more closely towards meeting the basic needs of the people and of achieving regional balance of the development process had important population policy implications and that a substantial reduction of current fertility levels was basic to the achievement of these objectives.

3. The "Regionalized" Approach as a Characteristic of a Population Policy for Nepal: A major advantage of a regionalized approach under the national population planning programme was seen in maximizing the impact of scarce resources. In practical terms, this could mean a geographic differentiation in terms of emphasis on family planning methods, with non-medical methods receiving greater attention in areas short on medical infrastructure and programme personnel. Moreover, a policy of tolerating or encouraging differential rates of population growth would be consistent with and supportive of the 5th Plan objective of balanced regional development. Since this regionalized approach did contain the risk of detracting from a national outlook with respect to Nepal's population policy, it was important to recognize the interim character of the regionalized approach, with the general policy for Nepal representing the long-term perspective.
- The Function of Quantitative Targets as an Element of Population Policy: The setting of quantitative objectives, as given in Nepal's 5th five-year Plan with respect to population growth and infant mortality, was considered highly desirable, both in terms of justifying a resource allocation in keeping with the magnitude of the effort required and for establishing a benchmark against which to evaluate progress. Yet it was realized that for lack of data it was so far impossible to define these objectives in terms of their demographic components. What could be done was to decide on a desired path of population change over time which was deemed feasible and which would be subject to constant evaluation. Because of their long-run character, quantitative demographic objectives would in the beginning merely indicate the direction for action programmes. While these got underway they were expected to stimulate the generation of data which would, in turn, permit a further precision of the demographic goals. Among alternative methods of data collection the introduction of a

vital registration system was considered an important means of collecting baseline data.

5. Policy Measures Related to Migration: His Majesty's Government's policies with respect to settlement and employment, which influenced internal and international migration, were discussed extensively. Mention was made of the Government's efforts to provide the necessary infrastructure for planned settlement wherever possible. In other areas including all forest areas in the hills, the Government had to confine itself to protecting certain forest areas leaving other areas open for spontaneous settlement. The question was raised whether internal migration would continue to provide an outlet for the population pressures which made themselves felt in some areas of the country. Indications were that resettlement in the terai as well as out-migration to India or opportunities for earning supplemental incomes in India, which were the other traditional outlets, might no longer be possible within four to six years' time. In the face of the assumed reversal of the traditional migration pattern between Nepal and India the early adoption of a Civil Registration system in terai districts for registration of citizens and non-citizens and preparations for the introduction of a system of renewable work permits are needed. In view of the sensitivity of the question and the potential weight of any counterreaction on the part of the Government of India, the participants agreed that the Government's current approach of moving toward a registration system without, for the time being, considering the introduction of visa requirements was the most practicable one. In this connection it was also mentioned that the Government's manpower development policy should be considered as an element of population policy since it would serve to reduce directly the need for immigration of skilled workers from India.

6. Policy Measures Related to Fertility Reduction:^{1/ 2/}

6.1 The availability of family planning services and contraceptive supplies at the community level was considered essential. Legalizing of abortions was considered desirable as a means of broadening of the spectrum of methods for fertility regulation. Family planning services should involve village panchayats and be integrated with other development services to the extent possible. Considerations in favour of integrated approaches were that family planning services and other development programmes which served to uplift the people could be mutually reinforcing. It was observed that social groups who had experienced an improvement of their economic situation were often more receptive to the concept of fertility limitation. Secondly, the group thought that a simultaneous promotion of development objectives which would hasten the social change processes which were conducive to a lowering of fertility was in itself an important contribution to Nepal's population policy. Thus, the adoption of a package approach was considered desirable wherever service programmes were complementary.

6.2 Population education was considered important as a supportive measure. Introduction of population education in the formal school system should be considered at all levels, not just for students of college age. It was emphasized that it was a misconception to equate population education with sex education and that population education elements could suitably be introduced even in readers for primary schools. In addition, population education and family planning messages should be included in non-formal education programmes and disseminated through mass communication channels, e.g. radio broadcasts.

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- ^{1/} The Working Group did not specifically address itself to the objective of mortality reduction.
- ^{2/} The points covered below are not presented in the sequence as developed by the group nor is their order meant to imply an indication of priority.

6.3 A broad range of action programmes affecting the status of women was recommended for adoption. These included legislative changes, such as raising the legal age of marriage and a special emphasis on promoting female education and female employment outside of the agricultural sector. It was noted that at present only five percent of adult Nepali women were literate; thus, it was concluded that in addition to keeping women out of the marriage system longer, female education could have a strong independent effect on lowering fertility through a significant increase of female literacy. Priority consideration of women applicants was recommended with respect to fellowships and access to professional employment. This was necessary, in particular, for increasing the number of female physicians in the national MCH/FP project and of female social scientists whose contribution was needed for the design and implementation of surveys.

6.4 The discussion group likewise recommended a number of measures "beyond family planning" which were thought to be of particular relevance to the modern sector of Nepal's economy. The most frequently cited of these measures, such as restructuring regulations concerning maternity leaves and benefits, prohibition of child labour, compulsory school attendance, and limits to tax exemptions for large families, were designed to influence fertility by affecting the costs related to birth and upbringing of children. Others, e.g. the provision of adequate old age security for Government employees, could substitute for the benefits otherwise only afforded by a large number of offspring. It was noted that even though the public sector was rather small, Government employees and their dependents numbering not more than some 500,000 people, the scope for action in this sector was considerable. If civil servants could be induced to keep their family sizes small this would have the important secondary effect of demonstrating their commitment to the Government-sponsored programme of fertility limitation. For the same reason it was important to include the armed services in any special programme efforts. The personnel of the armed forces enjoyed a somewhat higher income, showed themselves to be receptive to new ideas and were generally considered as opinion leaders.

6.5 Among all development programmes which could be made to contribute to the adoption of the small-family norm agrarian reform programmes were considered to be particularly promising. It was recommended to consider legislative changes whereby low-fertility groups would have priority in the distribution of land titles to newly settled areas or in establishing security of tenancy, first preference should be given to couples who had limited their family size by adoption of terminal method. Likewise, it was important to abolish any male side preferences for ceilings on agricultural land holding.

6.6 A comparative assessment of the effectiveness of these measures, including, where relevant, their relative cost-effectiveness was considered desirable but virtually impossible for lack of data; there was a clear need for studies in this area. As a general policy, positive incentives for limiting family sizes were considered more acceptable and probably more effective than penalties on high fertility.

7. Institutional Framework: It was agreed that with the creation of the Population Policies Coordination Board an important step had been taken towards concerted action in support of Nepal's population policy. The Board, supported by an initially small population research unit, would seek to increase the awareness of the relevance of sectoral mandates of different ministries to population and would have a coordinating role with respect to various programme approaches. In addition, the Board would be responsible for advice on the demographic models used for planning functions and for the setting of research priorities.

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DISCUSSION GROUP 5

TOPIC: INNOVATIVE POPULATION POLICY IN SUPPORT OF THE FAMILY PLANNING EFFORT IN NEPAL

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QUESTIONS FOR CONSIDERATION:

- What types of programs in Nepal are likely to reduce growth rates?
- What type of international agreements are necessary to solve Nepal's migration problems?
- Should economic or other types of incentives be used in the family planning program?
- To what extent should the family planning program be integrated with the health delivery system?
- Is there the possibility of encouraging marital postponement in Nepal?
- Can education about population be included in primary school and in adult education programs?
- Would the provision of abortion facilities have a significant effect on the birth rate?
- Can indigenous practitioners significantly contribute to the family planning program?

*Rotating among groups.

- Could laws regulating the inheritance of land be formulated so as to strengthen incentives for fertility control?
- Can monetary incentives decrease fertility in Nepal? If so, by how much and how rapidly? What kinds of monetary incentives would be most effective?
- What other types of positive incentives such as health, education, housing, or social security and other benefits might be useful for families or women who limit their fertility? What are the possibilities for these in Nepal?
- What other policy measures should be considered?
- What are the research needs in the area of innovative population policy?
- Would regulation of child labor contribute to lower fertility? What are the prospects in Nepal?
- Can special efforts be made to further the employment of women in non-agricultural activities?
- Can inequalities of women in schooling, inheritance of property, and professional advancement be overcome?

DISCUSSION REPORT:

After general discussion of the topic at hand, the group elected to focus on three specific sectors in which government consideration and action might be undertaken in the near future. The three areas are:

- a) the education sector;
- b) the organized sector; and
- c) the legal sector.

It was the sense of the group that opportunities for early, effective action existed within these areas, and that well-designed sectoral policies and programs could serve to substantially augment achievements of the national family planning program. Specific policies and programs were suggested for early consideration. The group observed the importance of developing an outreach capability to extend family planning supplies and services throughout the villages of Nepal, noting that this should be a high-priority, cornerstone action in the building of a strong national population policy in Nepal.

After selecting the three areas (education sector, organized sector, and legal sector) for detailed discussion in the short time available,

the main group divided into three subgroups, each to consider one of the three subject areas. A summary of observations and suggestions from each of the subgroups follows:

Subgroup A -- The Education Sector

It was suggested that population education efforts in Nepal might well be aimed at the following four target groups, each to include the below-listed objectives and content:

Target Group I -- Policy-makers and Leaders

- a) Objective: to formulate, implement, monitor and evaluate programs in a coordinated fashion to reinforce Nepal's articulated population goals.
- b) Content: consequences of population growth; responsibilities of leadership in setting examples; national development policies, including examples of how they often compete with one another and how they relate to the population variable.

Target Group II -- Professionals, Providers, Service Groups

- a) Objective: to enable these groups to understand and assist in the formulation and implementation of effective population policies and programs.
- b) Content: the relevance of family planning in achieving socio-economic and personal and health goals; how to approach people about family planning; how family planning practice among their service recipients can facilitate the delivery of professional services; the rewards of being involved in family planning service.

Target Group III -- Students in Formal Education System

- a) Objective: To formulate and implement life goals which facilitate personal upward mobility consistent with the population goals of Nepal.
- b) Content:
 - 1) Population characteristics, processes and causes of population changes
 - 2) Consequences of rapid population growth
 - 3) Need for population planning both at macro- and micro- level
 - 4) Population policies
 - 5) Family planning information

Target Group IV -- Community Outside of Formal Educational System

- a) Objective: To formulate and implement life goals which are personally satisfying and consistent with the population goals of Nepal.
- b) Target Groups: Adults, Young People, Opinion Leaders
- c) Content Area:
 - 1) Relevance of family planning to the welfare of the community
 - 2) Family planning information
 - 3) Individual responsibility with respect to population matters
 - 4) Benefits of having a small family

Subgroup B -- The Organized Sector

Concentration on possible policies and programs involving the organized sector was deemed important by the group as a means of greatly increasing the manpower involved in the population/family planning effort at relatively low marginal cost. Specifically cited for involvement were groups such as:

- a) panchavats
- b) class organizations (women's, peasants', ex-servicemen's, youth, labor)
- c) educational institutions
- d) other voluntary and government organizations which have some potential for promoting family planning and/or population activities

The group suggests that the organized sector could be involved in two principal activities:

- a) educational programs
- b) service programs

Suggested functions of organizations involved in the family planning effort could include:

- 1) Voluntary Family Planning Association
 - a) Education
 - b) Training
 - c) Legal aspects -- initiate action to legalize abortion

- 2) Ministry of Panchayat -- facilitating provision of contraceptive information and services through village panchayat
- 3) Ministry of Education
 - a) Education -- population curriculum
 - b) Involve other agencies to carry out adult education of population -- both formal and informal
 - c) Include family planning in the health activities in which students involve themselves when they do social work in the village for one year before their graduation
- 4) Ministry of Agriculture -- Involvement of JTAs (agricultural extension workers) in providing family planning services to the villagers
- 5) Traditional Practitioner -- Ayurvedic could be very appropriate source in distributing contraceptives like pills and condoms
- 6) Resettlement Programs -- Could be involved in providing family planning services among the farmers resettled in new agricultural land

Selection of Such Agencies

The group agreed that the National Population Policies Coordinating Board should consider assigning a high priority to the involvement of all the above agencies in promoting family planning activities.

Experimental Projects -- Effective action programs carried out by the organized sector demand efficient coordination and cooperation between the Family Planning Board and the concerned agencies. The group suggests, therefore, that experimental projects be undertaken to test the various contributions of these agencies. The following four agencies are suggested for the experimental program:

- 1) Nepal Women's Organization -- Since the Chairman of the Women's Organization is a member of the National Population Policies Coordinating Board, there is greater possibility of involving this organization early.
- 2) Agriculture Ministry -- JTAs have direct contact with the farmers. They are responsible for giving innovative ideas in agriculture. They can, therefore, play an extremely important role in disseminating information and family planning education to the farmers. They could also distribute pills and condoms.

- 3) Tribhuvan University -- Graduates going to work in the village for one year who concentrate their activities in Health, Agriculture, and Construction.
- 4) Village Panchayat -- Select member of panchayats for experimental program to test their receptiveness, interest and ability to function effectively as sources of contraceptive information and service at the village level.

Subgroup C -- The Legal Sector

Four suggestions for actions in the Legal Sector grew out of the discussion:

- 1) Mandatory registration of marriages, births, and deaths; all marriages below age 18 should be illegal and liable to penalty.
- 2) Undertake study of physicians' attitudes toward abortion (Hypothesis: many physicians probably are in favor); continue efforts to legalize abortion in Nepal.
- 3) In setting tone for continued movement toward liberalized abortion law, a special conference on abortion might be held in the near future, inviting people from Bombay and other areas in Asia where legalized abortion has been attained.
- 4) With regard to improving the status of women, the national panchayat should require that all local panchayats elect 3-4 women members (of the total of 11).

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WORKSHOP-CONFERENCE

POPULATION, FAMILY PLANNING, AND DEVELOPMENT IN NEPAL

Berkeley, California

August 24-29, 1975

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- SHRESTHA, OMKAR L.
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- SHRESTHA, SURENDRA B.
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- UPRETY, PRAKASH, Ph.D.
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Advisor to the FP/MCH Project, Nepal

VISITORS TO THE WORKSHOP-CONFERENCE

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University of California, Berkeley

HEYMAN, IRA
Vice Chancellor
University of California, Berkeley

MATKIN, GARY
Business Officer
University of California Extension, Berkeley

STERN, MILTON
Dean, University of California Extension, Berkeley

WINKELSTEIN, WARREN
Dean, School of Public Health
University of California, Berkeley

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POPULATION, FAMILY PLANNING, AND DEVELOPMENT IN NEPAL
WORKSHOP-CONFERENCE

Berkeley, California
August 24-29, 1975

I. OBJECTIVES

- 1) To highlight critical issues and develop possible alternative approaches to the problems of family planning, population, and socioeconomic development in Nepal.
- 2) To provide an interdisciplinary forum for exploring the interrelationships among, and divergent perspectives on, these issues.

II. SCHEDULE

August 24 (Sunday)

- Arrive at Ida Sproul Hall, 2400 Durant Avenue, Berkeley.
Register (12:00 Noon - 8:00 P.M.) and receive conference materials and information.
- 8:00 P.M. Informal Reception with cocktails. Lobby of Ida Sproul Hall.

August 25 (Monday)

- 9:00-10:00 - Welcoming Remarks
Professor William Griffiths, U.C. Berkeley
Dean Warren Winkelstein, School of Public Health, U.C. Berkeley
Dean Milton R. Stern, University Extension, U.C. Berkeley
Vice Chancellor Ira Heyman, U.C. Berkeley
Hon. G. P. Lohani, National Planning Commission, HMG
- 10:00-11:00 - Keynote Address - Professor Kingsley Davis, U.C. Berkeley
- 11:00-11:15 - Coffee/Tea Break

August 25 (continued)

- 11:15-12:30 - Panel Reactions to Keynote Address and Open Discussion from floor
Mohan Sainju, Tribhuvan University
G. P. Lohani, National Planning Commission
William C. Ide, AID
- 12:30-1:45 - Lunch
- 1:45-2:00 - Robert Miller, University of California, Berkeley
Conference schedule and procedures
- 2:00-2:45 - John Stoeckel, Nepal-University of California FP/MCH Project
Demographic Overview of Nepal
- 2:45-3:00 - Coffee/Tea Break
- 3:00-5:00 - Small Group Discussions

August 26 (Tuesday)

- 9:00-9:45 - Panel on the Impact of Socioeconomic Development Policies on Population
William C. Ide, AID (Chairperson)
Saul Katz, University of Pittsburgh
"Regionalization of Development Efforts in Nepal:
Purpose, Possibilities, Problems, and Implications"
Omkar Lal Shrestha, University of Hawaii
"Economics and International Trade"
- 9:45-10:30 - John Beyer, Robert R. Nathan Associates
"The Economic Parameters of a Population Policy in Nepal"
- 10:30-10:45 - Coffee/Tea Break
- 10:45-11:15 - D. P. Ojha, Cornell University
"Demographic Aspects of Hill Area Development"
- 11:15-11:45 - Mohan N. Shrestha, Bowling Green State University
"Spatial Distribution and Change of Population in Nepal"
- 11:45-12:30 - Reactions from Floor

August 26 (continued)

- 12:30-1:45 - Lunch
- 1:45-3:00 - Small Group Discussions
- 3:00-3:15 - Coffee/Tea Break
- 3:15-4:00 - Small Group Discussions

- 6:30-7:30 - Cocktails - University of California Faculty Club (Cash Bar)
- 7:30-9:30 - DINNER - University of California Faculty Club

August 27 (Wednesday)

- 9:00-9:45 - Panel on Population Policy in Nepal: An Overview
William Trayfors, USAID/Nepal (Chairperson)
G. P. Lohani, National Planning Commission, HMG
Mohan Sainju, Tribhuvan University
- 9:45-10:45 - Panel Presentation on Educational Policy and Population
Badre D. Pande, Southern Illinois University (Chairperson)
"Human Resource Development for Economic Growth
and Population Control"
Chuda Nath Aryal, Southern Illinois University
"Implications of Population Structure on
Educational Planning in Nepal"
Gajendra Shrestha, Pennsylvania State University
"Comments on Population Education, In and
Out of School"
- 10:45-11:00 - Coffee/Tea Break
- 11:00-12:15 - Family Planning and Health Integration as a Policy Issue
G. S. L. Das, Ministry of Health, HMG, (Chairperson)
Donald Minkler, University of California
Kenneth Bart, Center for Disease Control
John Ratcliffe, Harvard University
- 12:15-1:30 - Lunch

August 27 (continued)

- 1:30-2:00 - Donald Messerschmidt, Case Western Reserve University
"Population Anthropology in Nepal: Past, Present,
and Potential"
- 2:00-2:30 - Reactions and Further Thoughts by:
David Mandelbaum, University of California, Berkeley
Gerald D. Berreman, University of California, Berkeley
Prakash Uprety, University of Wisconsin
- 3:00-10:30 - TOUR OF SAN FRANCISCO

August 28 (Thursday)

- 9:00-9:45 - Ray Ravenholt, AID, Washington
"Delivery of Family Planning Services in Rural Areas"
- 9:45-10:45 - Panel on the Family Planning Program in Nepal
Badre Raj Pande, Deputy Chief, FP/MCH Project, Nepal (Chairper
John Stoeckel, Nepal-University of California FP/MCH Project
P. L. Joshi, FP/MCH Project, Nepal
William Trayfors, USAID/Nepal
- 10:45-11:00 - Coffee/Tea Break
- 11:00-11:45 - Field Perspectives on the Rural Delivery System in Nepal
A. M. Acharya, FP/MCH Project, Nepal (Chairperson)
S. S. Tulachan, FP/MCH Project, Nepal
Lazza Karki, FP/MCH Project, Nepal
P. Gurung, FP/MCH Project, Nepal
Jerry Young, New Era
- 11:45-12:30 - Reactions from floor
- 12:30- 1:45 - Lunch
- 1:45- 2:30 - (Plenary) Panel on Technical Assistance to the FP/MCH Project
of Nepal
Marvin Cernik, AID/Washington, (Chairperson)
Badre Raj Pande, FP/MCH Project, Nepal
H. C. Gustafson, Nepal-University of California FP/MCH Project
Robert Miller, Nepal-University of California FP/MCH Project

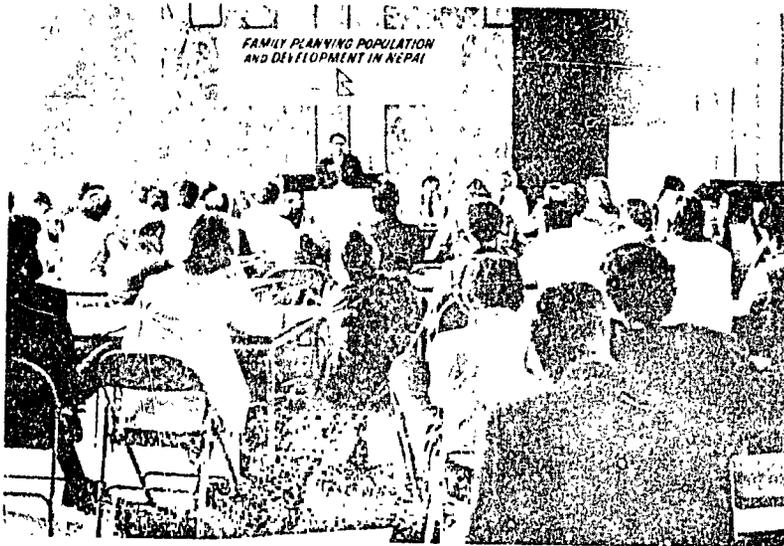
August 28 (continued)

- 2:30-2:45 - Coffee/Tea Break
- 2:45-4:30 - Small Group Discussions (Finalize Reports)
- 4:30-6:00 - Meeting of Nepalese Graduate Students
Nominal Group Process

August 29 (Friday)

- 9:00-9:45 - Small Group Discussions (Preparation of Presentations
from Groups)
- 9:45-12:30 - Reports and Recommendations from Small Groups
 - 9:45-10:15 - Current and Projected Demographic Situation in Nepal
 - 10:15-10:45 - Current Demand and Future Expected Demand for
Family Planning Services in Nepal
 - 10:45-11:00 - Coffee/Tea Break
 - 11:00-11:30 - The Supply and Delivery of Family Planning Services
 - 11:30-12:00 - National Growth and Population Planning: The
Macro Perspective on Population Policy in Nepal
 - 12:00-12:30 - Innovative Population Policy in Support of the
Family Planning Effort in Nepal
- 12:30-1:45 - Lunch
- 1:45-2:45 - A Final Comparison of Perspectives
 - Donald Minkler, University of California (Chairperson)
 - Ray Ravenholt, AID/Washington
 - Kingsley Davis, University of California
 - Badre Raj Pande, FP/MCH Project
 - G. P. Lohani, National Planning Commission
- 2:45-3:15 - Final Comments from the Floor
- 3:15-3:30 - Closing Remarks

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The Honorable Mr. G. P. Lohani, Member of National Planning Commission, delivering his welcome at the opening of the meeting



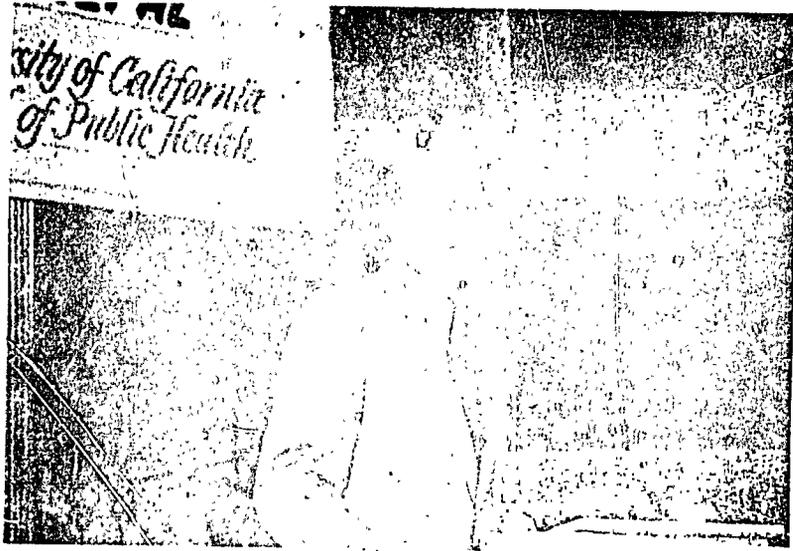
Dr. Ray Ravenholt, Chief of Population and Humanitarian Assistance, discussing the delivery of family planning services in rural areas



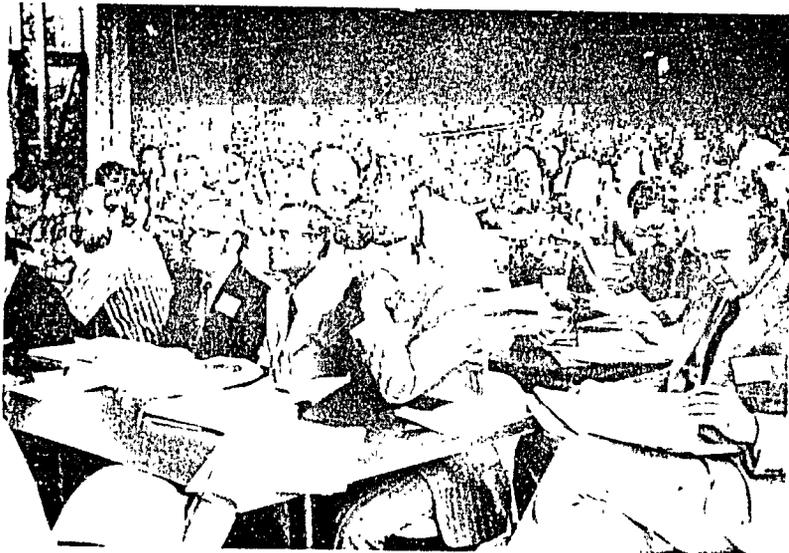
Reactions to the Keynote Address were presented by the Honorable Mr. G. P. Lohani (speaking) with Dr. Mohan Man Sainju (left), Dr. Davis, and Mr. Carter Ide serving on the panel



Dr. Badri Raj Pande, Chief of the FP/MCH Project of Nepal, discussing Nepal's family planning services

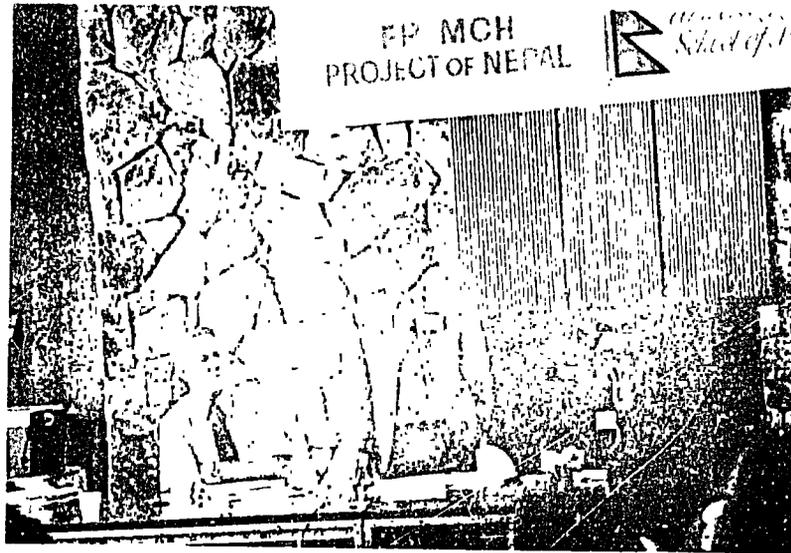


Dean Warren Winkelstein welcoming participants to the University of California School of Public Health



Conference participants concentrating on a presentation

335.



Dr. Mohan Man Sainju, Rector, Tribhuvan University, reacting to the Keynote Address with Dr. H. C. Gustafson and Mr. G. P. Lohani



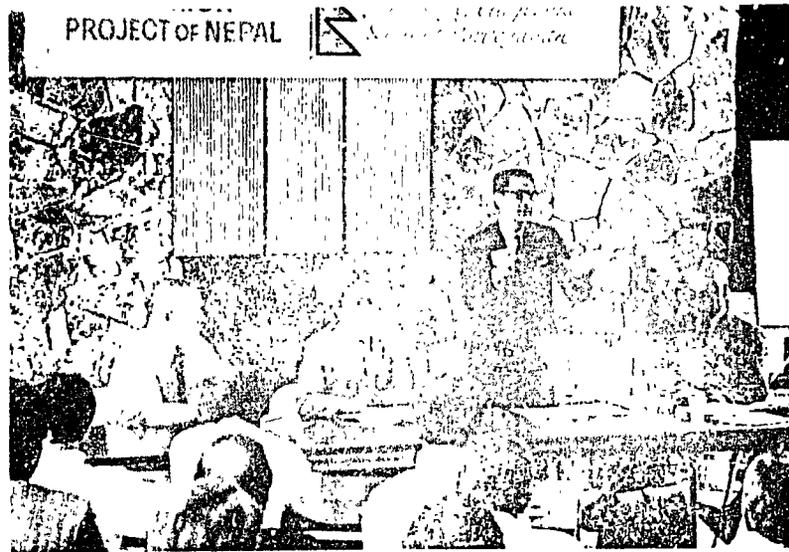
Dr. G. S. L. Das, Chief Planning Officer, Ministry of Health, discusses family planning and health integration as a policy issue



Dr. William Griffiths and Dr. Donald Minkler (background) had the challenging task of moderating a comparison of perspectives between Dr. Ray Ravenholt and Dr. Kingsley Davis (above and below)



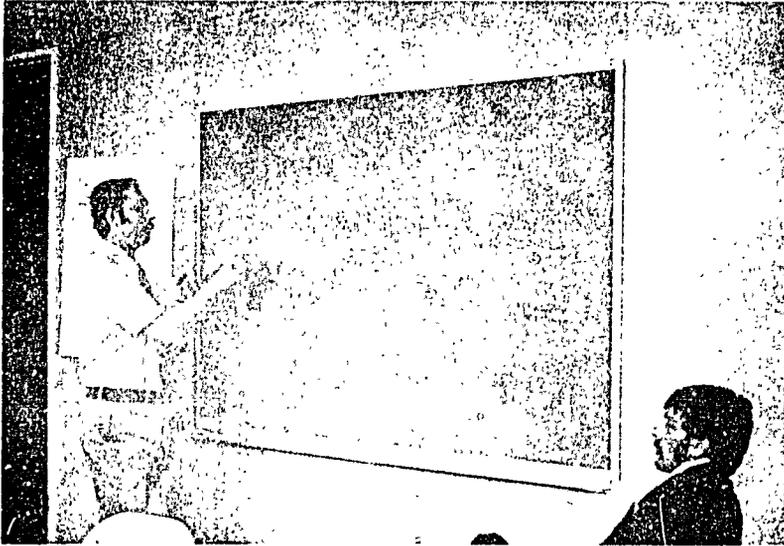
See above



An important point on population policy is underscored by Mr. G. P. Lohani as Drs. H. C. Gustafson, Mohan Man Sainju, and Kingsley Davis look on



Mr. Carter Ide, Dr. Ray Ravenholt, Dr. Meredith Minkler, and Dean Warren Winkelstein during a break in the meeting



Dr. Kenneth Bart outlined some alternative approaches to delivering services with Madan Poudyal participating in small group discussions



Dr. Mohan Man Sainju discussed the current and projected demographic situation with Drs. Andy Fisher and John Stoeckel participating



Mohan Shrestha and Basu Dev Uprety in the group discussing the current and projected demographic situation in Nepal



The small group discussing innovative population policy in support of the FP effort included Drs. Carol D'Onofrio, Ray Ravenholt, Bert Hirshhorn, Mr. Devi B. Shrestha, and Dr. G. S. L. Das



Mr. William Trayfors and Dr. Thomas Poffenberger discussing population policy in support of FP with Dr. Das and Frankie Saunders



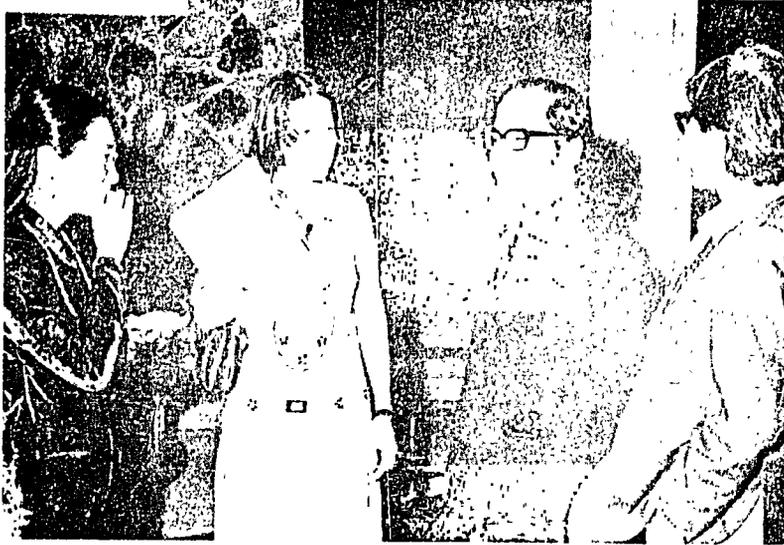
The small group analyzing the current demand and future expected demand for family planning services gets a point from Dr. Mayhew Derryberry



Dr. Robert Miller helping to introduce Mr. G. P. Lohani to Dean Milton Stern of University Extension and Dr. William Griffiths at the reception



S. P. Yadav, Ganesh Man Shrestha, Lajja Karki, and Ramawatar Yadav share a happy moment at the reception



Dr. Badri Raj Pande appreciating a discussion with Dr. Somat Tulachan, Victoria Marsick, and Faith Miller



The reception provided happy reunion in the United States for Drs. Gustafson, Tulachan, and Pande



FAMILY PLANNING POPULATION
AND DEVELOPMENT IN NEPAL

