

This work is licensed under a  
Creative Commons Attribution-NonCommercial-  
NoDerivs 3.0 Licence.

To view a copy of the licence please see:  
<http://creativecommons.org/licenses/by-nc-nd/3.0/>

IDS/DP 238

NUTRITION, HEALTH AND POPULATION IN  
STRATEGIES FOR RURAL DEVELOPMENT

by

Bruce F. Johnston  
Anthony J. Meyer

DISCUSSION PAPER NO. 238

INSTITUTE FOR DEVELOPMENT STUDIES  
UNIVERSITY OF NAIROBI  
P.O. Box 30197  
NAIROBI, KENYA

AUGUST, 1976

Views expressed in this paper are those of the authors. They should not be interpreted as reflecting the views of the Institute for Development Studies or of the University of Nairobi.

NUTRITION, HEALTH AND POPULATION  
IN STRATEGIES FOR RURAL DEVELOPMENT

by

Bruce F. Johnston

Anthony J. Meyer

ABSTRACT

The principal thesis of this paper is that a country's strategy for rural development should embrace a "composite package" approach for the delivery of nutrition, health and family planning services in rural areas. The reasons for the increased attention now being given to problems of rural poverty, including malnutrition and ill health as especially serious manifestations of poverty, are reviewed in section I. The interrelationships between socioeconomic development and the reduction of fertility are then examined, making use of an analytical framework developed by Richard Easterlin. In considering priorities for rural development in section III, it is emphasised that an accelerated rate of expansion of food production is a necessary but not a sufficient condition for improving levels of food consumption. There is also a need to increase the effective demand of low-income households, and the advantages of a pattern of agricultural development which enables a large and growing fraction of farm households to participate in gains in productivity and income are stressed.

The significance of expanding job opportunities outside of agriculture and of slowing the rate of growth of the population, as factors contributing to an increase in returns to labour, is also stressed. Beyond the need to accelerate growth and to structure it so as to achieve broad participation, it is suggested that priority should be given to programmes which link the delivery of nutrition, health and family planning services and thereby increase the attractiveness and effectiveness of each and also reduce the cost of achieving wide coverage. A final section examines the reasons why it is important to integrate the delivery of these services. It is time-consuming and difficult to achieve administrative integration, but in this instance the potential benefits justify the efforts. Section IV also considers some of the problems which must be faced in implementing an integrated programme capable of fostering widespread improvements in nutrition and health and increased acceptance of family planning.

The current concern with problems of poverty and income distribution have intensified interest in rural development because so many of the world's poor live in rural areas. It has also led to heightened interest in problems of malnutrition and poor health as particularly serious manifestations of poverty and to renewed emphasis on the relationships between population growth and poverty. Up to the present this increased concern has been most apparent in official pronouncements, such as the address presented by Robert McNamara at the World Bank's 1973 annual meeting in Nairobi and the resolutions adopted at the World Food Conference in 1974. In fact, relatively little progress has been made toward achieving a consensus with respect to the changes in policies and programmes which will be most effective in mounting "the assault on poverty".<sup>1</sup>

The lack of agreement adds to the difficulty of undertaking effective action, but it is hardly surprising that only limited progress has been made toward achieving a consensus with regard to the mix of policies and programmes best suited to promoting self-sustaining economic growth and eliminating poverty. The choice of development strategies, particularly when they are oriented toward the reduction of poverty, raises complex issues and is as much a political as an economic question. This is emphasised by Harold Lasswell's well-known definition of politics— who gets what, when and how--which is also an admirably concise definition of "distribution" as a field of economics.

There is some measure of agreement, however, concerning the need to assign a high priority to the expansion of food production and to allocate proportionately more resources to programmes aimed at promoting rural development. There also appears to be growing recognition of the advantages of a pattern of agricultural development which enables a large and growing fraction of a country's farm households to participate in gains in productivity and income. Progress has been much more limited, however, in reaching agreement on which policies and programmes should be emphasised in an agricultural strategy that is likely to be both feasible and effective in achieving that outcome. Even less progress has been made in reaching agreement concerning components that should be included in a strategy for rural development.

---

1. This is the title of a recent World Bank publication containing policy papers on rural development, education and health; see (19).

Two major problems arise in connection with the design of strategies for rural development. First, how inclusive should such strategies be? That is, to what extent should scarce financial and manpower resources be concentrated on the goal of expanding agricultural production as compared to a more comprehensive approach embracing, for example, a functional literacy programmes as well as expanded opportunities for formal schooling, measures to foster the growth of rural-based industries, and a rural health and population programme? Second, how much emphasis should be placed on "integrating" the various activities being undertaken to promote rural development?

In the context of this consensus in orientation and continuing disagreement with regard to the choice of policies and programmes, this paper will focus on the proposition that strategies for rural development should embrace a "composite package" approach to the delivery of nutrition, health and family planning services in rural areas. Three principal arguments are put forward in later sections of the paper to support this proposition. First, malnutrition and poor health are such important manifestations of poverty that a high priority should be given to the elimination of those forms of deprivation. Second, a "composite package" programme for the delivery of nutrition, health and family planning services in rural areas can make a highly significant contribution to slowing the growth of population. Third, maximising the interactions between improvements in nutrition and health and the promotion of family planning can increase the attractiveness and effectiveness of all three activities and also reduce the cost of achieving wide coverage. Moreover, the existing administrative structure in most countries is such that implementing an integrated programme for the delivery of these three services will not require much in the way of interagency coordination which is especially time-consuming and difficult to achieve.

After a brief review of factors that seem to be responsible for the current focus on poverty, section II examines some of the interrelations between socioeconomic development and the reduction of fertility. In section III we confront the difficult problem of determining priorities among the various components of a strategy for rural development and summarise the reasons why an integrated approach to the delivery of nutrition, health and family planning services in rural areas should be an important component of such a strategy. Section IV examines the advantages

and some of the problems involved in the design and implementation of a composite package approach to the delivery of preventive health care and to the diffusion of the practice of family planning in rural areas.

#### I. ORIGINS OF THE CURRENT FOCUS ON POVERTY

The most fundamental factor responsible for the new orientation toward the problems of poverty has no doubt been the accumulating evidence that a large percentage of the population in developing countries has been by-passed by the economic growth that has been achieved. This in turn has led to increased awareness that poverty remains a widespread and distressingly persistent problem. In addition, the earlier view that rapid industrialisation would soon transform the economic structure of these countries and expand non-farm job opportunities rapidly enough to reduce the absolute size of the rural population has been discredited. When a country's agricultural labour force still represents some 60 to 80 per cent of the total and the population of working age is increasing rapidly, it is unrealistic to expect off-farm employment to expand at a rate sufficient to absorb more than a fraction of the annual additions to a country's work force, indeed a rather small fraction if industrial investment is as capital-intensive as it has often been.

There has also been an increased willingness to recognise that growth in average GNP is not a reliable indicator of improvements in economic well-being. A given rate of growth has drastically different implications depending on whether it is concentrated in, say, the 20 per cent of the population with the highest or the lowest income. Moreover, given the highly skewed pattern of income distribution that is typical of developing countries, a 1 per cent increase in income among the top quintile may carry 10 times the weight of a 1 per cent increase in income among the bottom quintile. (24 and 8) The distorted weighting implicit in relying solely on the rate of increase in average GNP is emphasised even more when attention is focussed on specific deprivations associated with poverty, most notably the prevalence of malnutrition and infectious and parasitic disease among low-income families. Although professional economists have traditionally been reluctant to make interpersonal comparisons of utility, it seems obvious and extremely important that the gain in social welfare resulting from an increase in food consumption among poor families which makes the difference between serious malnutrition and diets that permit normal growth, health and vigor

is much more significant than an equal (or greater) increase in food consumption in higher income brackets. For the latter, increased food expenditure generally brings no improvement in nutritional status and may in fact have adverse consequences because of "overnutrition".

The two main propositions which have been invoked to justify "temporary" neglect of problems of poverty are no longer persuasive. As already noted, the expectation that rapid industrialisation and structural transformation would soon spread the benefits of growth throughout the population by a trickle-down process has been contradicted by the course of events. Accumulating experience has also cast doubt on the proposition that a skewed distribution of income would encourage saving and investment and therefore more rapid economic advance. The protectionist measures commonly adopted to implement an import substitution strategy seem to have had a much more pronounced effect in widening income and consumption differentials between the rural population and those employed in the sheltered modern sector than in increasing saving and investment. Moreover, a number of countries that have pursued development strategies which have had the effect of narrowing rather than widening income differentials appear to have achieved high rates of capital formation and growth of output, an observation which applies to Taiwan's market economy as well as the People's Republic of China. This success in itself constitutes another reason for the shift in focus toward problems of poverty and income distribution.

## II. INTERRELATIONSHIPS BETWEEN SOCIOECONOMIC DEVELOPMENT AND THE REDUCTION IN FERTILITY

Experience of the past 10 to 20 years has belied the earlier optimism that the launching of family planning programmes and the availability of improved contraceptive technologies such as the IUD would make it easy to bring about rapid reduction in birth rates in much the same way that death rates have been brought down by the transfer of public health technologies and the use of new pharmaceuticals and chemicals. There is now greater appreciation of the fact that a reduction in birth rates depends on whether changes in various socioeconomic and cultural variables modify attitudes, motivation and ideas about optimal family size sufficiently to induce decisions and behaviour which result in smaller families. This is not to say that family planning programmes have had no

effect except in settings where the socioeconomic situation has been favourable. Although major programmes undertaken in countries such as India and Pakistan "have failed to meet ambitious goals... despite a considerable investment and effort", some reduction in fertility has often been achieved.<sup>2</sup>

An important feature of the recent experience in Taiwan and China relates to the success that has been achieved in creating conditions which have led to a rapid reduction in birth rates within societies that are still predominantly rural. In Taiwan, where the experience is well documented, the crude birth rate dropped precipitately from 45 per thousand in 1953 to 24 per thousand in 1972, bringing the rate of natural increase down from an alarming 3.6 percent to just under 2.0 percent in 20 years. (9) China's experience is not well documented, partly because of the emphasis on administrative decentralisation, but recent estimates suggest that the birth rate per thousand had been brought down to about 26 by 1973. (38) For both countries the reduction in birth rates has been accelerated by an official population policy and activities to promote family planning (including an emphasis on deferred marriage in China). It seems clear, however, that the rapid spread of family planning would not have been possible without broad participation of their populations in processes of economic and social change leading to widespread reduction of poverty, especially the most serious manifestations of poverty represented by chronic malnutrition and illness and excessive infant and child mortality.

Recent demographic research has led to a significant reinterpretation of the theory of a "demographic transition". It is stressed that the substantial differences between conditions in the contemporary developing countries, as compared to those in Europe where the theory was first applied, have implications which are favourable as well as unfavourable. That is, some of the differences militate against the

---

2. Ronald Freedman and Bernard Berelson, (15), p. 29. Recent experience in Bali and East Java are interesting instances in which a family planning programme appears to have achieved a rapid and substantial increase in the number of acceptors in the absence of any significant economic advance or improvements in health or other social conditions. In fact, the explanation for this success appears to be a situation of extreme population pressure together with strong political and organisational commitment to the family planning programme; see Freedman and Berelson (15), pp. 27, 28 and 36. Kenya and some other African countries appear to lie at the opposite end of the spectrum; government-supported family planning programmes have had very slight impact, although to some extent their failure should be attributed to administrative deficiencies and the limited coverage that has been achieved.

prospect of "natural" and timely declines in fertility whereas other differences suggest the possibility of relatively prompt and much more rapid declines in fertility. (50)

Birth rate statistics for the short period since the early 1960s indicate that a small but growing number of developing countries have entered the demographic transition. Analysis of these data by Dudley Kirk and others confirms the proposition that the birth rate level in a country is closely linked to the degree of socioeconomic development. Variations in the correlation coefficients for different socioeconomic indicators and for different groups of countries--25 Latin American, 17 Asian, and 15 Islamic countries--are intriguing, especially in suggesting that there are probably significant differences in the relative importance of various socioeconomic factors in different regions. (22) Kirk is careful to point out, however, that the indicators are of limited value in establishing the importance of various causal factors because a correlation coefficient is merely a statistical measure of association; and in addition most of the indicators used are really proxies for various aspects of development. For the Latin American region, for example, the strongest correlation (-0.94) is between telephones per thousand population and a country's birth rate, but clearly this does not lead to the conclusion **that** a programme to increase telephone service would be a promising approach to reducing the birth rate.

A more recent study of modernisation and the demographic transition in Latin America and the Caribbean by F.W. Oechsli and Kirk emphasises that in the countries which have recently entered the phase of the demographic transition when birth rates begin to decline, the rate of decline in fertility is "enormously speeded up" as compared to Europe and other areas which experienced the demographic transition in an earlier period. This is related to the fact that for the 25 Latin American countries studied, "development and modernization, processes which include demographic change, have become much more rapid". (33, pp. 404 and 415) The findings thus reinforce Kirk's earlier conclusion that the unprecedentedly rapid reduction in mortality in today's developing countries can be followed by a similarly rapid reduction in birth rates if a country can reach "a certain threshold and 'mix' of socioeconomic development". (22,p. 125)

The dilemma facing many developing countries today, however, is that the combination of rapid population growth and highly unequal participation

in economic development magnifies the difficulty of achieving the threshold levels of socioeconomic advance which appear to be necessary to induce a decline in fertility. This consideration applies with particular force to the large percentage of the population in the agricultural sector because with continued growth of a country's farm population it becomes increasingly difficult to raise per capita output in agriculture. Even in the countries of tropical Africa where unused land is relatively abundant, the rapid growth of rural population during the past two decades has already resulted in serious population pressure in a number of areas. In Kenya, for example, overcrowding in areas of high agricultural potential has led to rapid migration into marginal areas of low and erratic rainfall where it is frequently difficult for farm households to produce enough to meet even their own subsistence requirements, at least with the farming technologies presently available.

A human solution to the problems posed by rapid population growth clearly requires a reduction in birth rates before the problems of poverty, which are being exacerbated by population growth, become unmanageable. The evidence that the decline in birth rates can be extremely rapid is, of course, a highly significant and hopeful fact. It is our contention, however, that many of today's developing countries are not likely to succeed in their efforts to promote economic and social development unless their strategies for rural development are designed to achieve the interrelated objectives of reducing poverty and lowering the birth rate by effective interventions in rural areas.

The task of designing interventions capable of accelerating the reduction in birth rates is difficult because our understanding of the determinants of fertility is still inadequate. Thus Harvey Leibenstein gives a "very partial list" of "factors for which a plausible argument can be developed about how these elements contributed towards reducing desired and/or actual fertility". (27, p. 459, italics in original) Two of the items on his list--the increase in compulsory education and the concurrent decrease in the use and value of child labour and the development of provision for old age security outside the extended family-- play an important role in Leibenstein's 1957 theory of fertility. This theory assumed that a family would balance "utilities" against "disutilities" in deciding whether to have an additional child. He assumed that this nth child would be wanted for three types of utility: (1) consumption utility,

i.e., the child is wanted for itself; (2) work or income utility; and (3) security utility; and the corresponding disutility would depend on (1) the direct cost of feeding, housing, clothing and schooling a child, and (2) the indirect costs associated with income earning (and other) opportunities foregone by the parents in raising an nth child. In his more recent work, Leibenstein has questioned the usefulness of a "strictly economic approach" and has emphasised attitudinal changes related to the "social influence group" to which a family belongs. (27, pp. 470-72)

A synthesis of "the economics and sociology" of fertility by Richard Easterlin is particularly useful in clarifying the interactions among the factors which influence fertility. (10 and 11) His analytical framework focusses on three sets of variables which influence family size: (1) demand, defined as "the number of surviving children parents would want if fertility regulation were costless"; (2) supply, defined as "the number of surviving children parents would have if they did not deliberately limit fertility"; and (3) the costs of fertility regulation which include "both subjective (psychic) costs and objective costs". (11, p. 55) The demand for children will depend on (1) tastes or preferences, (2) income, and (3) prices; and the potential supply will depend on "natural fertility", which is influenced by cultural as well as physiological factors, and the survival prospects of children. It is the relationship between this potential supply and the demand for children which determines the motivation for fertility regulation. The actual decisions which determine family size will, of course, also depend on the relationship between the psychic and objective costs of fertility regulation and the strength of the motivation to restrict births.

In emphasising factors affecting the potential supply as well as the demand for children, Easterlin's analysis focusses attention on a fundamental difference in the determinants of fertility in a premodern as compared to a modern situation. In the premodern phase, the potential supply of children, which is influenced strongly by a low survival rate among infants and small children, typically falls short of the desired number of children. Hence there is no "problem" of unwanted children. Even though traditional practices such as an "intercourse taboo" during lactation hold expressed fertility well below the biological maximum, there is no desire to limit fertility. Indeed traditional values and attitudes, e.g., the importance of childbearing as a source of status for women, powerfully

reinforce a large-family norm. However, as improved child-survival prospects and other changes lead to an increase in the potential supply so that it exceeds the desired number of children, a threshold is reached which marks a transition from premodern to modern fertility determination. The emergence of this "excess supply" situation characterised by the prospect of unwanted births will, of course, also be influenced by changes in tastes which reduce the desired number of children.

Various aspects of modernisation will have important effects in determining how slowly or rapidly that "fertility threshold" will be reached. Historically, urbanisation has been a key factor in slowing population growth because it tends to reduce the demand for children and lower the cost of fertility regulation. For most of the contemporary developing countries, however, urbanisation will be much less important than the factors that influence the fertility of rural families because the rural population will continue to weigh so heavily in the total population for several decades at least. Other aspects of modernisation, such as a rise in per capita income and growth of education and exposure to mass media, will have positive as well as negative effects on family size so that there is no simple linear relationship between changes in those variables and changes in the birthrate.

The net effect of an increase in income, interacting with other aspects of modernisation, will be to reduce the demand for children, but there is likely to be a considerable interval during which the factors tending to increase the number of births of a "representative family" will predominate. Taiwan's experience, which demonstrates that the decline in birthrates can be rapid and relatively prompt, suggests that this was possible because the rural as well as the urban population was broadly involved in processes of social and economic change in such a way as to modify preferences with respect to family size. Studies of the factors influencing fertility change in Taiwan emphasise the importance of rising aspirations for the education of children as well as for increased consumption of new goods, including modern farm inputs as well as consumer goods. Thus Deborah S. Freedman suggests that 'the achievement of new modern consumption standards--which may conflict with supporting a large family, influences couples to have fewer children ...'. (quoted in 10, p. 86)

Better public health and medical care in combination with improved nutrition will have important effects in increasing the potential supply of children by increasing natural fertility and improving child survival prospects. There is growing evidence, however, that attaining a certain threshold in the reduction of infant and child mortality, together with an awareness of that change, can exert a strong influence on achieving the more general threshold which marks the transition from premodern fertility determination to a situation in which family size comes to depend on conscious decisions of individual parents.

The foregoing framework also provides a useful perspective on the role of family planning. Thus by making information and contraceptive devices widely available, family planning programmes can reduce the costs of fertility regulation. But their effects on birth rates will depend on whether the "fertility threshold" has been reached so that there is a desire to limit family size.

Even though our understanding of the determinants of fertility is still inadequate, it is possible to draw two important conclusions that are relevant to the design of strategies for rural development. The first pertains to the "child survival hypothesis" which emphasises that increased confidence on the part of parents that children will survive to maturity will tend to make them more receptive to the practice of family planning. In the section that follows we endorse the view that even though the spontaneous links between reduced child mortality and lowering of the birth rate may not be terribly strong, the conscious linking of family planning activities with the delivery of nutrition and health services can increase greatly the effectiveness of efforts to foster the change in attitudes, motivation and behaviour required to slow the growth of population. The second conclusion pertains to the advantages of a strategy for rural development which enables a large and growing fraction of a country's rural households to participate in the process of social and economic change. On the basis of her study of fertility change among rural households in Taiwan, Eva Mueller observed that: "Where agricultural improvement is confined to a minority of cultivators . . . the expansion of economic horizons will be more limited than in Taiwan. Only a minority will then experience the rising aspirations that in Taiwan seem to be contributing so importantly to acceptance of family planning in rural areas." (37) It would seem to be self-evident that families must be actively involved in socioeconomic change in order for

it to have significant effects on the decisions that determine family size.<sup>3</sup>

### III. PRIORITIES IN THE DESIGN OF STRATEGIES FOR RURAL DEVELOPMENT

The interrelationships discussed in section II emphasise the need for strategies for rural development which are designed to further the multiple goals of achieving self-sustaining economic growth, reducing poverty, improving nutrition and health, and slowing the rate of population growth. The complexity of the problem of determining which policies and programmes are likely to be feasible and most effective in reaching those multiple goals compounds the difficulty of reaching a workable consensus. Inasmuch as a rural development strategy will consist of several "sub-strategies" or components, there is an additional difficulty in determining the priority to be assigned to each sub-strategy and to the activities which it embraces.<sup>4</sup> Determining priorities with respect to investments in "human resources" gives rise to special difficulties because of the enormous problems that arise in attempting to quantify the benefits of such programmes. (6, p. 11) Nevertheless, it is argued in this section that a high priority should be given to measures to promote nutrition; health and family planning within a rural development strategy, notwithstanding the special difficulties which complicate decision-making with respect to such activities.

---

3. Several authors have made intercountry comparisons which tend to support the proposition that reaching a given level of per capita income is much more likely to be associated with a reduction of fertility if the distribution of income is relatively equal. See, for example, Bhattacharyya, (5) and Kocher, (23).

4. A rural development strategy might, for example, include the following components or sub-strategies: (1) a strategy for agricultural development; (2) a strategy for improving the agricultural infrastructure; (3) a rural education strategy; (4) a strategy for fostering the growth of rural-based manufacturing firms and district market centres; and (5) a strategy for the delivery of nutrition, health and family planning services. There are important interrelationships among these components; investment in the rural infrastructure, for example, might give priority to improving the rural road network and expanding the electric power grid in order to foster the growth of rural market centres and manufacturing firms as well as to stimulate expanded agricultural production. But that does not mean that the various sub-strategies have to be "integrated".

The controversy and confusions associated with the so-called "protein gap" provide an important example of the problems that stem from the complexity of the issues involved in the design of strategies for rural development.<sup>5</sup> Although there is not unanimity, there is an emerging consensus among nutritionists that, in general, nutritional deficiencies, including protein malnutrition, "are the result of inadequate intake of food, being thus unavoidably associated with inadequate intakes of energy". (14, pp. 49-50) The earlier stress on an alleged "protein gap" encouraged preoccupation with special protein supplements and an emphasis on genetic manipulation of the nutrient composition of cereals (to increase the quality of protein) rather than a more single-minded concentration on increasing the level and stability of crop yields.<sup>6</sup>

The emphasis on the problem of inadequate food intake has reinforced the growing awareness that both the rate and pattern of agricultural development are critical factors influencing the success of efforts to eliminate under- and malnutrition. In brief, success in overcoming nutritional problems depends on a simultaneous expansion in food production and increases in the effective demand of low-income households (or productive capacity in the case of farm households) which will enable them to raise their levels of food consumption. This is in fact one of the reasons that it is so important for today's developing countries to pursue "unimodal" strategies for

---

5. Alan Berg, (3), p. 313, gives a vivid picture of the difficult position in which policymakers have been placed because of divided and changing views concerning the extent and importance of deficiencies in dietary protein.

Put yourself in the shoes of a Food Secretary of India who, on the one hand, is told that lysine supplementation is the answer to the nation's nutrition problems, while on the other that lysine is not even the limiting amino acid in the Indian diet; who is told by some experts that the critical need is for more protein and by other equally prominent experts that the protein problem will solve itself if the calorie issue is met. For years, he has been bombarded with a kind of proteinmania--a protein 'solution-of-the-month club'—FPC, SCP, LPC, synthetic amino acids, oilseed isolates, wheat fractions, and so on. Then suddenly, he is criticized by the nutrition fraternity for misdirecting his resources and told that the real problem, after all, is calories.

6. The view that a "protein gap" was the major nutritional problem in less developed countries was the result of an overestimate of nutritional requirements for protein and an underestimate of the extent to which the fundamental cause of protein malnutrition is insufficient calorie intake which reduces the utilisation of protein for its distinctive functions. See FAO/WHO, Energy and Protein Requirements, (13).

agricultural development aimed at the progressive modernisation of the entire agricultural sector rather than a "bimodal" strategy which concentrates on more rapid increases in productivity and output within a subsector of large-scale and inappropriately capital-intensive farm enterprises.<sup>7</sup> By enabling a large and increasing percentage of farm households to participate in the increases in productivity and income associated with agricultural development, a unimodal strategy can be expected to result in widespread improvement in food consumption and nutritional status. This is crucial because it is unrealistic to expect income transfers or government-financed rural works programmes to be of more than marginal importance in alleviating poverty in countries where economic deprivation is ubiquitous and average incomes are very low.

Although the alleviation of poverty through income transfers can, in general, be of only marginal importance in poor countries, land reform may be a significant exception if it is politically feasible to enact and implement a redistributive land reform.<sup>8</sup> Although its effects are much less direct than a redistributive land reform, an agricultural land tax can reduce the drastic effect of tenancy in accentuating income inequalities in those countries where economic rent is extremely high because of the intense demand for land. In fact, levying a land tax can mitigate both interfarm and interregional income disparities by transferring to government a substantial part of the economic rent accruing to land, and in the process augment

---

7. For an extended discussion of the economic and social advantages of a unimodal strategy for agricultural development, see Bruce F. Johnston and Peter Kilby, (20) and references cited there. A recent ILO/IBRD monograph contains a valuable summary of some of the considerable body of evidence which suggests a highly significant inverse relationship between farm size and productivity; see R. Albert Berry and William R. Cline, (4).

8. In a number of countries where the prospects for a redistributive land reform are not very promising, emphasis has been placed on "tenancy reform" aimed at restricting land rental payments to an officially decreed ceiling. Although commonly viewed as a "second best" solution, in practice this alternative is likely to have adverse effects on the intended beneficiaries because it encourages the eviction of tenants and the adoption of labour-displacing technologies. The most fundamental requirement is a uniform size distribution of operational units, whether operated by owners or tenants, which encourages the adoption of labour-using, capital-saving technologies and an emphasis on divisible, yield-increasing inputs which are consistent with widespread participation of the farm population in increases in productivity and output.

government resources available for promoting economic and social development. In order to undertake the nutrition, health and family planning activities which are the focus of this section, it is clearly necessary to find practicable means of enlarging government financial resources. Furthermore, inasmuch as expanded agricultural production is a necessary condition for improving food consumption levels and for raising incomes, there is usually a need to give an even higher priority to the strengthening of agricultural research and extension programmes and to the expansion of a country's rural infrastructure. Uma Lele is calling attention to a very real danger when she cautions that "substantial allocation of central resources to social services frequently occurs at the cost of more immediately productive investments in rural areas and, therefore, may prove self-defeating in the long run" (28, p. 123)

It is clearly essential to expand agricultural production by means which permit the absorption of a growing work force in productive employment in agriculture because a large fraction of the annual additions to the labour force will have to find work and income in agriculture. Accelerating the expansion of output and job opportunities in the nonfarm sectors is also of great importance; and as John Mellor and others have stressed, there are highly significant linkages between agricultural development and the success of an employment-oriented growth strategy for industry. (30) In fact, the most fundamental factor leading to higher returns to labour and to more adequate consumption of food and other essentials is a rate of growth in the demand for labour that exceeds the rate of increase in the supply of workers seeking jobs or better income-earning opportunities. Slowing the rate of growth of the population of working age can, of course, only be achieved by the spread of family planning. Although there is a time lag before a reduction in birth rates begins to affect the size of the annual additions to a country's labour force, that underscores the need for early attention to this difficult task. Success in this endeavor enhances the prospect that the working population will be able to find jobs or other income-earning opportunities and also improves the longer-term prospects for raising the returns to labour both by slowing the rate of increase in the number of workers seeking employment and by improving the capability of a developing country to raise the level of investment in physical and human capital and thus augment

the productivity of its work force.<sup>9</sup>

Inasmuch as the reduction of poverty by restructuring and accelerating economic growth is a time-consuming process, there is naturally a concern to find shortcuts. Thus Alan Berg has argued that the solution of India's food problem calls for "a new strategy ... to short cut the traditional means of providing nutrition ...". (2, p. 12) Pedro Belli has also argued for a high priority for special nutrition programmes, asserting that "the evidence available (medical plus economic) suggests that investment in nutrition programs will have such an impact on improving income levels that the return to investment in food and nutrition programs will be higher than any other single investment". (1, p. 354) Belli's interpretation of the evidence has not gone unchallenged.<sup>10</sup> But even if there is general agreement concerning the need for additional "investment in food and nutrition programmes", difficult questions remain. What priority should be given to nutrition intervention programmes relative to measures to achieve a more rapid and more broadly based expansion of agricultural production? What is the scope for improving nutrition by influencing the type of foods produced and consumed by a reorientation of research and extension programmes or by influencing relative prices, e.g., through tax or subsidy policies? And what types of nutrition intervention programmes should receive priority and to what extent should those activities be integrated with health and family planning services?

---

9. Accelerating the expansion of job opportunities and slowing the rate of population growth is especially important for landless labourers. Lowering birthrates among this group, however, poses an especially intractable problem because of the divergence between individual and group interests. A slower rate of growth of the labour force would improve the prospects that workers would be able to find jobs; but for any one couple "more children increase the number of wage earners in the individual poor family and provide greater security for the parents in old age. At the same time, the laborer incurs the added costs of child rearing when he is relatively young and at the height of his earning power," see Mellor, (30), p. 95.

10. See comments by W.T. Wilford, R. H. Franke and G. V. Barrett, and F. M. Peterson in the January 1975 issue of Economic Development and Cultural Change.

It is our contention that among the interventions that might be undertaken to reduce poverty more rapidly than would be possible by relying entirely on economic growth and improved income distribution, first priority should be given to measures to improve nutrition and health and to foster wide diffusion of family planning in rural areas.

There are three principal reasons for asserting this priority. First of all, there is the basic fact that malnutrition and poor health are especially serious manifestations of poverty, and the inequality in the availability of health services to a large part of the rural population is particularly extreme in most developing countries.<sup>11</sup> Second, improvements in nutrition and health can be expected to yield significant economic benefits along with the increase in well-being of the individuals affected. Although the economic benefits are almost as difficult to quantify as the gains in social welfare, it is apparent that sound nutrition and reduced morbidity can make important contributions in improving the performance of school children and the productivity of workers.

The third reason for giving high priority to this set of activities is the strong presumption that integrating nutrition and health services with family planning activities will increase the effectiveness of efforts to slow the rate of population growth. This view derives in part from the general proposition that progress in improving nutrition and health will facilitate the changes in attitudes and motivation required for the acceptance of family planning. The "child survival hypothesis", which suggests that increased confidence that their children will survive to maturity will make parents more receptive to the idea of restricting family size, focusses on a very important aspect of the attitudinal changes associated with improved health and a less fatalistic view which

---

11. A recent analysis of health expenditures in 16 less developed countries indicates that in 9 of the countries between 74 and 86 per cent of the budget of the Ministry of Health was concentrated on hospitals and individual curative care, services which have little impact on the bulk of the rural population, see (19), p. 418.

facilitates the transition to modern fertility determination based on conscious decisions of parents. Although mortality rates have been reduced substantially in virtually all of developing countries, in many of these societies child mortality is still well above any reasonable estimate of the "threshold level" required to induce the changes in attitudes and motivation required for wide acceptance of family planning. It will be seen from Table 1, which shows estimates for 1970 of the percentage of children that die before their fifth birthday, that apart from Taiwan even the lowest of the mortality rates for developing countries implies that nearly one child out of five will fail to survive the vulnerable period of infancy and early childhood.

Table 1. Percentage of children who die before their fifth birthday.

High mortality countries		Low mortality countries	
Guinea	36.7	Taiwan	3.6
Pakistan	31.0	United States	2.5
India	28.1	Japan	1.9
Cameroon	26.5	Sweden	1.7
Egypt	24.8		
Guatemala	18.5		

Source: Berg, (2), p. 223.

Although there is some disagreement in interpreting historical experience relevant to the effects of reduced child mortality on the decisions which determine family size, the weight of evidence seems to indicate that these "spontaneous links" are important. (44 and 45) The strongest argument for an integrated approach, however, relates to the potential impact of a programme designed to maximise the positive interactions between activities aimed at increasing child health and the promotion of family planning. There is no doubt that a well-designed programme, including nutrition and health education, vaccinations, and simple treatment of illness by a local health worker, can reduce

child mortality substantially, rapidly and at low cost.<sup>12</sup> Finally, there is evidence that a more rapid change in expectations and in attitudes toward limiting family size can be achieved by promoting conscious awareness of better child survival when nutrition, health and family planning activities are carried out within an integrated programme. The research undertaken in conjunction with the Narangwal Project in India, which is considered in the next section, provides such evidence and indicates that a rapid increase in the degree of acceptance of family planning can be achieved by such an approach.

In arguing that a high priority should be given to nutrition, health and family planning activities, we have also noted highly significant complementarities among these three activities. Indeed, they are mutually reinforcing in the sense that each activity increases the attractiveness and effectiveness of the others. Thus an integrated approach to the delivery of nutrition, health and family planning services can be expected to have especially significant effects in directly reducing nutritional and health deprivations and at the same time facilitate the achievement of those and other development goals by slowing the growing of population. It is obvious, however, that very difficult problems must be faced in designing and implementing a programme capable of having the

12. Striking evidence is provided by an experimental programme in the village of Imesi in Nigeria; see David Morley, (36). The establishment of an "Under-fives Clinic" led to the following changes in infant and child mortality between 1957 and 1962:

	Deaths per 1,000	
	1957	1962
Neonatal deaths <sup>a</sup>	78	20
Deaths in first year <sup>a</sup>	295	72
Deaths each year of children <sup>b</sup> between ages of one to four	69	43 <sup>c</sup>

<sup>a</sup>Per 1,000 live births.

<sup>b</sup>Per 1,000 living children in these age groups.

<sup>c</sup>Sixteen of these 43 deaths were due to measles.

Moreley reports that a measles vaccine introduced since 1962 has prevented almost all deaths from measles among children served by the clinic.

desired impact in improving health and slowing population growth. We turn to these issues related to the design and implementation of an integrated approach to nutrition, health and family planning in the next section after reviewing the reasons why the delivery system itself should be organised as a "composite package" programme.

IV. A "COMPOSITE PACKAGE" APPROACH TO THE DELIVERY OF NUTRITION,  
HEALTH AND FAMILY PLANNING SERVICES

The preceding sections have stressed the interdependence of health, nutrition and family planning and their mutual relationship to development. This section will consider reasons for adopting an integrated approach to the delivery of health, nutrition and family planning services and then examine some of the difficult issues that arise in designing an effective programme for the diffusion of this set of preventive health innovations.

Nutrition, health and family planning typically have been treated as distinct problem area with separate outreach networks of field staff. This current approach has had only limited effectiveness. Although an integrated approach to the delivery of these services will not necessarily increase effectiveness, it would appear to offer an alternative particularly suited for the partial solution of major difficulties encountered at the present time. Existing programmes usually are composed of disparate, overlapping systems which generally reach only a small fraction of the rural population. In a context of scarce resources, these programmes by no means deliver the full potential of preventive health care delivery that their investment in man-hours and dollars represents. Moreover, within areas of coverage, poor administration and client apathy interact with lack of motivation on the part of field staff to result in a lethargic system achieving only those results required to maintain continued government financing. Indeed, one study of a family planning programme in Uttar Pradesh, India, where the worker-client ratio is 1:9,000 and the local attitude toward family planning unfavourable, reported that during the researchers' attempt to interview field staff, "many times it was impossible to find respondents, and persistent questioning and repeated visits revealed that the worker either had not come to his area for several days or had gone away on personal business. . . . Individual workers sometimes pay incentives out of their own pockets in order to meet the minimal recruitment quota necessary to keep their job." (34, pp. 70, 73) These

difficulties of scarce resources and their inefficient utilisation, poor administration, and low levels of staff and client motivation are problem areas which the integration of health, nutrition and family planning services can in some measure alleviate.

The potential of integration to increase motivation stems in part from the fact that nutrition, health and family planning activities are mutually reinforcing as was emphasised in section III. An effective campaign against infectious disease, for example, would include health education related to latrines and safe water, better infant and child feeding practices in order to build resistance to disease, and the practice of family planning, including child spacing, in order to improve the overall health of the mothers and children. Reciprocally, progress in lowering the incidence and severity of diarrhea and other health problems caused by infection or disease will reduce the severe malnutrition that is often precipitated by sickness which causes loss of appetite, the withholding of solid foods, poor absorption of nutrients, or an increase in nutrient requirements.<sup>13</sup> Similarly, the key to improved prospects for child survival and, in turn, the perception of the people that this improvement has taken place would appear to lie in the same set of preventive measures. This together with other interrelationships to be noted shortly can be expected to increase the effectiveness of family planning. Thus the coordination of nutrition, health and family planning services can be expected to achieve the objectives for each activity more securely than if they were administered separately.

The mutually reinforcing effect, or synergy, of an integrated health, nutrition and family planning programme would appear to have the potential to affect client motivation positively through at least three operational mechanisms: the frequency and timeliness with which any single element of the programme is introduced; the use of a single health worker or team such that this source has the potential to increase its credibility by being associated with the introduction of a comprehensive family health care plan; and the presentation of a package of interrelated innovations such that the adoption of one implies the subsequent or continued adoption of others. The first two points can be illustrated by an example of how client resistance to family planning might be reduced by an integrated programme. H.C. Taylor, Jr. and R.J. Lapham have proposed an integrated maternal and child health programme, inclusive of family planning, aimed at maternity care

---

13. For a concise discussion of the interaction effect between nutrition and infectious disease, see Michael C. Latham, (26). For a recent review of the evidence concerning iron deficiency and resistance to infection, see R.K.Chandra, (7).

during the last six months of pregnancy, supervised delivery, and child care during the first 24 months of the child's life. (49) The protocol as outlined by Taylor and Lapham and presently in various degrees of implementation in projects in Indonesia, the Philippines, Turkey and Nigeria, (47) calls for a series of at least 12 field worker-client contacts, or, in other words, 12 opportunities or "entry points" for the introduction of family planning information at a time when the appeal of adopting family planning practices is likely to be high. (46 and 48) Clearly, the frequent and timely discussion of family planning by a field worker associated with broad health objectives has an appreciable motivational advantage over its potentially more haphazard and less salient discussion by a worker associated solely with birth prevention in the typical nonintegrated family planning programme.<sup>14</sup>

The presentation of integrated health, nutrition and family planning services as a single package of interrelated innovations has a further potential to affect client motivation positively in that an individual who has adopted one innovation in a package, with generally beneficial results, may be more likely to adopt other, related innovations in the package. The extent to which this effect will or will not take place must be the subject of future research (41, p.172), but its occurrence would be compatible with the expectation from the psychological literature that successful adoption of one element of a "tight" innovation package should provide positive reinforcement for the adoption of other, related elements.

The synergy of an integrated health, nutrition and family planning programme can also affect the motivation of field staff. The recently completed study of the effects of integration in Narangwal, India provides an example of this motivational effect. (43) The Narangwal study, moreover, represents a further independent argument for the implementation of integrated programmes. This controlled field test of a package approach provides empirical support for the hypothesis that the integrated delivery of health, nutrition and family planning services is both feasible and more effective than their nonintegrated delivery. The five-year Narangwal Project involved 26 villages, with a total population of 35,000, which were assigned to five experimental conditions receiving the following combinations of services: (1) family planning, women's services (including prenatal and

---

14. A recent evaluation of an intensified family planning effort in Kenya's Kakamega District which reports that the impact on the birthrate has been very limited, makes the following observation: "There is a strong local feeling, which is perfectly understandable, that family planning facilities should not be considered a priority in an area in which basic medical facilities are still lacking. This may itself engender a negative attitude toward family planning." See I.D.S.'s Second Overall Evaluation of the Special Rural Development Programme, (18), p.17-17.

postnatal care and supervision of delivery), and child care (including nutrition supplementation and education, immunisation, and periodic health checks): FP + WS + CC; (2) FP + WS; (3) FP + CC; (4) FP with supplementary educational inputs to the existing government programme; and (5) control, or the existing government family planning programme.

The results of this project are encouraging. In their preliminary report on nearly five years of field research, C. Taylor, R.D. Singh and their coworkers report that "to get the most efficient and long-term balance of both family planning and health objectives there is no question that the combined FP + WS + CC approach is to be recommended. . .". (43, p. V.B.3) This judgment reflects qualitative information derived from the project as well as analysis of the statistical results. The recommendations included in the final section of the report suggest a number of modifications on the basis of the Narangwal experience. For example, they suggest that in future programmes more emphasis should be given to maternal delivery services and nutrition and that more use should be made "of women's groups and community relationships in increasing motivation for family planning". (43, p. V.B.4) Changes in "continuing-use rate" and especially estimates of the "effective-use rate" suggest that there was approximately a threefold increase in the number of births prevented. Table 2 shows the increase in the percentage of eligible women using modern contraception in March of each year of the study.<sup>15</sup>

Table 2. Percentage increase of women using contraception.

	Rates of use by experimental group <sup>a</sup>			
	Continuing-use rate		Effective-use rate <sup>b</sup>	
	FP + WS + CC	FP + WS	FP + WS + CC	FP + WS
March 1969	9.9	10.7	8.4	9.3
1970	13.9	19.7	11.1	15.8
1971	19.2	23.3	14.3	18.1
1972	23.8	26.4	17.1	20.3
1973	28.0	35.5	19.5	26.1
1974	34.2	40.9	23.8	30.8

<sup>a</sup>The original table also presents figures on the "Ever-use" rate and includes data for the FP + CC and FP + Ed groups. The estimates are based on a "longitudinal family planning data collection system" and use-rates are reported for June, September, and December as well as March.

<sup>b</sup>These figures were obtained by adjusting the continuing-use rate on the basis of the relative effectiveness of the various contraceptive methods in preventing births. Adjustment factors were calculated for each experimental group according to the relative importance of different methods used by that group. (43, p. I V. A.6)

15. (43), Table IV.A.2 and pp. IV.A.4-IV.A.7. FP + WS + CC and FP + WS are both examples of integrated programmes. With regard to the use rate data the latter programme was more effective, although Taylor, Singh et al. report greater overall efficacy for the FP + WS + CC programme as noted above. Unfortunately, comparable longitudinal data for the control village were not collected. Other data from two cross-sectional surveys conducted in 1969 and 1972, however, indicate that the control villages' use rates of modern contraceptives remained unchanged at 9 per cent of eligible couples.

The effect of integration on the motivation of field staff, which was noted earlier, is one of the more interesting sidelights of the Narangwal experience. Taylor, Singh et al. report that after one year of village work:-

the FPEs /family planning educators/ were placing great pressure on their supervisors to give them something more to discuss with village women than just family planning. They moved into discussing home economics and women's activities in general just to keep good rapport in the village. Similarly, in FP + WS the field workers were becoming increasingly open about expressing the demand on them from village people to do something about child care. (43, pp.IV.A. 1-2)

This pressure toward integration from the field workers in Narangwal indicates, perhaps, one of the keys to worker motivation clearly absent in the Uttar Pradesh programme: health and/or family planning field staff must be occupied with tasks both sufficiently complex and sufficiently founded in the ongoing cycle of health needs of villagers to maintain staff interest and to maintain them in a valued, life-giving role in the village community.

Integration also appears to improve cost-effectiveness and thus alleviates the previously mentioned problem of inefficient utilisation of scarce resources. That is, the delivery of multiple health, nutrition and family planning services in a single system should require fewer worker-client contacts and less worker time and should be less costly per person assisted than the delivery of these same services separately. Indeed, the Narangwal report presents data related to the service-contact effectiveness, time effectiveness, and cost effectiveness of each of the experimental interventions described above and concludes that, provided the service objectives include both health and family planning, the integrated approaches represent savings in manpower and resources compared to the nonintegrated FP + education condition.

The final problem mentioned with regard to the family planning programme of Uttar Pradesh was poor administration. On its face, it would appear that integration might well increase the problems of programme management rather than alleviate them. R.I. Rochin and D. Londoño, for example, in their discussion of the Colombian experience with integrated rural development conclude that "inter-institutional efforts, aside from those with the Caja Agraria /Agricultural Bank/, have not benefited many farmers. . . . Jealousies, jurisdictional conflicts, and ineffective leadership still stand in the way of effective inter-institutional projects." (40, p.25) Thus the management of integration must not only deal with a more complex staff training programme and increased coordination of material demands from the field; it must also resolve conflicts of interagency power.

It would be overly facile to say that the potential of an integrated health services-family planning programme to improve staff motivation and achieve success in the field and to concentrate scarce managerial skills in a single effort under the authority of a single ministry will always overcome these problems. It is, however, appropriate to note that providing good management is always a major problem and that successful management is, in part, a product of the extent to which it is engendered by popular support and staff cooperation.

Finally, we believe that the political and financial support required for a programme capable of having a widespread impact on a country's rural population will be greater if the programme is aimed at multiple objectives related to nutrition, health and family planning. Some political leaders and officials at both national and local levels will find it much easier to support a "family health programme" than one focussed exclusively on family planning. On the other hand, the economic planning agency within a country and multilateral and bilateral aid organisations may be prepared to give more substantial financial support to a programme that promises to make a significant contribution to development goals by slowing the rate of population growth as compared to programmes confined to nutrition and health services. The latter are often viewed as welfare measures which can be readily reduced in magnitude or postponed, especially in the situation of financial stringency that currently confronts most less developed countries.

For the reasons summarised above, an integrated approach to the delivery of health, nutrition and family planning services appears to have significant advantages, although it needs to be recognised that very difficult problems must be faced in designing and implementing a programme capable of having the desired impact in improving health and slowing the growth of rural populations. Two of the most crucial and challenging problems are the need to strengthen the administrative capacity of ministries of health and to overcome the strong bias toward emphasis on hospitals and other types of curative care which often prevails in a health ministry. Such an integrated programme will of necessity have to be expanded gradually with a secure organisational foundation since it will take time to train the field staff and to develop the organisational capacity for a countrywide programme.

Even though implementation will of necessity be gradual, the aim from the outset should be to achieve full coverage, at least of fairly populous rural areas, in part because the goal of reducing birth rates is universally

applicable. Clearly, this goal of wide coverage implies a need to make effective use of local primary health workers (auxiliaries) with only limited training. For countries which confront severe manpower and financial constraints, achieving such wide coverage would also seem to require an initial emphasis on infants and small children and pregnant and lactating women. This offers the greatest potential for significant improvements in health and, as stressed earlier, is likely to make a major contribution to efforts to spread family planning.

Because of the central importance of judicious selection of the components of a composite package, it is appropriate to mention some of the activities which merit serious consideration. Nutrition education (focussed especially on the nutritional needs of pregnant and lactating women and on child feeding practices), health education, and pre- and postnatal care services such as infant vaccinations appear to merit high priority. There also is a need to include a rough screening procedure to identify those children most likely to have serious or moderate nutritional deficiencies. Initially this might be done by the simple technique of using a calibrated tape to measure the circumference of the mid-upper arm; but as resources are enlarged, periodic measurement of weight and height would be desirable. Nutrition programmes in particular should emphasise effective use of locally available resources, including encouragement of breast feeding up to eighteen months of age or longer in accordance with traditional practices. From about six months it becomes increasingly important to supplement breast milk, but again it is essential to emphasise foods that mothers can prepare using home-grown cereals and legumes. It may also be appropriate to provide tablets containing supplementary iron, folacin and perhaps other nutrients to women in the third trimester of pregnancy to improve their health and to increase the nutrient stores of new-born children. (35) Since it is likely that integrated preventive health programmes will become more inclusive over time, efforts to obtain additional information should be directed at providing guidance for decisions with respect to future modifications.<sup>16</sup> In particular, there is a need for surveys employing simple indicators to determine the incidence of various nutritional deficiencies and of infectious and parasitic diseases and for research on the seriousness of their adverse effects on infant and child health and survival prospects. Clearly, many of these health and

---

16. For instance, if it is determined that vitamin A deficiencies are important, high-potency vitamin A capsules provide a very low-cost method of preventing xerophthalmia and blindness. It might also be determined that it is feasible to distribute food supplements to children identified as being "at risk", especially if at least part of the food required can be mobilised within the local community.

nutrition activities which have been mentioned provide strategic "entry points" for family planning education. Finally, it is desirable to relate these activities to communitywide efforts aimed at obtaining clean water sources, the sanitary disposal of waste and pest control.

A systematic examination of the communication process, which is such a key element in an integrated programme, affords a brief overview of many of the problems and critical choices likely to be encountered. H.D. Lasswell, again providing a well-seasoned definition, once observed that communication can be described by asking "who says what in which channel to whom with what effect?" (25) In other words, Lasswell divided the communication process into five elements: the source of a communication; its message or content, in this case the complex set of preventive health innovations; the channel through which the message is communicated; the audience or receiver of the communication; and the effect or impact of the communication on the audience. Choices must be made by an integrated programme with regard to each facet of this communication process.

Source: Should the integrated programme be conducted under the auspices of a single existing ministry, for example health, an agency or ministry created especially for an integrated programme, for example a ministry of family health or maternal-child care, or an ad hoc interministerial agency? Reliance on a single, existing ministry would appear to have significant advantages because of the value of its established staff networks, staff recruitment and training programmes, and political relationships.

Message: Some attention has already been given to the need for judicious selection of the components to be included in a minimum composite package. There will, of course, be local variation in the nature of the most serious nutritional and health problems. Specialists in those fields are likely to find it difficult to determine priorities because of inadequate knowledge of the existing situation and of the seriousness of the adverse effects resulting from various types and degrees of deprivation. Another serious difficulty is likely to arise because such specialists are often uncomfortable with an approach which explicitly recognises the necessity of considering "tradeoffs" between a programme that stresses "proper standards" at the expense of coverage and one that is simple and cheap enough to make it feasible to reach the great majority of a country's rural population. However, through consultation among nutritionists, medical and public health specialists, behavioural scientists, and administrators, it should be possible

to reach a consensus concerning a reasonable set of objectives.<sup>17</sup>

Once ingredient components have been selected, there remains the problem of their arrangement in a sequence most appropriate for instruction and client adoption. Ideally, the various proposed health and family planning innovations will appear so interrelated that the adoption of one will imply and facilitate the adoption of the other innovations in the package, as suggested above in the discussion of client motivation. Finally, the construction of a detailed protocol is a high priority both for the clarification of staff activities and for successful learning on the part of the recipients of the health care and family planning services. This task assumes major importance because of the complex treatment objectives, often directed at modifying long-standing health-related behaviour and at maintaining the new behaviour.

One recent integrated health education programme conducted in northern California aimed at the reduction of cardiovascular risk through the modification of behaviour associated with cigarette smoking, dietary habits and sedentary living has achieved considerable success through the application of communication research and social learning theory to the problem of behaviour change. (12) The protocol in this programme, administered by community health workers supported by an ongoing mass media campaign, followed a five-stage process for each variable: identification of the specific behaviour detrimental to health; demonstration of alternate behaviour by an instructor; self-monitoring, feedback and guided practice of the new behaviour; reinforcement of the new behaviour with temporary incentives; and maintenance of the new behaviour conducive to health. (33 and 31) In the group of 67 subjects who received this treatment and attended three yearly follow-up examinations, there was an initial overall risk reduction of 28 per cent, maintained two years later as a reduction of 29 per cent.<sup>18</sup> The success of such an integrated programme argues strongly for the careful founding of the instruction procedures for the composite package approach suggested here on

---

17. A book prepared by Maurice King and his associates at Makerere University in Uganda represents an extremely valuable pioneering effort to pool the knowledge and insights of medical and nutritional scientists and economists in identifying general principles and specific components of an approach to medical care aimed at making existing medical knowledge widely available to the predominantly rural population of low-income countries; see (21).

18. A.J. Meyer et al., (32). The overall risk of coronary heart disease for each participant was estimated from a multiple logistic function of risk factor predicting the probability of developing coronary heart disease within twelve years according to the person's age, sex, plasma cholesterol concentration, systolic blood pressure, relative weight, smoking rate and electrocardiographic findings.

theoretical principles with a similar skills training orientation.

Channel: The choice here is common to all programmes for the diffusion of innovations: what is the proper utilisation and mix of mass media and face-to-face communication channels? The mass media such as radio, newspapers and such visual-print media as posters and comic books, all fairly prevalent in less developed countries, can have an important legitimating and agenda-setting function; that is, what appears with some frequency and prominence in the media arouses attention and is placed on the agenda of events to be thought about, discussed and reacted to in some way. Moreover, the media can also have a direct positive effect on the diffusion of knowledge, attitudes and practices. Face-to-face communication has, however, long been considered the single most powerful source of influence for the actual adoption of an innovation. Thus locally hired and trained primary health workers, clearly similar and credible to their target audience, will be the key factor in the success of the composite package approach. Insofar as these primary health workers can be linked to networks of opinion leadership, their efficacy will be enhanced. Finally, insofar as the composite package approach can be discussed and implemented with the assistance of group discussion, group decision-making, and collective activity such as a pest control campaign, it will be more rapidly accepted and rooted in the life of the entire community. Perhaps one advantage of an integrated programme over a nonintegrated approach lies in its potential to marshal the resources of multiple channels because of its attempt to achieve such a broad impact on village life.

The inclusion of face-to-face instruction in a programme requires careful selection and training of field staff. Without attempting to summarise the guidelines for the selection and training of primary health workers available elsewhere (e.g. in 16 and 42), the criteria of effectiveness and economy suggest that candidates for these positions be indigenous to their area of work and be similar to their clients with respect to social background variables such as age and marital status. Staff training at centres away from target areas should be brief and highly focussed on the particular

skills required by the composite package programme; intermittent in-service training should be provided as a way to maintain the staff's motivation and to refine their abilities. Finally, as the Uttar Pradesh programme indicates, it is crucial to maintain adequate supervisory ties to the primary health field workers.

Audience: Because of limited resources, it will no doubt be necessary to be selective with regard to the audience for integrated programmes, probably concentrating initially on improving the nutritional status and health of the most vulnerable groups as suggested above: infants, small children, and pregnant and lactating women. It seems likely that efforts to promote the spread of family planning should also be concentrated initially on mothers, although we recognise that there are cogent reasons for directing informational programmes for family planning toward men as well as women.

Effect: The problem of evaluation is common to all programmes. But with regard to the evaluation of an integrated programme, a strong case can be made for emphasising small-scale, continued monitoring of procedures and impact through participant observer case studies, in-depth interviews, and highly focussed surveys, because of the potential of an integrated programme to modify its activities based on timely and frequent feedback. Longer-term impact can be assessed in part from carefully designed record keeping and infrequent large-scale surveys.

Clearly the suggestions made here with regard to choices of technique within the communication process require careful testing over time. Hopefully, the results of various country experiences during the next several years will appreciably increase our understanding of which approaches to the integrated delivery of nutrition, health and family planning appear to be most fruitful.

#### V. CONCLUDING REMARKS

One of the major conclusions of this paper, which is almost a "new orthodoxy", is the need to give a higher priority to rural development and to the expansion of agricultural production based on a unimodal strategy involving broad participation of the farm population in the process. More controversial is the proposition that among the interventions that might be undertaken to reduce poverty more rapidly than would be possible by relying

entirely on restructuring and accelerating economic growth, first priority should be given to measures to improve nutrition and health and to foster wide diffusion of family planning in rural areas. We are under no illusion that we have been able to "prove" that proposition. Indeed that would be impossible because of the complexity of the issues that need to be considered. Special difficulties bedevil decision-making with respect to "social services" such as nutrition and health because of the problem of striking a balance between what is desirable in relation to need and what is realistically feasible given severe budget constraints. Moreover, decisions concerning such programmes depend on a combination of positive information and normative judgments. And, as illustrated by the "protein gap" controversy, even the interpretation of positive information is often in dispute. Finally, sound judgments about alternative policies and programmes require an assessment of the political support that can be mustered as well as an evaluation of their workability given the resources currently available and the prospects for mobilising additional funds and for enlarging the supply of qualified personnel through training programmes.

The central propositions of this paper are likely to encounter several different types of objections. Some will argue with David Hopper that developing countries "cannot afford the luxury of mixed goals" and hence "the production of food must be accepted as the priority objective. . .". Hopper is especially critical of "policies to discourage the development of mechanized agriculture because of its assumed impact on rural labour-force employment. . .". (17, p.105) Thus the idea that a country's rural development strategy should be concerned with the pattern as well as the rate of agricultural development is rejected; and potential interventions related to nutrition, health and family planning receive no attention.

Others may object to our stress on wider participation in improved income-earning opportunities and on nutrition, health and family planning services rather than on programmes to provide direct income supplements to poor families. And the focus on rural areas may also be challenged. We have recognised, albeit in summary fashion, the need to accelerate the growth of output and employment in a country's nonfarm sectors and therefore to maximise the positive interactions between agricultural and industrial development. As the problems of low-income urban households become increasingly acute and visible, there is likely to be mounting pressure for schemes such as a food stamp plan to provide income supplements in the form of food. Although the nutritional problems of the urban poor are certainly real, there is a danger that the principal effect of such programmes would be to exacerbate the problems of under- and unemployment by increasing the already high influx to cities while making little or no contribution

to overcoming the fundamental causes of poverty. There is also a danger that emphasis on food distribution programmes will divert resources and attention away from the more fundamental need to design and implement a rural development programme capable of yielding widespread benefits. Moreover, if local governments and donor agencies focus their attention on programmes which are essentially palliatives, this is likely to reduce the prospects for mobilising the political support and financial and manpower resources required for programmes aimed at eliminating the causes of poverty rather than simply alleviating some of its consequences. (29)

Other objections can be expected from those concerned with specific programmes such as population or nutrition. Population specialists, understandably preoccupied with the problems of rapid population growth, may feel that emphasis on an integrated programme will be at the expense of a more concentrated attack on the critical and enormous task of expanding the coverage of family planning programmes. Those who are particularly concerned with the problems of nutritional deprivation may have analogous concerns. They may, for example, be apprehensive that an integrated programme would be dominated by medical and public health specialists with little appreciation of the crucial importance of nutrition. They may also be skeptical of the feasibility of reaching the mass of the rural population through a composite package approach.

Thus controversy and uncertainty with regard to the choice of interventions is real and poses formidable problems in forging the consensus required for concerted and effective action. Our conclusions are based on the conviction that alternative programmes need to be assessed in relation to their effectiveness in contributing to the interrelated goals of (i) accelerating economic growth; (ii) reducing poverty as widely and rapidly as possible with emphasis on eliminating malnutrition and poor health; and (iii) slowing the rapid growth of population which is already making it increasingly difficult to attain the goals of raising per capita incomes and eliminating poverty. In our judgment there are cogent arguments and a fair amount of evidence which suggest that determined efforts to implement unimodal strategies for agricultural development and to undertake preventive health programmes in rural areas represent key elements in achieving those multiple objectives. With respect to the composite package approach to the delivery of nutrition, health and family planning, the urgent need is for an increased allocation of resources to the design and implementation of such programmes, together with careful evaluation to assess their performance and to provide a basis for a continuing effort to enhance their effectiveness.

Postscript: Comments on Kenya's Maternal and Child Health and Family Planning Programme

Government policy in Kenya is now emphasising an integrated approach to the delivery of nutrition, health and family planning services. By the end of September 1976, the Ministry of Health will have trained some 200 Family Health Workers (FHWs) to strengthen the field staff available for implementing this programme. This innovative approach offers considerable promise for promoting improvements in health and nutrition among infants and small children and pregnant and lactating women and for increasing the effectiveness of family planning activities in rural areas. There is, of course, a need for a continuing effort to evaluate this new approach and to devise modifications to increase the effectiveness of these efforts.

It seems likely that even with the full complement of Family Health Workers (the target is 817), the actual coverage of rural households will still be somewhat limited because of the enormous difficulty of reaching millions of widely scattered farmsteads. Experience with integrated programmes for the delivery of nutrition, health and family planning services in several developing countries suggests that one key to success is to develop practical methods of involving rural leaders and families in the effort to attain the goal of improving health and slowing the rate of population growth. An appendix to this paper describes a programme initiated recently in the Philippines which appears to be of particular interest and relevance to Kenya.

APPENDIX: PROJECT COMPASSION --AN INTEGRATED PROGRAMME TO PROMOTE IMPROVED  
NUTRITION AND HEALTH AND TO INCREASE THE  
EFFECTIVENESS OF THE NATIONAL POPULATION  
PROGRAMME IN THE PHILIPPINES

The following extract from a document approved by the Executive Committee of Project Compassion in February 1976 describes the objectives and overall strategy of this unusually interesting and promising programme. A key feature of the programme is a series of three-day training seminars at the provincial, municipality (roughly equivalent to district in Kenya), and barangay (village) levels to provide the knowledge and skills required for successful implementation. Considerable success has been achieved in mobilising "barangay captains" (probably most comparable to sub-locational assistant chiefs in the Kenyan context) and "unit leaders", selected to represent groups of approximately 20 families, in order to reach the entire population of a barangay, which averages around 200 to 300 families. The training programme and this organisational set-up have made a major contribution to identifying community needs in the four areas of nutrition, kitchen gardens, environment (sanitation and clean water) and family planning which Project Compassion embraces. Because of the strong emphasis on utilising local resources, the requirements for inputs from outside the local community are held to a minimum, which means that it should be possible to expand the programme so as to reach virtually the entire rural population. Seeds and seedlings of productive and nutritious vegetables and fruits trees, produced in municipality (district) and barangay (sub-location) nurseries, are distributed to individual families through the unit leaders. Contraceptive pills and condoms are also made available to all families through the barangay captains and unit leaders.

Kenya's success in organising harambee projects suggests that a somewhat similar approach adapted to the unique features of rural Kenya might be highly effective. Probably the most significant achievement of Project Compassion is that by associating family planning activities with a more comprehensive programme for "family development" it has been possible to achieve a much more positive response to family planning and wider recognition of the need to bring fertility into balance with the sharply reduced levels of mortality which now prevail.

#### I. Introduction

While a small percentage of the population enjoys the comforts of life, many are deprived of even the basic necessities. This is true in the urban areas and more so in the rural areas where 70% of the country's population reside. It is this 70% that is plagued by problems of malnutrition, disease, poverty, and poor environmental conditions.

A great number of the population, most of them children, are malnourished due to improper eating habits and the lack of necessary foodstuffs.

While nutrition problems persist, the high population growth rate of the country also persists. The current population density stands at 142.53 persons per square kilometer. If the current growth rate of 3.01% each year remains, it is estimated that by 1980, the country's population will be 49,630,135 million. This is a staggering figure considering the limited arable land and resources of the country.

Family planning programmes aim to help control population growth but the inaccessibility of family planning services in the rural areas have hampered their success.

The Green Revolution teaches families to grow vegetables in their backyards to provide food necessary for proper nourishment and to augment family income. Majority of families fail to see the importance of this due to a lack of initiative or technical knowhow.

Environmental conditions in the rural areas also call for immediate attention. Impure water sources and unsanitary surroundings cause the spread of many diseases which further endanger the lives of our rural folk.

Prompted by her concern for the welfare of the Filipino family, the First Lady, Mrs. Imelda Romualdez Marcos has initiated a project integrating the services of her four premier programs - Nutrition, Green Revolution, Family Planning and Environmental Management - and which shall reach the rural family on a door-to-door basis through a single organizational channel. This integrated approach is called Project Compassion.

## II. Objectives and Overall Strategy

Project Compassion is a social development program which aims to develop the family by assisting its members in applying and acquiring the knowledge and skills necessary to practise proper nutrition, produce some of their food, plan their families and improve their physical environment. This shall be accomplished by helping rural families identify and utilize the resources available to them while providing them with the least external assistance.

Project Compassion aims to:

- a. Improve the nutritional status of the family and prevent the occurrence of malnutrition.
- b. Increase the production of vegetables, fruits, livestock, poultry and fishery products and elevate consumption to recommended nutritional levels.
- c. Motivate eligible couples to have only that number of children they can adequately rear, educate and support and to provide family planning information and services.
- d. Develop environmental awareness by providing information on environmental management and motivate the family toward the improvement of its surroundings and environment.

With its objectives set, Project Compassion shall assist local governments at the municipal and barangay levels in the adoption of a program utilizing local resources to improve the quality of life of the families within their jurisdiction.

Assistance shall be basically two-fold:

- a. The dissemination of information materials and commodities coming from each cooperating agency (Nutrition Center of the Philippines, Green Revolution, Population Center Foundation and Environmental Center of the Philippines).
- b. The training and orientation of members of the family development committees, including invited participants at the provincial, municipal and barangay levels (an estimated 92,740 for the initial 8 provinces, 82 municipalities, 2 cities and 2,560 barangays) to develop skills necessary for the planning and implementation of their own family development programs.

The uniqueness of Project Compassion lies in the following:

- a. It intends to reach the family with its four-program package of services on a door-to-door basis.
- b. It establishes a single organizational channel using the barangay network in its doorstep delivery system.

- c. It gives emphasis on the utilization of private resources to complement government efforts in social development programs.
- d. It places the primary responsibility of planning and implementing the project on the local governments through the creation of family development committees.
- e. It facilitates the work of family development workers by aiding them in the identification of community needs in the four areas of nutrition, family planning, food production, and environmental management.

### III. Sectoral Programs

#### A. Nutrition

1. Situation: Data from concluded Operations Timbang in 612 municipalities, registering 930,063 families surveyed with 1,459,254 children actually weighed, reveal that only 23% of children weighed are normal. Forty-eight per cent are in the first degree of malnutrition, 24% in the second, and 5% in the critical third. Region VIII has the highest percentage (8.9%) of third degree malnourished children, followed by Region V (7.0%) and the Greater Manila Area (6.7%).

Of 11 million pre-school children who shall be living between 1974 and 1977, 3.5 million shall be malnourished. Unless this situation is averted, the country could become a nation with a large number of mentally retarded people in the next twenty years or more years.

2. More Objective: To improve the nutritional status of the family and prevent the occurrence of malnutrition.

#### 3. Specific Targets:

- a. To reduce the number of third degree malnourished pre-schoolers by at least 50%.
- b. To reduce the number of second and first degree malnourished pre-schoolers by at least 25%.
- c. To instruct pregnant and lactating mothers on proper nutrition to ensure that newly-born children do not get malnourished.
- d. To establish a food-processing plant to produce cheap but nutritious foodstuffs.

4. Strategy for Implementation: To achieve these targets, pre-schoolers will be weighed in eight (8) provinces to determine who are malnourished. This will also be known as Operation Timbang.

#### B. Green Revolution

1. Situation: Filipinos consume more than what they produce.

The demand for cereals, especially rice, which is the staple food, exceeds production by seven per cent.

Consumption of milk and milk products is 23 times greater than that produced.

Vegetables, fruits and nuts are produced in adequate quantities. It is the high-calorie, energy-giving foods that are insufficient.

While there is enough space for families particularly in the rural areas to raise fruits, vegetables, poultry and livestock for their own consumption and to supplement their income, majority have failed to do so. This may be due to a lack of initiative, means and know-how.

2. More Objective: To increase the production of vegetables, fruits, livestock, poultry and fishery products and elevate consumption to recommended nutritional levels.

3. Specific Targets:

- a. To encourage households to produce:
  - 45,000,000 kilos of vegetables
  - 1,175,000 kilos of malunggay
  - 2,500,000 kilos of papaya
  - 2,500,000 kilos of banana (saba)

for a total input value of P150,000 and an output value of P45,875,000.

- b. To encourage households to produce:
  - 16,000,000 kilos root crops
  - 250,000 seedlings of calamansi

for a total input value of P87,500 and a total output value of P8,250,000. (Production starts on the second year.)

- c. To encourage households to produce:
  - 5,000,000 kilos of livestock

for a total input value of P1,100,000 an output value of P25,000,000.

- d. To encourage households to plant:
  - 1,250,000 seedlings of ipil-ipil, guava, breadfruit and others

for a total input value of P206,250.

e. To encourage involved families to produce vegetables and livestock in the joint Green Revolution -- Department of Education and Culture project at an input value of P500,000 and an output value of P15,000,000.

f. To encourage families to produce assorted vegetables and livestock at an input value of P1,000,000 and an output value of P20,000,000 in the joint Green Revolution-Bureau of Agricultural Extension production.

C. Family Planning

1. Situation: Since its inception and implementation in 1970, the national population program has made remarkable achievements in terms of the recruitment of over a third of eligible Filipino women, the putting up of more family planning clinics, the training of field workers and the fielding of motivators, the involvement of media in its information campaign, and advancements in research.

These achievements, though, disguise a growing pattern of weakness. The national population program has seemingly reached a plateau especially in terms of new acceptors and is experiencing an increasing number of drop-outs. More specifically, the program seems to have exhausted the number which can easily be motivated to practise family planning. It now faces the task of motivating the hard-core group of potential acceptors.

The problem is generally identified as one of rural outreach. Several factors contribute to this problem. First, most clinic services are available only in poblacions and urban centers. Second, motivators (who are usually clinic-based) and IEC workers seldom reach outlying barrios. Third,

it has been observed that the number of MWRA (married woman of reproduction age) decreases with the increase in the distance between their homes and the town proper.

The immediate solution to this problem of rural outreach is to increase the concentration of family planning resources in the rural areas in order to pursue more effectively the objectives of the population program.

2. Major Objective: To motivate eligible couples to have only that number of children they can properly rear, educate and support and to provide them with safe and effective methods of family planning.

3. Specific Targets: To double the level of continuing users of family planning from 15% to 30%.

4. Strategy for Implementation: The program shall utilize the existing barangay set-up to push and supervise the project through a unit leader who will act as a barrio supply point for groups of 20 families each.

#### D. Environmental Management

1. Situation: Of the Philippines' 42 million people, 70% are based in the rural areas. Health and sanitation facilities in these areas are disturbingly inadequate. Only 20% of all rural folk have access to water supply while 61% do not get potable water supply. About 34% of them have no toilet facilities; 32% do have toilet facilities but these are unsanitary. A great number of rural people still obtain water from impure sources such as open wells, streams and rivers. In several barangays, people have to walk long distances to fetch or buy water for drinking and household purposes. Rivers, streams and seashores serve as toilets for many.

Cases and deaths due to filth and water-borne diseases are high, causing a dislocation of our economy in terms of losses in wages, income and productivity of the people affected. A yearly average of 290,000 cases and 19,000 deaths are attributed to water-borne and filth-associated diseases.

The incidence of and mortality from diseases bred by poor environmental sanitation show a generally increasing trend. Gastro-enteritis, colitis, H-fever, cholera el tor, tuberculosis and malaria cases increased in 1973. Typhoid and paratyphoid fevers and infectious hepatitis also showed upward trends during the ten-year period 1964-1973. (Department of Health 1973 Annual Report)

2. Major Objective: To develop environmental awareness by providing information on environmental management and motivate the family toward the improvement of their home environment.

3. Specific Targets:

- a. To initiate a program promoting clean and beautiful surroundings.
- b. To ensure the availability of suitable water sources by treatment and purification of such.
- c. To ensure proper waste disposal and controlled pesticide use.
- d. To increase the utilization of human skills and local resources by developing cottage industries.

4. Strategy for Implementation: Local responsibility and action shall be the keynote of the program.

Barangay officials in the specified provinces shall be given the task of implementing the program.

IV. Implementation

A. Expected Outputs

During Phase I of its operation, the Project shall cover 358,400 households with the following expected outputs:

1. Improvement of the nutritional status of 431,558 preschoolers, saving 21,578 lives.
2. Food production worth ₱ 100 million.
3. Doubling of the level of family planning continuing users from 15% to 30% of eligible couples.
4. Improvement of 10% of home environments by ensuring clean water sources and proper waste disposal systems.

B. Areas of Operation

The Project shall be phased in accordance with the Central Management Office's capability to provide training and logistic support.

Eight (8) provinces shall initially be challenged to participate in the Project. The final choice of areas of operation, however, shall depend on the commitment of provincial officials to implement the total program and to provide funds for implementation....

C. Organization and Training of the Provincial Family Development Committee (PFDC)

Family development committees at the provincial, municipal and barangay levels shall plan and carry out their own family development programs consistent with national guidelines, project objectives and the particular needs, problems and resources of the area affected.

The Provincial Governor shall be the chairman of the Provincial Family Development Committee which shall be composed of the following: Division Superintendent of Schools, Department of Education and Culture; Provincial Commander; Provincial Officer, Department of Local Government and Community Development; Provincial Agriculturist, Bureau of Agricultural Extension; Provincial Health Officer, Department of Health; Provincial Fisheries Officer, Bureau of Fisheries and Aquatic Resources; Provincial Officer, Bureau of Plant Industry; President of Federation of Barangay Captains; Provincial Veterinarian, Bureau of Animal Industry; Provincial Development Staff representative; Provincial Social Welfare Officer, Department of Social Welfare; and the provincial representatives of the National Grains Authority, National Media Production Center, Department of Public Information, and the four (4) sectoral programs. There shall also be at least three (3) members from the private sector.

The Provincial Governor, as Chairman, shall have overall responsibility for Project Compassion in his province. To assist him in carrying out the operational details of the provincial family development program

decided upon by the family development committee, there shall be a full-time Provincial Family Development Officer (PFDO), who shall be selected according to criteria set by the national executive committee.

Each government representative in the family development committee using the resources of his office whenever possible, shall implement that portion of the family development program which coincides with his duties as representative of that government agency.

The provincial governor shall provide the funds necessary for the employment of the PFDO and for the administrative and transportation requirements of the PFDC members.

#### Training Program for the PFDC

a. General Objective: To provide the knowledge and skills required for the successful implementation of Project Compassion and to elicit enthusiastic and active participation from all sectors.

b. Course Content: The training sessions shall include lectures on:

1) Project Compassion (Concepts/Principles)

Roles and functions of member-agencies (Nutrition Center of the Philippines, Green Revolution, Population Center Foundation, Environmental Center of the Philippines)

- Systems and procedures of implementation

2) Group processes

3) Planning the family development program

- Roles/Functions

- Commitments

c. Methodology: All training sessions shall create a teaching-learning situation calling for interaction between and among trainers and participants and utilize the lecture-discussion method of subject matter treatment. Other techniques such as role playing, buzz sessions, demonstration of skills and activities, shall be used whenever applicable.

Guided tours shall also be conducted to nearby places where processes and/or projects may be observed.

Audio-visual aids shall be made available in all training situations.

d. Execution: The professional trainers hired by Project Compassion shall conduct the training sessions. The 38-member training staff, divided into 9 training teams, shall handle specific areas in Luzon, Visayas and Mindanao and be responsible for the organization and conduct of PFDC training activities in those areas. Assisting them shall be the area, provincial, and municipal family development officers.

Resource persons shall also be drawn from the four member agencies of Project Compassion and other cooperating agencies (public and private) to handle sectoral and specialized topics.

e. Evaluation/Reporting: Pre- and post-training questionnaires shall be distributed at every training session. These shall be accomplished by participants to measure daily progress and draw feedback which may guide the training staff in subsequent sessions.

The training team for each area shall render a report of each training activity conducted.

A follow-up of the participants' post-training activities shall be conducted by the training staff and the field program implementors in order to gauge the degree to which acquired knowledge and skills have been applied.

D. Organization and Training of the Municipal Family Development Committee (MFDC)

The Municipal Mayor shall be the chairman of the Municipal Family Development Committee which shall include the municipal counterparts of the provincial FDC. He shall have overall responsibility for Project Compassion in his municipality. All municipal councilors shall aid the mayor in monitoring the program in their own districts.

To assist the mayor in implementing the program decided upon by the FDC, there shall be a full-time Municipal Family Development Officer whose salary and administrative support shall be drawn from municipal development funds. All existing Green Revolution and Nutrition Councils shall be linked to the FDC. Chartered cities shall also follow this organizational pattern.

Training Program of the MFDC

The training of the MFDC shall follow the same objectives and will be of the same nature, format, and content as that of the PFDC.

E. Organization and Training of the Barangay Family Development Committee (BFDC)

The Barangay Captain shall be the chairman of the FDC which shall be composed of the head teacher, purok leaders and members of the Barangay Association. The barangay captain and the head teacher shall be jointly responsible for the implementation of the project and shall supervise the operation of the program within the barangay network. They shall also be responsible for procurement, distribution and accounting of project commodities and arrangements for needed technical services.

Training Program of the BFDC

The training program of the BFDC shall follow the same objectives and shall be of the same nature, format, and content as that of the PFDC and the MFDC.

F. Other Training Activities

Local trainers from the provincial, city, and municipal levels shall be intensively trained by the 38-member national training staff and resource persons from the four member agencies (Nutrition Center of the Philippines, Green Revolution, Population Center Foundation, and Environmental Center of the Philippines). A group of trainers shall be selected from among the members of the provincial, city, and municipal family development committees or qualified volunteer trainers and further trained to assist in training at the lower levels.

Training shall concentrate on providing local leaders with the knowledge, skills, and attitudes necessary to become effective implementors as well as policy- and decision-makers.

Assemblies and meetings shall be organized in each barangay to broaden the base of support and reinforce involvement and commitment. These shall be held at least twice a year: one at year's start to enable families to identify problems, propose solutions, assess and organize resources, determine priorities, set targets, plan activities, and adopt the system and procedure to be used; and another at year's end for purposes of reassessment and evaluation of the progress of program implementation and to plan anew operations for the coming year.

In-service training shall also be conducted for project personnel to provide them with substantial knowledge and understanding of the program and to instill in them the attitude needed to efficiently execute their responsibilities.

Likewise, a supervisory/executive development training shall be conducted for middle and upper management levels.

Special training activities during the year shall depend on the success of the volunteerism program and on specific requests from various private, civic, or government groups. A special training team from the Central Office shall be created to handle these activities.

#### G. Support Communications

Project Compassion, being an integrated program of social development, shall require massive communications support to reach the rural family.

Support communications shall be on three levels: support communications within the organization to facilitate upward and downward communication on the project, support communications for training activities, and support communications for use of rural families.

A project newsletter shall serve as the communication link between the Central Office and all family development workers. As a channel for both vertical and horizontal communication in the organization, it is aimed at sustaining the involvement and participation of the family development workers at all levels of the integrated program.

Support communications for training activities shall be in the form of flipcharts, flannel board presentations, hand-outs, slides, and other training aids.

Project Compassion's integrated messages shall reach the rural families through radio, printed materials, and the interpersonal approaches of unit leaders. To enlist full public support for the program, an all-out information campaign shall be launched using all media.

The communications program must undergo several phases for program objectives to become a reality.

First, all program planners, implementors and field workers in the Central Office and at the provincial, municipal, barangay and unit levels must be oriented with the program. Trainers and trainees need support communications containing basic standard messages attuned to particular audience levels to avoid dilution of messages. Each person in the organization directly involved as a change agent must then be equipped with the necessary communications support....

BIBLIOGRAPHY

1. Belli, Pedro. "The Economic Implications of Malnutrition: Reply." Economic Development and Cultural Change. 23 January 1975.
2. Berg, Alan. The Nutrition Factor. Washington, D.C., The Brookings Institute, 1973.
3. Berg, Alan. "Fear of Trying." Journal of the American Dietetic Association. 68 April 1976.
4. Berry, R. Albert and Cline, William R. Farm Size, Factor Productivity and Technical Change in Developing Countries. International Labour Office and International Bank for Reconstruction and Development, January 1976.
5. Bhattacharyya, Amit Kumar. "Income Inequality and Fertility: A Comparative View." Population Studies. 29 March 1975.
6. Caiden, Naomi and Wildavsky, Aaron. Planning and Budgeting in Poor Countries. New York, John Wiley and Sons, 1974.
7. Chandra, R.K. "Iron and Immunocompetence." Nutrition Review. 34 May 1976.
8. Chenery, Hollis B., et al.. Redistribution with Growth. London, Oxford University Press, 1974.
9. China, Republic of. Council for International Economic Cooperation and Development. Taiwan Statistical Data Book 1973. Taipei, 1973.
10. Easterlin, Richard A. The Economics and Sociology of Fertility: A Synthesis. Department of Economics, University of Pennsylvania, July 1973.
11. Easterlin, Richard A. "An Economic Framework for Fertility Analysis." Studies in Family Planning. 6 March 1975.
12. Farquhar, John W., et al. Community Education for Cardiovascular Health. 1976, unpublished.
13. Food and Agriculture Organisation and World Health Organisation. Energy and Protein Requirements. Report of a Joint FAO/WHO Ad Hoc Expert Committee, March 22-April 2, 1971. Rome, 1973.
14. Food and Agriculture Organisation and World Health Organisation. Food and Nutrition Strategies in National Development. An Interdisciplinary Report Prepared by the Joint FAO/WHO Expert Committee on Nutrition, Ninth Session. Advance printing. Rome, 1975.
15. Freedman, Ronald and Berelson, Bernard. "The Record of Family Planning Programs." Studies in Family Planning. 7 January 1976.
16. Havelock, R.G. and Havelock, M.C. Training for Change Agents. Ann Arbor, Michigan, Institute for Social Research, 1973.

17. Hopper, W. David. "Investment in Agriculture; The Essentials for Payoff." In Strategy for the Conquest of Hunger: Proceedings of a Symposium Convened by the Rockefeller Foundation. Held on April 1-2, 1968. New York, Rockefeller University, 1968.
18. Institute for Development Studies. Second Overall Evaluation of the Special Rural Development Programme. Occasional Paper No. 12. Institute for Development Studies, University of Nairobi, 1975.
19. International Bank for Reconstruction and Development. The Assault on World Poverty: Problems of Rural Development, Education and Health. Baltimore, Johns Hopkins University Press, 1975.
20. Johnston, Bruce F. and Kilby, Peter. Agriculture and Structural Transformation: Economic Strategies in Late-developing Countries. New York, Oxford University Press, 1975.
21. King, Maurice, editor. Medical Care in Developing Countries: A Symposium from Makerere. Nairobi, Oxford University Press, 1966.
22. Kirk, Dudley. "A New Demographic Transition?" In Rapid Population Growth: Consequences and Policy Implications. Baltimore, National Academy of Sciences, 1971.
23. Kocher, James E. Rural Development, Income Distribution and Fertility Decline. New York, Population Council Occasional Paper, 1973.
24. Kuznets, Simon. Population, Capital and Growth. New York, W.W. Norton and Co., 1973.
25. Lasswell, H.D. "The Structure and Function of Communication in Society." In Lyman Bryson, editor. Communication of Ideas. New York, Harper, 1948.
26. Latham, Michael C. "Nutrition and Infection in National Development." In Philip H. Abelson, editor. Food: Politics, Economics, Nutrition and Research. Washington, D.C., American Academy for the Advancement of Science, 1975.
27. Leibenstein, Harvey. "An Interpretation of the Economic Theory of Fertility." Journal of Economic Literature. 21 June 1974.
28. Lele, Uma. The Design of Rural Development: Lessons from Africa. Baltimore, Johns Hopkins University Press, 1975.
29. Mellor, John W. "Nutrition and Economic Growth." In Alan Berg, Nevin S. Scrimshaw and David L. Call, editors. Nutrition, National Development and Planning. Cambridge, Mass., MIT Press, 1973.
30. Mellor, John W. The New Economics of Growth: A Strategy for India and the Developing World. Ithaca, Cornell University Press, 1976.
31. Meyer, A.J. Generating Unbiased Diffusion of Preventive Health Innovations. Ph.D. thesis. Stanford University, 1975.

32. Meyer, A.J., et al. Maintenance of Cardiovascular Risk Reduction Results in High Risk Subjects. 1976, unpublished.
33. Meyer, A.J. and Henderson, Judith B. "Multiple Risk Factor Reduction in the Prevention of Cardiovascular Disease." Preventive Medicine. 3 June 1974.
34. Misra, B.D., et al. "The Dilemma of Family Planning in a North Indian State." Studies in Family Planning. 7 March 1976.
35. Morley, David. "The Nutrition Movement in India." In Alan Berg, N.S. Scrimshaw and D.L. Call, editors. Nutrition, National Development and Planning. Cambridge, Mass., MIT Press, 1973.
36. Morley, David. "The Under-fives Clinic." In Maurice King, editor. Medical Care in Developing Countries. Nairobi, Oxford University Press, 1966.
37. Mueller, Eva. Agricultural Change and Fertility Change: The Case of Taiwan. Ann Arbor, University of Michigan, 1971.
38. Nortman, Dorothy. "Population and Family Planning Programs: A Factbook." Reports on Population/Family Planning. 2 October 1975 (seventh edition).
39. Oechsli, F.W. and Kirk, Dudley. Modernisation and the Demographic Transition." Economic Development and Cultural Change. 23 April 1975.
40. Rochin, Refugio I. and Londoño, D. "Integrated Rural Development: Lessons from the Colombian Experience." Land Tenure Newsletter. 41 April-June 1975.
41. Rogers, Everett M. and Shoemaker, F. Floyd. Communication of Innovations: A Cross-cultural Approach. New York, Free Press, 1971.
42. Rogers, Everett M. and Solomon, Douglas S. Traditional Midwives as Family Planning Communicators in Asia. Honolulu, East-West Communication Institute, 1975.
43. Taylor, C.E., Singh, R.D., et al. The Narangwal Population Study: Integrated Health and Family Planning Services. Punjab, India, Rural Health Research Centre, 1975.
44. Taylor, Carl E., Newman, Jeanne S. and Kelly, Narindar U. The Child Survival Hypothesis. Johns Hopkins University, Department of International Health, School of Hygiene and Public Health, 1975.
45. Taylor, Carl E., Newman, Jeanne S. and Kelly, Narindar U. "Interactions Between Health and Population." Studies in Family Planning. 7 April 1976.
46. Taylor, H.C., Jr. "A Family Planning Program Related to Maternity Service." In Bernard Berelson, editor. Family Planning and Population Programs. Chicago, University of Chicago Press, 1966.

47. Taylor, H.C., Jr., editor. A Report on the Second International Advisory Committee Meeting on MCH-Based Family Planning Programs. New York, Population Council, 1975.
48. Taylor, H.C., Jr. and Berelson, Bernard. "Comprehensive Family Planning Based on Maternal/Child Health Services: A Feasibility Study for a World Program." Studies in Family Planning. 2 February 1971.
49. Taylor, H.C., Jr. and Lapham, R.J. "A Program for Family Planning Based on Maternal/Child Health Services." Studies in Family Planning. 5 March 1974.
50. Teitelbaum, M.S. "Relevance of Demographic Transition Theory for Developing Countries." In Priscilla Reining and Irene Tinker, editors. Population: Dynamics, Ethics and Policy. Washington, D.C., American Association for the Advancement of Science, 1975.