A FAMILY HEALTH CARE REPORT

Planning for Health and Development
A Strategic Perspective for Technical Cooperation

Volume II
Technical Background Papers

Office of Health
Bureau for Development Support
Agency for International Development
Washington, D.C. 20523

PLANNING FOR HEALTH AND DEVELOPMENT:

A STRATEGIC PERSPECTIVE FOR

TECHNICAL COOPERATION

Volume II

Technical Background Papers

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FOREWORD

The contents of this Volume II serve as supporting documentation ("Technical Background Papers") for the findings and recommendations of Volume I, "Main Report." The particular parts of Volume II relate to the parts of Volume I as follows (see Table of Contents for Volume I, which is included for reference purposes on following pages):

Section I of this Volume II, which gives a detailed "Rationale for Comprehensive Multisectoral Planning for Health," is background material for Section IV (Volume I), "Planning for Health: Elements of a Strategic Perspective for National Health Development." This section includes a lengthy examination of the empirical evidence supporting intersectoral approaches to health and development programming.

Section II of this Volume II, which gives the "Frameworks for Assessment of Planning for Health in Less Developed Countries," is background material for Section III (Volume I), "Assessment of Experiences in Planning for Health in Less Developed Countries." The results of "An Empirical Approach to Assessment" are largely used as input to Section III.B.1., "Experiences of Less Developed Countries." The results of the "Qualitative Approach to Assessment" correspond to each and every section of the "Assessment Findings" (Section III.B.) in Volume I.

The Bibliography provides a list of general reference works relevant to planning for health and development in the Third World.

I. RATIONALE FOR COMPREHENSIVE MULTISECTORAL PLANNING FOR HEALTH

A. Definitions

B. Theoretical Models and Arguments

C. Empirical Documentation of Intersectoral Linkages and Implications for Health Programming

I. RATIONALE FOR COMPREHENSIVE MULTISECTORAL PLANNING FOR HEALTH

A. DEFINITIONS

Prior to discussing the theoretical and empirical arguments for planning for health, it would be useful to establish definition of key programming terms.

1. "Linkages"

This term is used in two distinct ways in the literature regarding programming for development. On the one hand, it is used to imply a definition of "a relationship causing an effect on one variable or entity by another." It is used in this sense by analysts who say, for example, that "linkages (among variables affecting human capital accumulation) mean that changes in one human capital producing sector affect population and retention of human capital in other sectors" both directly and indirectly.[1]

On the other hand, it is also used to imply a definition of "organizational or program relationship of one agency, goernment unit, or program to another" during the implementation of a

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[1] J. Fiedler, H. Caldwell, C. Campbell, and D. Dunlop, "The Dynamics of Human Capital Formation in Developing Countries: A Review of the Relationship between Health, Nutrition, Education, and Population Change," paper presented at the November 1978 meeting of the African Studies Association, Baltimore, Maryland.

program. When used in this way, analysts may refer to "linkages among delivery systems" or to a judgment that "informal linkages have greater impact than formal linkages."

The former definition of linkages is used when the analyst is attempting to describe the mechanisms of "synergism" and "complementarity" which in theory cause changes in one of the human capital sectors (health, nutrition, population, education) to produce enhanced effects on the others when such change occurs simultaneously in one or more of the other sectors.

The latter definition of linkages is used when the analyst is attempting to describe the processes by which "integrated" delivery systems for programs to stimulate production and retention of human capital result in more effective prioritization and coordination, and in better evaluation of efforts.

Sometimes it is unclear whether an analyst means one definition or the other: for example, "Analysis indicated that all interventions were more effective when other interventions were simultaneously present, that is, when linkages could be established."[2]

In this report, the word will be used in the sense of "connections" among service delivery units or between program administration/management units.

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[2] J. Kocher and R. Cash, "Linkages and Complementarities in Achieving Health and Nutritional Objectives within a Basic Needs Framework," Development Discussion Paper No. 55, Harvard University, Institute for International Development, 1979, p. 35.

2. "Synergism"

The word "synergism" derives from the Greek word "synergos" which means "working together." "Synergism" is the opposite of "antagonism." The Webster's Dictionary definition is: "The cooperative action of discrete agencies (typical examples are drugs and muscles) such that the total effect is greater than the sum of the two or more effects taken independently."

Probably the best known use of "synergism" among health planners is its specific use to describe the biological interaction or dependency between the health and nutritional condition of a person, as has been described by Scrimshaw et al. as follows:

> When infection aggravates malnutrition or malnutrition lowers resistance to infection, the relationship between the two can be classified as synergistic, i.e., the simultaneous presence of malnutrition and infection results in an interaction that is more serious for the host than would be expected from the combined effect of the two working independently. An infection, through participating clinical malnutrition, can result in further synergism as the infection, in turn, becomes more severe in the malnourished host. Thus, it is possible for

the mutual interaction of an infectious disease and a state of malnutrition to create a vicious circle, which often results in a fatal outcome.[3]

However, it has begun to take on additional connotations in the literature, to refer to "mutually reinforcing effects" of programs to stimulate human capital production/retention (health, nutrition, family planning). One author refers to "the synergism of complementary investments in these human capital producing sectors."[4] Another author who had been careful to define synergism as he used it in biological terms (for the nutrition/health connections only) saw "linkages and complementarities" as those interactions (not biological) "reinforcing" of one another (particularly through their effects on behavior)...(which can) create the situation where synergistic relationships can develop."[5]

The term "synergism" will be used in the narrower biological meaning, referring to the specific health/nutrition interaction phenomenon, in the context of this report. Other more complex feedback and interactive processes will be defined using other language as defined below.

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[3]N.S. Scrimshaw, C.E. Taylor, and J.E. Gordon, Interactions of Nutrition and Infection, (Geneva: World Health Organization, 1968), Monograph Series No. 57, p. 16.

[4]J. Fiedler et al, op.cit., p. 1.

[5]Kocher and Cash, op.cit., p. 24.

3. "Complementarity"

Although some analysts appear to use the words "linkages" and "complementarities" as one phrase, apparently because they occur together, the latter has a distinct and separate meaning. "Complementarity" is an entity which when added to other entities makes a complete whole. Although the denotation of the word does not convey any mutuality of effect of complementary factors or entities (except that together they constitute a "whole"), the use of the word in the literature on human capital programming sometimes implies this reinforcing effect, as in, "complementarities have synergistic relationships."

"Complementarity" of programs and sectors, however, seems to convey the idea of mutual reinforcement or synergy, although in fact the idea underlying it may be simpler. That is, each of the principal human capital producing elements (health, nutrition, education, fertility) has multiple determinants most of which are interrelated with the others' determinants and with each other. Thus, addressing the improvement of any particular sector of necessity requires simultaneous attention to the entire range of determinants. Since many of them have multiple effects, the failure to address all the important ones at the same time is to invite failure for missing a critical intervening variable, i.e., one that is a "complementarity" to the others.

B. THEORETICAL MODELS AND ARGUMENTS

The rationale for pursuing (comprehensive, multisectoral) planning for health in developing countries is based on the concept that a population's health status is a function of a dynamic interaction of many factors. While this is largely a theoretical concept, there is an increasing amount of empirical evidence in support of it. A few of the principal determinants of health status are under the purview of ministries of health, but, perhaps more importantly, many other determinants fall under the jurisdiction of other activities of governments, such as in agriculture and education, or in the establishment of its macro-economic policies. The myriad of private sector decisions may also be important, particularly where urban pressures and stress result. Given an improved understanding of these multiple dynamic factors which affect health status, it is theoretically possible to develop programmatic interventions which can contribute to its improvement.

The theory of multiple sector health promotion rests on the validity of three sets of relationships: (1) between the assured health promotion factors and health, (2) between program-specific interventions and their targets, and (3) between the planning processes and implementation capabilities of the responsible entities. As a basis for program design, the cause-and-effect operation of these relationships can be

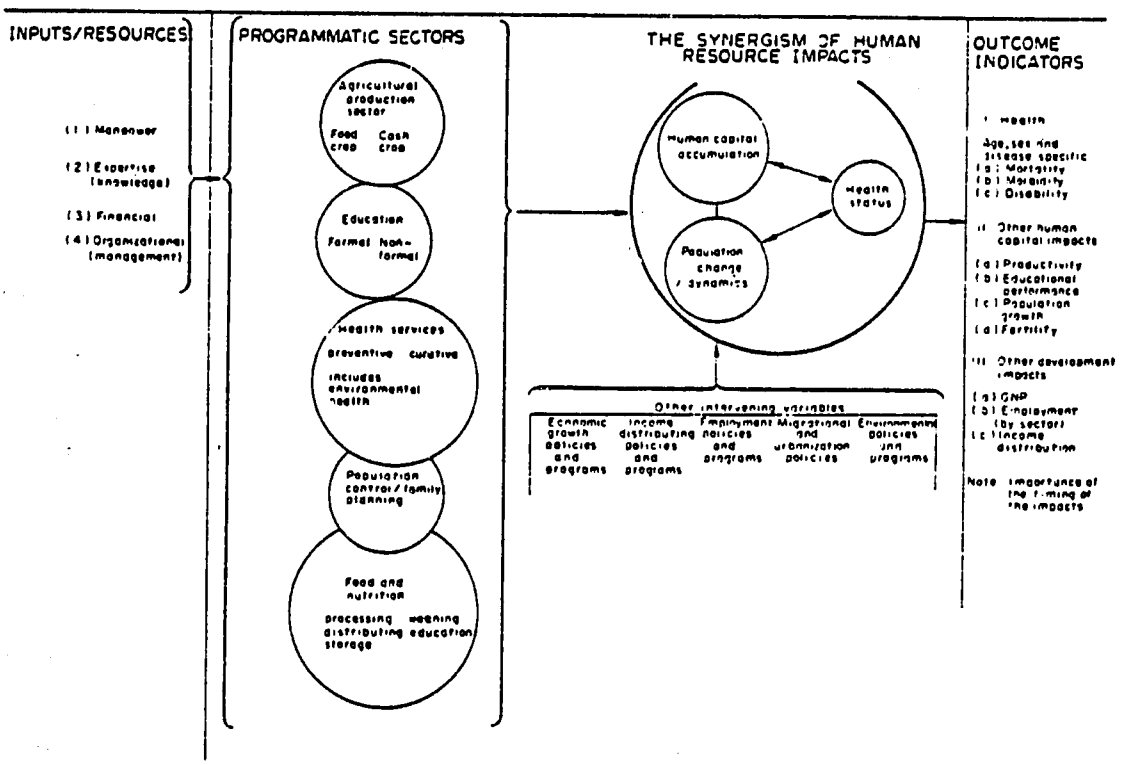
conceptualized for their separate short-term and long-term significance and for both direct and indirect effects. It is also important to distinguish between the dynamic interaction of factors at the micro level (e.g., household) and at the macro level (e.g., national).

The pace, pattern, and direction of changes in the health of a society are affected by the relationships among many social characteristics which determine and are determined by the social and economic system. There are at least three important variables which affect and are affected by health status and the larger social and economic environment -- nutritional status, educational status, and present fecundity and results of past family formation efforts. Finally, the relationships between these variables are determined by the sum of both direct and indirect effects. The direct effect is the extent to which one variable changes, in one direction or another, as a consequence of a change in one other variable, whereas the indirect effects are the result of the one variable's impact on all other related variables which in turn affects the variable under consideration.

A comprehensive model which attempts to relate the operation of programmatic and policy sectors in their effects on the dynamic interrelationship between health and development is Dunlop's model in Figure 1, which provides a policy and program framework within which the dynamic interaction between health education, nutrition, and demographic change occurs. Figure 2 schematically presents how these human capital accumulation variables interact both directly and indirectly. Via Figure 2, Dunlop and colleagues can show how each factor acts both as a dependent and independent variable as well as how (1) the two-way

Figure 1

A Schematic Representation of the Interactions between Programmatic Sectors and Health and Other Human Resources Impacts in Developing Countries



Source: David W. Dunlop, "Benefit-Cost Analysis: A Review of its Applicability in Policy Analysis for Delivering Health Services," Social Science and Medicine, Vol. 9 (1975), p. 138.

Figure 2

THE INTERACTIONS OF HEALTH, NUTRITION, POPULATION,

AND NUTRITION IN THE PROCESS OF ECONOMIC DEVELOPMENT*

Dependent Variable / Independent Variable	POPULATION (GROWTH) Pop=f( )	EDUCATION Edu=f( )	HEALTH He=f( )	NUTRITION Nu=f( )
Population (Growth) POP	Pop=f(Pop) + *	Edu-f(Pop) -	He=f(Pop) -	Nu=f(Pop) - S.R. ? L.R. **
Education Edu	Pop=f(Edu) - ?	Edu=f(Edu) +	He=f(Edu) +	Nu=f(Edu) +
Health He	Pop=f(He) - ?	Edu=f(He) +	He=f(He) +	Nu=f(He) +
Nutrition Nu	Pop=f(Nu) ?	Edu=f(Nu) +	He=f(Nu) +	Nu=f(Nu) +

*Sign in Matrix represents expected Net relationship at the macro level, Cet.par.
**S.R.: Short-run; L.R.: Long-run

Source: John Fiedler, Holly Caldwell, Claudia Campbell, and David Dunlop, "The Dynamics of Human Capital Formation in Developing Countries: A Review of the Relationship between Health, Nutrition, Education, and Population Change," Paper presented at the November 1978 meeting of the African Studies Association, Baltimore, Maryland.

direction of cause-and-effect that change in each can be both a cause and a consequence of change factor in each of the other factors; and (2) the net relationship between any two variables including both direct and indirect effects. By incorporating the micro-economic model of human capital accumulation embodied in Figure 2 into Figure 1 where the synergism of human resource impacts are depicted, the potential returns to programmatic options, and the constraints of other socioeconomic variables on such returns are indicated via an array of possible outcome indicators.

In countries where substantial portions of the population live in poverty and are unable to fulfill basic needs such as shelter, health, food, most social spending in programs to deliver such basic needs can be considered "investments" in human capital, which below a certain threshhold can provide significant returns over the long-run.

Dunlop explains this process:

> Due to linkages...a dynamic multisector investment strategy can affect both the rate and timing of human capital accumulation and thus yield net returns far greater than the sum of single investments in one or more sectors.[6]

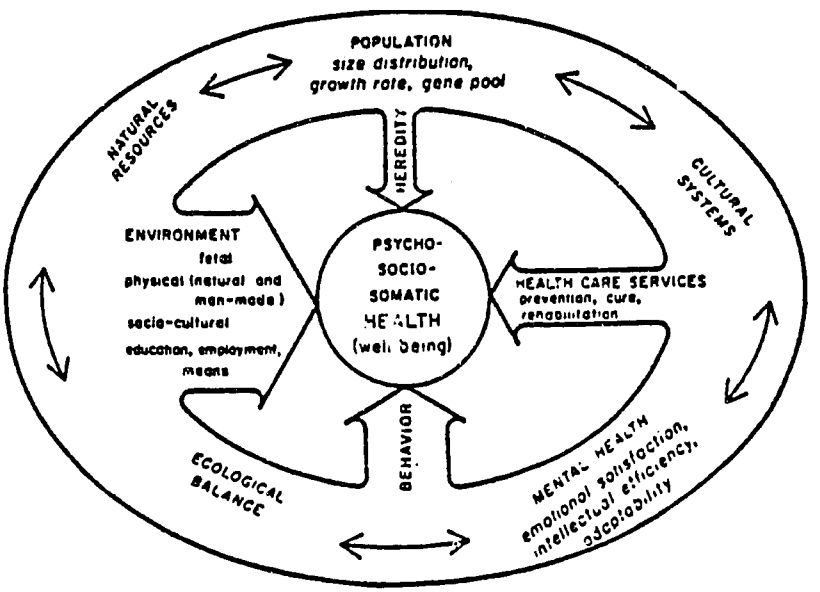
[6]D.W. Dunlop, "Benefit-Cost Analysis: A Review of its Applicability in Policy Analysis for Delivering Health Services," Social Science and Medicine, Vol. 9 (1975), p. 138.

Several other schematic models have been developed to graphically iillustrate the interactions of the variables within the overall social system. Differences between the models are due to minor differences in emphasis, in comprehensiveness, and in degree of inclusion of program intervention variables. One global representation of the determinants of health within a social system developed by Blum is presented in Figure 3. Blum's conceptualization of this health augmentation process is significant in that it explicitly considers the potential impact of cultural, mental health, and other ecological variables on health status and that the concept of health status is defined in a positive manner by incorporating the idea of "well being" via the interaction between physical and mental states.

Two other models have been developed that focus on the synergistic relationship between illness and undernutrition or between (health and nutrition) as the immediate determinant of health status, while other social variables are shown to determine the social dimensions of the context of that interaction. Grant's model is illustrated in Figure 4 and Kocher and Cash's model is illustrated in Figure 5. In both models, programmatic variables have been introduced. These latter models express variables in a manner that identifies the manner in which public policies and programs may offer the potential for positively affecting the outcome measures. It is important to distinguish between theoretical assumptions, the relationships between indicator variables, and concerns about appropriate programs since it matters little to the theory how the changes are initially introduced. On the basis of the postulated theoretical linkages, however, the desire to effectuate change leads to a

Figure 3

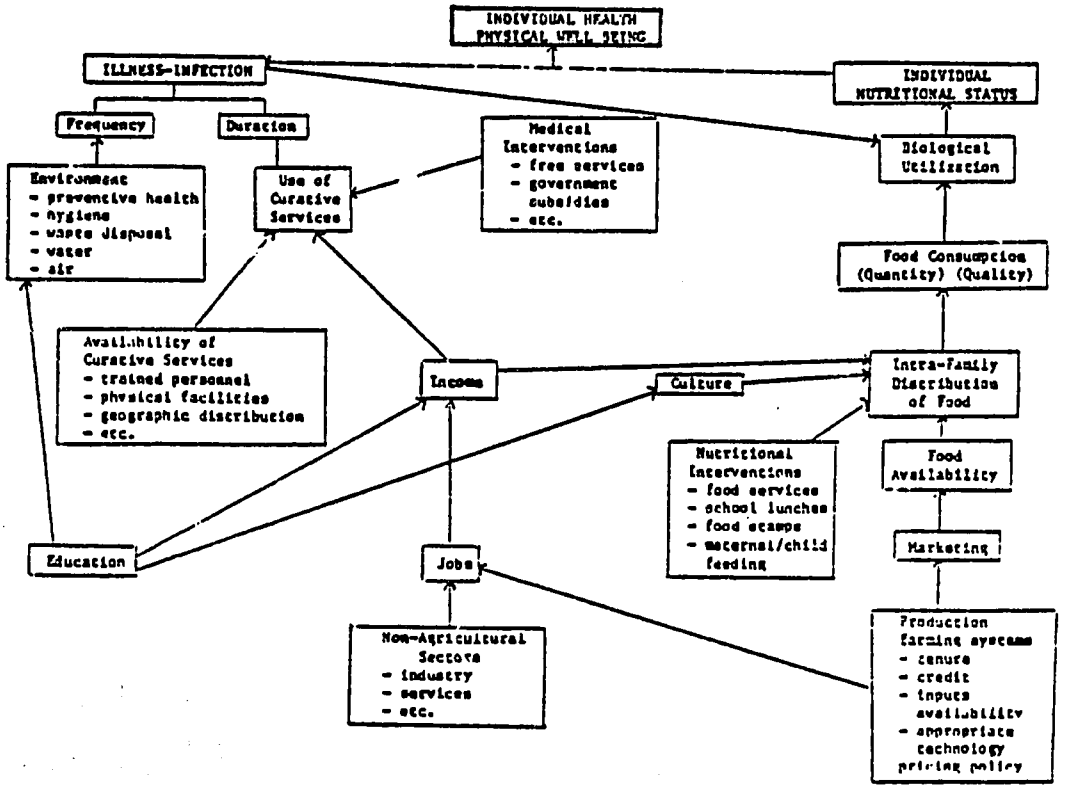
INPUTS TO HEALTH



The width of the four huge input-to-health arrows indicates my assumptions about the relative importance of the inputs to health. The four inputs are shown as relating to and affecting one another by means of an encompassing matrix which could be called the "environment" of the health system.

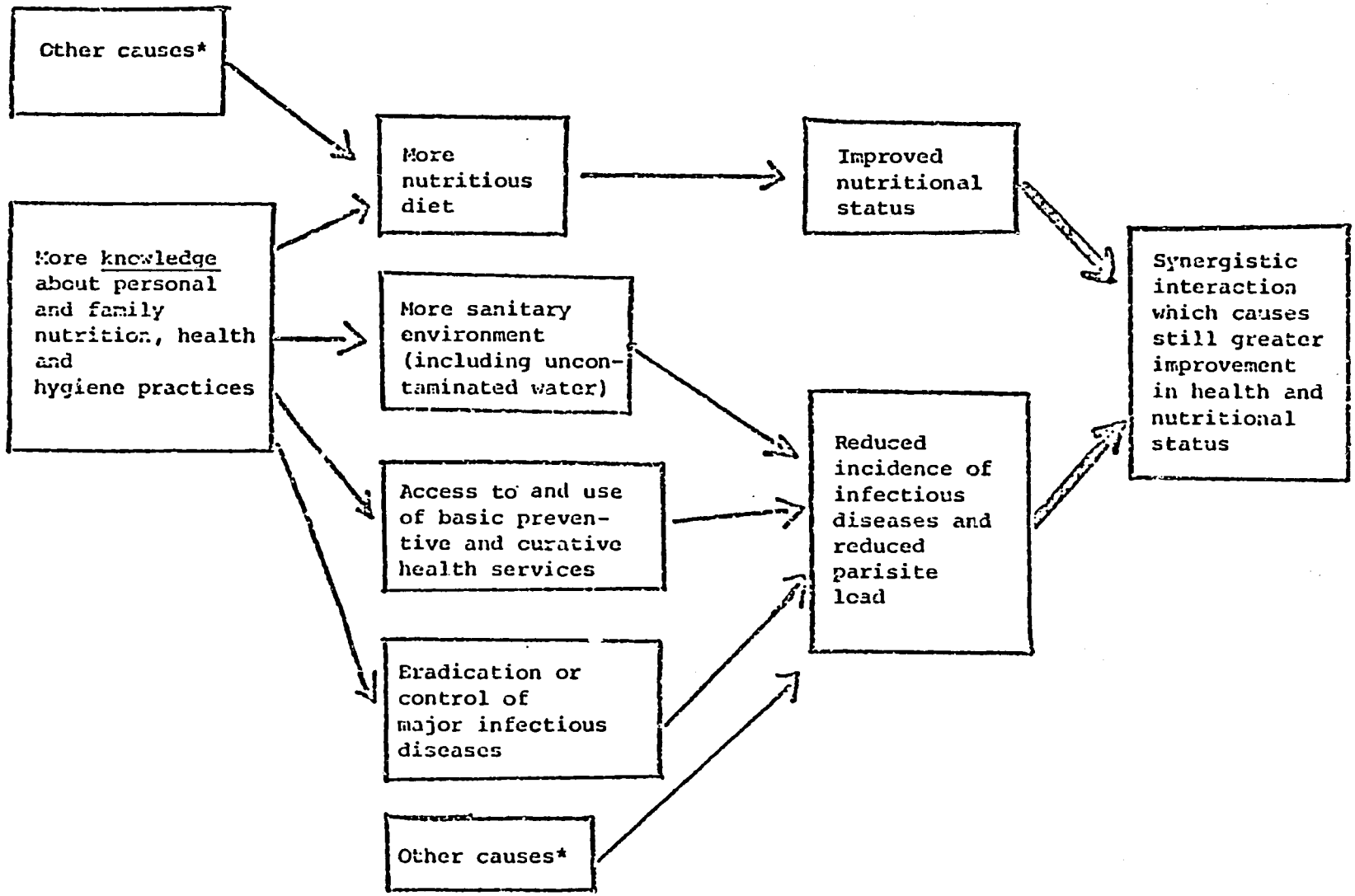
Source: Henrik L. Blum, Planning for Health: Development and Application of Social Change Theory, (New York: Human Sciences Press, 1974), p. 3.

Figure 4



Source: James Grant, "Poverty and Health," in INTERACTION OF HEALTH AND DEVELOPMENT, Papers of the Conference on Interaction of Health and Development: A Focus on Social, Economic, and Environmental Determinants, March 28-30, 1977, International Council for International Health

Figure 5: An Illustration of Hypothesized Causal Linkages: From Basic Needs Interventions to Ultimate Health and Nutritional Effects.



*Among the many potential cause-effect relationships in achieving the desired health and nutritional status outcome this diagram illustrates only the possible causal linkages involving the basic needs interventions. An example of another important causal agent would be higher incomes and/or lower prices for staple foods which would also increase food consumption and the nutritional status of many in the target population.

consideration of appropriate programs and policies and of their potential effects on the variables of health, income, nutrition, education, and fertility.

As a consequence of the potential synergistic interaction between these variables, increased consideration has been given to programming interventions which can simultaneously effect all of these variables, thus leading to a larger overall impact. Further, it has been suggested that if any one variable is not addressed simultaneously with the others, then the possibility exists that its effects will be to dilute the efforts in affecting all the others. To quote Taylor and Hall:

> In the dynamic equilibrium between the...major components of this matrix (of human resource program interaction), optimum progress occurs when all elements move forward together, the general objective being improvement of the quality of life...The social components of a better quality of life are benefits in themselves but, more importantly, they can be used as instruments of change or as means of increasing productivity.[7]

While Taylor and Hall may be accurate in their concern about one factor constraining the improvements of all factors which define quality of life, it is disappointing to find that their understanding of final objectives may be inconsistent when they suggest that productivity, or

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[7] C.E. Taylor and M.F. Hall, "Health, Population, and Economic Development," Science, (August 1967), p. 657.

economic output goals override improvements in quality of life. Apparently they, like many others, have forgotten the "raison d'etre" of economic development, i.e., the improvement of the human condition.

Despite the development of theoretical linkages between the variables and a limited empirical basis for such hypothetical relationships, the empirical knowledge base for determining what can or should be done programmatically is greatly underdeveloped. Thus, while the theoretical basis for certain intervention strategies coalesce around "a composite package approach to the delivery of nutrition, health, and family planning services in rural areas,(there is) no consensus on (specific) policies and programs that will be most effective in mounting an assault on poverty...(since) choice of strategies raises complex issues and is as much a political as an economic question."[8]

Nevertheless, despite these unknowns and uncertainties, Johnston and Meyer attempt to identify the specific operational mechanisms through which the "composite" integrated approach can be effectively implemented. They suggest the use of:

(1) Frequent and timely introduction of single elements;

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[8]B.F. Johnston and A. Meyer, "Nutrition, Health, and Population in Strategies for Rural Development," Economic Development and Cultural Change, Vol. 26, 1 (October 1977), p. 13.

(2) Use of single health workers or team such that this resource has the potential to increase its credibility by being associated with the introduction of a comprehensive health care plan; and

(3) Presentation of a package of interrelated innovations such that adoption of one implies the subsequent or continued adoption of others.

C. EMPIRICAL DOCUMENTATION OF INTERSECTORAL LINKAGES AND IMPLICATIONS FOR HEALTH PROGRAMMING[9]

Substantial empirical evidence documents the linkages among the four major human resource sectors--population growth, education, health, and nutrition--whose theoretical interrelation has been described above. Mutual interaction and joint production between sectors create the opportunities for efficient synergistic interventions and an integrated human services strategy. This section summarizes the available evidence on intersectoral linkages that impact upon health, which represents our knowledge base for comprehensive health planning in the international setting. This review is not intended to be exhaustive, but rather to provide an overview of significant interactions and points of intervention that have been recognized by researchers and practitioners. The evidence presented is drawn from secondary sources (chiefly 9, 43, 72, 80, 148). Since the primary source papers differ to at least some extent in purpose, focus, and theoretical framework, this review has shifted original categories as necessary in order to use terminology consistent with that introduced in Part B. Points where this occurs are explained in the course of the discussion that follows.

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[9] References for the section are listed at the end of this section.

The emphasis of this part is on the direct causal associations or linkages between the four sectors, following the matrix in I.B., Figure 2. There are clear interdependencies between each of the sectors, and even more substantial indirect linkages. This section contains little discussion of indirect linkages, for two reasons. First, direct linkages are the clearest and generally strongest, and so are more likely to be empirically accessible. Second, indirect linkages are often complex, since their significance and net effect depend upon the strength and direction of all of their constituent direct associations. They cannot be established a priori, but must be examined in greater detail in particular situations and models than is generally required for direct linkages.

A number of problems arise in the empirical specification and measurement of intra- and inter-sectoral linkages, as well as in the interpretation of any programmatic implications that are drawn. Theoretical backing for the interrelationships is often strong, especially at the individual or micro level, and supporting evidence may be found in nearly all cases. Yet Barlow concludes that "empirical studies are on the whole not very convincing" (9, p. 3); he attributes this to the prevalence of subjective assessments lacking statistical support, and poor specification of variables and model structure. Other points of difficulty include the fact that linkages between sectors are usually expressed either in micro or macro terms, but the relation between these levels is often not clear. Model dynamics--the effects of multidirectional linkages, threshold levels, and short-run-long-run interactions--are also difficult to incorporate. As a result, the

empirical underpinnings of intersectoral health planning must inevitably be considered fragmentary.

The organization of this section follows that of Figure 2, proceeding along rows, then moving downward. Within each row, intra-sectoral effects are presented first along with any preliminary discussion of elements or interventions, then the remaining effects are treated in order. The emphasis on the effects of each sector leads to a bias that implies a greater degree of unidirectional causation than is realistic; the reader should take this into account, and cover related sections together whenever possible. Differences between linkage types and availability of information in each cell should also be kept in mind as the framework of multisectoral effects is developed.

1. Population Growth

a. Interactions within the Population Sector

At the macro level, existing population dynamics (fertility rates, mortality patterns, age/sex structure) evolve and are self-sustaining, and are also the determinants of future population dynamics. At a given time, population growth is the net product of changes in fertility and mortality rates; thus the relationship between these levels, and their interaction with states or behaviors in other sectors, are critical parameters. Fertility is considered to be most subject to individual control, but the greatest effects on population growth rates in the developing world are clearly due to changes in infant mortality. Infant Mortality Rates (IMR) are much higher than general mortality levels, are subject to wider variation, and have prominence in the family size

decision process. As a result, IMR is the mortality variable of chief interest in population-related linkages. Crude birth rate (CBR) is the primary fertility indicator, although fertility measures in general are highly intercorrelated. The effects of fertility are reflected in pregnancy outcomes, number of children, and the pattern of child spacing, among other measures. Some discussions (e.g., 9) focus on fertility as the population parameter of interest, and include mortality in the health sector. Yet families do have considerable influence over the probability of their children's survival, through decisions concerning both marginal investments in nutrition and health measures, and possible infanticide. As a result, population levels of fertility and infant mortality can be considered structurally interdependent (2, p. 7). This review treats both as endogenous to the level of population change.

Macro-level analyses of changes in population growth are generally framed by the theory of the "demographic transition," which focuses on the historical pattern of birth and death rates in developed Western countries. As countries modernize and experience increases in per capita income, they pass through three phases: (1) high birth rates with high death rates; (2) lower death rates with high birth rates; and (3) lower birth rates with lower death rates. This implies that in the short run population will grow with the falling death rates, but at a declining rate as the birth rate begins to fall. The final level of population growth, reached after a lag of often several decades, cannot be determined a priori (2, pp. 37-8). It must be examined empirically, as must the questions of how these phases are reached and passed through, what the rate determinants are at each phase, and what the pace of change is. At the micro or household level, population growth may be viewed as

the outcome of family decisions about household size, based on considerations of desired family size, actual fertility experience, and the costs of fertility regulation. It is through effects in each of these areas that the other sectors are linked to population growth. Yet it may be necessary that a threshold in the reduction of infant mortality be reached before fertility levels decline and family size comes to depend primarily upon the conscious parental decisions (72, p. 7; 160).

It is clear that the experience of the Western European countries provides only a limited guide to the likely course for countries currently modernizing, since the differences in routes to modernization may be expected to lead to very diverse demographic outcomes. For example, urbanization has historically tended to slow population growth because it reduces the demand for children and lowers the costs of fertility regulation, but it will be of less importance in countries where the population will continue to be predominantly rural (72, p. 6). Thus, the questions to be answered in addressing interactions within the population growth sector are: (1) how are mortality and fertility linked in the household's family size decision? and (2) given long-term IMR declines, what is their fertility impact?

Infant mortality rates help determine fertility through their effect on the probability of child survival. With a certain desired number of children, the births in the family will adjust to provide a base against which the expected survival rates are applied. The "child survival hypothesis" is supported by evidence that lowered child mortality in parts of Africa and the Philippines has led to a decreased desire for additional births among families in those areas (137, 82). The death of

a child in the family has been associated with parents' demand for more children (125).

Uncertainty over the probability of child survival will lead to an oversuppply of births and children among the risk-averse. The uncertainty may be caused, for example, by a lack of awareness about the true relationship of fecundity to fertility (43, pp 7-9). A general result of this uncertainty will therefore be a range of variance in all human capital investment decisionmaking.

Large numbers of children, especially when closely spaced, in turn contribute to a rise in the family's infant mortality levels, although this latter effect can be presumed to be weaker. Ali has documented this "vicious circle" using both cross-country data and district-level data from India in a simultaneous-equation model. He found significant positive interrelationships between infant mortality and fertility rates, supporting the hypothesis of causal linkages in both directions (2, p. 166). The strength of the relationships varied according to the degree and characteristics of countries' modernization. The self-interaction of population growth thus has a lagged, negative feedback process which may be finally stabilizing. The length of the adjustment lag depends on a number of factors, principally originating in other sectors. An example of this is the experience of the agricultural sector, and the effects attributable to the equity of the agricultural modernization process.

Family planning programs lower the costs of fertility regulation by making information and contraceptive devices available to families who can use them to improve the precision of their response to their desired number of children. However, this probably occurs only when mortality

rates have declined past a threshold level. Realized mortality rates must be translated into perceptions, as associated socio-economic changes "modify attitudes, motivation, and ideas about optimal family size sufficiently to induce decisions and behavior which result in smaller families" (72, p. 3). Freedman and Berelson observe a mixed record for the success of family planning programs undertaken in countries where modernization is not at a favorable level. Moderate fertility reductions have been achieved by some of the large-scale programs conducted in India and Pakistan, but the initial goals have not been met. Contrasted with this are the successful experiences in Sri Lanka and India's Kerala State, which are described below. In Bali and East Java, family planning efforts seem to have led to a considerable increase in acceptor families, in the absence of significant improvement in social or economic conditions. Here, success was judged to be due to extreme population pressure combined with a strong political commitment to the program (46).

In summary, the partial dynamics of population growth revolve primarily around the adjustment of fertility rates to mortality experience in the matching of actual to desired family size. With relatively constant desired family size and a slow adjustment process, an initial decline in mortality (i.e., population rise) will lead to increased population growth in the short run. Over the long run, population growth rates will fall as fertility rates and family size decline, and the net growth may become zero or negative.

b. Population Growth Effects on Education

Population growth has several negative impacts on the delivery and consumption of education, which may be distinguished according to the level and formality of the education involved. Kocher and Cash list three major types of educational programs or strategies that have been considered in the discussion of linkages: (1) universal primary education, ususally six grades; (2) general adult literacy programs; and (3) functionally targeted adult educational campaigns. To these may be added (4) higher, including university-level, education; and (5) informal education in the home (80, p. 17).

High fertility and low infant and child mortality can adversely affect the informal education process in the home (43, p. 33). As the number of children increases, the ability of a mother to engage in informal education with each given child is reduced. Shortened birth intervals exacerbate the problem for several reasons (160). First, there is an increased risk of prematurity among closely spaced children which reduces the capacity of the child to effectively learn from the environment subsequent to birth. There is also a greater than normal prevalence of malnutrition among closely spaced siblings. The net result may be a decrease in intelligence (defined in terms of measured I.Q.) among children from such families, who are then at a disadvantage when they enter the formal educational production process (160, 85).

Finally, increases in the size of families on fixed budgets may impose the need for intra-family allocation decisions such as which children will receive educational assistance. Formal education

opportunities are often allocated to males, since they generate higher returns from educational investments for the family in many developing-country labor markets (68). However, females are usually the major providers of pre-school stimulation, which is a significant determinant of subsequent formal education attainment (86), so this educational sex-bias may limit the achievement of potential benefits by the family and society.

Rapid population growth exerts pressure on the formal education system through the effects of overcrowding. In countries such as Colombia, Sri Lanka, Tanzania, and Tunisia, the need to train new teachers and construct new facilities has reduced the resources available for classroom teaching (73, 24, 28). Such pressure frequently forces governments to choose between alternative education programs such as literacy programs, vocational schooling, and secondary formal education. If a government chooses to allocate its scarce resources to a particular kind of education--formal education, for example--and if the education is consumed primarily by a particular income group or social class, the income distribution is affected (4, 130, 106). This problem has been discussed with respect to expansion of education services which are disproportionately skewed toward and consumed by higher income groups in urban areas (25, p. 83).

When analyzing public financing of education, it is also useful to consider the implications of a changing producer-consumer ratio. The number of gainfully employed people who can either purchase education in the private market and/or provide the government with tax revenue, relative to the number of consumers of education, is directly affected by

rapid population growth. Without an expanding tax base or increasing private purchasing power, the percentage of the population with formal education will decline because the required resources cannot be sufficiently expanded. (43, pp. 33-35.)

c. Population Growth Effects on Health

Population growth has significant negative effects on health status at both the household and community levels, primarily because the chief beneficiaries of the increase are the very old and the very young, and both of these groups experience greater than average health problems. This topic has been examined in some detail (139). In general, effects are due both to fertility patterns and to associated crowding problems.

High levels of fertility are likely to produce a wide range of health problems for mothers and children. Maternal health problems with high fertility are common; for example, the probability of placentral disorder, toxemia, hemorrhage, and malposition has been found to increase dramatically after the third birth, even where obstetrical care is available and maternal mortality low (115). The interactive effects of fertility patterns on health are perhaps most pronounced in the "maternal deprivation syndrome," through which repeated pregnancies leave a mother in poor health and malnourished for long periods of time. These conditions are associated with low birthweight, poor lactation performance, and high child morbidity and mortality rates (70). Through the replacement motive this may lead cyclically to more pregnancies, and increased health and nutritional deprivation. In one study a greater number of children was found to have the strongest effect on child health

when combined with maternal malnutrition (19). Infants born to adolescent mothers have especially severe problems, as they are more likely to experience low birthweight and neo-natal complications, both of which are associated with deficiencies in later motor and mental development (17).

Family size and child spacing may also have significant impacts upon health. It has been observed that the health status of infants in large families is poorer, other things equal, when birth intervals are short (47, 114). A long-term study in the Punjab found that closely spaced children face an increased risk of illness and early mortality (161). These problems are likely to be greatest when the birth interval is less than one year (139).

When fertility is high and families contain a large number of children, each child, especially later in the birth order, may receive less parental care. This may raise stress levels within the family, and impair the mental health and development of the children (160). Yet, if mothers are initially working, having more children may cause the female labor force participation rate to fall and parental care to increase (41), so the net effect is not clear.

The hypothesis that child health may deteriorate with less parental care is tested by Heller and Drake (60). In a cross-sectional analysis that controlled for factors such as nutritional status and family income, neither the number of young children in the family nor the child's birth order was found to be a determinant of the incidence of diarrhea or of other sickness. Another part of the analysis, however, showed that birth order is a significant determinant of a child's weight relative to

height. Later children are more likely to be below average in weight, of poorer nutritional status, and more prone to sickness. These results suggest that fertility may indirectly affect health through the linkage to nutrition (9, pp. 41-42).

High fertility and low mortality rates imply increasing average family size, given typically limited income and housing stocks. This may be expected to exacerbate negative health externalities and increase the depreciation of individuals' health capital (43, p. 21). Crowded housing with inadequate ventilation is likely to facilitate the spread of airbone diseases (80, p. 14). There is evidence that higher population densities on both the familial and societal level are in fact associated with increased incidence of infectious and parasitic diseases such as tuberculosis, malaria, and diarrhea-related diseases (84, 109, 110). Other studies are not clear on this point (23), although for specific populations the effects may be significant. When there are high-density populations of pre-school children in the home, hearing can be impaired by viral and streptococcal otitis, and vision can be damage by trachoma and macroparasitic diseases; these conditions can further seriously affect educability (92).

Mental health and stress levels may also be affected at the macro level. Higher population densities produce various socio-economic pressures which further help to prompt rural-to-urban migration (143, 23). Such migration is likely to lead to slow socio-economic assimilation and increased urban population density, both of which have a detrimental impact on mental health (18, 23, 153, 87). In addition to the increased stress that high-density population creates, unemployment

may negatively affect the mental health status of urban residents. The inability of an economy to supply market work frequently leads to participation in alternative or informal labor markets, which often involve illegal activities and increase stress and mental illness (135). Other negative externalities associated with urbanization, e.g., transportation, occupational accidents, pollution, and crime, will also have undesirable health effects (21, 36, 133).

Conversely, as population growth declines, cet. par., average incomes will rise. If the demand for health services has a high income elasticity, as is likely, the consumption of health services will increase in greater proportion than increases in income. To the extent that consumption of health services is an input into the production of good health and that it has a positive marginal product, health status will also rise (6, 55).

d. Population Growth Effects on Nutrition

The impacts of population growth on nutritional status are clearly negative, due to resulting conditions of increased demand for food and to the adverse effects of certain related demographic and cultural patterns. This interaction is similar to that of population and health. In many countries the need for improved nutrition, in terms of both calories and protein, stands as a major barrier to broad-based social and economic development given continuing shortages of food. Responses to this situation at all levels can be made by adjusting the general availability of food, the distribution of food, or dietary composition.

Within the household, if there are family resources that can be

allocated to nutrition, increasing family size heightens the competition for food. With per capita income relatively constant, nutritional intake decreases as average family size and population increase (42, 81, 110, 119). It has been shown that children from larger families are more likely to be undernourished (126), and the probability of malnutrition has been found to increase with the birth order (34). In another study, closely spaced subsequent pregnancies and the number of siblings were correlated with early infant weaning; this is strongly associated with low weight for age, an important indicator of child malnutrition (54).

Closer spacing between children caused by increased fertility affects the potential nutritional status of the mother, who requires an increased supply of nutrients if she is to maintain a given nutritional status. For reasons grounded in cultural patterns, intrafamily competition tends to discriminate against mothers and young children who typically have low dependency status (140, 129). To the limited extent that research has focused on the intrafamily allocation of food and nutrients, it is observed that adult men consume significantly more than women and children, as measured either by total consumption of protein or calories, or in relation to recommended population group-specific nutritional standards (140, 64). Female children in particular often receive the smallest food portions, and have the lowest priority within the family for eating (151). This sex-biased food distribution pattern has exacerbated the generally poor nutritional status of women and children, especially in many African countries (25, 29, 119). Malnutrition rates for female children have been consistently found to be higher, and weight for age lower, than for male children (54, 34). One Indian study also showed significant differences in mortality rates among

children under five years of age, with rates for females 50 percent greater than those for males (162). These effects lead to unfavorable indirect impacts on other sectors, since women in most societies are responsible for family nourishment as well as for the health and intellectual stimulation of infants and young children (41).

At the macro-level, differential rates of population growth among socio-economic classes (which are the rule in most developing countries) lead to differences in the ability to gain adequate nourishment, as well as relative nutritional status between classes (42, 113, 119). Producer-to-consumer ratios decline in countries experiencing rapid urban population growth because of the concurrence of rural-to-urban migration, high fertility, and declining mortality. The nutritional status of poor urban dwellers is likely to be adversely affected by the decreased accessibility of food, and the high food prices caused by the higher costs of transport, storage, and other distribution factors (43, p. 28). In this connection, low prices in food rationing stores can have an adverse impact on nutritional status, especially of the urban poor. If commodity ration prices are not compatible with general supply and demand conditions, there may be substantial leakage of food through black-market operations. The policy objectives of rationing will be subverted, and nutritional status may decline (65).

2. Education Linkages

a. Interactions within the Education Sector

Education, in the form of knowledge which helps individuals to define and solve problems, enhances the potential benefits of virtually

all other human resource interventions (80, p. 15). The development of human capital through education involves familial and societal decisions to forego current production and consumption in order to augment expected future levels (43, p. 11). As described above, there are several levels at which this investment can take place, generally separable into formal and informal educational opportunities. These categories are mutually reinforcing; for example, some minimum level of formal education may be necessary before person-to-person, mass media, and other informal education can be effective in improving health or nutritional status.

The cumulative, intergenerational nature of the educational process, through which the quality and quantity of previous educational experiences come to bear directly on present and future educational attainment, is widely recognized. In the formal system, the production of education depends upon the output of informal and previous formal education activities. Children enter the formal school system embodied with a certain amount of education-produced human capital from the home. The outcomes and benefits from formal education are also derived from the quantity and quality of teachers and staff, who are products of previous educational investments (24).

There is, however, accumulating evidence which indicates that the informal education of students is of equal or greater importance than the formal school process. Much of what is thought to be value added by the formal education system is actually already embodied in the children when they enter school (85). Studies of pre-school educational programs have found that these programs increased the performance of children in the formal school system, especially where mothers were taught how to teach

their children in the home. The importance of parents as pre-school teachers and models for their children is indicated by the observed positive relationship between the educational attainment of parents and that of their offspring (16, 121). Educated individuals also appear to place greater value on time devoted to education, as the proportion of child care time spent in educational activities has been shown to be an increasing function of the primary caretaker's education level (86). In a Ghanaian study, for example, the educational attainment of the mother was the most significant predictor of the number of children enrolled in school (40).

b. Education Effects on Population Growth

Educational programs with impacts on population growth range from general literacy and basic education programs to functionally targeted efforts in family planning. The primary effects are of a decline in fertility rates, brought about by a number of mechanisms. Education contributes to the perception of realized declines in mortality rates, which is necessary before fertility levels begin to fall. Several studies have attempted to estimate the effects of education on the household decision-making process surrounding the demand for children (11, 76). The Ghanaian study noted above found that the wife's educational level was the only variable significant in predicting the number of children in a family (40). Better husband-wife communications that occur when both sexes attain similar levels of education are believed to increase the use of family planning practices and increase the participation of both partners in the family size decision (32). Finally, when education is provided on a mass basis and school attendance

is encouraged, young people tend to marry later and delay childbearing; this has been the case, for example, in China (43, p. 35). Education also increases the opportunity cost of a woman's time if she is able to generate market employment. The result is likely to be increased production of market rather than household goods and services, including children (32, 68).

Better-educated individuals tend to have greater educational aspirations for their children, which implies higher costs for raising each child (111). Families may therefore choose to reduce the number of children in order to increase individual educational investments (107). Especially when education is provided free of charge to all or nearly all members of society, many families may view the return to investment in formal education for their children as being greater than the value of additional output derived from having the children engaged in home production activities. This reduces another incentive to have a large number of children (43, pp. 33-35).

It has been hypothesized that there are country-specific thresholds of formal education levels which must be reached if fertility-reducing behavior is to be promoted. For example, in Sierra Leone it was found that primary education of up to four years was not sufficient to reduce fertility (76), while in Turkey seven years of primary education was not enough to alter fertility behavior in rural areas (32). The association of secondary education with later marriage and shortened childbearing years for females supplements the impact of education on fertility-related attitudes (4). Additionally, to the extent that mass communications can more quickly and effectively disseminate information

about family planning methods and services throughout a relatively literate population, broad-based increases in education levels can have further significant long-run impacts (118). If education programs are not distributed throughout the entire population (including women and the poor), however, the impact on individual fertility decisions and the resulting changes throughout the population will be greatly diluted (79).

Education may also reduce mortality rates through its positive impact on women's production of health capital. This creates a potential for increased population levels if fertility rates do not also decline; at least, the net negative effect on population growth may be diminished. Some evidence of this is provided by a cross-sectional study in the United States, which found that an education variable had a significantly negative effect on statewide death rates (6). Comparable studies are not available for low-income countries; other evidence indicates that the effects of any short-run mortality decline will be outweighed by those of the stronger long-run fertility reduction (113).

c. Education Effects on Health

Education is a central input to the production of health; along with nutrition it may be considered to be an efficiency parameter. Empirical findings in the United States document the general fact that persons with higher education levels tend to have fewer nutrition and health problems (27, 36). In a study of developing countries it was found that education had a positive effect on health status, when other factors such as income, occupation, prior health status, and employment status were held

constant (37). At the individual level, many diseases may be avoided, and educated persons are more likely to learn about ways of avoiding disease. They may adapt their behavior by raising their standards of personal hygiene, taking preventive medication, changing their diet, and avoiding high-risk areas (9, p. 39).

Better educated households have been found to consume more preventive health services and to process health information more effectively (94, 103, 36). This latter ability is particularly important during pregnancy, when women must maintain good health for themselves and their expected infant. Household transmission of health knowledge has been documented in studies showing that the health knowledge of children is correlated with parents' education levels and backgrounds (38).

Functionally targeted adult education in domestic skill areas is believed to be a more effective approach to the improvement of health status than limited primary education (80, p. 17). Education and training in support of other health interventions is an especially acute need, since many efforts require complementary changes in behavior which education may promote. A study of a rural water supply program in Lesotho found no measurable resulting health benefits, as the villagers had not been educated in hygiene and the proper use of clean water. When hygiene does not improve and the transmission of 'water-washed' diseases does not change, there is no improvement in health. Furthermore, when people are not trained in the maintenance of the water system, they will simply return to the use of their original polluted sources when there is a breakdown (134). Partial or inappropriate changes in hygiene habits that accompany modernization can actually have adverse effects on health status in some cases (122).

Education can also affect health in a more direct way, in that children who are in school are subject to different medical risks than are those outside. When a larger number of children are in school, certain contagious diseases such as measles may be more easily spread. At the same time, a child who is in school will not be exposed to other diseases such as schistosomiasis, as he would be if he was instead, for example, out wading in a ditch (146; 9, p. 40).

d. Education Effects on Nutrition

Education can also be considered an efficiency parameter in the production of nourishment, which in most developing countries takes place in the household. Individual nutrition is affected by educational impacts upon (a) the quantity and quality of foods chosen, (b) the method of food preparation, (c) the ingestion of nutrients, and (d) the allocation of food. Several studies have indicated that knowledge about each of these steps improves the nutritional value and efficient utilization of food resources (13, 129). Education and the general exposure to the outside world that accompanies it also provide mothers with a basis for recognizing inadequate nutritional status in low weight and other physical characteristics of their children (57, p. 11). They may then be motivated to improve their children's nutritional status, and that of the family as a whole. Other research has demonstrated the value of both general and specific nutrition education in the production of nutritious diets (44, 94, 41).

Knowledge about proper feeding practices is particularly critical to

the poor, whose nutritional status is already marginal because of their lack of financial resources. Improper weaning practices and the use of certain foods are likely to lead to malnutrition in children, especially in the post-breastfeeding period. Groups in transition from a traditional agrarian to a more urban existence often discard sound nutrition habits, such as breastfeeding, in favor of supposedly modern practices (80, p. 116; 159).

Public education may serve as a direct vehicle for nutrition improvement when the school program includes a mid-day meal. Through universal primary education, such as is provided in the Indian state of Kerala, mid-day meal programs in the elementary schools can reach the lower-class children who most need them (57, p. 11). The related importance of changing traditional food allocation patterns in the household has already been discussed.

3. Health Linkages

a. Interactions within the Health Sector

Health-related linkages are especially sensitive to the specification of variables in the health sector, and to associated data conditions. Measures of the existence and prevalence of specific diseases are open to questions of diagnostic accuracy in most developing countries. Correlations between these broad indicators of health conditions, including morbidity, debility, and possibly mortality, are often weak, even when data are available. Composite health indexes of health status incorporating a number of separate health indicators have been developed and tested, primarily in developed countries (37).

Because of their data requirements, however, the construction of such indexes is currently impractial for most developing countries.

Health interventions are selected to treat specific health conditions, and in planning it is necessary to determine appropriate interventions from the prevalence of particular disease groups and classes of health problems. A high correlation between individual health problems and societal health conditions has been documented empirically; this finding supports the use of a coordinated health planning framework based on linkages and targeted, systematic interventions. It has been shown, for example, that high levels of general and infant mortality are related to a population disease mix which has a large proportion of infectious and parasitic diseases (110). McDermott had earlier developed a classification of vector/macroparasitic, "adult"/surgical, and pneumonia/diarrhea disease complexes which were separately analyzed with regard to impacts and interventions (92).

Health conditions and measures of morbidity at the micro-level are also interrelated. Self-perception of health status is highly correlated with duration of healthy time as measured by restricted activity days or days lost from work (55, 56, 37), In addition, changes in mental health can affect and be affected by changes in physical health status (37). The health of one member of a household can affect the physical and mental health of all the other members (155).

At the country level, epidemics can cause major declines in the health status of an entire population. Infectious diseases still account for most of the morbidity and mortality in LDCs, although historically the most significant medical advances have been made in the treatment and

prevention of these conditions. Many illnesses, such as smallpox, polio, and yaws, can be prevented by immunizations; vaccines are relatively inexpensive, but may require a cold chain or other arrangements that are not available in all primary health care systems (35, 50, 52, 129).

It is widely recognized that hospital-based curative health care is ill-suited to treating the mix of health problems in most LDCs. Other, broad-based clinical and sanitary measures have in many cases been found to be more effective. Kocher and Cash summarize the relationship between water supply/sanitation measures and health status, noting that benefits may at times be limited (80). A review of 28 studies in this area concluded that the incidence of certain water-related diseases is associated with the quantity or quality of water and sanitary facilities available to users, although this information is of little value for predicting the effects of specific improvements (122). A WHO study of the effects of different sanitary projects in three Philippine villages found a substantially reduced incidence of cholera in all cases. There were no significant differences in effectiveness among the interventions -- water supply, waste disposal, and combined treatments -- and it was concluded that there may be a level of cholera reduction beyond which further sanitary improvements lead to only negligible benefits. In addition to the cholera incidence reductions, however, other types of infectious diseases showed less tendency to spread and lead to secondary cases (156). Numerous studies support these findings (122). The wider environment, including education, is also essential to the success of a water system for affecting health. Studies of tubewells in Bangladesh indicated that the presence of clean water did not necessarily decrease the incidence of cholera or other diarrheal diseases. This was primarily

because residents used normal surface water for most sanitary activities, thus negating the benefits of uncontaminated drinking water (31; 80, p. 12).

b. Health Effects on Population Growth

The close relation of health to population growth is signalled by their mutual use of the mortality rate indicator. Changes in health status that diminish health capital beyond a certain level result in death. Health also impacts upon fertility in significant ways. These two effects are basically distinct, although they interact through other linkages.

The view that health interventions were responsible for the sharp declines in LDC mortality rates in the past 30 years has been recently reconsidered. For example, the mortality declines formerly attributed to the malaria eradication campaign in Ceylon (Sri Lanka) following World War II by many observers are now felt to be only slightly related to that effort, (80, p. 6). Mortality levels have also declined substantially in Latin America, but the extreme maldistribution of medical and public health facilities in that area makes it unlikely that they contributed substantially to the decrease. Other LDCs have experienced mortality declines that can be only partially attributed to health care interventions.

Yet it has also been demonstrated that widely scattered and accessible health units can be instrumental in the achievement of low infant mortality rates and rising life expectancy. A significant decline in mortality rates due to health inputs only has been clearly

demonstrated in small, accessible rural health projects in Africa and in the Punjab State of India. Sri Lanka, Kerala State in India, and the People's Republic of China offer further examples of the success of small, community-based projects (80, p. 14). Contrary findings have been reported in other studies, in which the application of medical inputs only led to no measurable improvements in health status (126). A five-year experiment in providing intensive health services on an American Indian reservation did not lead to a significant fall in mortality rates; it was concluded that improved social and economic conditions were a prerequisite for health services to result in infant mortality reductions (93). This case points out the need for proper complementarity of health interventions with activities in other sectors.

The negative impact of health on mortality rates eventually diminishes, since the very young and the elderly who are initially saved are usually already weak and therefore susceptible to a range of other complicated health problems. This pattern leads to an increased demand for curative health resources, creating probable resource allocation conflicts. The dependency burden in a population has raised increasing support requirements and worsening income prospects. This is particularly true of programs that reduce child and infant mortality (9, p. 30). Health programs can also affect demographic structure by improving maternal health status; this leads to a decline in age-specific mortality rates of women relative to men because of the reduction in the incidence of pregnancy-related problems. In addition, poor sanitation and/or the non-availability of pure water supplies is felt to be associated with increased rural-urban migration (36, 124, 140).

Health has a variety of direct impacts on fertility levels. At the macro level, the eradication of malaria in Ceylon was shown to lead to a significant increase in the crude birth rate (105); yet Weisbrod et al. found no association between fertility and the five parasitic diseases studied in St. Lucia (146). In interpreting these results it is important to examine the strength of the causal relationship, as well as its short-and long-term course. For example, in both of these studies the long-run effects would include a decline in desired family size resulting from the drop in infant mortality rates from lowered malaria incidence. Several major longitudinal data bases will become available to analyze such questions of model dynamics in the near future, e.g., on the Bikal region of Luzon in the Philippines (Popkin), and on Malaysia (Butz).

At the micro or household level, sickness may reduce fertility by reducing sexual activity and the frequency of conception, or by increasing the probability of miscarriage and stillbirths. Diseases that affect fecundity by reducing a woman's fertile time span include tuberculosis, salpingitis, endometritis, venereal diseases, and extreme famine-induced amenorrhea (22). An even larger number of diseases limit completion of pregnancy.

After a normal gestation period of nine months, the woman is generally infertile for a few months, particularly if she is lactating. If the pregnancy is interrupted, however, the infertile time is reduced and the woman may conceive again sooner than she would have if the pregnancy had been full term. Repeat miscarriages, stillbirths, etc., have physical impacts as well, lowering the woman's health status and

often reducing her fecundity and fertility. When maternal health status is improved, the spontaneous abortion rate is reduced (7, 22). Contraceptive efficiency is also improved through an increase in IUD retention rates (47). These and other effects upon maternal health status not only improve fecundity and raise subsequent fertility levels, but may also lower the demand for children (61, 107, 113, 139).

This demand effect is the central mechanism in the transition from population increase to stabilization or decline. In the short run, there is clearly a large increase in population as mortality declines and fertility increases in the absence of accompanying changes in behavior or attitudes. The fertility effect might decline in strength if the fertility rise was immediately translated back into unfavorable health effects, but this opposing effect is smaller and occurs after a time lag, and so is less significant. In the long-run, fertility rates will fall as families see less need to risk-avert by having more children. With lower levels of child mortality, the replacement motive will be less strong and parents will lower their demand for children (2, 53, 59).

Over time the woman is likely to realize that with improved health status she can give birth to fewer children in a given time period and still ensure her desired number of survivors. The period over which this realization occurs is in part dependent upon the woman's education level (33) and her social setting. Only when the changing experiences of the woman's reference group are collectively perceived will there be any significant changes in her beliefs, expectations, and practices, and thereby lead to a reduction in average family size and population growth. These events enable further advances in health status which, in

turn, allow additional long-term reductions in average family size, as well as an increased quality of children. The decline in average family size can also lead to positive physical and mental health externalities for adult household members (85, 87, 43).

c. Health Effects on Education

Health status has impacts on educational performance and on the decision to participate in the educational process. Most studies focus on the effects on learning ability in school, but health affects other aspects of formal and informal education as well.

At the household level, poor maternal health status has an early negatively reinforcing effect on the health status of children, which reduces overall learning ability (119, 86, 38). Complicated deliveries and low average birth weights are also associated with poor learning performance, particularly in reading (22, 48, 154). Poor health status has been found to be correlated with high rates of school absenteeism, poor motivation, and lower powers of concentration. The eradication of malaria in the Philippines brought about major reductions in absences from school (149). A group of Southern Rhodesian students who was infected with schistosomiasis performed more poorly on academic tests than did those who were not infected (3). Similar studies have shown that students with impaired vision, hearing, or speech (i.e., poor functional status) have relatively low levels of academic performance (58). Improved health status of students is associated with current improvements in their ability to learn and in their educational performance (124, 128, 38).

Other studies have found that the presence of disease has no apparent relationship to academic performance. A sample of Tanganyikan students with schistosomiasis was found to do no worse academically than a group without the disease (142). The St. Lucia study of schistosomiasis and four other parasitic diseases reached a parallel conclusion (146). Other studies have even found improved performance in the presence of diseases, as schistosomiasis has been associated with superior levels of academic achievement among students in Tanzania (74), and Southern Rhodesia (90).

Health status also affects the incentive to invest in education. Poor health reduces learning productivity and thus the rate of return to education, so private educational investment will decline. Return is further reduced because students with poor health tend to repeat courses and so use learning resources inefficiently; this is a social cost as well. Individuals with lower health status also tend to miss more work and die at an earlier age, thereby reducing productivity and shortening the period over which the costs of education can be amortized (77, 128). With poor health status and the absence of a universal education program, school participation may be expected to remain low if there is alternative activity for children in the home. For planning purposes, it is necessary to determine the minimum levels of health necessary to make efficient use of educational opportunities.

d. Health Effects on Nutrition

The health and nutrition sectors have a unique relationship, because of the biologically-based interdependence of health and nutritional

conditions in the individual. Nutrition and health status are jointly produced, and resources used in the production of one or the other can be more efficiently used in the simultaneous production of both. Conversely, the coexistence of malnutrition and infection in a given individual has more serious consequences than their merely additive effects (104). This synergism is grounded in a physical, not merely behavioral or administrative, process of mutual reinforcement and interaction. Their interactions have been described in some detail (127).

One study of Colombian children found that episodes of severe diarrhea during the first year of life lead to lower height relative to weight, an indicator of poor nutritional status (60). A positive relationship has also been observed between maternal health status during lactation and nutritional status of neonates and infants (69, 154).

Health status can affect an individual's propensity to eat, and his ability to digest, absorb, and metabolize food (126). In the first place, undernourishment may be caused by the loss of appetite that accompanies some diseases. Fevers reduce nutritional gains by increasing metabolic rates and calorie requirements (126, 146, 153). Infectious diseases worsen nutritional status through loss of nitrogen and depletion of body protein (82). Gastroenterological and urinary tract problems also reduce nutritional production efficiency; for example, diseases involving diarrhea result in a rapid loss of unprocessed nutrients (89, 126). Dental health may affect or even dictate an individual's food consumption pattern (13), and thus fluoridation may be an important part of the nutritional strategy in a developing country (1). The choice of

health interventions clearly must take potential nutritional impacts into account.

Gwatkin observes that the contribution of health conditions to nutritional status is well appreciated in countries such as Sri Lanka and India's Kerala State (57, p. 14). Widely distributed health facilities can significantly facilitate the work of nutrition planners who are able to take advantage of the resources available. Conversely, prevailing health conditions can constrain the nutrition policy of a country; for example, diseases such as malaria in Sri Lanka and onchocerciasis in Ghana have discouraged fertile land development in affected regions (63, 153).

4. Nutrition-Related Linkages

Nutritional status concerns effects and linkages that are both behavioral and biological. As has been seen, nutritional status is produced by several different factors--available income determines the amount of food that can be purchased; education affects the ability to prepare food so as to maximize its nutritive value; and health status helps determine the ability of the body to utilize nutrients. In addition, the practice of breastfeeding plays an important and multifaceted nutritional role.

The physiological nature of nutritional deficiency continues to be a subject of some debate. Recent professional judgment has swung toward the view that caloric rather than protein deficiency is the more significant problem in most of the developing world (80, p. 10). The outcome of this debate will help determine whether interventions should

be aimed at increasing protein intake or simply raising the amount of calories available to individuals. It may be that certain basic calorie requirements (in different types of work and in different regions) must be met before a person can take advantage of protein supplementation for improved growth and development. Relative program results and opportunity costs based on considerations such as these affect the anticipated economic value of alternative nutritional strategies.

Nutritional status affects its own future levels through three basic mechanisms: through the mother in the household; indirectly through health effects; and through labor force productivity impacts. In the first case, the mother's nutritional status affects that of the entire household. The nutrition of the fetus is dependent upon intrauterine nourishment, and nutritional status of neonates and infants is often a function of the quantity and quality of the mother's breast milk and her present diet; both of these are related to her general nutritional condition (123, 69, 153, 13). Familial nutrition is produced by the mother in her household activities, which are in part produced as a function of her own nutritional status (128, 159). Second, the review of literature documenting the interaction of nutrition and infection cited above (126) provides convincing evidence of the feedback of poor nutrition upon health problems, which can in turn lead to further nutritional deficiencies.

Finally, it is important to recognize the impact of present nutritional status on agricultural labor force productivity, and so upon future nutritional status. Studies in West Africa indicate that due to seasonal cropping patterns, the most physically demanding agricultural

work is often required at exactly the time of year when food stores are depleted. Total food intake is reduced and consumption is allocated to high caloric rather than protein-rich sources, and weight loss and various nutrient deficiencies commonly result (64, 108). Agricultural productivity losses due to poor nutrition of the labor force are reported in Asian countries as well; this impacts upon the future availability of nutrition (67). Similar malnutrition effects may occur in the industrial sector as well as the labor-intensive sector (41).

Population nutritional status has been among the reasons that the governments of Sri Lanka and Kerala State have given a high priority to the provision of adequate food to all sectors of their populations (57). This policy has political importance because of local electoral competitiveness but in addition, neither area is self-sufficient in food, so both are constrained to take policy action. Among other interventions, support has been given to food production for domestic use relative to the expansion of commercial export crops, and an extensive public food distribution system has been developed as a part of generally improved social services. Food price subsidies are also an important policy tool in other countries.

b. Nutrition Effects on Population Growth

Nutrition and health affect population growth through many parallel mechanisms, direct and indirect, and through changes in both fertility and mortality rates. Mortality impacts may perhaps be more properly considered the outcome of nutrition effects on health status; their effect on population growth is consequent. Poor nutrition may lower

fertility by reducing sexual activity and the frequency of conception. At the household level, fertility is a negative function of the birth interval, which is largely determined by pregnancy wastage (miscarriage, abortion, and stillbirth) (141, 101, 66). Pregnancy wastage is a negative function of maternal nutritional status, acting through changes in the fecundity level. One study in South India found that 20 percent of all pregnancies terminating in abortions, miscarriages, or stillbirths were attributable to poor maternal nutritional status as reflected by low birthweight (144).

Birth interval is also determined by the length of postpartum amenorrhea, which is increased greatly by lactation. The duration of amenorrhea has been found to be principally a function of the pattern and intensity of breastfeeding (51). Improved maternal nutrition can increase breast milk production, and thereby lengthen the lactation period (145). In general, however, nutritional status during lactation has been shown to have a relatively unimportant influence on fertility, with only a marginal effect on the probability of conception and the length of the birth interval (20, 99, 15). Other factors such as taboos against intercourse during lactation may have greater effects on fertility than the biological effects of amenorrhea alone (15, 100). The loss of a child while breastfeeding is thus likely to trigger a sudden increase in fertility (148).

Other evidence supports a positive effect of nutritional status on fertility. Tanner has found that the age at menarche falls as nutrition improves (136), leading to an increase in overall fecundity. Frisch has examined the relationship of body fat composition and women's

reproductive ability, finding that the age at menarche falls and fecundity increases as the proportion of body fat rises (49).

Improved population nutritional status has been shown to lead to a decline in both infant and general mortality rates (132, 29). Barlow cautions that studies documenting this relationship may not be completely reliable, however (9). For example, while Correa concluded from his cross-sectional analysis that deficient nutritional conditions are the only significant reason for high infant mortality rates, he took no account of possible reverse causation, and omitted potentially important variables such as income and parents' education. Another group of studies attributes historical declines in mortality levels to nutritional improvements, on the basis that health services alone cannot be shown to be the cause (45, 62, 91). Simultaneous estimation of the various possible effects was not attempted, so these results are likely to be biased. On balance, however, the mortality decline due to nutritional improvements is probably significant. A study of mortality in areas of Latin America found malnutrition to be an underlying or associated cause of death in more than 50 percent of deaths of children. This figure was over 40 percent even in major cities with available medical facilities and technology (131).

In the short-run the net effect of the positive impact on fertility and the negative effect on mortality rates will be to stimulate population growth. As infant mortality levels fall over time, the demand for live births will decline and the rate of population growth will decrease. Fertility rates may also be lowered in the long run as a reduction of abortion and stillbirth, possible prolonging of lactation,

and other benefits of improved maternal nutritional status are realized (111, 112, 66, 78). Additionally, improved maternal nutritional status has been shown to increase IUD retention rates and improve pill acceptance (150, 116, 130, 48). This increase in both the efficiency and utilization of contraceptives will contribute to the slowing of population growth over time. However, the dynamics of the long-run process--including its timing, the nature and effects of any threshold levels of precipitating factors, and its net impact--are not yet clear (77, 107, 7).

Policy actions may be taken to mitigate the effects of nutrition on population growth. For example, normal patterns of the distribution of food may have undesirable demographic impacts, since critical variations in food production across regions and between seasons result in geographical and seasonal differentials in nutritional status and mortality patterns (64, 108). Without government intervention, the impact of food shortages on infant mortality, given a certain desired family size, will lead to higher fertility rates. A continuation of the low food production-poor nutrition-high mortality cycle may therefore be expected if efforts toward the redistribution of food are not undertaken (43, p. 29).

c. Nutrition Effects on Education

The impact of nutrition on education is also parallel to the health linkage described above. By improving the nutritional status of household members, the effectiveness of educational processes may be increased, and the potential level of educational attainment raised.

Improved nutritional status of children and their parents may enhance the quality of the family interaction, through which a great deal of informal learning occurs. A number of studies have suggested positive relationships between mental ability, as measured by IQ, and prior nutritional status (30, 10, 96, 83, 88). There is evidence that infant and early childhood malnutrition, either subclinical or more severe as in kwashiorkor, may result in mental damage in the child to the extent that his educability is irreversibly lowered (92). A child's educational attainment is a positive function of his mental ability and the productivity of the time spent in the education process, both of which are nutritionally conditioned. Improved nutrition has been shown to reduce school absenteeism and improve concentration, and thus increase a child's educational productivity (124, 128, 12).

d. Nutrition Effects on Health

This linkage complements that of health to nutrition, and is manifested in a wide range of effects. Nutritional status was found to be a determinant of the number of days of sickness among children, in the study of Colombian children cited earlier (60). More directly, undernourishment may be expected to lead to a higher incidence of diseases that are associated with deficiencies in specific nutrients, such as rickets, pellagra, scurvy, and goiter. The physiological effects of malnutrition include impairments of leukocyte activity, antibody formation, cell-mediated immunity, and tissue integrity (82). Malnutrition during infancy has already been mentioned as a cause of mental deficiencies in later life; maternal malnutrition has also been found to have adverse effects on the child's mental and physical

development (14, 147). Food consumption patterns also affect dental health throughout life. Finally, traditional nutritional practices may worsen the effects of health conditions, as, for example, when food is denied to sick children or infants that are ill are withdrawn from the breast (148).

The incidence and severity of disease and the rate of secondary infection are all negative functions of nutritional status (127). Within a given population, the rate of transmission of disease is also negatively related to individuals' nutritional status. Malnutrition has been shown to substantially increase the mortality from diseases that would often not otherwise have been fatal, such as measles, tuberculosis, and malaria (92). This was made apparent during the drought in West Africa in the early 1970's, when the spread of measles and its case fatality rate among young children was greatly increased in the presence of infant and child malnutrition (26). A further effect is that malnutrition leads to an increased probability of non-immunity after an immunization dose; it has been shown that changes in the composition of the diet can determine whether the antituberculosis vaccine BCG is effective or not (127, 95, 92). There is thus a likelihood that some minimum nutritional status must be attained before a person can take advantage of preventive health services such as immunization.

Breast-feeding has particularly important effects on the health of infants and children. Breast milk is nutritionally well suited for human infants, is anti-allergenic, and has immunological properties for protection against infection. Studies in developed countries have shown that morbidity and mortality levels are lower for breast-fed children

than for those who were bottle-fed (161, 114). These findings parallel those of historical experience of lower infant mortality rates for breast-fed children in developing counries (157). The differential decreased over time, but was significant at least through 1946. In addition, morbidity rates were lower for children that had been breast-fed, indicating possible long-term protective effects of breast-feeding.

The relation of nutrition to health status at the micro-level has been the subject of several Latin American studies. A dietary supplement was experimentally introduced in a Guatemalan village, and was found to lead to a greater decline in child morbidity and mortality rates than occurred in a control village without the supplements (5, 126). In another case, a nutrition program was provided to pre-school children in Cali, Colombia, which consisted of giving the children dried skimmed milk and offering their mothers a course of nutrition-related education. Results were similar, and the incidence of diarrheal disease declined substantially. (Because the prevalence of diarrhea remained higher in children from families with flush toilets, it was concluded that the nutrition-health linkage is stronger than that of sanitation-health. More likely this finding reflects poor personal hygiene and the presence of a common facility through which the disease could be transmitted.) (158; 80, p. 20).

Although evidence of the nutrition-health linkage is abundant, the dynamics of this relationship are not well understood. Berg (13) states that all that is known about this relationship is that the extent of health damage--physical, motor, mental, and disease--increases with the

level of nutritional deprivation. When nutrition reaches excessive levels, sickness and disability increase as obesity, high cholesterol levels, and other problems appear (9, pp. 37-38). A relative absence of poor health status has been documented in Sri Lanka, a country which experiences recurrent food shortages that result in low nutrition levels in many years. Compared to other developing countries that have a high incidence of disease, such as Bangladesh, the food distribution pattern in Sri Lanka is notably egalitarian. It has been hypothesized that the reinforcing effects of nutritional status on infection may become pronounced only at very low nutritional levels. If this is the case, then the equity of the food distribution pattern becomes an important nutritional parameter. As Gwatkin observes, the distribution of a limited food supply so that many people are mildly malnourished could be preferable from a health and overall mortality point of view to that same food supply distributed in such a way that most are adequately nourished but others are very poorly off (57, p. 19).

The health status of entire populations is affected when major drought conditions or other natural events lead to a decline in nutrition levels, as in the Sahel or Bangladesh. In both cases, higher than normal mortality rates were recorded; however, these reveal only the extreme consequence of the total decline in health status (120, 26). These examples of population-wide nutritional deprivation highlight the process by which the health of a population can be impaired because of poor nutrition. When any social, economic, or political intervention leads to a breakdown in the production or distribution of food, the health of the population can be similarly affected (43, p. 26).

5. Implications for Service Integration

The presence of multiple linkages implies a requirement for intersectoral planning if those interrelationships are to be taken into account in the planning for any one sector. Because of the direct and indirect effects of activities in each sector on other sectors, and their eventual feedback effects on the original sector, the net effect of any intervention will nearly always be different from what would be expected from a simple, partial analysis. Another reason for the adoption of a "composite package" approach (72) is the mutual reinforcement of many activities in different sectors, leading to the synergistic effects of simultaneous interventions. The joint production of nutritional status and health, the interactions between infectious disease and nutrition and between family planning and the various mortality-reducing interventions, and the reinforcing effects of education on other interventions all support the theoretical position adopted in Part B ("Theoretical Models and Arguments") concerning the efficiency of a multisectoral investment strategy.

There was a consensus among all of the papers reviewed that interactions were significant, but that little is known about the magnitudes and dynamics of their effects. For example, the relative weights of individual determinants in a given relationship may be time- and location-specific, as in the variable effects of a nutrition or health intervention on net population change. Taylor and Hall assume the existence of a strategy for optimum human resource allocation (138), and although in principle such a solution might be found, there is little empirical evidence for it.

In his review of general-system studies, Barlow cites only two models incorporating all of his five sectors. A number of other three and four-sector models, of both the parameter estimation and simulation types, are also listed. Because of problems in aggregation, structural specification, and assumed parameter values, none of the models are considered satisfactory. Further work on the development of a reliable model is recommended, perhaps using historical data (9, pp. 46-48). Dunlop et. al. emphasize the importance of parameter specification, identification of threshold levels, and disaggregation by population groups (43, p. 41). Kocher and Cash suggest that research should be directed at answering two basic questions concerning the absolute and relative sizes of impact linkages: (1) What is the opportunity cost of alternative packages or mixes of interventions?, and (2) What are the implications of the effects of different mixes in terms of delivery systems? Examples of intervention mixes sorted as to cost and effectiveness are presented, along with a proposed minimum intervention strategy (80, pp. 26-27, 39).

In all of these discussions, the importance of intersectoral planning is underscored by the realization that human resource investments are only one part of a country's overall socio-economic development. Johnston lists the related objectives of achieving self-sustaining, cumulative economic growth, expanding employment, and reducing poverty in developing countries (71, p. 887). Each of these goals brings to light certain external influences that affect, and are affected by activities in the sectors of population growth, education,

health, and nutrition. In fact, the intervening social and economic relationships may be more powerful in determining outcomes of change in biological systems than the intrinsi biological relationships themselves.

Barlow's model most explicitly takes these points into account through the incorporation of an income variable. While it is noted that conventional income measures exclude certain goods and services that add to consumption and utility, and that average or per capita income does not reflect income distribution, the income variable is placed centrally in the model. Income is shown to influence and interact with health status through six mechanisms--change in work hours, change in labor productivity, migration effects, budgetary savings, changes in dependency burdens, and expenditure patterns (9, pp. 22-34). The general importance of poverty in the consideration of the four human resource sectors is also fundamental.

Other external effects upon the four-sector model are the political and cultural influences that underlie a country or region's development pattern. Gwatkin's description of nutrition programming in Kerala and Sri Lanka focuses upon the effects of political equality and the encouragement of modernization by religion on the successful development experiences of these two areas. He states: "...food and nutrition policies in Kerala and Sri Lanka are not discrete entities functioning effectively in an otherwise neutral political, social, and economic setting. They are, rather, important manifestations of a more general government determination to help the poor, a determination that also gave rise to the other people-oriented development efforts with which food and

nutrition programs have interacted so effectively" (57, p. 27).

Ratcliffe draws from the example of Kerala a more general "social justice" theory of the demographic transition, holding that aggregate demographic behavior, particularly fertility, is primarily a function of this social, political, and economic context. The basic assumptions of this view are that "to the degree that all segments of society share in the benefits of the modern, organized sector, mortality and fertility will decline... Within the protective confines of the modern sector, where the nation-state assumes many of the basic welfare and protection functions traditionally fulfilled by children, a large family is unnecessary" (117, p. 126). Thus, not only education, nutrition, and health, but also population growth may be seen as being determined to some degree by patterns of distribution, which extend to income, health services, land, literacy, and the availability of food. Both Gwatkin and Ratcliffe document the widespread egalitarianism in Kerala, and its apparent impact on all the human resource sectors.

At the micro-level, Dunlop et al. describe the adverse effects of inequitably distributing education, food, and health burdens with respect to women, especially mothers, concluding that policy choices which reduce nutrition and health discrimination against these groups may be among the most important actions in improving maternal and child health and lowering fertility rates. Educational investment in women is likely to result in greater returns in both the short-run (to women) and the long (to children), than do current patterns which tend to discriminate in favor of male children (43, p. 41). The sex-related food distribution pattern has exacerbated the generally poor nutritional status of women

and children, and reinforced the slow pace of educational attainment and health status improvement. Interventions at the state or macro-level--government food subsidies, universal primary education, widely distributed health facilities--are shown to contribute to the solution of these problems and lead to a more favorable pattern of development than would otherwise be likely. [See especially Gwatkin's conclusions (57, pp. 24-28), and Ratcliffe's discussion of synergism, (117, pp. 139-142); Kocher and Cash cite similar examples (80, pp. 20-24)]. Limited quantitative estimates of the effects of combined strategies may be made from the data presented by these authors, especially by Ratcliffe. These would provide some measure of the relative contribution of interventions to the changes being examined, but interpretation problems would be severe. The simple, more basic finding is that the various sectoral interventions are structurally related, and are parts of an overall development pattern.

Ali's analysis of the impact of agricultural modernization on fertility reaches a similar conclusion. Modernization, as reflected by the presence of labor-saving technologies and a greater diffusion of these technologies, was found to be related to lower fertility. The evenness of income distribution was found to be positively, but not significantly associated with lower infant mortality, as was the evenness of land distribution in some data. Adverse economic opportunities, as indicated by high population density and a low average amount of land per agricultural worker, also led to less fertility, demonstrating an economically rational response to socio-economic conditions and opportunities. This response is reinforced by the distribution of social services. Literacy rates, per capita protein supply, and income

distribution were all negatively related to infant mortality rates (2, pp. 170-178).

Several other advantages of an integrated strategy should also be noted. First, common infrastructure and facilities can be used for multiple purposes, thereby improving cost effectiveness and alleviating the problem of inefficient utilization of scarce resources (72). Administrative responsibility for providing services and planning programs in all areas often falls within the same ministries and is carried out by the same professional groups, and excessive duplication may be reduced by improving the coordination of programs and projects at all levels (80). Second, popular acceptability and adoption are likely to be increased, because the use of a single health worker or team allows the enhancement of credibility by association with a comprehensive program. Additionally, the presentation of a package of interrelated services permits them to be structured so that the adoption on one implies the subsequent or continued adoption of others (72), and reinforces positive attitudes toward their acceptance. Stated differently, an integrated strategy "lends itself to a sequential approach whereby the range and quality of services provided can be increased progressively" (71, p. 898), allowing adjustment according to both the local pace of adoption and the availability of program resources.

Johnston and Meyer make the judgment that "the political and financial support required for a program capable of having a widespread impact on a country's rural population will be greater if the program is aimed at multiple objectives related to nutrition, health, and family

planning" (72, p. 17). Such a result would be done to the possible coalescence of interests among policy-makers concerned with popular acceptance, e.g., of family planning; with the pursuit of economic goals (slowing population growth); and with the support of general health and welfare measures. Also, at the national level, communication linkages between programs improve information dissemination and other formal processes; informally open communication may have the more important effect of making each sector aware of its impact on other sectors, and so may enhance interdisciplinary policymaking. Evaluation efforts can be especially improved in this way (80, pp. 33-34).

Other observers are less optimistic about the effectiveness of integrated service delivery programs. A committee of the Institute of Medicine noted in a review of the AID health strategy that, in spite of its "eminent reasonableness" and "international fashionability," "this approach has (not) been demonstrated to be clearly cost-effective (or) ready for widespread and relatively rapid replication" (102, p. 10). Problems are cited in the areas of management effectiveness, assessment and reporting systems, training programs, communication systems, patient referral facilities, and basic distribution systems. A continuance of experimentation with the integrated strategy is recommended. Field-level problems due to the overburdening of multipurpose workers are also discussed by Kocher and Cash, who suggest the prudent use of unipurpose workers for many tasks, and a general approach of pluralism in decisions about inter-program linkages (80, pp. 34-42).

The theoretical case for an integrated strategy of human resource interventions is thus strong, although few clear policy prescriptions

emerge. A number of arguments may be made in support of this approach, but they should be weighed against the likelihood of implementation problems in any overall assessment of efficacy. If multisectoral planning is to be useful, it must address the practical as well as the theoretical points.

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II. FRAMEWORKS FOR ASSESSMENT OF PLANNING FOR HEALTH IN LESS DEVELOPED COUNTRIES

A. An Empirical Approach to Assessment

B. A Qualitative Approach to Assessment

II. FRAMEWORKS FOR ASSESSMENT OF PLANNING FOR HEALTH IN LESS DEVELOPED COUNTRIES

A. An Empirical Approach to Assessment

1. SUMMARY OF EMPIRICAL ASSESSMENT FINDINGS

The role and process of health planning varies considerably according to countries' social, economic, and cultural conditions. The comparative impact of underlying social and economic forces on the objectives of health planning and on the techniques employed in health resource allocation may be systematically examined using an empirical framework. Data from individual countries can be used to analyze the interaction between the level and distribution of income, characteristics of the health planning process, and ultimate resource allocation decisions in the health sector.

A preliminary study of 27 countries in Latin American and Africa employing a comparative framework provides information about health planning priorities, methodologies, and data, as well as country health conditions. The following basic findings emerged:

1) The health planning process is usually characterized by a "top-down" rather than a "bottom-up" approach. Community participation is generally lacking, and members of the ministry of health or the academic community dominate the process.

2) The objectives of health planning generally focus on the expansion and/or improvement of inputs into the curative health care delivery system rather than on specific targets such as improved health status.

3) Analytical health planning techniques focus on manpower and training projections, or "stock-taking"; that is, they are used to define the supply side of the market for health services at a given point in time. There is little use of benefit-cost or cost-effectiveness techniques or systems analysis. Many countries have not incorporated the effects of externalities in health-related areas such as nutrition, family planning, and the traditional health care system into the health planning process.

4) While most health plans present data on health facilities and other inputs such as personnel, drugs, and supplies, there is little evidence of the impact of these inputs on health status. In most instances, such information does not exist.

5) In most countries where income distribution is highly concentrated there is little information about how health plans will be implemented. Where an implementation plan is defined, it is usually part of the health ministry or some similar body.

6) There are considerable inter-country differences in level of "commitment" to the health sector, measured either in terms of resources committed to the provision of health care services or in terms of improving the population's health status. If GNP is held constant, commitments to providing health care resources tend to be

lower for countries with highly concentrated income than for countries where income is more evenly distributed. Countries with low income concentration also tend to use a larger proportion of paraprofessional personnel in their health service delivery systems. Finally, some evidence suggests that the health status of the population in low-concentration countries may be better than that in high-concentration countries, both in terms of lower infant mortality rate and in terms of a slightly lower rate of population growth. These conclusions are clearly tentative, given the sample size, potential measurement error, and conceptual difficulties with existing measures/indicators of health status; but they warrant consideration and, more importantly, additional investigation. Thus, while the health sector is often considered to be an input into the development process, the formulation and use of health planning as a technology may be directly determined by a country's socio-economic characteristics and priorities. There is, in essence, an inherent feedback linkage between the definition and use of health planning and the role of the health sector.

A case study of recent health planning in Tanzania shows how a country health sector may become an input into the development process, and how systematic health planning can be used to shape the role of the health sector. First, Tanzania made a political commitment to redistribute health service inputs on the assumption that this would improve the population's health status. Subsequently, the total amount of resources allocated to the health sector was greatly increased. Following a critical mid-plan review in 1971, budgetary allocations were shifted in order to synchronize the growth of the health sector with the

country's intensified rural-based development. It is in this step of program re-evaluation that Tanzania's commitment to using health as an input to economic development can best be seen. The health planning process itself evolved from larger priorities, and was used to accomplish goals that are consistent with the overall socio-economic development process.

This research provides an indication of the factors that must be considered by donor agencies in their assessment of a country's potential for health planning, and their determination of means to facilitate local health planning efforts. The study just described did not statistically test any specific hypotheses about the relationship between per capita income level and distribution and the components of the health planning process in the African and Latin American countries surveyed. However, the cross-country empirical analysis suggests the usefulness of conducting a more formal study of these relationships. In order to pursue this it will be important to include additional countries in the sample, particularly from Asia and South America. Multiple regression and discriminant function analyses can be used to examine the expanded sample in greater detail.

This study reveals the limitations of currently available information on health planning in most developing countries. Actual health planning documents are often difficult to locate, and other materials on country health sectors may not have been used in the planning process. For example, the USDHEW Syncrisis studies upon which much of the 27-country study was based were not often used in country health planning or adapted from country health plans. As a result, their

contents are only partially reflective of the country planning experience, and of the availability, utilization, and analysis of data in local health planning. In addition, this preliminary exercise could not effectively incorporate such factors as the organization of health planning and the relation of health planning to the country budgetary process into the findings. This is due both to the absence of comparative information on these subjects for many countries, and the difficulty of specifying representative variables in this area.

A broader research strategy for the analysis of health planning should draw upon multiple sources of information to extend the empirical framework presented above. Such an approach might include:

1) Examination of original country health plans to establish national health sector priorities and implementation mechanisms;

2) Analysis of health budgets by program categories in order to identify the actual priorities reflected in the country's allocation of resources within the health sector;

3) Interviews with AID project staff, public health advisors from WHO, and consultant teams who are familiar with the health planning process in specific countries, to obtain information on administration and procedures; and

4) Case studies of the experience of outside agencies in providing technical assistance for country health planning, such as WHO Country Health Programming, AID Health Sector Assessments, and health planning components of other development support activities, for comparative information on interventions into the health planning process.

To conduct such an analysis, information on a wide range of topics necessary. These topics include:

1) Specifics of the country health planning cycle, and the relation of the long-term plan (often five-year, as the health sector component of the national development plan) to the short-term, annual or biennial updating process;

2) Comparison of priorities stated in the national health plan with those reflected in the health sector budget, and analysis of the process by which the health sector plan is adjusted during the budgetary cycle;

3) The role of political structure, e.g., form of government, bureaucratic organization, impact of individuals, and strength of traditional practices, in health planning;

4) The role of donor agencies in country health planning;

5) The record of outside technical support of health planning, including funding levels, characteristics of on-site teams, methods and techniques employed, accomplishments, publications, and follow-up activities; and

6) The relation of health sector studies conducted by external agencies, e.g., WHO, AID, etc., to national health planning.

Two activities are envisioned to implement the proposed effort. First, the cross-national sample will be expanded to include as many

countries as possible; basic data will be collected on country socio-economic conditions and the health planning process to allow extension of the statistical analysis begun in the 27-country study. Second, country case studies which analyze the implementation issues listed above are necessary to provide a clearer understanding of the conditions under which effective health planning occurs, and under which donor support may be expected to have a significant impact. Greater detail on specific data requirements is presented in the following section.

2. INTRODUCTION: ANALYTICAL APPROACH[10]

Health planning is often viewed as a tool which countries can use to analyze their health sectors' problems, formulate strategies and objectives and, hopefully, implement programs to remedy the problems and reach goals. When considered in this manner, the planning process is somewhat exogenous; one means to the goal of improved health status.

However, a country's larger socio-economic milieu directly affects, if not determines, the way in which the planning process itself is defined and carried out. While the "science" of planning may be viewed as a technology, the definition of the planning process, the objectives of the process, the analytical techniques employed and the consequent impact of planning on health status are directly determined by the larger socio-economic milieu, of which the health planning process is but one part. Intuitively, given that prevailing social and economic forces usually have been at work in a country for years, it is reasonable to assume that these forces will likely define, if not affect, efforts such as health planning. This paper attempts to advance intuition a bit further with an initial empirical analysis of the relationships of the health-planning process to selected characteristics of the socio-economic environment.

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[10] Footnotes and references for this section are listed at the end of the section

Several components of the health planning process can be analyzed to show the relationship between planning, resource allocation, and implementation, and their relation to a country's larger socio-economic character. In this study, data from 27 countries are used to analyze how the following five areas of the health planning process are addressed:

1. The structure of the health planning process,
2. The objective function of the health sector,
3. Analytical tools used,
4. Data used, and
5. Implementation.

The analysis presented in this paper groups nine countries of Latin America and 18 from Africa according to three measures of overall socio-economic development -- (a) per capita income, (b) income distribution, and (c) geographic region of the world. These three single measures are not hypothesized to be independent variables which invariantly mold and shape the questions addressed and analyzed by health planners, or the tools used in that process. Instead, each is used in this preliminary analysis as an indicator of general characteristics of macro socio-economic conditions. Thus, they can show how larger forces affect health planning, which has traditionally been viewed as a purely technical effort.

- Per capita GNP, as a measure of economic activity, is used to indicate the aggregate resource constraints that bind a country's planning activities.

- There is increasing interest in how the distribution of income affects both current and future economic and social development. Kocher was among the first to point out that the effect of income distribution on the demand could be altered by increasing the supply of contraceptives and/or family income.[2] Similarly, research has been conducted on the extent to which income distribution not only affects demand patterns in developing countries, e.g., the demand for mass-produced necessities vis-a-vis luxury goods, but also dictates trade patterns, the economic feasibility of certain industrial projects, and the employment potential of capital investments.[3] Further, Roemer and others[4] recently found a correlation between high infant mortality and high per capita income with skewed income distributions.

- It is generally thought that countries display similar development characteristics by virtue of geographic proximity, particularly when such proximity is associated with similar colonial history, cultural background, language, social institutions and development and trade patterns. Given the finite number of countries (27) from which health plans were available for this preliminary analysis, it was assumed that cross-regional differences in the health planning process and the other two variables could be partially controlled for by disaggregating according to region.[5]

Two other criteria were applied to select the three measures chosen. First, it was considered important to employ generally accepted and commonly used measures of aggregate economic activity (GNP) and its distribution. One commonly used measure of income distribution is the

Gini coefficient which indicates the deviation from a perfectly equal distribution of income across all units in the population. The coefficient is based on the Lorenz curve analysis, which graphically shows the income distribution in comparison with the standard of perfect equality, in which each percentile of the population receives its corresponding proportion of the country's income. The Gini coefficient ranges in value from 0 to 1; the larger the coefficient, the greater the inequality. Thus, perfect equality is indicated if the Gini coefficient equals 0, and a Gini coefficient of 1 represents perfect inequality.[6]

Second, since this is a cross-sectional analysis, it was essential that the data set be consistent across countries for the period studied. Several countries were eliminated because their health planning data were contemporaneously inconsistent with the set being used in this analysis, or one or more of the chosen socio-economic measures was not available. This, of course, reflects both the inherent difficulties of using secondary data for empirical research, as well as the current "state-of-the-art" of health planning as a science.

An Overview of the Analysis

The structure of the health planning process in the countries is first analyzed according to whether it takes the form of "top-down" planning, where the "experts" define what should be. This type of planning process is distinguished from one which has population participation, from the "bottom-up," in the identification of health problems and allocation decisions.

Second, the analysis examines the set of objectives that are enunciated for the health sector by the countries. For countries whose objectives are not stated explicitly, an analysis of budgetary decisions and program implementation can reveal implicit underlying objectives. Of particular interest is the presence of more liberal objectives such as improved income distribution, increased functional health status, and expanded rural health services.

Next, specific analytical tools used in the countries' health planning processes are identified. These may include use of demand and supply analysis, manpower planning techniques, and incorporation of the concepts of "externalities" and intersectoral linkages.

Fourth, the specific data used to support health planning efforts are analyzed. The focus is on whether the information is primarily a compilation of facts about existing health service resources used for purposes of "stock-taking," or whether it is directed toward broader analyses, priority formulation, and program evaluation.

Finally, to the extent that documentation exists, both the process by which planned health programs are implemented and the extent to which past implementation efforts are evaluated are addressed. This analysis also focuses on the way in which health is viewed as a part of the overall socio-economic development process in a country, as well as on the justification for health programs, e.g., human capital, quality of life, or other bases.

This paper is largely a compilation and analysis of data from multiple sources. In order to efficiently present the data and describe

the findings, several tables are relied upon. Tables 1, 2, and 3 contain information on the five components of the health planning process described above. Tables 4 and 5 show the relationship of income level and distribution to various indices of health status and types of health delivery systems, further clarifying: a) the extent to which health planning objectives have been implemented, and b) how health planning is related to a country's larger socio-economic structure. Following a discussion of these tables, a case study of Tanzania is presented. A concluding section summarizes the findings and their implications regarding the role of health planning in overall economic development planning, and sets out a program for future research in this area.

3. CROSS-COUNTRY ANALYSIS: THE HEALTH PLANNING PROCESS AND THE DISTRIBUTION OF WEALTH

In Table 1, 18 African and nine Latin American countries[7] have been separated into three groups: (a) the Latin American countries, (b) the countries in Africa with a Gini coefficient greater than the mean for all African countries, and (c) African countries with Gini coefficients less than the mean. Average Gini coefficients and average 1973 per capita income are shown at the top of the table. There is a notable difference between the Gini coefficients and per capita incomes of the "low-Gini" African countries and those of other countries in either Latin America or Africa. (Per capita income is, of course, a commonly used indicator of economic development.)

The "top down" planning process is clearly pervasive in the 27 countries studied. Local or international experts in the ministries of

3. A CASE STUDY OF HEALTH POLICY AND HEALTH PLANNING IN TANZANIA

Historical Perspective

Decisions about resource allocation for health and medical care delivery in Tanzania have received much attention under various governments for many years. When Tanganyika was under the rule of the

Table 1

The Health Planning Process and Objectives in 27 African and Latin American Countries by Gini Coefficient[1]

1970-1975

	All Countries N=27		Latin America N=9		Africa High Gini N=7		Africa Low Gini N=11	
Average Gini Coefficient	.53		.56		.58		.47	
Average Per Capita Income, 1973	$229		$384		$179		$134	
	No.	%	No.	%	No.	%	No.	%
I. Planning Process [2]								
"Top-Down" Process	27	100	9	100	7	100	11	100
"Botton-Up" Process	3	11	0	0	2	29	1	9
II. Planning Objectives[3]								
1. Expand Health Facilities and Manpower	16	59	5	56	4	57	7	64
2. Expand Health Services Particularly Rural Health Services	19	70	6	67	6	86	7	64
3. Improve Real Income Distribution	6	22	0	0	3	43	3	27
4. Improve Health Status								
Reduce Mortality	9	33	1	11	4	57	4	36
Reduce Morbidity	4	15	1	11	2	29	1	9
Maximize Output of Functional Health Status	3	11	1	11	1	14	1	9
5. Expand Preventive Health Services	12	44	4	44	2	29	6	55
6. Improve Nutrition and MCH	2	7	2	22	-	0	-	0
7. Improve Health Care Admin.	3	11	2	22	-	0	2	18

Notes: 1) See List of References for data sources.

2) Planning processes are primarily "top-down", but may include elements that are "bottom-up".

3) Countries typically have more than one health-planning objective.

health, planning ministries or the university/academic community in the respective countries commonly conduct health planning efforts. Only three of the 27 countries (11%) used information derived from individual participation at the "grass roots level." Examples of this kind of planning are found only among African countries, one of which is Tanzania. In most instances, the planning process is dominated by local or international experts who define the health problems of the people, make recommendations about resource allocation for programs which they feel will ameliorate the problems, and ascribe responsibility for implementation to the control of the relevant governmental body, usually the Ministry of Health.

Planning Objectives

The principal objective enunciated in all three groups of countries is to expand the delivery of health services, sometimes with the additional intent of increasing services in rural areas. The second major objective is to expand health facilities and manpower. (These two objectives are related, but there is a subtle distinction between them: the former is generally related to increased productivity of existing resources, whereas the latter tends to assume no change in resource productivity.) Given these as the chief planning objectives, it is clear that the overall orientation is to the supply side of the health market. The focus is on the health care delivery system, rather than on some target of its performance such as improved health status or better real income distribution.

Since the number of observations is small, it is difficult to draw

conclusions about differences between countries. However, the objective of expanding health services appears to be more prevalent among countries in Africa with high Gini coefficients. Since this objective is often linked to the development of rural-based services, it can be assumed that one of their goals is to use rural health services to broaden real income distribution. Where health outcomes are established as planning objectives, African countries with high income concentration again tend to list them most often. In these cases, the chief focus is on reducing mortality. The emphasis of Latin American planning programs is generally on input objectives on the supply side, e.g., health facilities, health services and, to a lesser extent, preventive health care. Output objectives are rarely enunciated.

The expansion and concentration of preventive health services, often including maternal and child health, is an important alternative mechanism to attain planning objectives. Most countries with high Gini's coefficients do not list this as an objective; the Western curative orientation appears to predominate among health planners in such countries. This attitude contrasts to the preventive health service orientation of countries with lower per capita income (GNP) and income concentration (Gini coefficients).

Health Planning Techniques

The data presented in Table 2 show the types of health planning techniques and analyses that are embodied or referred to in planning efforts. Of the eight techniques studied, there are only two which countries commonly use. First, most countries conduct manpower and

Table 2

Health Planning Techniques and Analysis in 27 African and Latin American Countries by Gini Coefficient[1]

1970-1975

	All Countries N=27		Latin America N=9		Africa High Gini N=7		Africa Low Gini N=11	
Average Gini Coefficient	.53		.56		.58		.47	
Average per Capita Income, 1973	$229		$384		$179		$134	
	No.	%	No.	%	No.	%	No.	%
Techniques Used								
1. Benefit-Cost Analysis	2	7	1	11	0	0	1	9
2. Cost-Effectiveness Analysis	8	30	2	22	3	43	3	27
3. Systems Analysis								
A) Within the Health Sector	5	19	1	11	1	14	3	27
B) Inter Sectoral Linkages	6	22	1	11	3	43	2	18
4. Manpower and Training	18	67	3	33	7	100	8	73
5. Supply-Demand	4	15	3	33	1	14	0	0
6. Forecasts, Input Targets and Projections	10	37	1	11	2	29	7	64
7. Stocktaking, Priority Determination	14	52	4	44	3	43	7	64
8. Externalities[2]								
A) Disease-Specific	4	15	2	22	0	0	2	18
B) Demographic	7	26	2	22	2	29	3	27
C) Income Distribution	3	11	1	11	1	14	1	9
D) Family Planning	10	37	2	22	4	57	4	36
E) Water Supply	1	4	0	0	0	0	1	9
F) Nutritional Status	2	7	0	0	0	0	2	18
G) Traditional Health Sector	9	33	1	11	4	57	4	36

Note: 1) Data abstracted from sources shown in references

2) "Externalities" are the additional effects that can result from a given activity, which are not explicitly incorporated into the valuation process as "costs" or "benefits". Externalities may be thought of as indirect consequences of a given intervention. The seven items listed as (A-G) refer to areas in which externalities results when a health activity is implemented.

and develop the training programs necessary to provide the complementary manpower inputs for delivering health services through the expanded network. The Tanzanians were given the assistance they required to implement objectives they had defined for themselves.[21]

We can now examine the following specific aspects of Tanzania's health planning: (1) the criteria used to make location decisions in the expansion of the rural primary health care facilities; (2) the re-allocation of recurrent and capital expenditures from 1969 to 1976 and

training studies. These studies appear to be more important among African countries, where manpower constraints are more binding than in Latin America.

Second, health planning in many countries is dominated by "stock-taking," or accumulation of information on the existing system. This activity is usually done by counting and noting the distribution of facilities and physicians, although it may involve more pervasive epidemiological analysis to identify gaps between programmatic emphasis and relative population needs. Priority determination is often an integral part of a "stock-taking" activity, planners also make forecasts or projections of changes in the delivery system. Five and ten-year projections or targets for input measures -- such as one doctor/10,000 people, or one facility/50,000 people, or one bed/1,000 people -- are common.[8] Especially in the poorer countries, health planning tends to consist almost solely of the approaches of setting input targets and establishing micro projects.

Despite the efforts of the Pan American Health Organization (PAHO), the health plans from Latin America contain less analytical work in general as compared to health plans in the African countries. Even when looking at an admittedly gross measure, for example, there are approximately 2.5 analyses or techniques of analysis embodied within any given health plan in Latin America, while there was an average of 4.5 techniques used and/or analyses performed in Africa.[9]

There has been much discussion in U.S. planning literature about the efficacy of using benefit-cost and cost-effectiveness analyses in

improving health resource allocations, but there are few examples of these analytical approaches being used in the health planning efforts of developing countries.[10] Cost-effectiveness analysis is, however, more frequently used, particularly in analyzing alternatives in the delivery of primary care and other forms of curative health services. There may be numerous reasons why such techniques are not used; the most likely of these are that (a) available data are not sufficient, (b) decision makers are not sophisticated enough to use what data are available, or (c) objectives other than efficient resource allocation are more important in the health field.

The ways in which different subsets of the health care delivery systems interrelate and are related to other sectors' impacts on the health status of the population appear to be of greater interest to poor countries with concentrated income (high Gini coefficients). These countries also give slightly greater attention to having separate analyses on the impact of related externalities such as the effect of a family planning or nutrition program on the delivery of maternal/child health care. Family planning programs are of particular importance in the countries analyzed. They appear to be integral parts of health programs in African countries with highly concentrated incomes. As is noted in subsequent tables, particularly Table 4, the population growth rate and the crude birth rate are high in these countries relative to others in Africa. Where rapid population growth is due to high fertility levels, demographic externalities from health programs may be particularly acute and their existence should be carefully integrated into the regular health planning process.

Planning Data and Implementation

Table 3 shows the types of data that are used by health planners in the countries surveyed as well as the implementation mechanisms chosen. It is important to note that since WHO's work in the 1960's, data on the stock of health facilities and manpower are usually available in virtually all countries. Ministries of Health and other organizations have subsequently attempted to maintain relatively accurate records on facilities and manpower. There is also relatively widespread information about government expenditures on health care services, as, for example, all of these 27 countries had such information. Less readily available, however, are measures of output, utilization, and demand patterns, and information about mortality and morbidity patterns. Mortality data are often available only as a consequence of a census; given the population dynamics of the developing world, ten-year measures are woefully inadequate.[11] Only one of the 27 countries, Colombia, conducts a national health survey in order to better understand morbidity patterns.

It is useful to analyze the differential ability of countries to respond and implement programs to attain the objectives enunciated in their planning efforts. There appears to be a significant lack of commitment to implementation among African countries whose incomes are highly concentrated.

Planning documents reviewed tend to show that ministries of health throughout the developing world are often without the authority and/or ability to mobilize planned resources and implement programs that are

Table 3

Availability of Health Planning Data and

Planning Implementation Mechanisms for 27 African and

Latin American Countries by Gini Coefficient

	All Countries N=27		Latin America N=9		Africa High Gini N=7		Africa Low Gini N=11	
Average Gini Coefficient	.53		.56		.58		.47	
Average Per Capita Income, 1973	$229		$384		$179		$134	
	No.	%	No.	%	No.	%	No.	%
1) Data Availability								
Stock of Health Facilities & Manpower	25	93	9	100	7	100	9	82
Nutrition Data[2]	6	22	1	11	3	43	2	18
"Output"								
Utilization	5	19	2	22	0	0	3	27
Mortality & Morbidity	8	30	4	44	2	29	2	18
2) Implementation Mechanisms	16	59	5	56	2	29	9	82
Government MOH	9	33	4	44	0	0	5	45
Other Institutional Structures	7	26	1	11	2	29	4	36
Statements of Clear Political Commitment	5	19	1	11	2	29	2	18
External Funding	15	56	5	56	5	71	5	45
Aid	14	52	4	44	5	71	5	45
Other	7	26	4	44	2	29	1	9
Evaluation "Ex-Post"	3	11	0	0	1	14	2	18

Notes: 1) Data abstracted from sources shown in references.

2) In many countries nutrition information is avaialable but not viewed as important to health planning. See the series of publications by Jacques May cited in the references.

identified in the planning documents. Similarly, few countries have strong statements of political commitment from political parties or leading figures who have the necessary power for successful implementation of health plans. Such commitments are most commonly found among "high Gini" countries, although Tanzania should be included on here as well.[12]

It is significant to note the extent to which implementation in the highly concentrated countries relies more heavily on external funding for programmatic development. Local mechanisms for implementation are given relatively little authority in program development, implementation, and evaluation. Of course, such reliance may lead to perpetual dependence upon external technical assistance in health planning, if not the entire decision-making process of such countries.[13]

Health Status and Resource Commitment

The analysis in Table 4 looks at the relationship between the level and relative concentration of per capita income and indices of (1) resource commitment, such as percent of total per capita income spent by the government for health services, and (2) measures of health status, as defined by macro demographic indicators such as average rate of population growth and percent of the population with access to pure water.

It was found that in countries with low Gini coefficients, government health expenditures represent approximately 1.5 percent of total income, whereas for countries with high Gini coefficients, the

Table 4

Measures of Health Status and Resource Commitment in

27 African and Latin American Countries[1]

1970-1973

	Latin America N=9	Africa Low Gini N=11	Africa High Gini N=7
1) Average Gini Coefficient	.56	.47	.58
2) Average Per Capita Income, 1973	$384	$179	$134
Government Resource Commitment:			
3) Average Rate of Growth of Per Capita Income (Y/P)	2.27	1.78	2.49
4) Government Health Exp. as % of National Income (GHE/GNP)	1.42	1.60	1.13
Macro Demographic Indicators of Health Status:			
5) Average % of Total Pop. w/Access to Water	41.2	28.0	33.4
6) Average % Rural Pop. w/Access to Water	15.6	19.4	21.7
7) Average Calories/person/day	2143	2183	2200
8) Average Support Personnel/ Physician	3.2	9.4	6.5
9) Average Infant Mortality Rate (IMR)	71.9	142.3	145.1
10) Average Crude Birth Rate (CBR)	41.5	46.8	47.-
11) Average Crude Death Rate (CDR)	11.8	20.1	18.7
12) Average Rate of Population Growth	2.91	2.68	2.83

Note: 1. Data abstracted from statistical sources listed in the references.

government's expenditures per capita is only slightly over one percent. Further, even though the lowest concentrated countries with the lowest income concentration have the lowest per capita income, the percentage of the population that has access to water supplies, particularly in rural areas, is relatively high in comparison to countries with high concentration. One might suspect, however, that access to water is positively related to income, and this appears to be the case when Latin American countries are compared with African countries, (41 percent versus approximately 30 percent). Although high Gini countries in Africa have a larger proportion of their population with access to water in rural areas, the percentage difference is not significant relative to the difference in per capita income.

There are distinct differences between countries in the manner in which health services are provided, using the average number of support or paraprofessional personnel per physician as an index. African countries with a lower per capita income and Gini coefficient have nearly ten support personnel per physician. Latin American countries, with income nearly three times higher, have only slightly more than three such personnel per physician (Row 8, Table 4). These figures document the existence of a more pervasive curative care orientation in Latin American countries; this is consistent with the previous analysis of priorities which showed that Latin American countries focus on expanding an already developed physician oriented health service system. Further, upon analyzing the data on support personnel per physician in Table 5, Row 6, it is seen that as both per capita income and its concentration fall, the relative number of paraprofessional workers delivering health care

Table 5

Measures of Health Status and Resources Commitment in 27 African and Latin American Countries 1970-1973; Countries Disaggregated by Income Concentration & Per Capita Income[1]

	Countries			
	High Income High Gini (N=6)	High Income Low Gini (N=5)	Low Income High Gini (N=8)	Low Income Low Gini (N=8)
1) Average Gini Coefficient	.58	.49	.60	.46
2) Average Per Capita Income, 1973	323	465	125	115
Government Resource Commitment:				
3) Average Rate of Growth of Per Capita Income (Y/P)	1.6	2.8	1.7	2.4
4) Government Health Exp. as % of National Income (GHE/GNP)	1.09	1.67	0.90	1.58
Macro Demographic Indicators of Health Status:				
5) Average % of Total Pop. w/Access to Water	42	46	29	25
6) Average % Rural Pop. w/Access to Water	13	20	19	21
7) Average Calories/person/day	2136	2218	2137	2209
8) Average Support Personnel/ Physician	3.3	6.2	7.8	8.5
9) Average Infant Mortality Rate (IMR)	69	99	147	143
10) Average Crude Birth Rate (CBR)	44.3	40.5	47.6	45.9
11) Average Crude Death Rate (CDR)	12.4	13.6	19.8	19.7
12) Average Rate of Population Growth	3.1	2.8	2.7	2.6

Note: 1. Countries were grouped according to each country's per capita income and Gini Coefficient, relative to the mean for all countries. The means for each of these groups were then calculated, and are presented above. Data were abstracted from statistical sources listed in the references.

increases; i.e., as resource constraints become more binding, there occurs substitution among factor inputs.

Average caloric availability (Table 4, Row 7) does not differ significantly between countries with relatively high per capita income and high Gini coefficients with lower ones -- all the countries had approximately 2,150 to 2,200 calories per person per day. Table 5, Row 5, however, disaggregates the same measures as presented in Table 4 according to income concentration and income level. The findings suggest that fewer calories per person per day are available in countries with a relatively high concentration of income (approximately 2,140 calories/person/day). This conclusion, which is based on only a few observations, warrants further investigation with one area of particular importance being the possibility of differential food pricing policies across countries.

Turning to the three direct measures of health status -- infant mortality, crude birth rates and death rates -- Table 4 (Rows 9, 10 and 11) shows that infant mortality in Latin America is approximately half of that in Africa. Low Gini African countries not only have a slightly lower average infant mortality, but also a slightly lower average population growth than high Gini African countries or Latin American countries. This finding may reflect what is referred in the demographic literature as a "threshold" or a point at which there is an increase in birth rates prior to a systematic decline of such measures of health status.[14] However, it should be noted that the finding that infant mortality rates are lower in lower Gini countries is not supported in Table 5, Row 7.

3. A CASE STUDY OF HEALTH POLICY AND HEALTH PLANNING IN TANZANIA

Historical Perspective

Decisions about resource allocation for health and medical care delivery in Tanzania have received much attention under various governments for many years. When Tanganyika was under the rule of the Germans and British, annual reports of the Medical Department included a statement of past accomplishments and an analysis of future goals and objectives of the medical care delivery system. A 1938 memorandum of medical policy stated that:

> "... the preventive outlook must at all costs be inculcated into the dispenser and dresser, although his first duties are curative and he and the district sanitary inspector should be encouraged to work together to try to keep their people well instead of using all the resources of the dispensary to cure the sick."[15]

Thus, as early as 1938 Tanzania was using the concept of "health," as opposed to provision of medical services.

Following World War II, the first major plan for the delivery of health care in Tanzania projected that by 1967 over 2,000 doctors and 44,000 hospital beds would be provided to supply medical services throughout the country. Balanced rural services represented an important goal of the medical policy defined in 1949 by the Senior Medical Advisor to the Colonial Office of England, Dr. E. D. Pridie. He wrote:

> "...although preventive and social medicine have more lasting beneficial effects, it is essential under African conditions to have a well balanced medical service as curative medicine is demanded by the people and its popularity makes preventive medicine acceptable to them."[16]

He further suggested that rural health centers with a preventive medicine bias should be developed. However, a 1956 pre-independence review of the 1949 Pridie Report found that while there had been much discussion about rural health care services in earlier reports, little if any increase in rural health care services had occurred.

A 1964 report by Titmuss et. al. [17] suggested that primary emphasis should be the balanced development of health services within an overall national plan. The report also stressed the need for closer integration of services between the central government, local government, and voluntary agencies, and the need for separate but coordinated provision of personal and environmental services. These recommendations mark a notable shift from curative to preventive medicine, and the beginning of the direct structuring of health service to address the health needs of Tanzania with available resources.

The report by Titmuss et. al. emphasized the development of a more rural-based health care delivery system with increased emphasis on paraprofessional training and the use of Tanzanian physicians. However, it was not until the early 1970's that Tanzania successfully adopted this as a health care sector objective and thus made its efforts in health consistent with its overall economic development objectives, which were focused on strong rural development.

The Health Sector and Economic Development

The basic thrust of the economic development process in Tanzania was forever altered by Nyerere's 1967 Arusha Declaration in which rural

development became the primary development of Tanzania, although this decision did not become operative in the health care sector until 1971-1972. [18] In 1967, just prior to the Arusha Declaration, the Gini coefficient for income distribution in Tanzania was between 0.58 and 0.60. This inequitable distribution had been exacerbated by the first five-year development program in Tanzania from 1964 to 1969. It is therefore not surprising that there was a major policy shift toward rural development, of which the Ujamaa Village program of new rural villages was the focal point. Subsequent development planning efforts were aimed at implementing the Arusha principles. Several important policies were established for the health sector, including formal reiteration that additional rural health centers should be built. Yet by 1971, the necessary capital expenditures had either not been made, or else they had been used to expand/improve hospital-based curative services.

In 1972 the TANU Party conducted a thorough "mid-plan review" in which the rural health program came under close scrutiny. By that time Ujamaa Village development had expanded without the concomitant development of adequate health care programs. (It is interesting to note that provision of the other major human resource augmenting service -- education -- had been addressed by Nyerere and the government at the time of the initial implementation of the Arusha Declaration and primary education programs had been developed for the villages.[19]) The mid-plan review spurred the party and the President to directly deal with implementation of the health policies that had been enunciated in the second five-year plan of 1969 to 1974. The Economic Committee of the cabinet redefined the objectives of the health sector and set a 1980

target of one health center for each 50,000 people in the rural areas, with paraprofessional cadres of nurse midwives and medical assistants being the primary service providers in these health centers. In addition to personnel training, the two-pronged objective meant that 25 new rural health centers would be built before 1980. There was also to be a considerable increase in the number of local dispensaries throughout the country, so that there would be one dispensary for every 6,500 rural people.

In order to implement these redefined objectives, it was important that Tanzania be able to acquire the services of a technically competent health analyst who would also be able to communicate with decisionmakers in the offices of the President and Prime Minister. The analysis coordinated and conducted by Oscar Gish for Tanzania for health investment priority determination was thus critical. His study of the distribution of health service inputs and perseverance was conducted with the support of researchers from the University of Dar es Salaam's Bureau of Land Resource Assessment and Land Use Planning.[20] It has given Tanzania a continuing rationale for making annual resource allocation and location decisions with respect to health care investments in new rural facilities and programs, and a mechanism for evaluating progress toward the attainment of the President's and Party's redefined objectives.

Following the analytical stage, it proved important that the emphasis on "low-cost" rural-based primary health care of a preventive and evaluative nature was appealing to donors. Without international assistance Tanzania would surely not have been able to internally mobilize sufficient resources to expand the network of rural facilities

and develop the training programs necessary to provide the complementary manpower inputs for delivering health services through the expanded network. The Tanzanians were given the assistance they required to implement objectives they had defined for themselves.[21]

We can now examine the following specific aspects of Tanzania's health planning: (1) the criteria used to make location decisions in the expansion of the rural primary health care facilities; (2) the re-allocation of recurrent and capital expenditures from 1969 to 1976 and 1977; and (3) the re-allocation of health resources over the period from 1971 to 1976. This analysis focuses generally on (a) how the Ministry of Health systematically relocated rural health facilities, (b) how health expenditures were distributed regionally, and (c) how hospitals were re-allocated throughout the country. The concluding section highlights the continuing health status problems which Tanzania faces.

The Location Criteria

Three criteria were used in the 1971 to 1972 analysis to determine location decisions: (a) the existing dispensary to population ratio, (b) the accessibility of the population to existing facilities (the proportion within approximately 10 kilometers of an existing facility), and (c) the percent of district populations living in Ujamaa Villages. Additional capital expenditures on health centers and dispensaries during the three years following 1971 and 1972 were allocated to only those districts and regions where available resources were under the norm for all three criteria. It should be recognized that these resource allocation criteria are based on a desire to attain equity on the input

rather than the output side.[22] Input equity refers to the equal distribution of health service resources, as opposed to some measure of either equal improvement in functional health status or equal probability of successful treatment for a health problem. In order to obtain the latter "output equity," it may be necessary that resource allocation be based on criteria other than those presently used by Tanzania.

Changes in the Recurrent and Capital Health Expenditures Budgets

Table 6 presents data from major program areas which show how the TANU Party's mid-plan review effected the distribution of resources from curative to preventive services and primary care. After 1971 and 1972 the percentage of the capital budget allocated to hospital and hospital services decreased by over half, from approximately 55 to 60 percent of all capital expenditures to approximately 20 to 25 percent. From 1973 to 1975 the percentage decreased further to a low of 12 to 15 percent. In this period there was a concomitant effort by the government to increase the number of training facilities for paraprofessional personnel throughout the country, so that the percentage of capital resources used in these projects increased to 50 percent of all expenditures. International assistance aided in both the construction of training schools and in financing recurrent training costs for medical assistants, nurse midwives, and auxiliary personnel.

In addition, the share of funds allocated to rural centers and dispensaries rose from 7 percent in 1969 and 1970 to over 30 percent in 1975 and 1976, demonstrating the government's commitment to rural health services. While there were at least two new hospitals and/or new wards

Table 6

National and Regional Health Budget Expenditures in Tanzania

1969/70 - 1975/76

(Percent Distribution)

	1969-1970	1970-1971	1971-1972	1972-1973	1973-1974	1974-1975	1975-1976	1976-1977
A. Development Budget								
1. Hospital and Ancillary Ser.	63	52	52	27	15	12	22	25
2. Rural Health Centers and Dispensaries	7	24	33	35	33	24	34	23
3. Preventive Ser.	9	1	2	10	2	8	14	21
4. Training and Manpower	16	22	13	18	48	55	30	31
5. Manufacturing	5	1	0	10	2	1	-	-
Total Expenditures mill shs. (Approved Estimates)	15.08	22.04	4.39	15.33	58.00	72.37	73.38	97.73
B. Recurrent Budget								
1. Hospital Ser.	NA	80	79	72	69	60	60	61
2. Rural Health Centers and Dispensaries	NA	9	11	18	19	19	20	21
3. Preventive Ser.	NA	5	4	4	5	12	11	11
4. Training and Manpower	NA	2	3	4	5	6	7	6
5. Medical Production and Supplies	NA	1	2	2	2	1	2	1
6. General and Administration	NA	135.76	154.52	192.59	205.69	301.88	335.98	405.91

Notes: 1. Percentages may not add to 100% due to rounding.

2. Sources of Information
   a) Oscar Gish, Planning the Health Sector (New York: Holmes and Meier Publishers, Inc., 1975) Tables 5a and 6, pp. 56.
   b) United Republic of Tanzania, Ministry of Health, Distribution of Medical Facilities by Regions as of 1st January 1976, (Dar es Salaam: Planning and Analysis Section, Ministry of Health, 26 June, 1976), Table 4, page and Table 6, p. 6.

3. Refers to construction of a vaccine plant and a pharmaceutical processing plant

completed during the later period, virtually all other expenditures were re-allocated to other parts of the health sector. This re-allocation was supported by the fact that the percentage of development funds spent on preventive health care, particularly national immunization programs, increased substantially -- subsequent to 1975, approximately 15 to 20 percent of the total recurrent health budget went toward such services. The immunization program, oriented toward the immunization of young children through maternal and child health programs, was emphasized by the newly trained personnel.

Finally, the total amount of capital expenditures approved for health increased from 15 to 20M shillings per year in 1969 and 1970 to nearly 100M shillings in 1976 and 1977. Thus, in addition to a considerable re-allocation of expenditures within the health sector, there was a substantial increase in total government expenditures for health.

Accompanying the impact of policy changes on development budget expenditures, recurrent budget expenditures have been re-allocated towards rural areas in an effort to increase consumption of services. Data in Table 6, Part B, show the percentage of the total recurrent health budget spent on various programs. It may be seen that a programmatic reorientation, indicated by a shift in capital expenditures, has a delayed positive effect on recurrent expenditures with a lag of perhaps one to two years. For example, there was a significant drop in the percentage allocated to hospitals services in the 1972 to 1974 period, after the reduction of capital funds in the development budget which occurred approximately two years earlier. There was a similar one-

to two-year delayed response to the increased allocation to rural health center dispensaries.

It has been suggested in other contexts, of course, that capital re-allocation implies a long term recurrent redistribution of resources in the form of wages and salaries and other complementary inputs such as drugs and other medical supplies. Tanzania's total recurrent budget expenditures have nearly doubled in the last five-year period, from 192M shillings in 1972 and 1973 to 406M shillings in 1976 and 1977. There has been a corresponding increase in the number of rural primary care workers throughout the country. During the 1972 to 1976 period, for example, the total number of health facilities increased approximately 30 percent, with all of the increase being in rural health and dispensary facilities. At an average of six to eight employees per dispensary (including other ancillary primary care providers -- medical assistants, midwives, dressers, ward maids and sweepers), the employment impact was approximately 2,500 to 3,000 jobs.

Access to Rural Health Services

Data in Tables 7 and 8 show improvement in the amount and distribution of health care inputs during the 1972 to 1976 period. Table 7 shows that the population to hospital ratio increased from approximately 93,000 persons per hospital in 1972 to 117,000 persons in 1976, or roughly 25 percent. In 1972 there were 128 government hospitals in the country and this total number remained constant through 1976, but there was a re-allocation of hospitals across regions. During the same period the population per health facility fell from 7,770 persons in 1972

Table 7

Selected Measures of Health Resource Availability

in Tanzania, 1972 and 1976

	1972			1976		
	Mean	Range		Mean	Range	
		High	Low		High	Low
1. Population per Hospital (1,000s/unit)	93.42	179.9	- 59.9	117.2	219.4	- 69.6
2. Population per Hospital Bed (1,000s/unit)	NA	NA	NA	813.0	1844.0	- 418.0
3. Population per Health Facility (1,000s/unit)	7.8	49.8	- 5.2	7.5	22.0	- 4.9
4. Regional Government Recurrent Health Expenditures per Person (in shillings)	11.6/a	20.3	- 3.4	17.1	37.3	- 12.6

Notes: Unit of observation is the region.

/a 1973/74 expenditure data

Table 8

Measures of

Health Resource Distribution in Tanzania: 1972 and 1976

	Gini Coefficient		Percentage of Resources Accessible to the Most Disadvantaged 40% of the Population	
	1970-72	1976	1972	1976
1. Hospitals	.1924	.1928	26.1	26.9
2. Hospital Beds	NA	.1763	NA	28.5
3. Health Facilities (Hospitals & Rural Facilities)	.1390	.1065	29.9	32.9
4. Government Regional Recurrent Health Expenditures	.1654	.1348	28.9	31.9

Notes: (1) The Region is the unit of observation for these coefficients.

(2) Data from Ministry of Health Documents (1976) and from BRALUP (1972).

to 7,490 persons in 1976, or 3 to 4 percent. This decline is due to an increase in the number of health facilities, from approximately 1,540 in 1972 to slightly over 2,000 in 1976.

Table 7, Row 3, also shows that there was a narrowing in the range across regions during the 1972 ro 1976 period. In 1972, the highest regional figure was between nine to ten times the lowest figure, whereas in 1976 the largest figure was approximately five times as great as the lowest. Also, as actual regional recurrent health expenditures per person increased by almost 50 percent during the five-year period, the range across regions substantially narrowed from a near eight-fold difference in 1972 to about a three-fold one in 1976. If the highest regional figure for health expenditures per person is eliminated, the distribution becomes far less skewed than was initially indicated. With that observation eliminated, the difference between the highest and the lowest figure in 1972 was between five- and six-fold, whereas for 1976 the highest figure was less than twice as great as the lowest.

As a final confirmation of the direction of the new resource allocation patterns toward greater input equity,[23] regional observations on the number of hospital beds, health facilities, and recurrent regional government health expenditures were analyzed in relationship to the respective populations in order to calculate a Gini coefficient and the percentage of resources which accrued to the most disadvantaged 40 percent of the population. These data, as presented in Table 8, show a pattern similar to that suggested in Table 7. They also suggest that the reorientation of policy toward improved distribution of rural facilities and complementary resources was in fact implemented. Given the

relationship between capital expenditure commitments and recurrent expenditures (Table 6), it appears that the policy reorientation and subsequent resource re-allocation described above did address the inequitable distribution of health care inputs in Tanzania.

For both health facilities and regional government health expenditures, the Gini coefficient for health facilities fell from approximately 0.139 to about 0.105 by 1976. Similarly, for regional health expenditures, the figure declined from 0.16 to 0.13, a substantial drop for a three-to four-year period. At the same time, the distribution of hospitals was not altered and the Gini coefficients for the two periods were approximately the same, 0.192 and 0.193. It is also significant to note that the Gini coefficient with respect to hospital beds was more equitable in 1976 than was the Gini coefficient for hospitals, indicating that hospitals tended to be larger in regions where population was more concentrated. Table 8 also shows that the proportion of the resources allocated to the most disadvantaged 40 percent of the population showed similar improvements for both health expenditures and health facilities, with a slight decline for hospitals.

4. SUMMARY AND SUGGESTIONS FOR FUTURE RESEARCH

The 27-country comparative sample provides the basis for a cross-country analysis of the relationship between five areas in the health planning process and aggregate per capita income level and distribution. The analysis showed that the health planning process is often characterized by "top-down" rather than "bottom-up" planning. Community participation is generally lacking and members of the ministry

of health or the academic community dominate. Second, the objectives of health planning generally focus on the expansion and/or improvement of inputs into the curative health care delivery system rather than on performance targets such as improved health status.

Third, analytical health planning techniques focus on manpower and training projections, or "stock-taking," i.e., they are used to define the supply side of the market for health services at a point in time. There is little use of benefit-cost or cost-effectiveness techniques or systems analyses. Furthermore, many countries have not incorporated the effects of externalities in health-related areas such as nutrition, family planning, and the traditional health care system into the health planning process.[24]

Fourth, while most health plans present data on health facilities and other inputs such as personnel and drugs/supplies, there is little evidence of the impact of these inputs on health status. In most instances, such information does not exist.

Fifth, in most countries where income distribution is highly concentrated there is little information about how health plans will be implemented. Where an implementation plan is defined, it is usually part of the health ministry or some similar body.

Finally, there are considerable inter-country differences in level of "commitment" to the health sector, measured either in terms of resources committed to the provision of health care services or in terms of population health status. If GNP is held constant, commitments to providing health care resources tend to be lower for countries with

highly concentrated income than for countries where income is more evenly distributed. Countries with low Gini coefficients for their health service delivery systems also tend to use a larger proportion of paraprofessional personnel. Finally, some evidence suggests that the health status of the population in low Gini coefficient countries may be better than that in high Gini countries, both in terms of lower infant mortality rate as well as a slightly lower rate of population growth. These conclusions are clearly tentative, given the sample size, potential measurement error, and conceptual difficulties with existing measures/indicators of health status, but they warrant consideration and, more importantly, additional investigation. Thus, while the health sector is considered to be an input into the development process, the formulation and use of health planning as a technology may be directly determined by a country's socio-economic characteristics and priorities. There is, in essence, an inherent feedback linkage between the definition and use of health planning and the role of the health sector.

The case study of recent health planning in Tanzania describes that country's changed health care priorities since the 1967 Arusha Declaration, and examines the consistency of those objectives with Tanzania's overall approach to economic development. The study shows how the health sector may become an input into the development process, and, moreover, how systematic health planning can be used to shape the role of the health sector. First, Tanzania made a political commitment to redistribute health service inputs on the assumption that this would positively affect health status. Subsequently, the total amount of resources allocated to the health sector was increased dramatically and,

following a critical mid-plan review, necessary budget re-allocations were made in order to synchronize the growth of the health sector with the country's intensified rural-based development. It is in this step of program re-evaluation that Tanzania's commitment to using the health sector as an input into economic development can best be seen. It is also in this step that one can see how the health planning process itself evolves from larger priorities and is used to accomplish goals that are consistent with the overall socio-economic development process.

It is precisely the use of health planning in this larger context that comprised the central focus of the paper. The current prevalence of this practice is not known, however, so a research agenda such as that described below is an ambitious one. Yet, it seems that health planning, heralded as a science and technology, can be a powerful tool. More important, it can be one which is likely to be ultimately used in a discretionary manner according to a country's broader socio-economic activities.

The chief limitations of this preliminary study relate to the data sources, sample size, and analytic methods used. Data were taken primarily from secondary sources not formally associated with the country's health planning process. As a result they are not a fully reliable guide to the availability of data, methods of analysis, or recommendations of priorities that are included in the actual national health plan. Obtaining original health plans along with supporting country documentation will be necessary before clear statements about health plan contents and planning methodologies can be made. Second, the 27 countries surveyed offer only a partial view of health planning

throughout the world. It will be important to include additional countries in an expanded cross-regional sample, particularly countries from Asia and South America.

Finally, this paper has not statistically tested any specific hypotheses about the relation between per capita income level and distribution and the various components of the health planning process in the African and Latin American countries surveyed. However, the cross-country empirical analysis suggests that it may be useful to conduct a more formal statistical analysis of the above described relationship. Multiple regression and discriminant function analyses can be useful statistical tools for examining relationships between countries' socio-economic characteristics and the health planning components described.

In order to gain additional insight about the role of health planning, it is also necessary to develop additional country specific studies such as that of Tanzania. These studies could provide information on how health planning impacts on resource allocation, how priorities and programs that are defined in the health planning process are implemented, and how they affect health status. Case studies are essential to analyzing the influence of political commitment on the alteration of the objective function of health planning. This information can document how health planning is used to address certain components of a country's health sector which are politically acceptable, but which are not necessarily the sole or even most direct determinants of health status.

The framework itself may be enlarged in this expanded analysis to include other variables useful to donor agencies in their assessment of a country's potential for effective health planning, and their determination of means to facilitate local activities. One category of these variables concerns the actual content of national health plans, which represents the development of the data collection effort undertaken in the present study. Other variables reflect the economic, political, and organizational conditions under which country health planning is implemented. These issues can best be addressed through selected case studies. Multiple sources of information would be drawn upon, as shown in Figure 1.

Figure 1

Expanded Data Collection Framework for Empirical Assessment of Health Planning

Type of Information	Variables of Interest	Sources of Information
1. National Health Plans (as many as possible)	1. Health Service Priorities 2. Analytic Techniques Used 3. Data Utilized 4. Description of Planning Process 5. Relation of Health Plan to National Development Plan	1. WHO/PAHO Collections 2. World Bank Library for National Development Plans 3. AID/Washington: DSB and Regional Bureaus 4. AID Missions (lead time Required)
2. Health Sector Budgets (as many as possible)	1. Priorities Reflected in Expenditures by Program Categories 2. Current vs. Capital Expenditure Breakdown 3. Discrepancies between Budgetary and NHP Priorities	1. AID Missions (1-3 months' lead time required) 2. World Bank Library
3. Country Health Planning Process (case studies)	1. Description of Health Planning Cycle (long-term, short-term, adjustments) 2. Identification of Health Planners and Their Activities 3. Identification of other Influential Participants in Health Resource Allocation Process 4. Role of Political Structure (form of Government, bureaucratic organization, impact of individuals, strength of traditional practices) in Health Planning	1. National and AID Documentation 2. Interviews with Current and Former AID Field Staff (especially Public Health Advisors) 3. Interviews with Current and Former Consultant Field Staff (e.g., Management Sciences for Health--Afghamstan; Research Triangle Institute--Morocco; APHA)

Figure 1, Continued

Type of Information	Variables of Interest	Sources of Information
3. (continued)	5. Role and Character of Technical Assistance In Health Planning (e.g., funding levels, characteristics of on-site teams, methods and techniques employed, accomplishments, publications, follow-up activities) 6. Role of Donor Agencies (history and current projects) In Health Planning	
4. External Health Sector Studies--CHP, HSA, etc. (case studies)	1. Background of Study (funding level, purpose, time and other constraints) 2. Characteristics of Study (scope, depth, data availability and utilization, analytic methods employed, use of national health planning materials) 3. Involvement of Nationals and Relation to National Health Planning Process 4. Utilization of Findings 5. Other Assessments	1. WHO/PAHO for CHP's 2. OIH, AID Libraries for Syncrises, HSA's, and Other Materials 3. Interviews With Participant Staff

APPENDIX A

LIST OF COUNTRIES BY REGION

I. Latin America (N=9)

Chile (after Allende)
Colombia
Dominican Republic
El Salvador
Honduras
Haiti
Nicaragua
Panama
Peru

II. African Countries

(A) High Concentration of Income (N=7)

Botswana
Kenya
Senegal
Tanzania
Tunisia
Zaire
Zambia

(B) Low Concentration of Income (N=11)

Egypt
Ethiopia
Ghana
Lesotho
Malawi
Mali
Morocco
Nigeria
Sudan
Swaziland
Uganda

FOOTNOTES

1. An earlier draft of this paper appeared as: Holly Caldwell and David Dunlop, "An Empirical Study of Health Planning in Latin America and Africa," Social Science and Medicine, Vol. 13 C, No. 2, (June, 1979).

2. James Kocher, Rural Development, Income Distribution and Fertility Decline, (New York: Population Council, 1973).

3. See, For example, Hollis Chenery, et al., Redistribution with Growth (London: Oxford University Press, 1974); Ronald Soligo, "Factor Intensity of Consumption Patterns, Income Distribution and Employment Growth in Pakistan," Program of Development Studies, Paper No. 44 (Houston, Texas: Rice University, 1973); and a more recent study by Robert King and Derek Byerlee, "Income Distribution, Consumption Patterns and Consumption Linkages in Rural Sierra Leone," African Rural Economy Paper No. 16 (East Lansing, Michigan: Department of Agricultural Economics, Michigan State University, 1977).

4. See, for example, Milton Roemer, "Health, Income Distribution and Source of Health Expenditures in Developing Countries," unpublished manuscript, University of California at Los Angeles, 1977.

5. The study reported in this paper represents an initial part of a larger work in which more countries, particularly from Asia and the Middle East, will be incorporated, and in which other more sophisticated statistical techniques will be utilized.

6. See Shail Jain, Size Distribution of Income: A Compilation of Data (Washington, D.C.: The World Bank, 1975) pp. xiv ff., for a more complete discussion about other measures of inequality. A debate is underway in the economics literature on income inequality measures, concerning whether the comparison of the Lorenz curve with the line of perfect equality is the appropriate one. Since this is commonly used in empirical research, however, it has been used in this analysis. The underlying debate is described in Morton Paglin, "The Measurement and Trend of Inequality; A Basic Revision," The American Economic Review, 65, 4 (September 1975), 598-609.

7. The 27 countries incorporated into this analysis are listed in Appendix A.

8. It should be noted this same form of planning was common in the economic development field in the late 1940's and early 1950's.

9. These averages are obtained by summing the number of responses for each technique or analysis and then dividing by N in each Gini coefficient group. These figures may not be totally representative of all Latin American countries. With more complete health planning documentation these figures may undoubtedly rise.

10. The absence of benefit-cost analysis is not lamentable and, perhaps, is appropriate. For a full discussion of the problems associated with the use of benefit-cost analysis, see David W. Dunlop, "A Review of Benefit-Cost Analysis: Its Applicable in Policy Analysis for Delivering Health Services," Social Science and Medicine Vol. 9, 1975, 133-139.

11. The World Fertility Survey (WFS) may potentially assist in the provision of more accurate information about the health status of populations in developing countries, particularly by providing accurate data on morbidity and mortality experiences of women and children.

12. This Gini coefficient is based on data from 1969, just after the Arusha Declaration and prior to implementation of Tanzania's alternative programs that were designed, in part, to reduce the concentration of income.

13. It is interesting that the United States Agency for International Development (USAID) is more heavily involved in countries where income distribution tends to be more concentrated.

14. See, for example, Dudley Kirk, "A New Demographic Transition?" 123-147, in National Academy of Sciences, Rapid Population Growth: Consequences and Policy Implications (Baltimore: Johns Hopkins Press, 1971).

15. Richard Titmuss, et.al., The Health Services of Tanganyika, op. cit., 1964, pp. 12; quoted from Memorandum of Medical Policy: Dar es Salaam, 1938, pp. 9.

16. Oscar Gish, Planning the Health Sector: The Tanzanian Experience (New York: Holmes and Meier Publishers, Inc., 1975), pp. 17. Quoted from E.D. Pridie, "Reflections on Recent African Tours," 1950, mimeo.

17. Richard Titmuss, et. al., The Health Services of Tanganyika, op.

cit., (1964).

18. See Julius K. Nyerere, Ujamaa: Essays on Socialism, (Dar es Salaam, Oxford University Press, 1968); also Julius Nyerere, The Rational Choice, Address delivered at Sudanese Socialist Headquarters, Khartoum, January 1973 (Dar es Salaam: Government Printer, 1972).

19. See Julius Nyerere, "Education for Rural Development," in Ujamaa: Essays on Socialism, op. cit., (1963).

20. See Oscar Gish, Planning the Health Sector ..., op. cit., (1975). See also I.D. Thomas and A.C. Mascarenhas, Health Facilities and Population in Tanzania, Part 1. Hospitals in Tanzania and Population with Given Distances from Their Sites. Research paper No. 21, 1, Bureau of Land Resource Assessment and Land Use Planning (Dar es Salaam: University of Dar es Salaam, January 1973) and the United Republic of Tanzania, Ministry of Health, Distribution of Medical Facilities by Regions as of January 1976 (Dar es Salaam) Planning and Analysis Section, Ministry of Health, June 1976.

21. A number of international donor agencies have provided assistance to Tanzania's health program, including USAID, SIDA, Norwegian Development Agency, and UNDP.

22. For a further discussion of these terms see David Dunlop and Holly Caldwell, "Priority Determination for the Provision of Health Services, An Economic and Social Analysis," Social Science and Medicine, 11, 8/9 (May 1977), 471-475.

23. Input equity refers to the amount and distribution of resources such

as manpower, facilities, supplies, and drugs used in the production of health services.

24. See, for example, David W. Dunlop and Karen Lashman, Health in Africa, USAID Policy Paper (Washington, D.C.: USAID 1974); also Bruce Johnston, "Food, Health, and Population in Development," Journal of Economic Literature, 15, 3 (September 1977), 879-907.

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B. A Qualitative Approach to Assessment

The project team's qualitative assessment framework was described in Volume I, Section IV.A., and illustrated in Figure 1 (p. 36). This framework provided a rough categorization of areas and concerns with which the team approached its investigatory visits to particular countries and to the WHO offices. The framework as described provided the organizational themes for "Assessment Findings" for only two of the four assessment areas: "Experiences of Less Developed Countries" (Section IV.B.1.) and "Assistance Efforts of the World Health Organization" (Section IV.B.2.). "Assessment Findings" for the other two assessment areas were based on more robust and less rigorous approaches; reports of these findings therefore tend to be more descriptive than analytical.

What follows in this section are the detailed reports for each of the assessment areas upon which the "Assessment Findings" in Volume I (Section IV.B.) are based. Each report outlines the team's activities and visits pertinent to the area under assessment.

1. EXPERIENCES OF LESS DEVELOPED COUNTRIES

Members of the project team have had prior experiences working on FHC projects for the U.S. Agency for International Development involving health project design and program evaluation in developing countries during the past four years. These experiences have involved field visits and direct interaction with LDC health planners and programmers in some 23 countries, including Korea, Pakistan, Tunisia, Colombia, the Philippines, the eight countries of the Sahel, Portugal, Botswana, Lesotho, Swaziland, Malawi, Zambia, Kenya, Senegal, and Tanzania.

Naturally, the knowledge, observations, and judgements about "health planning" as seen during these experiences are somewhat reflected in the findings.

In addition, however, the project team visited three countries specifically for this study: Nepal, Korea, and Guatemala. The knowledge gained during these brief visits provided valuable perspectives for the team's judgements, even though the visits were all too short to allow a detailed evaluation of the planning efforts investigated.

The trip reports that follow are not cast directly according to the qualitative assessment framework in which the findings were written. Key elements of the findings, however, are supported in these reports.

The author of the report on Nepal was Alan W. Fairbank; the author of the report on Korea was Jeremiah Norris; and the author of the report on Guatemala was Thomas Bossert. Visits to these countries were made by the following project team members during the periods shown:

Country Visited	**Team Member(s)**	**Dates of Visit**
Nepal	Alan W. Fairbank	April 4-10, 1979
Korea	Jeremiah Norris Alan W. Fairbank	April 10-18, 1979
Guatemala	Jeremiah Norris Thomas Bossert	May 14-17, 1979

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William Oldham, M.D., M.P.H., Chief, Office of Health, Population, and Nutrition, USAID/Nepal

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a. KOREA

During the week of April 9, 1979, FHC visited Korea to discuss with AID and Korean officials their perceptions of multisectoral planning. In the process of this visit, a field trip was taken to Hongchon, a health demonstration area some fifty-five miles northwest of Seoul. This was of particular interest to the FHC team since the demonstration was being conducted by the Korea Health Development Institute, a public-private entity suggested to the Republic of Korea Government and USAID in a FHC study conducted in June 1974. Since the origins of this project are of special concern to the objectives of this study, it would be worthwhile for the reader to understand how and why the ROKG and USAID collaborated on this most unusual effort.

FHC, under contract to USAID in the spring of 1974, analyzed the health delivery system in Korea. Its specific task was to locate a suitable demonstration area for the initiation of a low-cost, pre-paid health delivery system, covering some 500,000 people.

Through extensive interviews with public and private sector individuals and institutions that were broadly representative of the Korean health care delivery system, its economic, agricultural, commercial, and academic community, the FHC team selected several areas for field visits. These visits focused primarily on the existing urban and rural health delivery systems, though the team also sought a determination on where to base other health delivery field test models. These possible model situations were measured against three fundamental criteria consisting of management, financial, and provider capability.

The team's findings were shared and tested with key individuals in both the private and public sector, with the results weighted against these basic criteria to screen and select present programs through which a first-stage design plan could be recommended for field implementation. While it was possible to identify agencies which had relative strengths in managerial, administrative, financial, and some provider capability, the FHC team recommended that USAID/Seoul make an investment which would help create a central focus leading toward a consolidated national health strategy which could markedly influence the nature and cost of health care Korean citizens would receive in the decades ahead.

The team suggested the initiation of a centralized, institutional arrangement (KHDI) through which basic policy would be formulated, standards developed, training and education of leaders provided, and cost analysis and evaluations of existing programs performed. While such an organizational capability was assembled and skilled staff attracted to plan and to execute a comprehensive health strategy, funding at modest sums would be undertaken in projects which contributed to policy refinements and direction.

FHC's report, "Steps Toward a National Health Strategy for Korea", was submitted on June 4, 1974. The basic position calling for a national strategy with some demonstration projects was officially accepted by USAID and the ROKG. This meant that while the pre-paid health demonstration project might be subsequently funded, it would have to be part of a national strategy: it would not be the sole objective of the AID loan. FHC was asked to return to Korea, with the American Public Health Association (APHA), in the spring of 1975 to help negotiate a loan

for the initiation and development of: a Korea Health Development Institute, a National Health Council, and a National Health Secretariat.

Subsequently, a joint five-year health demonstration project was established under a $5 million USAID loan (counterparted with $1.7 million from the ROKG) which was signed in September 1975. This has recently been supplemented by a $558,600 grant from UNICEF. In December 1975, the Korean National Assembly voted to give both the National Health Council and the newly funded Korea Health Development Institute legal standing. The overall goal of this undertaking was to create and institutionalize a process which gives effective access to basic promotive, preventive, and curative health services to low-income citizens at a cost affordable by the Government. The specific project purposes were to:

-- Establish the capability within the ROKG to plan, conduct, and evaluate low-cost integrated health delivery projects directed primarily toward low-income families; and

-- Demonstrate successfully a multi-Gun (county) low-cost integrated health delivery system that is replicable in other parts of Korea.

The results of such demonstrations and tests could then be objectively evaluated and passed on to national economic planners in the form of policy and program recommendations. This innovative effort required the establishment of new, flexible organizations to plan and implement the demonstrations and to translate the results into national action alternatives. The USAID Loan Project provided supplemental resources which were critical to the successful establishment of these

organizations and the initiation of a new effort to provide basic health services to those Koreans who are too poor to afford them under the existing system.

The following new organizational mechanisms necessary to implement the loan project were identified in negotiations between the representatives of FHC/APHA, the Economic Planning Board, the Ministry of Health and Social Affairs (MHSA), and USAID; they were subsequently funded by AID/W.

Functions of the Korea Health Development Institute (KHDI)

a. In accordance with the aforementioned project purposes, the KHDI will develop its goals, objectives, organizational plan, and action plan and submit same for approval to the National Health Council (NHC);

b. The KHDI will identify and assess existing health service delivery efforts in relation to the health needs of low-income people. In conducting its activities, the KHDI will also make every effort to increase the support of private and public organizations for meeting the needs of low-income citizens in both the rural and urban areas;

c. The KHDI will initiate and manage a **multi-gun (multi-county)** low-cost integrated health delivery demonstration project. This would require the active participation and cooperation of public and private sector interests in the selected demonstration areas;

d. The KHDI will identify innovative ways of effectively delivering health services and provide support for such efforts in both small

and large-scale projects;

e. The KHDI will support the dissemination of information about methods of providing and financing preventive and curative health services, including the holding of periodic conferences, workshops, the support of training activities, newsletters and other information and education materials;

f. The KHDI will elicit community participation and initiative in the planning and implementation of health delivery systems started under the health loan project;

g. The KHDI will attempt to assure that personal health services are accessible and available to low-income groups starting with the first contact for health care (i.e., at the primary care level);

h. The KHDI will conduct or sponsor research and prepare recommendations related to the short and long-term health issues of the country. Priority will be given to operational research and evaluation activities related to the health demonstration activities of the loan project. The institute will take steps to avoid duplication of effort with organizations such as the National Health Council's (NHC) Secretariat. The KHDI will solicit program-related research proposals from the MHSA, other health related governmental bodies, and private sector organizations for consideration as parta of its annual research program. The KHDI's research program shall be included in the annual work plan submitted to the Council.

Functions of the National Health Council

a. The Council will promote the coordination, planning, and integration of public and private resources to develop comprehensive health services for persons of low income;

b. The Council will provide general support and assistance to help the Korean Health Development Institute (KHDI) and its health demonstration projects achieve their purposes. The Council will be especially concerned with obtaining interministerial support for (1) implementing innovative health improvement projects, and (2) disseminating the successful results of these projects on a national scale;

c. The Council will work with appropriate groups and organizations to promote a national concern and set of priorities for improving health services for low-income groups. The Council will strive to develop a model of a national health delivery system which meets the needs and conditions of Korea;

d. The Council will be responsible for conducting general program reviews of the loan project and making the results of such reviews available to the Economic Planning Board (EPB), MHSA, KHDI, USAID, and other appropriate organizations. The Council may sponsor or conduct such research as is necessary to relate its review findings to national health problems and requirements. The Council shall be supported by a National Health Secretariat to be created under the aegis of EPB for these purposes.

Functions of the National Health Secretariat

a. The Secretariat, operating under the aegis of the EPB, shall conduct general research and evaluation activities and provide professional staff support and advice to the EPB and the National Health Council. The Secretariat's functions shall be carried out by the Korean Development Institute (KDI) and be supported by funds made available under the loan project. The KDI will provide senior level staff support to facilitate implementation of the Secretariat's functions. Specifically designated funds will be provided for the Secretariat in accordance with provisions in the Project Paper.

The Secretariat will be responsible to the EPB for assisting the Council to:

(1) - Analyze through evaluative research techniques the programmatic experiences of the Korean Health Development Institute (KHDI);

- Analyze activities of similar low-cost health delivery projects in Korea and in other countries;

- Perform ad hoc research activities as requested by the Council for the purpose of filling specific information gaps;

- Conduct seminars for high-level Korean policy-makers on national health issues.

(2) Conduct certain health research/planning activities until such time as the Council deems it necessary to transfer such

functions to the KHDI and/or MHSA.

(3) Present the research results to the National Health Council as recommendations for policy decisions and as research and demonstration guidelines for the KHDI. The Secretariat will be especially concerned with distilling and reporting research findings and field demonstration results which are relevant to national health policy formulation and program development.

b. The Secretariat will develop a broad framework for classifying national health problems and establish a comprehensive cross-file and data bank on completed studies and work in progress related to these health problems.

c. The Secretariat will facilitate contacts between domestic and foreign researchers, institutions, and organizations active in the health services delivery field.

d. Upon the joint recommendation of the EPB and USAID to the Council, certain activities being performed by the Secretariat may be transferred to the KHDI and/or MHSA by a simple majority vote of the Council. Such transfers will occur as the KHDI develops its proven capacity to undertake these tasks.

To sum up, these organizational entities provide the infrastructure for an innovative health delivery research and demonstration project. The health institute, a semiautonomous body which was created by the loan project, is responsible for planning research and operational aspects of the demonstration under the direction of a national health council which represents various ministries and other interests -- such as agricultural

cooperatives and universities. Other research and analysis components as well as evaluation is conducted through a secretariat operating as an arm of the Economic Planning Board. These are unique features for health delivery projects, stressing a great degree of autonomy for the new organization and the need for broad-based public and interministerial participation in the projects funded under the loan.

Since the project was funded in 1975, KHDI has initiated three demonstration delivery sites in the Guns (counties) of Hongchon, Gunee, and Okgu. The following information illustrates the cost and utilization data experience of the three projects (Table 1-4)*:

* The following tables are taken from the "Joint AID/ROKG Mid-Term Review of the Korea Health Demonstration Project, July 20-28, 1978," The American Public Health Association, Washington, DC, and the Korea Health Development Institute, Seoul, Korea.

Table 1*
Comparative Costs for CHC and PHU
in Demonstration Project per Month*
(This Table Includes Aggregate Costs in the Three Demonstration Guns)

	CHC	PHU
a. Physician (Salary & Benefit)	600,000	-
b. CHP (Salary & Benefit)	174,000	174,000
c. Assistant Workers	240,000	87,000
d. Medical Supplies	250,000	130,000
e. Travel Expenses	40,000	15,000
f. Administration Cost	50,000	20,000
g. Utilities	60,000	24,000
Total	W1,414,000** ($2,945.83)	W470,000 ($979.17)
Average Patients Visits/Daily	30	20
Average Patients Visits/Monthly	900	500
Per Visit Cost	W1,570 ($3.27)	W940 ($1.96)

* Community Health Center, and Primary Health Unit, respectively.

** $1.00 U.S. equivalent to W480.

Salary by type of Health Worker

Physician	W450,000/month	($937.50)
CHP	W130,000	($270.83)
CHA	W 65,000	($135.42)
Administrator	W 65,000	($135.42)

Plus 400% Bonus per year

Monthly expenditures are estimated on the basis of the past few months experience. The greater unit cost suggests that physicians will have to provide three times as much benefit as a CHP to justify their employment for routine medical care.

Table 2

Comparative Health Budgets of Local Health Services

by Gun in 1978 (in thousands)

	Hongchon	Gunee	Okgu
TOTAL	126,344	125,795	109,665
1. Personnel Cost	39,322	67,606	74,428
2. Equipment	7,448	3,698	1,895
3. Medical Supply	32,400	12,600	14,814
4. Administration Cost	15,179	6,884	5,633
5. Travel Expense	2,734	3,886	3,165
6. Utility & Facility	4,895	4,558	3,594
7. Conference & Publication	7,086	6,533	6,136
8. Others	17,280	-	-
Population	112,000	66,000	116,000
Per Capita Cost	W1,128 ($2.35)	W1,603 ($3.34)	W945 ($1.97)

Table 3

Average Productivity of Various Categories of

Medical Care Workers in Specific Settings

	Average Daily Patient	Source
Whole Country	10 Visits/Physician	KMA Survey Result which was carried out in 1976*
Demonstration Project Area		
Existing Private Practitioner	13 Visits/Physician	KHDI Survey Result 1977 - 1978
CHC	36 Visits/Physician	
PHU	10-20 Visits/CHP	

In Table 3 some interesting data are presented relating to average productivity of various kinds of workers. The estimate of number of patients seen suggest that the CHC physician is seeing the most cases, and CHPs are close to national averages for physicians.

* Korea Medical Association

Table 4

Comparison of Lucrative Medical Care Unit Costs

According to Source of Care

	Outpatient	inpatient
Private Practioner	Per Visit Cost	Per Case
Seoul Area	W3,902* ($8.13)	
Middle Size City	W3,409* ($7.10)	
Rural Area	W1,800** ($3.75)	
Insurance	W2,875 - 3,111* ($5.99 - $6.48)	81,000** ($168.75)
Public Sector		
Demonstration Project Physician	W1,570 ($3.27)	
CHP in PHU	W 940 ($1.96)	

In Table 4 similar comparisons are made of costs per patient visit according to the source of care. The lower costs in the demonstration area are evident.

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* Survey Result which was carried out by KPC in 1978

** KHDI survey result

One of the most exciting potential contributions of the KHDI projects to international understanding of primary health care is in relation to community participation. Yet, there are few other situations around the world in which practical programs of community involvement seem to be working.

Korea has made progress in social development through the "Saemaul Undong". Under the Ministry of Home Affairs this national campaign has transformed the rural countryside and quality of life since 1970. A remarkable mobilization of national will and hard work is bringing a new life through 3 kinds of objectives:

Spiritual reform for "diligence, self-help and cooperation";

Social development involving the cultural and social patterns of families and communities; and

Economic development concentrating on employment and income to reduce gaps between urban and rural populations and the rich and poor.

Health status has been improved mainly by Saemaul programs for better housing, water supply, sanitation and drainage, general cleanliness and major support for family planning. The data on achievements in the past seven years, indicate that 40-60 percent of village homes now have benefitted from these environmental improvements.

One of the most impressive achievements of Saemaul has been the organization of committees and councils at all levels. In addition to the clear direction and pressure from above there apparently has also been good response and cooperation from the village people.

The KHDI plans to capitalize on the achievements of Saemaul by

working intensively to increase the health component of the movement. The enthusiasm in villagers for anything associated with Saemaul would have carry over from successful community involvement to health measures that might be difficult to promote by themselves. Preventive services can be greatly strengthened by being officially recognized as approved Saemaul activities. For instance, villages now get credit for meeting specific targets for housing, etc. It would be desirable to add other health indices to monitor and motivate community activity in reducing infant deaths and maternal care complications, increasing immunizations and maintaining growth cards on children. Measures to increase the health component of Saemaul educational programs should be readily implemented because village health agents are also usually leaders of women's associations.

Korea can assume a position of world leadership in showing how rural people can help themselves in introducing the really important changes in living habits that improve health.*

The following list shows some of the changes which have occurred in Korea, and in ministry policy, for which KHDI activities can be given partial credit:*

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* "Joint AID/ROKG Mid-Term Review of the Korea Health Demonstration Project".

a. Through a series of national seminars and workshops, medical and nursing educators have become interested in community health and this has resulted in many changes in educational programs.

b. Several community health projects are being implemented by medical schools and hospitals. KHDI is in professional communication with more than 10 of these community projects by holding a national seminar at least once a year which provides an opportunity for exchange of idea and experiences.

c. Kyeongs and Buk Province already adopted the concept of a community health practitioner program and organized a training program for nurses (3-month courses), who are deployed to doctorless township (Myons) in the Province.

d. Training materials developed by KHDI have been widely disseminated to other training institutions for their utilization.

e. Since the project started, the people concerned with the Saemaul Movement in the Ministry of Home Affairs have become very interested, and plans to integrate a strong health component into Saemaul are under discussion.

f. Experiences obtained through the project are fed back to the national program through formal as well as informal communication between the project and government officials concerned.

g. Educational effects toward the Korea Medical Association, Hospital Association, Nursing Association as well as the general public, are obvious.

Of greater import, however, has been KHDI's ability to ensure accountability and objectivity with respect to decisionmakers' attention to the results of its demonstration project. This is accomplished by having the responsibility for evaluative research residing within the National Health Secretariat in the Korea Development Institute, rather than in the Ministry of Health. The Korea Development Institute is a non-profit research organization devoted to the study of public issues. It was established to assist the ROKG in making strategic policy decisions. Much of its work for the Government is commissioned by the Economic Planning Board, the Deputy Minister of EPB, and the Chairman of the National Health Council. Thus, KHDI has an open channel through which it can influence key decisionmakers in the ROKG.

The KHDI demonstration project is scheduled for completion in September 1980. FHC discussed its future with members of EPB and the Ministry of Health in Seoul. These two conclusions emerged:

1. The EPB said it is the decision "of our government to fund KHDI internally after the AID loan runs out". This official stated that the KHDI could be the vehicle through which the ROKG can begin to export technical assistance in health to other countries in the region.

2. The MHSA said that it enthusiastically endorsed the KHDI continuance directly under ROKG funding. This official felt that, partially because of KHDI, the ministry budget ahd increased from $38 million in 1975 (when the demonstration project started) to $230 million in April 1979. And, he stated further, "the KHDI can conduct research and demonstration projects which the ministry hasn't the capacity to

do ... and, it can influence the Economic Planning Board on new projects we wish to undertake because the KHDI can make the arguments on economic grounds rather than on claims to the public welfare".

Some officials in the ROKG and AID feel that the KHDI has great potential as a regional center for planning and training. Although the FHC had little time to review this potential, it does urge caution in this regard. External assistance is a complex undertaking; a regional center for planning and training is a costly enterprise and the returns are both uncertain and, if past experience with similar institutional offerings is any guide, of little practical use to the recipients from other countries.

In order to gain experience in external assistance, the most advantageous manner for the KHDI to capitalize on the resources of the ROKG is through the provision of direct technical assistance to LDCs, especially those in the region. This observation is offered for these four reasons:

1. Direct technical assistance (including research) would give KHDI staff practical, on-site experience in the problems of health service delivery in LDCs.

2. Direct technical assistance would help KHDI build up a reputation and a professional credibility in health service delivery among LDCs.

3. Direct technical assistance is immediately tangible to a recipient country, whereas the benefits of sending staff to a donor country for training are often nebulous and long-term in nature.

4. Direct technical assistance would draw on the ROKG's extensive pool of professionally trained and available resources.

b. NEPAL

Background

Nepal was one of the first countries to request WHO's assistance in conducting a "country health programming" (CHP) exercise. The CHP was undertaken in 1974 in order to provide guidelines for the development of the health section of the 5th five-year plan and to provide a framework in which increasing donor assistance in the health field could be programmed.

At that time, Nepal had no formal health planning capability; the WHO therefore provided numerous professionals in health planning and systems analysis techniques to assist the Nepalese in applying the newly formulated CHP methodology. These WHO experts and consultants, from both the New Delhi Regional Office and the Geneva central office, participated extensively in the development of two CHP documents: a document describing overall strategy to be followed during the 5th five-year plan, and another volume describing a series of project formulations by which the strategy would be implemented. The whole process took almost two years to complete.

The formation of the CHP strategy document was primarily based on a priority ranking of health problems categorized by disease; this problem identification process relied mostly upon hospital data on causes of morbidity and mortality. Once problem identification had been framed in a strategy for programming, the CHP exercise then turned its attention to the detailed project formulation stage, which began in mid-1975. Specific task forces produced the following project formulation

documents:

Title	Date
"Project Formulation for Basic Health Services"	July 1975-January 1976
"Immunization"	July 24-August 11, 1976
"TB Control"	August 31, 1975
"Health Laboratory Serices"	April 16, 1976
"Health Education"	November, 1975
"Malaria"	July 10, 1975

In mid-1976, using the CHP documents as input, government political leaders, development planners, and health policymakers met to develop a long-term health plan without the assistance or participation of outside consultants or experts. This "Long-Term Health Plan" was produced under the auspices of the "Janchbujh Kendra" at the Royal Palace and outlined objectives, policies, and priorities to be followed in health development planning for the period 1976-1991. Its primary purpose was to provide high-level policy guidance to the formulation of health programs and projects for the 6th five-year plan (1980-1985).

Since the development of the "Long-Term Health Plan", Nepal has become increasingly independent of outside assistance in its development of health plans and programs. Since beginning the process of planning the health programs for the 6th plan in 1978, WHO participation has been

largely limited to the development of an updated "country health profile." A more detailed description of the structure and process as it currently exists follows.

The "Planning Cell" and Health Planning

The health planning section of the Ministry of Health was created in 1974 after the start of the CHP exercise, when the National Planning Commission (NPC) requested that such units be created in the major ministries in order to provide the NPC with a liaison unit to pursue the data gathering and technical activities of planning. During the CHP, the unit was heavily involved in all phases of the exercise, and provided the major data input for the "Long-Term Health Plan."

The planning section currently is staffed by a chief, an assistant chief, three section officers, and two expatriate consultants. The section chief is a pediatrician who was chief surgeon in a zonal hospital before being appointed to the position last year; the assistant chief, an M.D. with an M.P.H. from Johns Hopkins University, has worked with the section since its inception. (The chief has no formal training in health planning, although the assistant chief's extensive experience in CHP was the basis for a recent consultancy to the Government of Sri Lanka on its CHP.)

The NPC's guidelines on the responsibilities of the planning section provides that its purposes are: 1) to prepare annual plans based on the five-year plan; (2) to prepare the budget; (3) to monitor follow-up implementation; and (4) to evaluate the programs as they are implemented. Although the planning section participates in the process

of multi-year planning, this participation is largely limited to filling in details since the directives and guidelines for multiyear planning are promulgated by the NPC.

In practice, the planning section devotes much staff time to "routine" work. This includes quarterly evaluations which are conducted by collecting reports from the various operational units on their various projects, by scoring the projects according to how much was achieved during the quarter relative to the target (in terms of expenditures of funds); after scoring, meetings are held with the minister, concerned members of the NPC, project chiefs, and the director general of health services. The planning section also gives guidance on policies at the request of various parts of the ministry; disputes about policy are referred to the NPC.

The health planning section is located within the Ministry of Health among the technical sections of the Department of Health Services, under the supervision of the director general for health services. The other sections in the department are "integrated health services," "hospitals," "malaria," and "FP/MCH," although the last two are relatively autonomous. According to the planning section chief, the section performs many activities not directly connected to planning; about 75 percent of his unit's activities are not related to planning per se. Many tasks are performed at ministerial request; anything that appears to be technical in nature but not specifically the concern of other technical sections is routed to the planning unit for action, whether or not it may be related to planning. The planning unit also has responsibility for overseeing the various governmental rules and

regulations governing public health. The planning section does not conduct any analytical activities or other planning tasks that are independent of requirements derived from the directives and guidelines promulgated by the national planning commission.

Current Planning Activities

The planning unit is now actively engaged in the process of preparing the health plan of the overall 6th five-year development plan for 1980-1985. This process involves the integration of two analytic processes to establish supporting input for program formulations which support the policy guidelines for health development promulgated by the NPC. The policy guidelines were issued by the NPC in November, 1978, to establish the major directions for health programming in the next multiyear plan. To establish a basis for designing programming to support the directions, the planning unit has actively engaged in the Mid-Term Review (MTR) of the 5th plan results, and in the "second round of CHP." The results of the MTR will be integrated with the results of the ("second-round") CHP to produce the health plan to be submitted to the Minister of Health in April and to the NPC in May.

The MTR was jointly financed by the WHO, United Nations Fund for Population Activities, UNICEF, and USAID/Nepal in order to evaluate the implementation of the 5th plan. It was a six-level survey of health providers, program managers, political leaders, and consumers of health services throughout Nepal. The survey administered questionnaires to 65 district health officers, 100 health post officers, 120 outreach workers, 120 community leaders, and 4,000 households. The results, which were to

be used as input to the CHP, were not ready in time; thus, the CHP has gone forward while the data were still being analyzed.

Preliminary analyses of the MTR results will shed light on operational issues such as measuring supervision, supplies, logistics, etc. The reports on the MTR are being organized according to programming issues that will be the focus of the CHP process. Based on the mid-term review, there will be increased knowledge about the impact of health projects in terms of problem reduction, and about the characteristics of clientele, the rural population, and how they perceive the services they have received.

In order to process the MTR results into the CHP, the health planning section chief formed 16 project-oriented task forces upon the request of the Secretary to start the process. In order to strengthen the planning units ability to handle program issues, the assistant chief has since created several "core groups" around program issues; they will work with the 16 task forces in giving shape to project formulation.

While some concerned officials have referred to the current planning/programming process as a "second round of CHP", others do not refer to it as "CHP"; the planning section chief said flatly they were not doing CHP. In fact, the process is an adaptation of CHP as it was conducted in 1974, and it is being conducted without any appreciable amount of external expert assistance. An adviser to the planning section described the current process as a five-stage process:

Stage 1 is the development of national health policy guidelines; after some consultation with the minister and secretary of health, the

NPC promulgated these guidelines late in 1978; the principal new directions included were: (1) the mandate to begin decentralizing the planning and implementation of health projects to the district level, and (2) the target of training and placing 30,000 village health workers within five years.

Stage 2 is the ministry's conversion of these guidelines into a ministry policy statement for the 6th plan; this statement will generally add details to the NPC guidelines and will probably leave some policy questions still unanswered.

Stage 3 is a situation report on results of implementing past programs and the current health situation in the country; this is to be based on the MTR results and the WHO's country health profile.

Stage 4 consists of two parts:

1) a draft program submission; and

2) a set of pre-feasibility analyses of the programs. During this stage, the programmatic targets are adjusted in light of the assessed feasibility of each, and problem reduction targets are replaced by specific managerial guidelines.

Stage 5 is the project formulation stage which designs a management plan describing the money, the process, and the personnel that will be needed to reach the managerial (hence programmatic) targets arrived at in Stage 4.

Compared with the initial effort at CHP in 1974, the current planning process envisions a much shorter total process, by cutting down

on the time spent on programming and project formulation, and by only reviewing the strategic plan created in 1974. The technical and donor agencies involved in cooperation with Nepal's health sector are collaborating among themselves and agree with the government's intent to make the current process a totally national effort with minimal external support.

Analysis

(1) Country Health Programming

The CHP methodology, it was noted by the health planning adviser, is simply the application of operations research and systems analysis techniques to the design of health programs. It was not a great new invention, but merely the logical, systematic application of analytical techniques to problems in a way that gets people to think about relating objectives to resources.

Most concerned officials in Nepal think the CHP process was a good experience in that it accomplished three important objectives:

1) it gave the ministry of health a basic technical capacity to plan;

2) it changed the character and content of the discussion about how to improve health in Nepal and substantially uplifted the reputation of the health sector in the eyes of the national planning commission and ministry of finance; and

3) it has given some structure to donor health assistance, which has been programmed by an increasing number of actors.

On the other hand, several shortcomings of the CHP were noted:

1) it was far too lengthy and expensive in terms of personnel time required;

2) the extensive reliance on outside experts to design programs which then were expected to be implemented by nationals was an unrealistic approach; and

3) the problem-oriented approach to programming erred in targeting reductions of disease incidences as the program objectives. This latter error had three dimensions: first, the information system relied on (hospital-based data) was so unrepresentative of true health conditions that one cannot tell whether subsequent data represent a result of program efforts; second, the nature of the identified problems did not correspond to identification of managerial techniques and instruments available or needed to attack them; and third, the project formulations were thus very weak in describing appropriate managerial plans for implementation--what range of activities in what sequence is needed to bring about the desired results. All these problems have been specifically addressed and remedies have been implemented for the "second round of CHP" in preparation for the 6th plan.

(2) The Role of Planning

Health planning in Nepal is now being called upon to respond to two sets of pressures:

1) the ever-increasing interest of donors to invest in, and assist,

Nepal's health sector; and

2) the government's own stated intention to make enormous strides in providing basic health services to the population through village health workers.

Because of past CHP experience there is more and more independent formulation of programs and projects than ever. It was pointed out that the information on donors and donor assistance was in fact removed from the most recent situation report.

There are definite limits to what donors and the government can do, and the most significant is the sustaining capacity of the country. Although donors have not gotten involved yet in financing recurrent costs, the finance ministry continually puts all programs under two limits--the limits which they monitor:

1) the extent to which the ministries and divisions are spending the budget which they are allocated; and

2) the relationship of administrative manpower availability to programming and planning goals.

Right now, there is a tremendous shortage of administrative manpower in the ministry of health, which has long operated with a management structure that is inadequate to the tasks required of it. The main shortage occurs in middle-level staff positions, which are currently mostly unfilled.

The main problem with health planning is the lack of sufficient conviction on the part of top leaders that planning is important, that it

can be effective, that it can be of value to decisionmakers. The tendency toward crisis management and the lack of rewards for good planning are two principal reasons for this state of affairs. Even the evaluation system adopted by the NPC is an input-oriented system; thus evaluation measures that become most important are spending quotas--out of so much authorized, how much is in fact expended. This does not encourage planners and managers to focus on outputs; and it makes it difficult to implement a more desirable output/impact evaluation system, which the planning unit is currently trying to put in place.

Finally, the centralized "top-down" nature of planning creates problems when planning units are asked to respond with projects to implement "development commitments"--which are determined independently of any problem identification or analysis. Goals that are created in the political arena such as the decision to target training and placement of 30,000 village health workers by 1985, create special problems for planners; they are asked to create guidelines for unrealistic goals. Distinct restrictions on increases in donor assistance are imposed by matching funds and other limits placed on each ministry by the ministry of finance; so even if the ministry of health's own budget and administrative resources had capacity to cope with the target (which it probably does not in this example), other constraints and restrictions are bound to affect implementation of politically determined goals.

c. GUATEMALA

The findings and conclusion of this report are based on six months of independent field research on health care policy-making in Central America in 1978-1979 (funded by the Tinker Foundation) and a short-term consulting visit with Family Health Care, Inc., during May 14-18, 1979. The principal author of this report is Thomas J. Bossert, Ph.D., Harvard School of Public Health, Harvard University. The field interviews with major policy-makers and health planners in Guatemala City were conducted with Jeremiah Norris, FHC.

In order to facilitate comparison with other national experiences being reviewed in the FHC project, this report will first attempt to define the general characteristics of the Guatemalan socio-economic-political systems. This section will be followed by a description of the Guatemalan health system's major institutions and major programs, including a detailed section on the experience of health planning in the sector. Special attention will be focused on the Guatemalan experience with multisectoral planning. The role of foreign agencies, with special emphasis on the role of PAHO will also be discussed.

Guatemalan Country Characteristics

Latin America is usually considered to be a low priority area for AID given its relatively higher standards of living compared to those of Africa and Asia. Guatemala, however, is one of the least-developed nations in the region and therefore one of the best for providing

comparisons with experiences on the "poorer" continents, especially with regard to health issues.

Although Guatemala has a per capita GDP of $852 (the thirteenth rank in Latin America), income distribution is radically skewed. With a population of about 7 million, 64 percent lives in rural areas, making Guatemala one of the least urbanized nations in the area. A density of 66.5 inhabitants per km^2 is the second highest on the continent. The population growth rate is high (2.9 percent per year). The crude mortality rate is one of the highest in Latin America at 12.7 per thousand, with life expectancy of only 51.8 years. Infant mortality rate is 73.7 per thousand live births, accounting for 21.3 percent of total deaths. The major causes of mortality are the usual ones for poor countries: enteritis and other diarrhetic diseases, nutritional difficiencies, and infectious diseases. Of the children under five, 81.4 percent are malnourished. In recent years, there has been an increase in the incidence of measles, malaria, and TB.

The situation in rural areas is considerably poorer than in urban areas along almost every indicator. For instance, while 87.4 percent of the urban population has access to potable water, the figure for rural areas is only 14.2 percent. Rural areas have significantly higher rates of population growth and of infant mortality.

Rural areas present special problems for the public health care system. Strong cultural and language differences exist between the rural Indian population and the "ladino" -- the westernized, dominant social and political system. These cultural and language differences often inhibit the utilization of public health service facilities and programs.

Although each new government has had a publicized policy of assistance for social and economic progress in rural areas, only minor reform efforts have been attempted. The state has relatively little control of national resources. Central government income was only 9.5 percent of the GDP in 1975. Only three countries in Latin America had governments with less control over national resources. Resources for public health services are also extremely limited. The Ministry of Health is allocated only 9 percent of the central government budget, or less than 1 percent of the GDP.

The government is a democracy only in formal terms. Although several parties compete in elections and participate in Congress, military candidates have controlled the presidency, and widespread electoral fraud is the norm. Power contenders who attempt to represent the lower classes are systematically barred from participation. Legislative power is very weak relative to that of the Executive. Although Congress has the unusual power to approve foreign loans, it has only used this power to delay ratification of loans. Congress has never rejected an Executive loan initiative.

Within the Executive branch, as will be apparent in the analysis of the health system, the structure of the state is fractionated, preventing strong coordination or control by any one agency in a sector.

In general it is unlikely that the government of Guatemala will or can become involved in a major reform effort without a significant change in its role in society. Small and piecemeal projects are the most likely social efforts.

Health Care System

There are no reliable statistics on the private health sector in Guatemala. One estimate suggests that private expenditures account for about 50 percent of total health sector expenditures. In rural areas, private voluntary agencies alone provide as much of the per capita expenditure in health as does the public sector. Expenditures for private doctors, traditional healers and drugs are not known. There are an estimated of 16,000 healers and a similar number of untrained midwives. While it is estimated that 2000 physicians practice in Guatemala, there are no good statistics on the size of their practices. Most of these physicians work for the public sector; however almost all physicians, including the Minister of Health, have private practices, usually working one half of each day in public service.

The two major public institutions in health are the Ministry of Health (MSPyAS) and the Guatemalan Institute of Social Security (IGSS). Together they control over 90 percent of the hospital resources. Very rough estimates put total public and private health expenditure at $20 per capita. The ministry expenditures are $6-$7 per capita on basis of total population and IGSS $35-$40 per potential beneficiary. The Ministry and IGSS have relatively equal budgets ($35 million for MSPyAS vs. $32 million for IGSS in 1975). However, the IGSS serves only covered workers (estimated at 833,000), while the MSPyAS provides services to several million who are in need.

Other health-related institutions include the Ministry of Defense,

Municipalities (mainly for water and sewage), and the Committee for Social Welfare of the President's office. The health activities of these organizations are dwarfed by those of MSPyAS and IGSS.

Like most social security services, IGSS provides better care to a small portion of the population. IGSS has 35 establishements with 2,106 beds, 45 percent of which are in the five IGSS hospitals in Guatemala City. The medical services provided throughout the system are mainly curative in nature.

Most of IGSS medical services are provided to the urban population in the Guatemala Department where workers are covered for accidents and their families get maternal and child health care. Until recently, in rural areas, only the workers were covered for accidents. In 1970, IGSS began a program of expanding MCH services to its beneficiaries outside of Guatemala City. Much of this program involves purchasing bed space in MSPyAS hospitals where IGSS patients will get better service than do those not covered by IGSS.

IGSS is a semi-autonomous agency nominally under the Ministry of Labor. It is not required to submit budgets to the Ministry of Health. The IGSS does not have a planning unit, and it does not participate in the sectoral planning of the Ministry, or of the National Planning Council.

The Ministry of Health is charged with providing services to the entire population. It is roughly estimated that actual services are used by only 20-30 percent. The Ministry has 35 hospitals and a total of 8,527 beds (42 percent of which are in 8 Guatemala City hospitals). It

has 171 health centers staffed with a physician, a nurse, an auxiliary nurse, and a sanitary inspector (only about 15 of these centers have beds). There are 467 functioning health posts, staffed by an auxiliary nurse, and 190 of these posts are also attended by a medical student in the final year of medical school.

Extention of coverage has been a goal of MSP for the last 5 years; however, they have achieved an overall coverage of .3 consultations per inhabitant. In areas of less than 5 thousand this figure falls to .2 and for the 2.5 million people living in areas with less than 500 inhabitants the figure is .05.

A major problem with health services has been their underutilization. Hospital occupancy is figured at less than 60 percent with much of the existing occupancy devoted to activities better handled on an ambulatory basis. Rural health posts are seriously underutilized. One study places their use at an estimated 30 percent rate. An analysis of relative costs reveals that the hospitals cost $4.83 per consultation, health centers cost $5.26, and health posts cost $1.19.

During the mid 1970's three important policy initiatives began in the health sector. One was a UNICEF-sponsored program to train village volunteers as health promotors and midwives. Over 7 thousand village volunteers were trained in a short course (two months for promotors and two weeks for midwives). External funds for this program have ceased and the government has not yet begun funding a national program with internal funds. However, some regional health officials have continued the promotor and midwife program on an ad hoc basis.

A second non-physician program to train middle-level community health workers, "Tecnicos en Salud Rural: TSR", was initiated in 1971 under an AID rural health loan. These workers receive a government salary comparable to that of the local teacher. They have finished secondary schooi and receive two years of training in community organization, basic first aid, environmental sanitation, nutrition, and simple argicultural techniques. The TSR's are highly motivated multipurpose community workers. They have experienced some difficulty in finding a defined and accepted place in the formal health system; however, at present it appears that the MSPyAS is committed to continuing this program.

The third general development of the mid to late 1970's is the considerable effort in health services construction and reconstruction. Much of the construction has been funded by IDB (although the early AID loans provided some funding for this activity). Health service construction has been justified on the grounds of deteriorating services, especially after the 1976 earthquake, and on the political decision to put health posts in every departmental capital.

Health Planning in Guatemala: Institutional Planning

Health planning is the province of three agencies. The Health Sector Unit of the National Planning Council, initiated under an AID loan in 1974, is charged with planning for the whole health sector, and with coordinating the health sector plan with those of the other sectors. In practice, though, it presents plans primarily for the health ministry and does little coordination with the other sectors.

The second level of planning is a Ministry Sectoral Planning Unit attached directly to the Office of the Minister of Health, though it has an insignificant role in planning. Its primary function is to prepare the yearly budget for the Ministry. Over time, it has consistently lost power to the other two planning agencies. This unit controls the budget. This seems to imply that the budgetary process is divorced from the ministry planning process and that budgetary decisions are incremental and reflect no major policy initiatives.

The third, and at present most powerful, planning unit is the Division of Programming, Director General's Office, Ministry of Health. This unit has received considerable support from PAHO consultants and has taken over the statistical processing that once was under the Ministry Sectoral Planning Unit. The Division of Programming is charged with planning and programming only for the ministry and not for the entire health sector.

The health planning units in Guatemala all have personnel with some training in health planning. With the exception of the Minister himself, most of the important policymakers in the ministry and most of the regional area chiefs have master's degrees in public health, often with some training in planning as part of the course. Many also have received special short courses in health planning or administration. This training was undertaken in schools of public health in Mexico, Chile, Colombia, Venezuela, and in other health planning courses sponsored by PAHO. The health planning units also have economists, administrators, social workers, and sanitary engineers.

Guatemala has a rather short history of planning in health. The

first national health plan was drawn up in 1975 by the newly created health sector planning unit in the National Planning Council. While the health plan reflected a commitment to goals established by the Health Ministers of the Americas and PAHO, especially the emphasis on "extension of coverage," the plan was mainly a diagnosis of health conditions, a cataloguing of existing health resources, and an affirmation of ideally desirable target goals for coverage and reduction of mortality and morbidity. It included no financial analysis, no projections of manpower needs, and no identification of specific programs and institutions to achieve most of the general goals. The bulk of planning activity occurred at the level of the National Planning Council, with little participation of the Ministry or other health service providers.

In 1978 a new effort in health planning began. The major initiative in this planning process constituted a combined effort of the Ministry's Division of Planning and PAHO consultants to develop a national health plan that is intimately coordinated to a new programming effort at all levels of the ministry. The orientation of the new plan is to utilize more efficiently the existing health services through a process of local programming. Extension of coverage is still the central focus. Programming goals are to be determined by the participation of all health providers in the Ministry's formal health system as well as village volunteers. Forms for illiterate midwives as well as for the literate promotors are designed so that these health workers can determine the number of visits and kinds of services they expect to be accomplished during a year. A general overall coverage goal of .8 consultations per inhabitant per year is established as the 5-year goal for the ministry.

In this initiative, planning is perceived as an ongoing process that is closely allied to institutional reorganization and programming. Much of the process during 1978 involved participation of the Ministry's technical/normative divisions and the 24 regional health officers. In an effort to offset the general centralization of authority in the Ministry, this planning process has attempted to involve other levels in decisionmaking through a series of workshops and the submission of separate regional plans.

At the time of this FHC report the first three volumes of the Plan of the Ministry were completed and the Ministry was preparing to send out teams of instructors to train the regional and local level personnel in the process of programming. While the present plan has little cost/effectiveness analysis, no investment plan, and few numerical targets, it is expected that once the present programming process is completed other volumes of the plan will be prepared, which will include plans for manpower development, financial administration, and an information systems. While it is obviously too early to evaluate the effects of this new approach, it should be noted that the intent of the process is to overcome weaknesses in the earlier plan--in particular its lack of participation of implementing agencies and its tendency to set "idealistic" goals.

In contrast to the 1974 planning process, the current one has been largely the initiative of the Ministry itself, in particular the Programming and Statistics Department of the Director General's Office, in conjunction with several PAHO advisors. Abandoning its earlier initiator role, the Health Sector Unit of the Planning Council now sees

its role as one of "harmonizing" the ministry health plan with that of the National Health Plan and its other sectors; however, there appears to be very little difference in the substance of the plans produced at the two levels.

Sectoral and Multisectoral Planning

What planning that has been accomplished in Guatemala is primarily planning for the health services of the Ministry. There has not been any planning for the health sector as a whole. IGSS has no planning unit, and has not provided either the Ministry or the Planning Council with sufficient data for these units to plan or coordinate the whole sector. All efforts to establish a coordinating unit between the MSP and IGSS have failed. The only effective coordination that has occured has been in the purchasing of health services space of the MSP by IGSS. The rest of the sector provides little information to the Planning Council. Efforts to gain reliable information on the private sector have come to nought.

The medical school -- which autonomously determines the manpower supply of physicians -- provides enrollment information to planners, but does not coordinate production to the supply needs of the Ministry. Indeed, the medical school (under the Ministry of Education) is responding only to student demand for training and is producing far more physicians than Guatemala can easily absorb.

Guatemala has very little multisectoral activity, and national planners do not consider the implications of programs across sectors. Even at the level of the National Planning Council the sectoral divisions

apparently have little interaction among themselves. Each sectoral unit in the Planning Council is responsible for the planning of its own sectoral institutions and makes no effort to communicate with the institutions of other sectors (a move which would be interpreted by other planning units as an invasion of their territory). When the sectoral planning units come together to "harmonize" their plans, they apparently focus only on the financial aspects of the sectoral plans. There is no effort to review other sector plans for potential coordination or for potential cross sectoral impacts. For instance, the health sector does not review the agricultural sector for the health implications of say, irrigation programs.

The only exception to the above statements is the establishment of a multisectoral nutrition commission in the National Planning Council. This unit has representatives of the sectoral planning units of health, education, agriculture, the presidency, and industry. It is assisted by a three-person staff including a nutrition planner, trained at the regional nutrition institute (INCAP) and the University of Michigan. This multisectoral effort is just in the beginning stages and has primarily been effective in identifying nutrition-related programs already existing in the plans of each sector. The agricultural sector apparently has been the most responsive to new initiatives for nutrition programs.

There are potentials for multisectoral activities at the regional and local levels where development committees, presided over by the Governor, unite regional representatives of various ministries. However, at the present time the coordination at this level has not been part of

the planning process. The coordination that does exist at this and local levels appears to be the result of personal initiatives on the part of officials at each level; it is not an institutionalized integration. There are two integrated rural development projects under the Planning Council, though the FHC team was unable to get information on them.

Another effort at regional coordination was attempted by the post-earthquake Committee for Reconstruction. This Committee was generally successful in providing housing for many of the victims of the earthquake. Participation of the Ministry of Health in the Committee's activities was again the result of personal initiatives on the part of lower level officials. The Ministry in fact neglected to send official representatives to the Committee until over a year after the Committee started operations.

International Donors and Technical Assistance

Four major international agencies play important roles in the health sector of Guatemala: AID, PAHO, IDB and UNICEF.

Since 1966, AID has provided over $10 million in health-related loans, $8 million in grants, and $35 million in PL-480 food supplements. Considerable portions of the loan funding went into construction, reconstruction, and equipping of health facilities, including health posts. It was these loans that provided funds for the initiation of the innovative TSR program and for the establishment of the sectoral planning unit in the National Planning Council.

A new health loan is now being negotiated. This loan will be

negotiated with a working group which will include representatives of all the planning units and PAHO. The new $14 million loan is likely to provide funding for small scale potable water projects, nutrition education for auxiliary nurses, health post construction, and an information system in the Ministry's sectoral planning unit.

In support of health planning, AID has funded a health planning unit in the National Planning Council; it has provided useful diagnostic analysis in the 1977 Health Sector Assessment that has been used extensively by the two planning agencies, and it proposes to develop an information system for the sectoral planning agency in the MSPyAS. AID has not provided much support for the training of Guatemalan health planners, nor has it encouraged Guatemalan health officials to attend planning courses in the U.S. institutions that offer such courses.

PAHO has taken the major initiatives in health planning and training. The Health Plan for the Americas was the guiding document for Guatemala's first health plan in 1974. Most of the health professionals who have received training in health planning have attended PAHO-sponsored courses in Mexico, Chile, or elsewhere in Latin America. PAHO consultants have played a major role in the current process of planning now underway.

AID and PAHO together sponsor a regional nutrition institution located in Guatemala: Nutrition Institute of Central America and Panama (INCAP). This regional institute has been operating for over thirty years. Until recently INCAP has devoted much of its efforts to research projects evaluating the effects of a variety of nutrition interventions. It has a program for training nutritionists and has developed a nutrition

supplement (INCAPARINA) that is being marketed in Central America. In response to requests that INCAP become more directly involved in promoting nutrition programs and planning, the Applied Nutrition Department of INCAP has recently participated in nutrition planning processes in Honduras, Guatemala, El Salvador and Panama.

The third major international donor, IDB, has had a history of providing major funding for aquaducts and sewer projects and more recently for hospital and health post construction and equipment. IDB loans provide relatively little funding for activities that are not directly related to construction. However, they do fund -- through small non-reimbursable loans -- planning and administrative development projects usually administered by PAHO. IDB loans have been strongly criticized by AID personnel for being too concerned with construction and for failing to provide funds for the "software" of human resources development to staff new health facilities. The resulting drain on the scarce manpower means that fewer human resources will be available for health services not tied to constructed facilities.

Guatemalans are less critical of IDB loans. They see considerable need for hospital reconstruction, especially after the damage caused by the 1976 earthquake. They also feel that it is necessary to have health posts constructed, especially in areas where auxiliary nurses have been working out of makeshift quarters in schools or town halls. It is clear, however, that manpower is a critical constraint on services, and that many of the existing primary care providers need additional training. The fact that health posts are severely underutilized has not lead to the conclusion that they ought to be consolidated, or their numbers reduced.

The lack of demand is attributed to failure of the system to demonstrate its value to the local Indian population. Improvement of the quality of care and the provision of drugs and regular schedules on market days, etc. are seen as part of the solution.

Another major international agency that has played an important health initiator role in Guatemala is UNICEF. UNICEF funded the promotor and midwife training program from 1971 to 1977, working closely with the Human Resource Department of the MSPyAS. UNICEF has also funded the intersectoral nutrition planning unit in the National Planning Council.

In concluding this section on international agencies, it should be noted that there is considerable competition among donors. Until very recently there was almost no communication between AID and PAHO. Except for PAHO's special relationship with IDB, in which PAHO provides technical assistance for IDB projects and administers the non-reimbursable portions of the loans, there is little communication among the other donors. Some people in AID suggest that the agency is at a disadvantage in relationship to IDB. This disadvantage is the result of AID providing smaller loans and grants than IDB and of AID's present orientation toward the less politically attractive projects which do not involve capital construction.

AID is also at a disadvantage relative to PAHO. While PAHO consultants work in the Ministry with designated counterparts, AID personnel have no such intimate relationship. PAHO consultants are able to see their role as motivators and cooperators, while AID mission personnel are more likely to see their role as negotiators and, implicitly, adversaries.

Finally, AID is viewed with suspicion in Guatemala as in most of Latin America, largely perhaps for reasons related to the history of U.S. foreign policy in the region. Also, AID's tremendous emphasis on family planning has generated deep resentment and suspicion that may be difficult to overcome in other program areas. This suspicion must be considered in any attempt to define an AID policy thrust in the region.

Conclusions

The central objective of the FHC project is to examine health planning experiences in order to identify a role for AID in this activity for the next 5-10 years. Of concern is the potential for AID to support multisectoral, comprehensive health planning as a major policy thrust in this area. From the narrow perspective of this report's findings, it is apparent that at the operational level the obstacles to multisectoral planning are considerable, one might say overwhelming. There are however, potential avenues for AID involvement in planning efforts, and these efforts do not preclude a variety of possibilities for initiating some multisectorial concepts and activities. In this section I will argue that more attention be paid to the perspective of the national policy-makers and existing planners; and that AID consider not placing too great an effort on multisectoral planning as a goal for its activities in the next 5-10 year period. Other, if less dramatic, policy alternatives for AID are:

(1) cooperation with PAHO in planning efforts;

(2) development of a variety of planning methodologies that can be adapted to different institutional, political, and health

situations; and

(3) more research into the process of health policy-making and planning to evaluate the impact of planning on the distribution and efficient use of health resources.

I. National Policymakers' Perspectives: Institutional Programming

If Central American experiences can be taken as a guide, most policymakers and planners in the health sector have become highly critical of what they perceive as "idealistic" planning: the establishment of goals and targets on the basis of a logical or epidemiological rationality that has no basis of support in the existing institutions. Planning is seen as a costly intellectual exercise that has no apparent effect on implementation in the short run (5-10 years). These policymakers have become increasingly concerned with developing planning processes that can be implemented. They are moving in the direction of merging planning with programming and with the use of techniques that assure greater participation of several levels within the health service institution in the formulation of program goals and strategies. At this stage, these national policymakers consider the task of planning and programming for a single institution (the Ministry of Health) as sufficiently complex and difficult as to preclude a genuine effort to engage in multisectoral or even sectoral planning. From this perspective the issue is not one of "planning for health" but rather one of "planning for health services," and it is not multisectoral or sectoral planning, but rather **institutional** planning and programming.

RECOMMENDATIONS

These policy-makers are not likely to disappear in the next 5-10 years. If an effort in multisectoral planning is to attract their attention, it may have to be associated with their present concern. Two possibilities are:

(1) viewing multisectoral planning as a **second** or **third stage** to be applied after a Ministry has established credibility in its planning expertise by demonstrating efficient use of its own resources; and

(2) developing specific methodologies for **programming** certain activities that imply coordination (especially at the local level) with other sectoral agencies.

II. Institutional Contexts and Competition

The institutional and political contexts in which policy-makers and planners act are likely to impose severe constraints on multisectoral planning. In this context it is important to view planning more as a political process than as a rational process. It may be rational to expect that those who are concerned with the provision of health services should want to use their resources in the most efficient manner so as to improve health. This, however is not the likely objective of a ministry of health, which as an organization has to be concerned with the maintenance of its control of resources, the employment of its personnel, and responsiveness to political demands from both the elites and the masses, etc. The ministries of health feel a definite need to "put their

house in order." They are jealous of their own prerogatives. They are neither likely to welcome review of their programs by other sectors, nor are they likely to be interested or welcomed in other sectors. They are, furthermore, organizations with a variety of purposes, only one of which is to try to improve health. The variety of other purposes needs to be recognized, and utilized, not ignored.

RECOMMENDATIONS

There are two potential directions for a policy thrust that accounts for some institutional constraints on multisectoral planning. One is to take advantage of initial gains in nutrition planning. Nutrition planning is by definition multisectoral. It has already achieved considerable status in the international arena and has some budding institutional arrangements developing in many countries. Rather than add to the confusion about multisectorality, it might be more worthwhile to concentrate on both conceptual and institutional aspects of the interaction between health and nutrition. Since nutrition planning involves planning for health, education, and agriculture, it could provide a more natural conduit for cooperation between health ministries and the ministries of other sectors.

A second thrust would be to encourage and assist health planners at the level of the National Planning Council to develop methodologies and procedures for reviewing the plans and programs of other sectors before they are "hardened" into the general plan. Such a review might identify health implications of plans in the other sectors, and allow for more cooperation between the line agencies.

III. Incremental Multisectorality: An Achievable Goal for AID

Rather than utilizing multisectoral planning as a major goal for AID's next 5-10 years, it ought to be considered a long-term objective. It is unlikely that multisectoral planning will demonstrate any specific positive effects in a period of five or ten years. There are simply too many constraints on the possibility of implementing and evaluating multisectoral planning. As such, it is a poor goal for a major thrust in AID policy. Like the earlier efforts of health planning that resulted in the production of "ideal" but unimplemented plans, it is likely to be viewed as a frustrating failure in a short time perspective. Incremental steps along the way toward multisectoral planning suggested above, however, can be identified and established as goals.

In contrast to AID, PAHO has had a considerable history of involvement in health planning. Long before WHO, PAHO had developed a health planning methodology, the PAHO-CENDES method, which it has applied, evaluated, and revised over the years. It has now abandoned the idea of having a single methodology for planning, opting rather for a series of different planning procedures. It has sponsored planning courses in the schools of public health in Latin America and over a period of 5 years trained 1000 health planners in a short-lived regional planning center in Santiago, Chile.

RECOMMENDATION

This history of experience might suggest some areas of cooperation between AID and PAHO. It might be possible, for instance, for AID to

fund a PAHO-affiliated health planning research and evaluation center in Latin America, an arrangement which has had some success in the INCAP experience. Such a center might provide an institutional basis for cooperation with U.S. Universities' schools of public health; however, it should also establish contact with Latin American institutions. AID might also provide fellowship support for students at the new Center or for PAHO sponsored planning courses elsewhere in Latin America. This support from AID would be timely since PAHO is currently considering reducing its activities in health planning training. Cooperation with PAHO, rather than an independent AID effort in multisector planning, would take advantage of the existing wealth of expertise in PAHO and might overcome some of the Latin American suspicion that could be generated by an independent and implicitly competitive AID venture.

IV. Variety of Planning Methodologies

PAHO experience with its PAHO-CENDES methodology for health planning has resulted in a general reluctance to adopt one single methodology for all situations. PAHO-CENDES has been severely criticized both within and outside PAHO, and much of the methodology that overemphasized epidemological determination of planning goals has been abandoned. Now PAHO consultants and planning courses are much more oriented toward an understanding of institutional constraints of different health systems. A variety of planning methodologies are now used, including: a new methodology for programming PAHO activities of cooperation; regional health planning; sectoral analyses; etc.

RECOMMENDATION

AID might consider utilizing PAHO experience in this area in order to concentrate efforts on developing several planning methodologies that could be applied in different institutional and political contexts. This variety of planning methodologies could each include some component of multisectoral planning specifically designed for the particular method.

V. Evaluate Planning Processes

It is clear that there has not been sufficient attempts to evaluate the planning process itself. We may have developed some suggestive ideas about what constitutes a "good" plan on paper; however, we have developed few means of evaluating what constitutes a "good" planning process. We do not even have a clear idea of whether the planning process makes a difference in influencing health policy-making. Many innovative programs in Central America were initiated not by planners, but by individual policy advocates who used a variety of political strategies to persuade the Ministry of Health to adopt their ideas.

It might also be useful to evaluate different planning processes in a variety of national contexts to determine which ones appear to have the most impact on implementation.

RECOMMENDATION

AID should sponsor research projects that evaluate the process of planning itself as a major variable in the success or failure of health

care interventions. A research agenda might include:

(1) analysis of regime characteristics that are most conducive to particular planning methodologies;

(2) location of planning units to achieve maximal administration;

(3) determination of degree of participation of different implementing units in the planning process;

(4) role of international agencies; and

(5) discussion of professional background of planners and policy-makers.

Such a research agenda could be included as one of the functions of a regional health planning center.

2. ASSISTANCE EFFORTS OF THE WORLD HEALTH ORGANIZATION

This section of the study focused principally upon the WHO's efforts in "country health programming". In order to gather pertinent data and to probe the perspectives of practitioners of this "method" or "process", the FHC project team visited WHO headquarters office in Geneva and its regional offices in Alexandria (Eastern Mediterranean Regional Office -- EMRO), Brazzaville (Africa Regional Office -- AFRO), New Delhi (South East Asia Regional Office -- SEARO), and Manila (Western Pacific Regional Office -- WPRO). In each office, team members conducted indepth interviews concerning CHP and its relationship to health planning in LDCs.. On the visit to Nepal gathered data was collected on a CHP implementation. Team members making the visits, and the persons with whom they talked are listed below.

Office Visited	Team Member(s)	Dates of Visit
WHO/Geneva	Stanley C. Scheyer Ronald B. Epstein	March 8-14, 1979
WHO/SEARO	Alan W. Fairbank	April 2-3, 1979
WHO/WPRO	Alan W. Fairbank	April 16-18, 1979
WHO/EMRO	Ronald B. Epstein Lawrence E. Williams	May 23-26, 1979
WHO/AFRO	Ronald B. Epstein Lawrence E. Williams	May 28-31, 1979
PAHO		June 6-7, 1979

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3. ASSISTANCE EFFORTS OF THE U.S. AGENCY FOR INTERNATIONAL DEVELOPMENT

Introduction

The following report on AID efforts and programs in support of health planning in less developed countries was based on research and on interviews with a number of those AID professionals who are either knowledgeable about or involved in the efforts. The qualitative assessment framework as outlined in Volume I was not applied in this area of research and analysis because the focus is not on planning processes per se, but rather on the efforts of a bilateral donor agency to assist such processes. The report presents a description and analysis of the rationale and substance of the various efforts taken during the past decade through which AID has sought to improve LDC capacities for health planning. A summary of the conclusions of this report appears in Volume I, "Main Report," in Section IV.B.3.

The principal author of this report was Natalie Pishock of the project team. Her analysis and conclusions are based on extensive research of AID project files and on interviews with the following persons:

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Irving Taylor, Chief, Health Planning Division, Office of Health, Bureau for Development Support, AID

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AID Support of Health Planning

Throughout the life of AID and its predecessor agencies in the 1950's, personnel have been involved in supporting LDC governments in national health planning. However, it was not until 1968 that the Office of Health made a systematic attempt at intersectoral analysis and planning. This effort was based on the growing recognition that the improvement of the condition of health in a country is the outcome of development in all sectors. Over the past ten years AID health planning activities have encompassed analysis of country health sectors, programs for training planners from LDCs, and cooperation with WHO in the pursuit of common objectives.

1. Country Health Sector Studies

In 1968, the Central Technical Assistance Bureau of AID undertook an analysis of key problems in each development sector. Health planning was one of three areas identified by the Office of Health as blocking modernization, because of the "lack of LDC capability to plan health programs and analyze the effect of improvement within the framework of economic development." It was felt that health resource allocation was often inefficient, due to an inadequate understanding of the relation between health and overall socio-economic development.

Based on these findings, the Office of Health began to stress the importance of health sector analysis and planning. An initial effort was to authorize the Office of International Health (OIH), DHEW, to perform country studies on the relationship between health and development. An outgrowth of this activity led to the series of Syncrisis studies, which describe and analyze country health conditions and their interrelationships with and impact on socio-economic development. Syncrisis documents are presently used by the Office of Health as a first step in a specific health planning process. Their chief purpose is to provide a concise, organized, and up-to-date introduction to the health situation in a country for use by AID in project design. The studies do not include recommendations for action, but offer a necessary background for further analysis and program development. They include an inventory of the sources of information available for health planning in that country.

Syncrises are not definitive analyses, but rather points of

departure from which professional planning skills can be applied to benefit given countries. By the end of 1978, 32 Syncrisis studies had been completed, nine in Africa, six in Asia, ten in Latin America, and seven in the Near East.

From 1968 to 1970, other efforts were made with DHEW to develop a core staff with expertise in health planning, and beginning in the early 1970's AID called on these units for on-site assistance in this area in LDCs. A capability was thus developed within OIH to perform Health Sector Assessments (HSAs), following a general Agency mandate for active involvement in health planning. HSAs were initiated in the Latin America Bureau, which was the only Bureau to stringently uphold the mandate. Nine HSAs were performed in that region, while three were performed in the Near East Bureau; no HSAs were completed in the Asia or Africa Bureaus. The original HSAs offered comprehensive assessments of the existing health situation in each host country (covering health conditions; physical, financial, and human resources; and contributing socio-economic, cultural, environmental and institutional factors), and a proposed strategy for AID/Mission interventions. They were to be the starting points for institutionalizing health planning in LDCs, and helping to identify and establish host country priorities for the health sector. According to guidelines issued by the Technical Assistance Bureau, HSAs were to: provide AID and other donors with a program planning document to guide grants and loans to the health sector; improve the quality of health planning in the host country; produce a document which could be used as the basis for a comprehensive national health plan and strategy by the host country; stimulate and institutionalize changes in the health care system sector-wide; upgrade skills of those

responsible for planning and administration in the health sector; and stimulate/improve coordination among the health sector generally and among AID, the host country government, other donors, and the host country private sector.

HSAs of the early model are not currently performed in any of the regional bureaus. The formal studies have been replaced by preliminary health assessments which serve as a part of specific project planning efforts. This move away from HSAs generally served the need for a shorter-term, less costly process; in these shorter assessment efforts, there is no attempt to institutionalize planning and usually no use of host country personnel to complete these assessments (as were the goals of HSAs).

Each regional bureau carries out its preliminary health assessments according to its own needs and resources. For example, the Latin America Bureau discontinued HSAs due to a lack of LDC local-level participation in the process. Current assessments incorporate a stronger focus at the local level before a macro view is taken. Those in the Near East Bureau feel that host government initiatives and commitment to planning activities are essential components of the health planning process. Up to now, Jordan is the only country to have specifically requested an HSA while other Near East countries appear to know their problem areas and want action programs. A decision was made to engage in smaller scale health planning and data collection, targeted on specific problems, rather than promote comprehensive assessments.

A report by Westinghouse Health Systems, submitted to the Office of Health in June 1978, evaluated HSAs conducted in three Latin American

countries--Bolivia, Dominican Republic, and Nicaragua. Shortcomings in nearly all aspects of the HSA process were documented. Among the points of concern were: conflicting interpretations of HSAs in Washington and in the Missions; conflicting HSA objectives; lack of host country commitment; assignment of participants to positions outside the health sector after HSAs; failure to push the involvement of significant health institutions and appropriate government staff in the HSA; failure to implement the recommendations of the HSA; and insufficient planning as to real data needs and feasibility of obtaining data. The report recommended that these issues be addressed before country HSAs were pursued further.

2. Programs for Training LDC Health Planners

Two parallel efforts in the late 1960's and early 1970's involved the support of AID for the teaching of health planning at the University of Michigan and at the Johns Hopkins University. The goal of both programs was to help institutionalize health planning in LDCs by training individuals who would return to their home countries and ultimately establish a self-sufficient mode of planning.

a. University of Michigan

In 1974, a contract was signed with the University of Michigan to begin a program to train students in health planning, to start the following year. Prior to this time, Michigan had offered a pilot course in international health planning focused at the macro level. The new goal was to offer this program to economists and other social scientists, and to health officials with a good understanding of health problems and

programs, but who did not have planning skills or a conceptual understanding of economic development planning and programming. The proposed curriculum includes courses in planning, economics, demography, public health, and operations research. The initial capacity was 20 students per year.

Training was designed to support AID programs seeking to integrate health planning and national planning. It was aimed specifically in Colombia and Guatemala, but was open to all other countries with national health planning activities or health sector analyses sponsored by AID. The first products of the program were to be the development of a curriculum and an institutional capability to train individuals in health planning and national development planning. The project also made available approximately ten man-months of professional consultation to LDCs annually during the life of the project, to follow-up trainees in their home countries, and to assist them with current planning problems.

The program was expanded in September 1977 to lead to a master's degree in public health, and program emphasis was shifted towards individualized curricula. Those trained usually return to their home country and are promoted to higher positions than they held previously. There is a follow-up on every student and records are kept on their activities. University of Michigan faculty travel overseas and meet with students' supervisors and government officials; these visits have, in some cases, encouraged senior officials to place graduates into more responsible positions if they had not been working to full advantage.

AID countries account for nearly 70 percent of the 61 students who have completed the course during its four years of operation. The enrollment record is shown in Table 1:

Table 1

Enrollment in University of Michigan Health Planning Program

Non-AID Funded

Year	AID-Funded	AID-Countries	Non-AID Countries	Total
1975	4	2	--	6
1976	5	4	6 (5 U.S.)	15
1977	9	5	4	18
1978	6	9	7	22
TOTALS	24	20	17 (8 U.S.)	61

b. Johns Hopkins University

In April 1961, the International Cooperation Administration gave a three-year grant to Johns Hopkins University to establish a Division of International Health, the first organized faculty unit in international health in a U.S. institution. The grant was extended twice, because of a feeling in AID that JHU was a key resource in the international health field and successfully contributed to AID's objectives. In 1965, a Coordinating Committee was created to implement international activities throughout the university. Broader research activities were to be pursued in order to "learn more about, and apply the developing methodology of health planning both in comprehensive health planning and population and family planning." In May 1968, a five-year extension grant was signed, based on JHU's commitment to problems in LDCs and on its

capacity for research and teaching in the U.S. and overseas. International health and population were emphasized in many departments throughout the university.

The objectives of this grant were to strengthen JHU's educational competence and to further develop its research capability in international health, population dynamics, and family planning in LDCs. The program was oriented to prepare leaders with special competence in health and population and to institutionalize research and service activities in overseas areas. The focus was on long-term studies of critical issues and fundamental problems, and away from short-term, rapid pay-off projects, although considerable diversity was maintained. The programs offered in health planning included short-courses to train health planners in international agencies or institutions, as well as a full-time program for M.S. and Ph.D. candidates. The AID grant was extended in 1973 and again in 1977 up to the present.

Responsibility for the program's curriculum has been traditionally left up to Johns Hopkins, and has not been specified by AID. Candidates who apply to the short-term program are admitted on the basis of past training and experience and whether they are expected to be in a health planning position after completing the program. Those in the longer program are accepted to the school based on their interest in public health and not just their appropriateness for the planning program. Since the early 1960's, approximately 500 to 600 long- and short-term students have been trained in the program (250 to 300 short-term and 300 to 350 long-term). In the last few years about 20 short-term and 25 to 30 long-term students have been trained per year.

An evaluation of former students performed five years ago jointly with WHO found that 80 to 90 percent of former students were in planning positions or administrative positions where planning results were used. Over 90 percent had recommended others to the program. There is, however, no systematic follow-up of former students, only a pattern of informal communication with program graduates if faculty members should be, for example, consulting in the country of a former student. Graduates also often remain in contact through requests for current literature or other information.

Short-term students are usually not involved in any field work in the U.S., except for occasional visits to the Center for Disease Control in Atlanta, the Indian Health Service, or the Frontier Nursing Service in Kentucky. The program offers no support for travel, but WHO or AID fellowships allow about one-half of the students to travel for one or two months while in the program. Those who participate must be recommended for these fellowships by JHU faculty members. Field work in the U.S. is not encouraged, on the principle that overseas field experience is more relevant and that short-term programs impose strict time constraints.

The current JHU program may be characterized in terms of two major changes that have taken place over the year. First, there has been an expansion of focus beyond health services, into the areas of nutrition planning and family planning. The program has also been extended from planning to include policy analysis, management, and community participation. As such, it offers an opportunity for multidisciplinary training suited to the needs of the individual student.

3. Cooperation with WHO

A final effort in health planning involves U.S. government support for WHO activities in this area, particularly country health programming (CHP). CHPs are similar to HSAs in that an analysis of the health sector is performed in LDCs with host government concurrence. Although the processes differ in many respects, they share the same broad objectives and purpose. AID and WHO concurred at the World Health Assembly in Geneva in 1974 on the need to exchange common experiences. It was determined at this time that the expected product and methodology of CHPs and HSAs were generally similar, and a statement was made of the need for a continued exchange of information. The possibilities were also discussed of working together in one country using a common methodology for the training of nationals and evaluation of experiences, and of holding joint seminars and working groups.

Up until now, the project team has not found that such formal collaboration of AID and WHO has occurred in any country. Nor does any joint agreement, financial or otherwise, exist to carry out a joint HSA/CHP process. However, AID and WHO have agreed in principle on issues of health planning, including the slight expenditure of financial resources in this field, the need for stronger country leadership, and the importance of considering both public and private distribution of health resources. Informal collaboration and participation by AID health personnel on CHP exercises have taken place in at least Nepal and Bangladesh.

Since 1974, two international workshops have been held jointly with

WHO, one in Copenhagen and the other in New Orleans. Both have concerned the development of health planning case studies from among the participating countries. An AID/WHO Coordination Meeting that took place in Geneva in 1976 stressed concern over duplication of activities by the two agencies. It was decided to share the guidance for HSAs and CHPs as well as the products of the studies, and to encourage field personnel to participate in and support sector analyses carried out by either organization. In 1977, WHO and AID agreed on a common approach to health planning that would involve developing a strategy for research, exploring possible further activities in community and regional level planning, and strengthening LDC institutional capability to train health planners.

4. Outcomes of AID Health Planning Activities

AID has attempted over the years to utilize a multisectoral approach to health planning, taking into account external factors that impact on health. However, "multisectoral" has received different interpretations over time and among the regional bureaus and within the Office of Health, and this has resulted in often conflicting activities to carry out health planning. In fact, the topic of "multisectoral health planning" has not achieved a strong constituency at all within AID, with the exception of a few individuals who have stressed its importance. Health has never been a substantial part of AID's overall program, largely because of a desire for projects showing more immediate results. As a result, the health planning component of the program has had an understandably low priority.

The regional bureaus characteristically have been disinterested in

performing research into the relation of economic development and health, although efforts have been made by the bureaus to identify missions desiring to incorporate health planning into their programs. Overall regional interest has not followed a systematic pattern and has been inconsistent across regions. Health planning projects and projects with health planning components have expanded in number and scope since the early 1970s, but efforts across regions are less than uniform. Types of components include multisectoral coordination, information systems, health delivery, environmental health, education, rural development, nutrition, and population. (See Table 2 for budget allocations to health planning activities, 1976-1980.)

AID's strategy in health planning has remained fragmented, though persistent, throughout the last decade. Since the identification of health planning as one of a number of key problems in 1968, the Office of Health has attempted to establish a cohesive policy to be endorsed by AID. Strategy papers were prepared, but most of these were not approved due to a lack of regional bureau support. However, they did reflect a step beyond the ad hoc approach to planning which prevailed in the 1960s. Efforts to accomplish a cross-fertilization across regions and to acquire a common knowledge base among four essentially separate policies have continued since the early 1970s. As discussed above, central efforts in health planning have included the Syncrisis series, HSAs, CHP collaboration, training programs for health planners at Michigan and Johns Hopkins, revamping OIH from a document-writing approach to the development of service expertise, developing a group of consultants in health planning, and several attempts at research projects.

As presented in a 1977 draft strategy paper, the current major goals of the Office of Health in the area of health planning are: (1) the continuation of a three-tiered approach, utilizing a Syncrisis (or Syncrisis- like) background document, then moving to a more detailed health sector assessment, and finally to specific projects; (2) research on the interrelationship of health and economic development; and (3) collaboration with other organizations to develop viable institutions for health planning and research.

In no country at present does an institutional capability exist for health planning that is the direct result of AID efforts. However, approximately one-third of those trained in AID-sponsored planning programs in the U.S. are foreigners who return to their countries upon program completion. The Office of Health would like to see this cadre of health planners expanded in order to effectively institutionalize planning activities in LDCs. It is also necessary to address the failure of efforts to promote multisectoral planning, which has been due to the lack of a strong constituency, and the lack of a guiding AID policy for the entire field.

Table 2A

Summary Funding Data for AID - Funded Health Planning Projects

($1,000's)

	1976	1977	1978	1979	1980
AFRICA	920	2,095 200*** 2,295	1,480	905	451
ASIA	58	-	850	1,000	500
LATIN AMERICA	845	523	1,925	1,109	601
NEAR EAST	400**	1,085**	780**	405	500**
DSB	2,101	1,407	1,535	1,575	1,700
TOTAL	4,324	5,310	6,570	4,994	3,752

** Supporting Assistance
*** Sahel

FY 79 and 80 data based on identified activity from FY 80 Presentation to Congress.

Table 2B

Health Planning
AFRICA

	Project Titles	1976	T.Q.	1977	1978	1979	1980
	Botswana						
633-0078	Health Services Development (Planning Component)				(302**)	(3,000**)	(1,785**)
	Cameroon						
631-0016	Medcam (Planning Component)					(1,500)	(2,311)
	Chad						
690-0004	Rural Health Planning & Mgmt.			768	411	465	
677-0501	Lake Chad Irrigated Agriculture		SAHEL FUNDS				231
	Ghana						
641-0068	Rural Health Management	180	75	427	866		
	Kenya						
615-0187	Rural Health Admin.					(600)	
	Lesotho						
632-0058	Rural Health Development (Planning Component)				(147**)	(200**)	(512**)
	Liberia						
669-0126	Health Planning & Management	565	100	500	200	694	220
	Somalia						
649-0102	Rural Health Services (Planning Component)					(2,000)	(2,900)
	Sahel Development Program						
	Yale Pilot Health Study			200**			
	Social Dev. Papers (Health Component)				3		
	Togo						
693-0912	Togo Health Study			400		905	451

** Support Assistance Funding

Table 2C

Health Planning
ASIA

	Project Titles	1976	T.Q.	1977	1978	1979	1980
	Indonesia						
497-0273	Health Research & Training				600	1,000	500
	Korea						
590-0708	Health Planning	58					
	Nepal						
367-0251	Health Indices & Intervention Survey				250		
	Pakistan						
391-0415	Basic Health Services Loan (Planning Component)			(6,000(L))		(4,500(L))	

Table 2D

Health Planning
LATIN AMERICA

	Project Title	1976	T.Q.	1977	1978	1979	1980
	Regional						
598-0554	Sectoral Analysis Support	160	46	133			
	Bolivia						
511-0483	Rural Health Systems (Planning Component)						
	Caribbean Regional						
538-0019	Basic Health Mgmt. Training				1,000	-	400
	Colombia						
999-000.2	Health Sector Analysis	232					
	Dominican Republic						
517-0107	Health Sector Dev.	255	52	173	125		
	El Salvador						
990-0000	Tech. Support (Health Sector Assessment) (H & P)	30	20	90	33	75	76
	Guatemala						
	Tech. Support (Health Sector Assessment)	21	10	100	85	87	
	Guyana						
504-0066	Rural Health Systems					(4,350(L))	
	Honduras						
522-0148	Health Sector Planning				475	245	
999-0000	Technical Support			27	207	237	125
	Nicaragua						
590-0102	Health Sector Analysis	65					
	Peru						
527-0183	Health Sector Planning					465	

TABLE 2E

Health Planning
NEAR EAST

	Project Title	1976	T.Q.	1977	1978	1979	1980
	Regional						
298-0035	Program Design & Support				48	405	300
	Egypt						
263-0025	Study of the Health Sector				240**		
263-0061	Dev. Planning Studies (All Ministries)				(1,800)**	(1,600)**	(1,250)**
263-0103	Basic Village Services						6.3 million
	Jordan						
278-0208	Health Planning & Services			750**			
278-0026	Health Info. System Dev.						500**
	Syria						
276-0006	Health Dev. Systems (Planning)	400**		335**	340**		
					200**		

** Security Supporting Assistance

HEALTH PLANNING

DSB/HEA

($ millions)

	Project Title	1976	T.Q.	1977	1978	1979	1980
0035	Training LDC H. Planners			125	125	175	
0065	Ntl. Library of Medicine			70			
0065	O.I.H. Support			845	1,410	1,000	500
0101	H. Plan. & Low Cost Del. System			143			
0207	Guidelines H. Sect. Analysis			35			
1015	H. Sector Plan. Svcs.			437		240	
1103	Demo. H. Policy Anal. Tech.			82			
1298	Health Planning Evaluation					160	
5901	Health Development Planning						1,200

4. Training Programs in Planning for Health and Development

In order to survey U.S. and European training institutions having research interests and/or training programs in health problems of developing countries or in planning for health and development, the project team made visits to eleven U.S. institutions and four European institutions. The visits were made by the following team members on the following dates:

Institutions Visited	Team Member(s)	Dates of Visits
University of California Los Angeles	Stanley C. Scheyer David W. Dunlop	May 16
University of California Berkeley	"	May 17
University of Washington School of Public Health	"	May 21
Johns Hopkins University School of Hygiene & Public Health	David W. Dunlop Jeremiah Norris	May 11
Harvard University School of Public Health	David W. Dunlop	May 10
Tulane University School of Public Health	"	May 15
University of Wisconsin Medical School	"	May 24
University of Illinois School of Public Health	"	May 25
Michigan State University Department of Community Medicine & Geography	"	May 28
University of Michigan School of Public Health	"	May 29

University of North Carolina School of Public Health	"	June 1
Ross Tropical Institute London School of Hygiene & Tropical Medicine	Alan W. Fairbank	May 17
Institute for Development Studies University of Sussex United Kingdom	"	May 17-18
Royal Tropical Institute Amsterdam, Netherlands	"	May 21-22
Institute "Medical Care in the Developing World" Catholic University of Nijmegen Nijmegen, Netherlands	"	May 23

The project team wishes to acknowledge the generous assistance they were provided by those persons interviewed for the study. These persons were as follows:

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This report outlines: a) findings about international health planning training in U.S. institutions as it is related to the way in which AID perceives present training needs; b) the capacity of U.S. institutions in providing technical assistance in the training of planners for health; c) the capacity and orientation of European institutions; d) issues related to AID university programs in international health planning; and e) the contours of an approach to the problem raised by the issues defined in (d). The suggestions posed in section (e) propose alternative ways which AID and U.S. Universities can work to improve present training efforts.

a. Findings About Health Planning Training

There is an increasing awareness in AID that the optimal locus of health planning training activities is in Third World Countries, preferably in the country where acquired knowledge is to be practiced. This approach is warranted when there are economies of scale in training programs that can be captured by country-specific programs. The logic of this training locus rests on two fundamental premises:

(a) that the level of technology and resource endowment in Third World countries is so different than in the U.S. that nonreality-based training defined by the technical and economic constraints on the system is ineffective, and

(b) the political, social, and cultural constraints on planning for health and implementing a given strategy are equally understood by all students.

Where economies of scale in training do not warrant country-specific programs, the potential of regional training centers offers an important option to be evaluated. While regional training has several benefits, including potential geographical and philosophical similarities and possibly language similarities, there are some potential difficulties. It is an approach has been undertaken in the past by regional offices of WHO. Cadres of health planners have been trained in regional centers as in Latin America and the Pacific, but the training provided has generally been considered incomplete, with most of the training focusing on narrowly defined technical skills. Basically, the training tended to (a) be quantitative in orientation, (b) focus on the supply side of the market for health care services, (c) focus solely on benefits provided through the health care providing delivery system, and (d) provide few implementation skills to health planners.

Another important aspect of the present state of health planning is that it has not often been well integrated into general development planning activities, despite individual country efforts to do so. In most countries health planning has been an isolated effort and not well articulated with respect to overall goals and strategies for social and economic change.

Finally, many prior health planning training programs have not focused on the realities of project design, project management, information systems, and project evaluation. Further, the notion that health impacts of other sector activity must be carefully documented and incorporated into the planning process of the health sector has not been fully implemented.

While these problems have indicated to many observers within AID that most training for health planning should be undertaken in the Third World, there is a rationale for a certain set of international health planning activities to be undertaken in the U.S. The rationale for U.S.-based training of health planners includes the following, but not exclusive, reasons:

Trainers of health planning practitioners require more formal training and experience background than practitioners. If such health planning training is to become institutionalized in developing countries, such activities require more highly skilled and experienced persons. It is often argued that this training can be most easily implemented in the U.S. where cross-fertilization can occur due to the diversified student body of the U.S. institutions. It is often not acknowledged that this alleged benefit could be realized in other parts of the world. A second potential reason is that economies of scale can be realized in training trainers. Finally, there may be some economies of scale in the development and transmission of new knowledge about health planning and attendant problems. Given the university heritage of the U.S., perhaps such economies can be realized in the short run by involving U.S.-based institutions.

b. American Universities' Programs in International Health and Health Planning

Eleven American universities were visited. The schools visited included Harvard University, Johns Hopkins University, The University of North Carolina, Tulane University, University of California at Los Angeles, University of California at Berkeley, University of Washington

at Seattle, University of Wisconsin, University of Illinois at Chicago, University of Michigan, and Michigan State University. There were four universities that were not visited, but which have large international health programs with health planning implications. These schools included University of Hawaii, which has a large medex training program; University of Texas School of Public Health in Houston which is involved in several international health programs; Loma Linda University which has had, among other things, a large contract to establish maternal and child health training schools; and Boston University, whose West Africa Health Project is widely known. Unfortunately the University of Pittsburgh's program was not visited.

While 11 schools were visited and information was obtained on 16 universities, there are only two formal programs in international health planning presently in operation. These include the two funded by AID (i.e., Johns Hopkins University and the University of Michigan). The programs are distinguished by their health planning focus. For example, many people consider that the Johns Hopkins University program emphasizes micro planning (i.e., at the project or village level) with the University of Michigan's program being more macro in its focus and dealing with questions relating health to economic development.

It should be mentioned that there are at least two other universities which, while not receiving funding directly from AID to run programs in health planning in developing countries, have significant course offerings in this area. These include Harvard University, which operates its program through the School of Public Health in conjunction with other parts of the university, particularly HIID. While not having

a particular set of courses specifically related to international health planning, Tulane University has sufficient depth and breadth in its curriculum, particulary through the Department of Health Services Administration and Planning and the Department of Nutrition. The Department of International Health at the University of Illinois also has a curriculum which embodies some health planning; however, the program is presently in some jeopardy (see below).

Structure of Programs in "International Health Planning"

Three of the 16 universities on which information has been obtained have specific departments in international health. These include: Johns Hopkins University, The University of Illinois at Chicago, and the University of California at Los Angeles (UCLA).

Most of the other programs in international health are not formalized with a departmental structure. They cross departmental lines either within a school of public health or throughout an entire university. These cross-disciplinary programs act in much the same way as area studies centers of the 1960s operated, in the sense that where the program has its own resources, it pays a portion of someone's salary to obtain the expertise embodied in that individual's disciplinary focus. There are eight universities with cross-disciplinary programs in international health. These are coordinated through offices of international health or some other cross-disciplinary coordinating board. This level of university commitment is significantly less than a formal departmental organization; however, it has been instrumental in initiating programs operated by Harvard, the University of North

Carolina, Tulane University, Wisconsin, Michigan State University, and several others.

Several universities have operated with even less commitment than that of a specific program. These include the University of California at Berkeley and the University of Washington at Seattle. Both are willing to allow their university faculty to engage in international health programs and projects, but in an individual consulting fashion or through consortia. The consortium arrangement, however, tends to be a "last resort" mechanism, since the university is clearly indicating by such an approach that the issue of international health in general, or health planning in particular, is not of sufficient intellectual concern to be of long-term academic interest to scholars.

There are eight universities with persons or institutional strengths in international health planning and related disciplines: Harvard, including the Harvard Institute for International Development (HIID), University of Tulane, University of Wisconsin, University of North Carolina, and possibly Michigan State University and Pittsburgh, besides the University of Michigan and Johns Hopkins. The other universities, while having certain expertise and skills in international health, more generally do not have sufficient strength to launch a training program at this time in health planning and related activities. The criteria used to make this judgment is based on an assessment of a nucleus of individuals with substantial interest, experience, and multidisciplinary concerns embodied in their faculty which has been drawn together in either several research endeavors or through some formalized programs or department in order to engage in training and research related to health

planning. Important disciplinary backgrounds of faculty include economics, sociology, health services research methods, political science, as well as community medicine, nutrition, pediatrics, and internal medicine.

Analysis of Present AID-Funded Programs at Johns Hopkins and Michigan

The Johns Hopkins program is based in an active department in the School of Public Health. There are three tenured faculty in the department, plus a number of other nontenured faculty as well. Further, throughout the entire school, strong interests in international health exist, such as in epidemiology, biostatistics, and other departments. The program in international health has pervaded the entire School of Public Health at Johns Hopkins, and a number of students obtaining degrees in other departments have a strong interest in international health. Perhaps, more than at any other university, the commitment to and interest of students and faculty in international health problems and activities are pervasive.

Johns Hopkins University's program in health planning was established in the early 1960s under the direction of Dr. Carl Taylor. Over 500 persons have been involved in their training programs over the last 16 years. As health planning throughout the world has become an increasingly sophisticated art, both the structure, curriculum, and relative emphasis of various activities in their program has been changed. At the present time, there are two distinct programmatic efforts. One is a short two-month course for senior officials from the Ministry of Health in developing countries which emphasizes case method

project design and evaluation methodology.

The second program is a 9-12 month master's degree program where both foreign and U.S. students focus on project development, implementation, and evaluation in conjunction with basic skill development in economics, epidemiology, and operations research methods. Country- and project-specific planning exercises in which a multiplicity of skills and disciplines are inexorably wedded together reinforce skill development taught in other courses. The information available at Johns Hopkins for students to engage in such activities is quite vast given the experience and background of many of the key faculty. Both technical and implementation skills are highlighted in the course of the curriculum, particularly the project design and appraisal course, where issues of implementation, multisectoral linkages, as well as management issues are incorporated. However, much of the curriculum focuses on the health care delivery system per se. Further, the planning course exercises are "supply side" oriented without much emphasis on the factors affecting demand for particular types of services. It should be mentioned that the case method approach at Johns Hopkins involves students in designing a particular health project and/or a program faced by a country or a region thereof. It is important to make the distinction since other case study courses in health planning have tended to focus on analysis of existing health plans and evaluating the organization and development of a particular country planning exercise which is considerably more macro in its orientation.

At the University of Michigan, the health planning program emphasizes the linkages between general economic development planning and

health, with specific emphasis on programs, strategies, and projects that have health impacts. There is concern for skill development on a part of students in the University of Michigan program. For example, there is a course in micro-economic theory, economic evaluation methodologies such as benefit-cost analysis are taught, and computer programming for use in health services research is emphasized. Further, the Michigan program emphasizes the importance of political variables for defining goals and objectives and implementing health sector programs. Finally, the University of Michigan's program has a research project course in which the student analyzes real data from a developing country to assist in the formulation of an intervention effort envisioned by a particular country.

At the University of Michigan, besides the AID-funded program in international health planning within the School of Public Health, Department of Health Administration and Planning, there is a variety of other resources available throughout the university with expertise and skills related to international health and health planning. These particularly include the Center for Research in Economic Development (CRED) headed by Dr. Robin Barlow, who has done international health planning work on malaria and health care delivery. Further, there is a large university commitment in several departments in the area of population and demographic research. Within the School of Public Health, there are other resources, as in epidemiology. However, some of these resources have not been well integrated. Since the present program in international health planning was established primarily for training Third World persons, the program has not been well integrated into the department of health services planning and administration, and the school

experiences problems of communication between U.S. and international-oriented faculty.

A Summary of Findings on Other University Programs

At Harvard, there were two basic centers around which the university has committed resources to international health. First, and perhaps most importantly, is the School of Public Health, where a large faculty and staff are engaged in all types of teaching and research endeavors. Second, the Harvard Institute for International Development (HIID) has developed a small but growing cadre of multidisciplinary scholars with expertise and interest in health as it relates to development. Through the Office of International Health, housed in the School of Public Health, the university has committed itself to paying approximately two FTEs ("full-time equivalent" instructors) and a secretary to develop a coordinated teaching and research program. The Institute for International Development at Harvard has committed itself to pay the equivalent of two FTEs as well. The level of effort has also been enhanced due to the development of the USAID-funded program in Mali to expand the training and delivery of "rural health care for the poor in peripheral areas."

At the University of North Carolina, Chapel Hill, the School of Public Health is presently developing a multidepartmental program in international health. For many years there has been considerable expertise and interest among faculty in international health projects. The Carolina Population Center is one outstanding example of a multidisciplinary program related to health that has been active at the

University of North Carolina for many years. There are many tenured professors throughout all departments with strong interests in international health activities, including epidemiology, biostatistics, maternal/child health, health planning and administration, water and environmental sanitation, and nutrition. The University of North Carolina faculty is also defining a cross-departmental set of courses that can provide students with a strong international health background and skills in health planning. Finally, the faculty of the department of health administrator and planning has been operating for the last 7 years a three-week intensive country case study seminar for senior health personnel from developing countries in multisectoral planning for health. A significant part of the seminar deals with the tough implementation and administrative issues involved in the final success of any defined strategy.

At Tulane University, international health activities are defined by a faculty coordinating committee comprising about 15 faculty people, including the Dean of the School of Public Health, who has a strong personnal interest in health problems in LDC's. Much of the School's research and expertise focuses on Latin America. They have run several coordinated maternal and child health, primary health care, family planning projects in Latin America. In addition, their Department of Nutrition has a number of individuals particularly interested and with expertise in nutrition and international nutrition planning. Several faculty in the Department of Health Administration also have international experience.

UCLA has a Department of International Health with three tenured

faculty and a number of other faculty and staff persons. The development of this Department is in part related to the Danfa Project run cooperatively by UCLA and Ghana in Ghana. The tenured faculty of the Department of International Health will continue to have their interest and expertise fully employed not only by teaching and research at UCLA, but also in other countries. The managerial and administrative problems of program implementation is emphasized in their training activities and they have been strengthened by linkages with the business school.

At Berkeley, there is no significant commitment by the university faculty to engage in international health or health planning work. While there are a number of faculty throughout the university with interest in and expertise about all aspects of international health problems, there is virtually no way for the university to harness its talent for international health work except by using a consortia mechanism. There are however, a number of interesting and interested faculty throughout the entire university besides the school of public health with interest in, and expertise on, the variety of different disciplines related to health and health problems, e.g., nutrition, agriculture, and economics. Finally, the skills and expertise of Dr. Henrik Blum in the area of the theory and methods of health planning should not be overlooked. He is an outstanding scholar and it is important that he be asked to participate with other persons concerned about international health problems.

At the University of Washington in Seattle, there is a great interest in health planning and health services research. However, the university at the present time has no formal way to harness its international health capabilities, and is not concentrating is resources in developing them.

The University of Wisconsin has been the locus of much activity in international health for some time. There is an Office of International Health in the Medical School and it was the focus around which an effort was made by the Midwestern Universities Consortium for International Activities (MUCIA) to develop a coordinated program in international health. There are several people in the economics department at the University of Wisconsin who are well-known in the international health area, including Ralph Andraeno and Burton Weisbrod. There are a number of individuals in the Department of Community Medicine, through their program in health planning, where interest and expertise reside with respect to international health and health planning activities. A coordinating committee exists to help coordinate the resources of that university. Further, the Departments of Nutrition and Urban Planning have health interests as well. Thus, while the university has only a small commitment specifically to international health through the office of international health, throughout the entire university a large number of resources are available.

At the medical campus of the University of Illinois in Chicago, a Department of International Health in the School of Public Health has existed for approximately ten years. However, that department is in the process of being absorbed into the Department of Health Services Administration as of September 1979. Thus, the specific departmental focus with an emphasis on international health will be lost and some non-tenured faculty will not be retained. However, according to some knowledgeable senior faculty, there is still strong commitment on the

part of the Dean of the School of Public Health to international health efforts, not necessarily coordinated, however, via a departmental structure. The resources at the University of Illinois Medical Center are quite vast and one awaits reorganization of that commitment and that expertise.

At Michigan State University, there has been strong interest in and commitment to economic development for many years. With the exception of Dr. John Hunter, there has not been any significant international health expertise. However, the three medical schools at MSU have decided to jointly fund an office for international health to coordinate the medical school and other university resources. If this office, in conjunction with the Department of Agricultural Economics, Nutrition, Geography, and Community Medicine can develop a coordinated program, Michigan State University can become an important resource in international health.

With respect to the University of Pittsburgh, there are a number of resources in the School of Public Health with expertise and skills in international health, demography, and health planning. Some of their efforts have been quantitative in orientation and perhaps not fully focused on all aspects of a health planning process.

At the University of Hawaii, there are approximately 20 persons with skills and expertise in the design and delivery of medical care services in developing countries using paraprofessional personnel. At the present time, their interest is not in planning the design of an entire health care system or in the analysis of their impact on the health of the population, even though they acknowledge the importance of such activities. Their important contribution is in the planning and

implementation of national primary care delivery systems including the development of appropriate management information and supervisory systems. It is also important to note that there is no general commitment on the part of the University of Hawaii to continue these activities or any subset thereof upon the completion of any external funding of the activities.

c. European Institutions' Programs in International Health and Health Planning

United Kingdom

The Institute for Development Studies (IDS) was established about thirteen years ago as a national center for teaching and research on development problems, particularly those relating to poverty, employment, and income distribution within Third World countries. The IDS is largely funded by the Ministry of Overseas Development of the British Government; it is located on the campus of the University of Sussex, which jointly with IDS offers a M.Phil. degree in "development studies." The IDS itself does not confer academic degrees, but rather sponsors four-to-six week study seminars, study groups, and short courses for professionals working on development problems. A recently created "Health Group" of three research fellows has developed an interdisciplinary research and teaching program that seeks to explore the health policy issues spanning the four problem foci of the Institute: human resources, international relations, planning and government, and rural development.

Within the past year, the Ministry for Overseas Development has

funded a new program of research and teaching on issues of evaluation and planning of health care, especially at the district level, in developing countries. This program, which will reportedly be implemented through two different British institutions, is currently in the formative stages. One center will be located at the Ross Institute of Tropical Hygiene of the London School of Hygiene and Tropical Medicine; the other is to be administered at the Nuffield Institute of Comparative Medicine at the University of Leeds.

The Netherlands

The Royal Tropical Institute in Amsterdam has recently completed the fifteenth "International Course in Health Development" (ICHD). This course, given this year to seventeen students from developing countries, is sponsored jointly with the Prince Leopold Institute of Tropical Medicine and Hygiene in Antwerp, Belgium. It is given alternately at each institution, and in French or English in alternate years. The course, which is open to qualified M.D.s from the developing world, prepares for a master's degree in public health. (Several students from Holland or Belgium or other developed countries are permitted to take the course each year, as long as their professional interests are in working in the developing world.)

The course was organized by the Netherlands Universities Foundation for International Cooperation (NUFFIC) under the responsibility of the Board of Trustees in which several Belgian and Dutch institutes and organizations are represented. The Dutch and Belgian governments provide fellowships to a majority of the students accepted for the course.

The general objective of the course, according to the catalogue, is "to enable medical doctors to deal adequately with problems in the field of management and planning of health systems in the context of a comprehensive development." The degree requirements include the writing of a thesis on some issue of health and development policy and programming in the developing world. Most students focus on a particular subject relevant to their own country, but there is no field work in a developing country setting.

The medical faculty at the Catholic University of Nijmegen sponsors an Institute, "Medical Care in the Developing World," which was established in 1972 and is the first such institute in a Dutch medical faculty. The Institute has a relationship with five hospitals in the Mwanza region of Tanzania, where Nijmegen medical students can take four-month internships to satisfy full credits for "community medicine." The Institute also sponsors a research program focusing on the training of medical auxiliaries, medical anthropology, appropriate technology, and basic issues in medical development. It conducts lectures, seminars, short courses, and credit courses, mostly for students at the university and from other institutions in the area.

The institutional resources available in the above locations of the United Kingdom and the Netherlands offer a source of knowledge, experience, and interests which are significantly compatible with the health and development perspective of planning for health. Collaboration with U.S. institutions in the areas of program-relevant training, research, and evaluation is both possible and potentially fruitful.

d. Issues and Problems Related to Training in Health Planning For Less Developed Countries in U.S. Institutions

By virtue of the changing concerns within USAID, particularly with the increasing concern about implementation problems and recognition that training should be located in Third World countries, there are several issues that must be dealt with in order that a full partnership between U.S. universities and AID can be effectively pursued in the future.

First, it is important to recognize that universities are now less capable of taking financial risks than they have been for a number of years. The twin problems of inflation and cutbacks in appropriations from states, or the impact of shrinking endowments and general foundation support, have meant that universities are increasingly concerned about the financial implication of their activities.

Second, there is a general concern within U.S. institutions that as a consequence of a fairly rapid turnover in the Office of Health, and in AID generally, that an historical sense and perspective on the part of AID to any development problem, particularly in the health area, are lacking. Finally, there is a general concern about the level of expertise embodied in present AID personnel.

In addition, given the rather important changes in the general political life of this country over the last decade, there have been some significant changes in priorities as they relate to development assistance. These changes have had the effect of reducing the agency's ability to make long-run commitments to any particular programmatic endeavor, whether with U.S. Universities or any other developed and

developing country institutional mechanisms. With the exception with the long-run commitment to Johns Hopkins University that had been made through a variety of contracts and grants, and to UCLA via the Danfa project, only short-run commitments have been made.

It has been pointed out by a number of academicians that, in order to make any impact on health care delivery and health in general within developing countries, a major investment over a considerable period of time is required. The three- to five-year commitments commonly embodied in AID projects are not sufficient to make any significant improvement. Thus, U.S. institutions and academicians are not surprised to find that most projects are left wanting when it comes to identifiable impacts on the longer-run goals and objectives of any development assistance.

Another aspect of the problem of the relationship between AID and U.S. universities is that, from the point of view of the U.S. university, there must be some concrete benefit to be derived from it for the institution itself, such as an important departmental program, improved student body mix, or a seat of new knowledge yielding worldwide recognition. Further, in order to provide incentives to individual university faculty to make the commitment to engage in a life of teaching and research in the area of international health, a commitment by some group to long-run support must be forthcoming in order that AID training objectives and research requirements be met. Thus, increasingly, training grants, per se, will not attract the most qualified and intellectually stimulating academicians in any discipline to spend a significant amount of time in health planning. In order that the resources of the academic community be engaged to the purposes of the

foreign assistance programs, particularly those in health and health planning, it is essential that AID and the U.S. Government be cognizant of the basic reward structure to individual scholars in the academic profession today. Given the increased pressure due to intensified competition for tenured slots in universities, without an immediate reseaarch pay-off to the individual scholar, the incentives to faculty and particularly young faculty for participation in AID projects is almost non-existent.

In order for U.S. institutions to make a significant impact and provide the assistance necessary to develop Third World institutional capabilities to engage in their own teaching and research programs in the future, it is essential that the relationship between developing countries' institutions and U.S. academic institutions develop over a long period of time with a variety of interchange mechanisms at work, e.g., student and faculty exchanges, collaborative research and evaluation efforts, and educational programs. In discussing the Danfa program with people who were intimately involved with it, for example, it was pointed out that only after eight years were there strong identifiable benefits emanating from that relationship.

A fourth aspect of this set of problems is that the U.S. cadre of experienced, young professional people with expertise in the field of health planning and international health is limited. An investment in the self-renewal function of a cadre of highly skilled and experienced scholars and experts has not been made, given the demand pattern that is emerging from U.S.-based institutions, multisectoral organizations, and financial institutions. Without a reasonable set of programs and efforts

within U.S. institutions, this lack of renewal is likely to continue with the likely result that the first problem identified above (namely, the lack of highly experienced and well-disciplined health program officers with AID) will be unresolved.

The final problem identified by U.S. institutions is that in-country training is often perceived by Third World participants as "second-class," that is, inferior to training in the developed country institutions. This issue has been brought up repeatedly within the context of medical schools' curricula and in the population field. Exactly how to address this issue is not clear, but it must be considered in determining the future role of U.S.-based training.

e. Contour of Answers to the Above Issues

The set of issues and problems identified above cannot be answered completely with any one particular programmatic effort developed by AID or any other donor agency. However, in order to fully harness the intellectual power and the interest of U.S. scholars and academic institutions, a variety of mechanisms and efforts should be fully explored. First, it is important that training programs in international health, or particularly health planning, should not be provided without being tied to project evaluation studies in which AID has been involved as a funder, or which may have been developed by other donors or Third World Countries themselves. This approach is important irrespective of the location of the training program, whether in Third World Country institutions, regionally-based institutions, or in the United States. By tying training money to evaluation money several important issues can be addressed: first, the research incentives of academics can be harnessed;

second, student education can become reality-based by being involved in a variety of different ways in such evaluative research working with professors on project evaluation, developing thesis topics and research paper topics. Further, a larger critical mass of talent can be amassed when both central training funds can be linked with evaluation efforts. The academic community can be made more accountable for specific outputs by defining sets of specific evaluation efforts. Perhaps, something akin to a "211d" grant should be wedded to specific regional program evaluation efforts of the agency in order that short-run identifiable outputs can be monitored by the agency.

A second part of the answer to the set of issues identified above is the way inter-institutional linkages of developing country and U.S. institutions and universities can be fostered. In some cases, it may be appropriate to provide evaluation funds to a less developed country institution which has training and support links to a U.S. institution. In this way further incentives are provided to U.S.-based institutions to perform to host country institution specifications by providing LDCs with contract money for evaluation and research efforts, which can be wed in part to obtain continued support of U.S.-based universities. The inter-university training and research linkages, which are of some critical nature, can be fostered and improved if institutions from Third World countries are not viewed as junior partners. Further, if evaluation money were given to LDC countries, U.S. institutions could not become complacent about their Third World linkages. It is possible that developing country institutions could "shop around" to get the kind expertise and support that they deem desirable and necessary. Third, it may be useful for U.S. institutions to take on the responsibility to

provide technical assistance in both training and research activities in particular regions of the world so that some commonalities of culture social and political variables can be controlled. With respect to the approaches for developing curriculum and training programs in Third World countries, it may be useful to imaginatively think about the possibility of developing a series of short courses which students will take sequentially rather than taking several courses on the concurrent basis. Several experiments have been undertaken with this form of training. Instructional patterns within U.S.-based medical schools have used this basic model for many years. It has also been used in some training courses in LDC's with good results. While certain types of learning require a period of synthesis which is often not available in a short-course, many skills can be taught in this fashion rather well. Thus, the actual design of a program of learning should not necessarily be patterned in any particular way without the full consideration of all positive and negative aspects.

Fourth, it might be important to consider providing some traineeships for selected advanced graduate students in U.S. for dissertation research in developing countries. This investment would not only improve our knowledge about the effects of health project on the development process, but also to provide a mechanism for U.S. students to obtain practical experience in Third World Countries in planning, training, and research. It may not be useful to provide these traineeships to students at the beginning of their graduate career, but only at a point where it is clear that their commitment to the field of international health is significant and would be further strengthened by such support. Perhaps this support can also be funneled through a

variety of other mechanisms such as the Social Science Research Council and other consortia. It may also be useful to develop within U.S. university training a further reality base of the Third World by providing a limited number of "air ticket" scholarships to students for them to obtain overseas experiences during their further training. By not providing all the support (only air ticket) one can discern the extent to which, students are in fact willing to make an investment in their own career and their career objectives.

To summarize, it is important to consider the following ideas briefly outlined in order that a reasonable marriage between U.S.-based institutions and AID objectives can be made. First, the government (AID) must fully explore with U.S. institutions the extent to which individuals who become involved in overseas programs can be rewarded within university structures. This statement does not imply that U.S. universities should not be concerned about traditional activities that academics are rewarded for, such as writing and publishing. However, it does imply that such pursuits should not be judged in the same way as traditional academic study in the U.S. It turns out that an order to write an appropriate memo for the president of a country on a particular set of problems can result in as intellectually challenging an exercise as communicating at the frontiers of knowledge with academic peers. Both activities have legitimate academic merit and should be judged on the insight demonstrated in the exercise.

Second, in order that the government not continue to be "ripped off" by general funding support of U.S.-based institutional endeavors, it must carefully specify the objectives of its endeavor, and what it wishes to

obtain, not only in the form of documented evidence that the activities were conducted, but also the extent to which they contributed to the development process. Thus, a series of outputs of any set of activities must be defined and must be mutually consistent with the set of incentives that motivate university-based personnel. AID can take this responsibility to formulate such measures before entering into any new long-term relationship.

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