CHAPTER 24

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A Design for Socioeconomic Intervention Programs in Rural Communities

We wish to present data which focus on the organization of a program of socioeconomic intervention in rural Guatemala. Our experience is based on a longitudinal study of the effects of an experimental, low-cost health and nutritional intervention program in four rural villages in eastern Guatemala. Also, we have evaluated the socioeconomic consequences of an independent community development program in the highlands of Guatemala. From these experiences, we have derived a generalized model for intervention programs that utilizes a system of curative and simple preventive medicine as a vector for operationalizing an integrated plan of community development.

HEALTH CARE AS A COMMUNITY ENTRY

There are several reasons why low-cost medical care programs are advantageous as points of initial entry in community intervention programs. In our experience, without exception, one of the most vividly perceived needs in rural communities is adequate medical care facilities. Mortality statistics for Guatemala are consistent with village perceptions in that they list the five principal causes of death as (1) acute respiratory diseases, (2) diarrhea, (3) malnutrition, (4) perinatal mortality, and (5) parasitic diseases (Ministry of Public Health and Welfare 1973).

A second advantage to beginning development activities around health and nutrition interventions results from the organizational structure and initial village responsibility for these activities. A health committee formed by village members serves as the basic organizational unit. The health care personnel associated with the program work directly for the village, and specifically for the committee. In this fashion, the village is involved in the initial planning and the continuing operation of their health program.

A third reason for focusing on health and nutritional intervention is that these areas best demonstrate the efficacy of modern medical care, and are also highly visible. As an example, a program in four villages in eastern Guatemala has reduced the infant mortality rate from 155 per 1000 to 85 per 1000 (Klein *et al.* 1973; Habicht *et al.* 1974). Figure 24.1 shows that a relatively modest caloric supplementation to pregnant women cuts the incidence of low birthweight approximately in half. Increases in birthweight are closely associated with reductions in infant mortality (Lechtig *et al.* 1975).

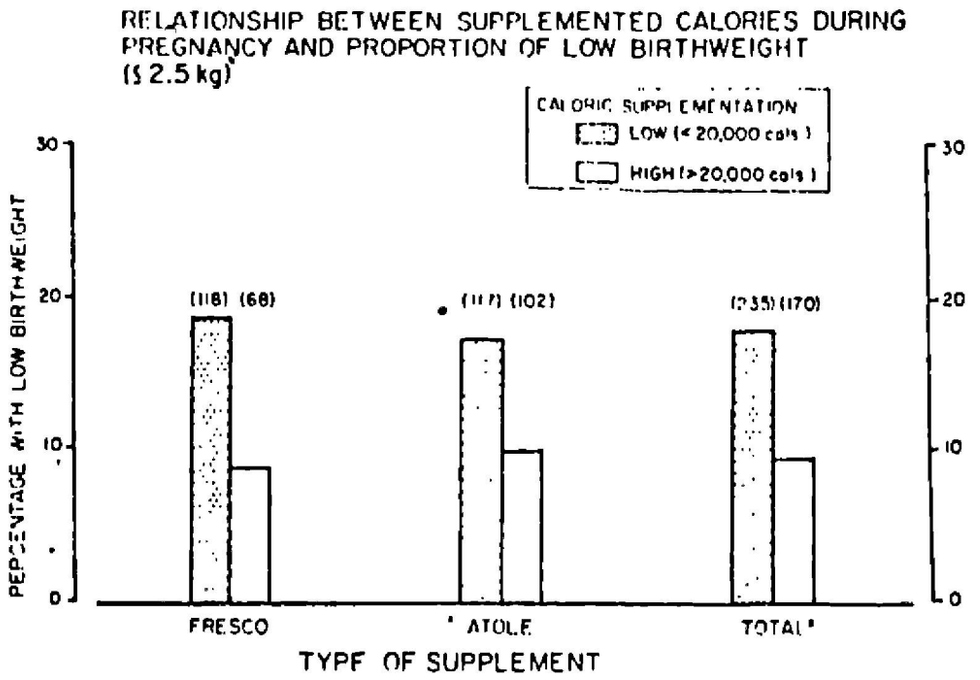

FIG 24.1. RELATIONSHIP BETWEEN SUPPLEMENTED CALORIES DURING PREGNANCY AND PROPORTION OF LOW BIRTHWEIGHT (≤ 2.5kg)

Finally, development programs organized around health and nutritional interventions have a better chance of being integrated into national health systems, which are usually well-organized and have clearly defined goals. Thus, there are important advantages, both at the community and at the national level, for beginning interventions of the type to be described here. In our experience, such programs are both feasible and desirable since they provide an entry for community-governed development programs, and consciously strive for articulation with national systems which have developmental goals.

ISSUES IN DEVELOPMENT INTERVENTION

An important component of health and nutritional interventions is that they have readily measurable objectives for evaluation. Assessment of development programs is necessary not only in terms of impact, but also because it provides for internal operational checks on the management of the program. Part of the experience upon which our preliminary model is based involves the evaluation of an independent program of community development in highland Guatemala.

This program has been in operation for over ten years, and has initiated numerous interventions aimed at socioeconomic development. While one of its components includes a medical clinic, the intervention agents have not used health care as an entry vehicle for other programs. The cost of the program in 1974 was about $150,000 in direct and indirect expenditures. Despite this financial input to a town of 6,000, our evaluation discovered some serious problems concerning its operation and impact. Specifically,

we found that it lacks an integrated self-assessment component, and believe that various minor problems became serious because they were not detected early in the operation.

Our experience parallels that of developers internationally; that is, we recognize that evaluation—both operational and effectual—is essential to organizing and implementing a coherent system of designed intervention. We employ the concept of management-by-objectives as one structure around which we have designed our model. We understand,.however, that structure is a static concept. Around the structural framework are vital operational issues which seem to govern the integration of development plans and operations. Substantive case studies of intervention programs reveal four issues thought to be salient to the success or failure of planned socioeconomic development projects:

(1) Conflicts between agents' goals and community-perceived or "felt" needs;

(2) Appropriate use and appreciation of traditional systems of social organization and leadership;

(3) Design and maintenance of appropriate systems and modes of communication; and

(4) Circumvention of the reality of economic constraints against the adoption of innovations (Arensberg and Niehoff 1971: Foster 1962; Goodenough 1963; Niehoff 1966; Spicer 1952).

We want to discuss these issues briefly and indicate some ways in which they have affected an intervention program in the Guatemalan highlands. We believe that close attention to these issues, the details of which can be identified through ethnographic research, permits the design of intervention programs which have a greater than usual probability of success.

By and large, problems in development are more complicated than those in primary medical delivery systems. The variation within and between communities with respect to modes of production, social structure and organization, as well as the traditions and beliefs interwoven with economic life, is often poorly understood. As is apparent from international development experience, technological assistance alone is insufficient to bring about desired results. Economic and ethnographic research provides programs of intervention with the information needed to integrate technological skills with social and cultural issues.

The operational issues can be conceptually organized into compartmental domains, but their reality is not amenable to such structure. There is considerable overlap among them, and their interaction is highly complex. We will discuss these issues separately, but wish to emphasize that their operation is simultaneous, their priority equivalent, and their integration essential.

Community Needs

The issue of community-perceived needs versus interventive goals is often a source of ongoing miscommunication, and can threaten the success of a program (Niehoff 1966; Spicer 1952). On one hand, the intervention agents may have an a priori agenda which conflicts with the perceived needs of the community. On the other, both the agent and the community may share a similar sense of what is needed but the community may be unable to articulate a detailed solution. This is often because the solution itself involves latent – but real – needs, the technology and understanding of which may be unknown to rural villagers.

For example, a common response to a probe for felt needs is "more to eat" or a "source of money." The agent's technical response may be the introduction of an agricultural cooperative, an innovation which is often perceived as acceptable by a community. However, it also generates certain other needs, such as education in cooperative organization, literate officers, and a communal organization. These necessary component needs may not be perceived or understood by the community, and therefore stand the risk of being rejected.

Such a case occurred in the Guatemalan highlands after a cooperative organization was formed. Ninety small coffee growers initially subscribed and demonstrated their enthusiasm by paying an initiation fee of $30. Unfortunately, the intervention agents were unable to respond to the generated needs, and did not stress the importance of organizational behavior or provide appropriate training. The organization appeared to function smoothly for one year, but afterwards two serious problems occurred. One involved several members who sold their crops privately in advance of harvest, thus diminishing the unified power of the organization. The second was more severe and involved the theft of a substantial amount of cash (Farrell 1975).

The essence of the example is that, while working with felt needs is an imperative issue, agent goals and needs generated by the community are equally important. They cannot be dismissed or given low priority simply because they are not immediately perceived by the community. A major task, then, is to provide for the satisfaction of generated needs while simultaneously concentrating on perceived needs.

Social Organization and Community Leadership

As with the issue of needs, the literature on rural community development stresses the importance of working through traditional leadership and the formal or informal organizations it represents (Foster 1962; Goodenough 1963; Niehoff 1966; Spicer 1952). While we find this to be true generally, our data from the highlands suggest that these organizations may not be the most efficient vehicles for development interventions.

For at least three decades, there has been debate regarding the type of individual most likely to adopt innovations (Barnett 1953; Foster 1962; Linton 1936; Murdock 1956; Rogers and Shoemaker 1971). One theme of this debate has been that the most likely candidates are those of high social status. The other argues the reverse—that the discontented, disaffected and poor residents of a village are most likely to adopt innovations.

In rural communities, high traditional social status and village leadership correlate typically with age. Similarly, a positive relationship is usually found between high status individuals and adoption of an innovation. However, age itself shows no consistent relationship with behavioral innovation (Rogers and Shoemaker 1971). Our data suggest that one explanation for such apparent ambiguity is that the dimension of traditional status, respect and leadership is nearly orthogonal with more modern leadership roles and achieved status pathways.

In the Guatemalan highland intervention community, a few traditional leaders of high social status subscribed to various innovative programs. Their participation, however, can be generally classified as passive and individualized. In a program striving for self-sufficiency, these leaders were not providing dynamic or innovative direction. The intervention agents, however, recognized their value as a vehicle for gaining and maintaining a broad base of community support. Consequently, when programs involving paid on-the-job training in construction, experimental agriculture and animal husbandry were undertaken, a new group of individuals was named to managerial positions. In general, these men were younger, owned less agricultural land, and had less status in the traditional sense. However, they were selected in consultation with the traditional leaders.

Over time, these newly incorporated individuals have risen to positions of leadership, the domains of which are distinct from those of traditional high status leaders. Social network data collected on high status-respected individuals and modern opinion leaders support the argument that at least two dimensions of leadership exist in the community. These data appear in Table 24.1. We believe that the modern dimension is a product of agent intervention, and is noncompetitive with traditional domains of authority and respect.

Because of this, we believe that traditional leadership and organization play a significant role in the initial stages of an intervention. However, new leadership niches become available over time, and we contend that these are best filled by younger, more dynamic individuals who have the capacity and desire to maintain the impetus of intervention projects.

Intracommunity Interventions

The issue of communication is central to development (Batten 1965; Erasmus 1961; Goodenough 1963; Nichoff 1966; Rao 1966; Rogers and

TABLE 24.1

CHARACTERISTICS OF LEADERS

Factor	Traditional Leaders (Most Respected)	Modern Opinion Leaders
Age	Over 50	Under 50
Land	100% owned more than 10 acres	15% owned more than 10 acres
Traditional religious status	100% highest rank	100% low rank or no rank ever
Wealth	All identified as richest in community	Never identified as richest in community

Source: INCAP (75-1291)

Shoemaker 1971). Without adequate communication of its purposes, plans and operations, no program can hope for successful results. There are numerous channels of communication in a community, and these can work at cross-purposes to an intervention program. While we recognize that communication between agent and client is essential, we are also concerned with communication among clients themselves. In the highland case, a major communication problem has arisen. Daily briefings are held between agents and project managers. Information from these meetings is to be disseminated first to other program employees, and then informally throughout the community. However, small social groups composed almost exclusively of development program participants have been formed. As a result, much of the information designed to flow throughout the community is impeded. Table 24.2 shows that members of such groups tend to associate largely with each other and not with the general community. As a consequence, substantial information becomes the relatively exclusive property of a self-selected group.

Relatively little can be done by intervention agents to discourage the formation of such groups, and it is not at all clear that this would be

TABLE 24.2

SOCIAL INTERACTION PATTERNS AMONG COMMUNITY MEMBERS[1]

	Degree of Program Participation			
	High (19)	Low (19)	t	Sig.
% High participating friends	62.8	10.8	4.46	.001
% High participating drinking companions	57.3	8.5	4.47	.001

Source: INCAP (75-1292)

[1]N = 38

desirable even if possible. Our goal is to establish systems of formal and informal communication which provide for the ongoing interchange of information between agents and the community, and among the clients themselves. The logical vehicles for this are community health promoters, who have intensive personal contact with many community members each day.

Economic Constraints

The foregoing issues—assessment of and responses to needs, community organization and communication—broadly define the focus of a development intervention, outline a leadership structure, and anticipate potential impediments to the circulation of program information. The issue of economic constraints is more directly concerned with community and individual idiosyncrasies which (usually) mitigate against participation in the intervention (Dalton 1971). Evaluation of the Guatemalan highland program has isolated three principal economic factors which have prevented many individuals from taking advantage of projects they otherwise desire to enter: (1) time, (2) land-space, and (3) cash or readily available liquid assets.

Some general statements have been made to the effect that poor rural people have relatively large amounts of free time available for participation in projects (Niehoff 1966). Our findings indicate that this is not always the case, and time-available is a highly variable factor. In the highland community, an analysis of activities-by-time-spent revealed that the average total number of hours per day invested in economic activities was 10.83 (SD = 4.6, N = 85). Of this, about 2.5 hours are spent in walking to and from work, maintaining tools, and making household repairs.

The importance of time availability is clear. Individuals who spend large amounts of time in economic pursuits are poor candidates for programs in adult education, and probably for programs involving the donation of labor on a regular basis. Such individuals can best be served through on-the-job-training, individualized consultation during their work routine, or at home in the evening. This latter method has been used extensively in religious proselytization by both Protestant and Catholic groups; in fact, adult literacy training in many Guatemalan highland communities is often achieved through such Bible tutorials. We think that similar techniques can be used to disseminate technical information pertinent to intervention projects.

Additional constraints refer to land-space, and variation by community and individual is often dramatic. In some villages, most individuals own their house sites; in others, few have direct ownership. Even where house sites are owned, their size and secondary usage can be a limiting factor.

Development programs often aim to increase food availability by means

of home garden plots or animal husbandry projects. If the site is not owned, such activity may be prohibited by the landlord. When the site is owned, but is small or involved in cash-crop production, the owner may be reluctant to engage in certain intervention activities. In the highland community, only 21% of the sample had project animals or gardens, but 80% of the remainder expressed a verbal desire to participate in such projects. Most said they were unable to do so because they lacked adequate space.

Absence of working capital also limits many areas of intervention. In the highland community, the overall average daily cash wage in 1973 was about 70 cents. This yields about 10 cents per day per person for food. Where family incomes are higher in this community, one finds greater allocations toward food and medical resources, and to maintaining children in school. Table 24.3 illustrates this pattern of wages and expenditures. Higher daily wages apparently are accompanied by greater expenditures toward family well-being, but little actual cash remains for capital investment after family needs are satisfied.

TABLE 24.3

INCOME AND EXPENDITURES AMONG HIGH AND LOW PROGRAM PARTICIPANTS[1]

	Degree of Program Participation			
	High	Low	t	p /
Average daily wage	0.80	0.60	1.95	.025
Average $ spent on food per week	4.25	3.11	3.41	.001
Average number of clinic visits per family per year	7.3	2.6	3.03	.004
Average percentage of school-age children in school	59.0	16.0	4.51	.001

Source: INCAP (75–1293)

[1]N = 85

One general solution proposed for the constraints of land-space and capital are agricultural cooperatives, through which a sizeable plot of land can be purchased for members' use as home gardens or animal pens. While this is satisfactory in some degree, the relatively high entrance fees may exclude the economically more marginal families. One solution involves credit cooperatives, which have relatively smaller initiation dues and can provide unsecured, short-term, low-interest loans. A program of this type was instituted in the highland community in 1969 with a capitalization of $600. In 1974, its working capital amounted to about $2000, most of which was employed in one-year loans to members.

The Guatemalan highland development program has served to help us focus on some relevant issues in operationalizing a model for socio-

economic intervention. We believe that some of the problems in that program could have been avoided by instituting a systematic evaluation component. Consistent assessment of both operations and objectives permits the controlled implementation of plans, and provides an ongoing quality control mechanism.

MEDICAL DELIVERY SYSTEM

As we noted earlier, a low-cost medical delivery system appears to be an ideal entry vehicle for programs of socioeconomic intervention. It meets real and perceived needs, and can serve as a preliminary channel of agent and community communication.

Several aspects of such a system warrant discussion. The first deals with the personnel involved, their level of training, and the techniques of supervision and quality control employed. These are cardinal considerations, and serious difficulties may occur if they are ignored.

Personnel

The personnel engaged in health promotion work are paraprofessionals. The requirements for such positions are literacy, motivation, and willingness to work in isolated rural areas. Formal training in treatment and health promotion takes about one month, and can be done in the context of regular clinic activities under the supervision of a nurse or auxiliary nurse trained in this system. We have found on-the-job-training to work extremely well and to be relatively efficient. With this simple preparation, the health promoter becomes an extension of the community health service system beyond the outpatient clinic. His role is to make periodic visits to the dwellings of the people in the region to be served, to maintain contact within the community, and to stimulate use of the outpatient clinic. A wide variety of other activities in health, nutrition and general development can be assigned to the health promoter, depending on the design of the intervention program and its stage of evolution.

The supervisory backbone of the health intervention aspect of the program is an auxiliary nurse. Auxiliary nurses are widely used in Latin America, and typically have some minimal level of formal hospital training. In the program described here, the auxiliary nurse received an additional six months of training in the diagnosis and treatment of common illnesses. We have employed auxiliary nurses extensively during the past six years, and have found that they perform extremely well with the training and close supervision described here.

In the present program, the auxiliary nurse is located at the village health center and her function is to treat patients, refer serious cases to a physician or hospital, and supervise the work of the health promoters in their efforts to extend health services beyond the clinic.

The person principally responsible for the overall direction, supervision and functioning of the health intervention is a registered nurse or physician. Such a person can supervise up to ten health centers, and is principally responsible for maintaining the quality of medical care.

This model, extending from the promoter up through the supervisory nurse or physician, has three distinct advantages over traditional systems:

(1) It extends health services beyond the health clinic and thus results in high coverage rates among the target population;

(2) It allows for the systematic collection of health data by the health promoters, both for epidemiological surveillance and the development of simple indicators to identify those individuals at highest risk of morbidity and mortality; and

(3) Through coordination with national health systems, the data collected by the health promoters and the auxiliary nurses can be channelled into the national epidemiological surveillance network, and thus contribute directly to national health planning and resource allocation.

Portions of this model have been tested extensively during the last eight years by members of a research team at INCAP. Specifically, we find that well-trained and supervised auxiliary nurses, using the physician's criteria, can adequately treat over 90% of the patients they see (INCAP-DDH 1973). Moreover, they can accurately refer those cases they are unable to treat. Table 24.4 shows the number of patients referred by auxiliary nurses to the supervising physician and to the hospital in six programs currently functioning in Guatemala. Data on adequacy of medical history, diagnosis, treatment and follow-up are regularly collected and provide the basis for continual quality control of the program.

We find high levels of acceptance and enthusiasm on the part of rural villagers for this type of treatment. In addition to expressed patient satisfaction, the number of visits per patient per year is over four, a number beyond that normally encountered in programs based entirely on patient decision (INCAP-DDH 1973).

TABLE 24.4

PATIENT VISITS AND REFERRALS PER YEAR

Program	Visits[1] per Inhabitant	Referred to M.D.	% Referred to Hospital
PROSA	0.5	All	Unknown
Micro.	1.7	All	0.9%
PPSR	1.8	Unknown	Unknown
DHD	4.2	1.0%	0.4%
MkII	1.2	1.1%	0.5%
Behr	0.1	8.7%	2.1%

From Habicht et al. (1973).

[1]Only diagnostic visits.

Costs

In addition to such fundamental program characteristics as personnel, training, quality control and patient satisfaction, the issue of cost is crucial. Several investigators in our group have worked extensively on the problem of medical care costs in the context of simplified programs. We estimate that the cost per visit for planned intervention programs will be approximately 50 cents. This compares with a range of 64 cents to $2.03 across six other simplified medical care programs operating in Guatemala in 1972 (INCAP-DDH 1973). The low cost is principally due to savings from bulk purchase of inexpensive medicines, and relatively low expenditures on salaries for health and supervisory personnel.

The medical care and nutrition intervention model described here is admittedly a palliative activity. It will provide few (if any) long-term benefits for the village in terms of general development. Rather, it is a program specifically designed to provide information on initial organizational experience for the community, and a structure through which integrated development programs can proceed. Unless the larger issue of development is kept clearly in mind and the goals clearly articulated, it is highly possible that health intervention might become an end in itself, and in turn retard the general process of community development.

In service of the larger development program (and crucial to its success) is the careful and detailed collection of data directed toward two basic aims:

(1) Baseline date which allows for the ongoing evaluation of the effectiveness of the health and nutrition program, and for adjustments which are inevitably necessary; and

(2) The design of the larger development program and its detailed evaluation.

GENERAL MODEL FOR SOCIOECONOMIC INTERVENTION

The general model we propose to implement is presented in schematic form in Fig. 24.2. The abscissa represents time in undefined and arbitrary units, and the ordinate describes various stages of the program. It will be noted that evaluation has a primary role and is a continuing component of the model. Beginning at the bottom of the ordinate, Stage I comprises the formation of a village health committee. The village collaborates through the committee during Stage I, which includes an initial diagnosis of the public health situation in the community. Data from this survey provides baseline information for initial planning of the health intervention, as well as for subsequent evaluation of the program and its impact. Personnel training (including health promoters and auxiliary health personnel) is also accomplished during this time, with specific reference to information provided by the initial baseline health survey. On the basis of the work by the

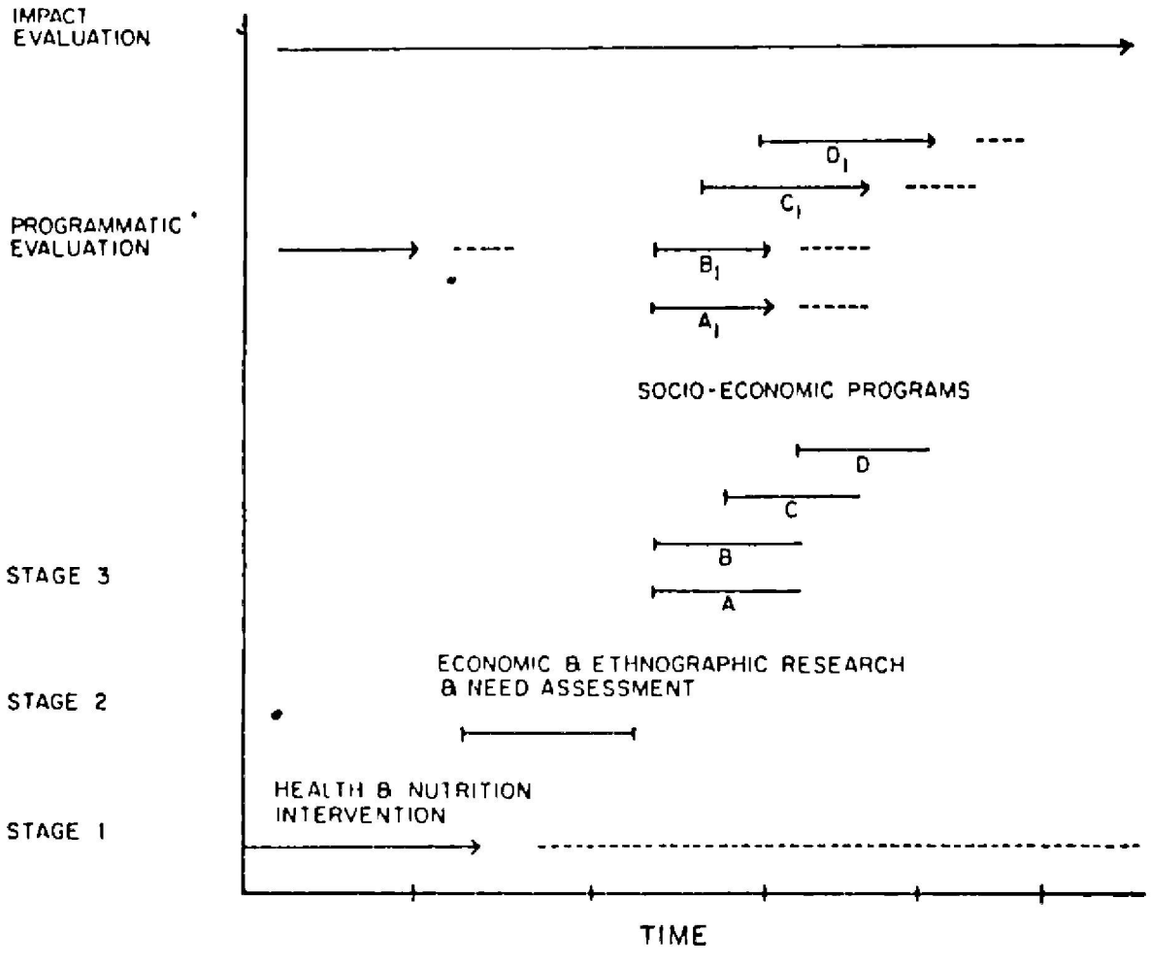

FIG. 24.2. GENERAL SCHEMA FOR PROGRAM INTERVENTION MODEL

community committee and the intervention team, the program is to be implemented with objectives determined during the initial health survey.

Following the successful design and implementation of the health intervention, the proposed model provides for an intensive period of economic and ethnographic study and data collection. Specifically, such areas as religious and political structure, patterns of subsistence, beliefs, attitudes and behavior of the target population and cultural norms will be analyzed. The principal purpose for this is to assess real and perceived community needs, and to define a detailed program design.

Succeeding stages are defined in terms of the implementation of various aspects of the development program directed toward satisfying socio-economic, health and nutritional village needs. The specific programs and priorities are to be determined by the villagers themselves in coordination with the intervention agent. Careful and detailed work with respect to economic, ethnographic and needs assessment activities during Stage 2 provides the specific direction and timing for subsequent projects and their implementation.

Finally, each of the individual interventions (as well as the overall program) has its evaluation components, as indicated in the schematic. The operational evaluation of the internal organizational structure and administration is carefully implemented and closely tied to each discrete develop-

ment intervention. The overall evaluation component is a continuing activity which seeks to measure changes and understand the success and failures of the programs. (It is represented by the continuous line in the upper portion of the schematic.)

It is our belief that an evaluation component of this general nature—tied both to operation and impact—is essential to achieve effective programs of socioeconomic, health and nutritional intervention. However, our goals extend beyond the boundaries of a specific intervention as we seek to understand the processes which govern contemporary sociocultural change. We believe that systematic evaluation of well-designed interventions provides the optimal strategy for achieving this end.

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