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FOOD FOR THOUGHT:

THREE RECIPES FOR APPRAISING NUTRITION PROGRAMS

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INTRODUCTION*

Current expressions of concern for the poorest of the poor present an unexpected opportunity for policy scientists. For the first time, it appears, we are being asked to consider the most fruitful ways of observing and calibrating government efforts to improve the quality of life of the least privileged elements in society. The present search for more effective means of redressing the inequities caused by uneven economic growth may not produce any sudden surge in funds for poverty programs, but it can surely improve the way they are used. The recent concentration of political attention on the rural poor and the urban squatters suggests that planners and development administrators are likely to be held accountable for actually delivering the goods to hard-to-reach slums and out-of-the-way villages so often missed by both the economic market forces and the economic planning offices. There is even a danger that governments will be expected to do more than any policies and programs can do, and to do whatever they can faster than is possible. So policy scientists are left with a new question that has usually been left out of the planner's calculations in the past: what really does work?

If there is an unprecedented opportunity to study possible answers to this question, there is no agreement as to how to do it. In spite of humanity's long experience with poverty, we are quite ignorant about our experience in relieving it. Policy analysts have begun to work out means of comparing the effectiveness of different strategies governments have used in the past, however; indeed, if anything there may now be too many approaches to the problem, most of which are too new to convert to management tools for improving current performance. The purpose of this paper will be to sketch three contrasting approaches that could be used for observing policy experiences, to show in a tentative way how they might be applied in efforts to improve on-going nutrition programs for the poor, and then to suggest how such approaches could be made a regular part of the policy process. There are, of course, more than three promising approaches to the analysis of government experience with nutrition policies. But the three I have in mind are different enough to convey some flavor of the complexity of the problem and they may help program managers decide which approach is best suited to their needs.

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The three approaches could best be summarized by the questions they would ask, and the ways in which the answers could be used by policy makers: (1) How have the political and other actors and coalitions that produced the nutrition program affected its subsequent structure and operations? What steps might be necessary to develop support for the program as it moves into its next phase? (2) How has the choice of the program's beneficiaries, clients, or "target groups" affected its design and functions? What are the managerial implications of present client responses and new demands? (3) How do the basic elements of the program relate to each other? What effects on other parts of the system would changing one major element produce?

Actors and Sequences

The first approach would examine the "actors" who dominated the scene when the major nutrition policies were proposed and decided. A study of the functions performed by policy makers might provide answers to such questions as the following: What set of circumstances persuaded government officials to engage in nutrition programs at all, as distinct from general food and agricultural policies or from conventional public health programs? How have these circumstances affected the subsequent decisions involving the specific forms of intervention, the organizational machinery to carry out the program, the enlisting of public support, and the implementing, evaluating, and improving of programs thereafter? What paths were not taken at all because the policy makers did not perceive possible alternatives? Identifying historical patterns in such policy making could reveal relationships between political and administrative factors that were not obvious to those engaged in day-to-day operations or those concerned with purely technical or biomedical aspects of nutrition. It might provide one way of eliminating bottlenecks, reducing the effort devoted to pursuing false trails, by-passing unproductive steps in the process, or predicting some of the consequences of various alternative forms of activity.

Targets and Clients

A second approach would concentrate on the processes by which the specific beneficiaries of different nutrition programs have been identified, first in the planning stage (who needed it?), then in the final appraisal of different program activities (who got it?), and finally in their responsive behavior (what did they have to do to get it?). If it were possible to suggest on the basis of experience that some interventions are more likely to reach the very poor squatters or remote villagers than others equally acceptable to nutrition planners, it would be possible to improve the effectiveness of existing levels of effort. Since the identification of such "target groups" is a problem for the administrators of programs as well as for planners, it might improve government implementation capabilities as well as government planning activities if policy

makers could estimate the probability of reaching the most severely malnourished elements of the population quickly, and continuously, by following different courses of action. But reaching these groups requires more than providing opportunities. Some government programs in the field of nutrition demand no more of the citizens than to eat the only food available to them; but in these cases, it is someone else who has to change his behavior -- usually the farmer or food processor upon whose performance the multiplier effect demands. Programs requiring a large independent administrative staff differ substantially in this regard from those that do not. So do programs requiring investment by the consumers as opposed to those that do not. A study of citizen response to different government programs, based on their active participation by way of consumer investment or changed behavior, can give a powerful indication of the prospects of success in reaching the intended beneficiaries. Careful study of the responsive behavior expected in different programs can help government planners work out their interaction with different policies, and early in the game eliminate programs that fail to elicit a satisfactory response.

Systems and Decisions

The third suggested approach to comparative policy analysis would observe how different types of substantive decisions interact with each other in the design and execution of the different types of programs. We know little about how the "choice of technology" interacts with the "choice of organization" and with the "choice of policy incentives" used to encourage public response. It is possible that by classifying decisions into these three categories we could discover reasons why some of the essential links among policy activities are so often overlooked.

These three approaches -- identifying the actors in different stages of policy making, observing how clients or target groups are chosen and how they respond, and examining decision linkages -- all require different techniques for observing and recording policy experience. Since only about a dozen countries have recorded even the most elementary data about their experience, the best we can do at present is to outline the silhouettes of conclusions that might follow when more extensive studies of policy experience become available.

I ACTORS AND SEQUENCES: COALITION-BUILDING

Few countries have yielded histories of nutrition programs in enough detail for us to compare program sequences and outputs fully, but from the dozen or so fragmentary reports available, it is possible to identify certain patterns of initial events that explain the scope and duration of subsequent activities.

Three patterns of initiating-actor coalitions have appeared in the countries examined thus far: (1) post colonial and similar situations where a ministry of health dominated nutrition policies; (2) country situations where a general welfare concern initiated supplementary feeding and social security legislation, sometimes followed by a food enrichment program aimed at the national market, which in turn required the participation of food processing industries; and (3) situations in which special nutrition programs were introduced for short-term political reasons, but sometimes developed a sustaining momentum because the program itself generated new constituencies and coalitions.

Countries in which nutrition became an important concern during the colonial period often started with activities intended to increase labor productivity (Tanzania in 1910, Zambia in 1936). After independence, the concerns broadened, but the programs remained about the same: tradition had already assigned the responsibilities and the resources to a ministry of health, which thereupon treated malnutrition as a disease rather than a social problem. The organizational structures that were developed to deal with it centered around hospitals and health centers, which offered curative treatment as the solution. This professional dominance limited the capacity of the program to respond to growing social needs. In Zambia, the "disease" orientation remained dominant until 1965, when a National Food and Nutrition Committee was established to coordinate the efforts of various agencies and led to a ten year health development plan in 1975.¹ A similar preoccupation in Tanzania lasted until TANU politicized and restructured the activity in 1973.²

Thailand, though never colonized, also followed the Western model in which the Ministry of Health dominated nutrition policies. This professional orientation received strong reinforcement from the World Health Organization, which was heavily committed to the Applied Nutrition Program in the 1960s. Although the Thai government attempted to broaden sectoral activities through an interministerial National Nutrition Committee, other agencies continued along their own professional lines. The agricultural departments, for example, focused on the production of cash (non-food) crops, on the assumption that increased income at the village level would improve nutrition. A more comprehensive approach to a nutrition policy, aimed at improving food consumption among the malnourished, developed only as the initiative shifted from the Health Ministry to the National Economic and Social Development Board in the 1970s.

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1. A. P. Vamoer, "National Food and Nutrition Program - Zambia." Paper presented at the Bellagio Conference on "Nutrition and Government Policy," September 19-24, 1975, Bellagio, Italy.
 2. T. N. Maletnema, "Nutrition and Government Policy in Developing Nations; The United Republic of Tanzania, A Case Study: Socialism the Only Way Out." Paper presented at the Bellagio Conference on "Nutrition and Government Policy," September 19-24, 1975, Bellagio, Italy.

In countries where the first agitation for nutrition programs began with a social welfare orientation in the private sector, government interventions aimed at preventive solutions such as supplementary feeding and social security legislation. In Chile in 1901, the "Drops of Milk" program started with remedial feeding; nutrition was not yet important enough to be included as a public responsibility when social security legislation was passed in 1924, but by 1937 the problem was sufficiently well recognized that health and nutrition services became available to all mothers under social security protection.³ A coalition that developed between the proponents of welfare and medical approaches produced a greatly enlarged program in the election year of 1952, including both an expansion of medical coverage under social security and a new law requiring vitamin B enrichment of bread. The enlarged program introduced a new cast of characters; it flourished until about 1959 when the opposition of milk producers, coupled with a change in political climate, led to "second generation fatigue." New political priorities in the nation led to further deterioration of the program. The momentum was lost; what continued was by force of bureaucratic habit.

In spite of a similar starting sequence in the Philippines, the program did not succumb to old age. Nutrition programs there began with technical and scientific approaches in 1928 like those of the early post-independence period of African countries. They did begin to differentiate from the curative health base, however. An Institute of Nutrition was established in 1947, devoting its major resources to research. In 1955, the public became concerned over a rise in beri-beri, and what had been an experimental rice enrichment project led to a rice enrichment law. As in Chile, the producers objected and political leadership lagged: rice enrichment soon stopped, and small-scale technological and research approaches returned to dominate the field. The situation did not improve when the Institute of Nutrition was moved to another research-oriented central agency in 1958, since these actors were also inclined to limit programs to the "professional" tradition. But in the Philippines another group of actors now entered into the coalition, when private citizens pressed for political action on general welfare grounds, and a National Coordinating Committee on Food and Nutrition was established in 1960. Its occasional small-scale pilot projects achieved enough visibility and political attractiveness to make it possible for the leadership to assign priority treatment to nutrition in defining socioeconomic goals in 1972.⁴ The inter-

3. Peter Hakim and Giorgio Solimano, "Supplemental Feeding as a Nutritional Intervention: The Chilean Experience in the Distribution of Milk." Discussion paper No. 2, MIT International Nutrition Planning Program (MIT, Cambridge, Mass., May, 1975).

4. Florentino S. Solon, "Nutrition and Government Policy in the Philippines." Paper presented at the Bellagio Conference on "Nutrition and Government Policy," September 19-24, 1975, Bellagio, Italy.

action among technological successes and political viability salvaged an objective that was otherwise without sufficient political support to sustain it, thus avoiding the condition of entropy that developed in Chile.

Strong political leadership may be required to eliminate an excessively narrow technical orientation in nutrition programs. The desire to reach malnourished populations often requires relocating such programs entirely outside the jurisdiction of the health ministries. In Jamaica, the Nutrition Advisory Council was transferred from the Ministry of Health to the Ministry of Marketing and Commerce within 18 months after its creation in October, 1973.⁵ The Nutrition Institute of Colombia started in 1947 in the Ministry of Health, was independent for a few years after 1963, and in 1968 became a part of the Institute of Family Welfare, with an integrated program of applied nutrition. In 1974, a new Food and Nutrition Plan emerged.⁶ And in the Philippines an imaginative and dynamic nutrition program is now a semi-government operation, working through community leadership, and embodying private as well as public leadership and funding.

Coalition-building in Indonesia also started in the private sector,⁷ adding professional groups from the Ministry of Health, and finally gaining support in the National Development Planning Agency before reaching the political level. In 1954 Dr. Poorwo Sudarmo, the "Father of Indonesian Nutrition," began his concentration on the training of non-medical nutrition specialists at the university level. This group organized the Indonesian Nutrition Association in 1957, and subsequently sought to establish a separate identity from the Health Ministry (which ignored it) by publishing a journal and seeking links with international societies and organizations. One of its principal activities was the drafting of a proposed food and drug law, which, through the political intervention of Dr. Poorwo (who by the 1970s was a father figure accept-

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5. A. C. Kenneth Antrobus, "Nutrition and Government Policy: A Case Study of Jamaica." Paper presented at the Bellagio Conference on "Nutrition and Government Policy," September 19-24, 1975, Bellagio, Italy.
 6. Clara Eugenia Lopez, "Nutrition and Government Policy in Colombia: A Country Case Study." Paper presented at the Bellagio Conference on "Nutrition and Government Policy," September 19-24, 1975, Bellagio, Italy.
 7. Soekirman, "Government Policy and Programs of Development: Nutrition in Indonesia." Paper presented at the Bellagio Conference on "Nutrition and Government Policy," September 19-24, 1975, Bellagio, Italy.

able to both the political leaders and the medical community) finally reached the President's desk in 1976. Members of this group also succeeded in drafting a chapter in the Second Five-Year Plan, which called for different agencies in the government to undertake 28 distinct activities in the field of nutrition. These dispersed programs did not constitute a coherent national policy, but by 1975 they had created an administrative base for funding operations that could eventually be coordinated under the direction of the Planning Agency. A stable political commitment was expected to emerge after Presidential Decree No. 14 (1974) assigned responsibility for developing a "People's Menu" to the Ministry of People's Welfare.

The entrance of new actors at subsequent phases of policy history -- the providing of resources, development of service functions, and evaluation of responses, for example -- can provide insights into the implementation as well as the initiation of policies. Even such limited information about project histories permits us to observe some meaningful patterns in these experiences. We can hypothesize that the identification of the problem by medical authorities, when joined by private welfare leaders, produces a coalition that improves the prospects for moving government action beyond the threshold of curative and technical procedures and research. Where programs remain the exclusive purview of health ministries (which are rarely at the top of the status hierarchy of the bureaucracy), there is often an extended period of time before the problem of malnutrition is recognized as a social evil requiring development policies. But with the involvement of new actors, especially charitable agencies led by high-prestige private leaders, there is a greater prospect for mobilizing public opinion, and even forcing governments to action, as appeared to be the case in Thailand, Indonesia, and Chile.

In all these cases international agencies have also played a significant role in nutrition programs, although it has been a technical more than a policy-making one. International agencies can strongly support an active program, as the IBRD did in Indonesia;⁸ but political leadership within a country is needed before a nutrition program can gain both a high enough priority and a broad enough social perspective to sustain it beyond research, diagnosis, and emergency treatment. Such politicization may produce mere "cosmetics," especially in an election year; but there is no evidence to support the naive expectation that a sincere interest in the poor on the part of political leaders is a precondition to program success in nutrition. The motives of President Marcos and the First Lady of the Philippines became irrelevant when politicians at the village and province levels became active supporters of a program that was so obviously generating popular support on its own, especially in view of its modest cost to the national budget. The Thai government also found that local action

8. Soekirman. *Priorities in Dealing with Nutrition Problems in Indonesia*, Cornell International Nutrition Monograph Series. No. 1, 1974, p. 1.

supplied a momentum for continued operation of its pre-school nutrition program, with the result that political wisdom dictated program continuity. The coalition built behind the Indonesian program, too, appears to extend beyond the immediate political reach of the president.

Nutrition coalitions also encounter opposition that is sometimes strong enough to require retrenchment and regroupment. Programs that depend on food fortification strategies (milk or rice or salt, for example) tend to elicit opposition from the producers, and even stronger political leadership is necessary to sustain the momentum.

The actors and their characteristic roles change as policies move through successive phases of program and project interventions. Once the initiating actors have played their parts, their roles often turn only passive, latent, and supportive; other subsequent functions of the policy process begin to call for different styles of decision-making. Coordination, for example, can take place at various levels of government without apparent loss, so long as the policies themselves retain support. More important issues are whether the coordinating mechanisms permit substantial continuity of membership representing the operating agencies involved and whether the services of permanent administrative support personnel and technical manpower are available. Coordination takes place in the Philippines through a semi-private center, whose links were transferred from the Presidency to ministerial channels in 1976 with no apparent loss; in Indonesia, the Planning Agency is coordinating both agency and interagency planning, while the Ministry of People's Welfare is performing a similar function for operations; and in Thailand, both functions are coordinated in the Ministry of Health. Wherever it is situated, coordination is essential in nutrition programs because most of their activities are budgeted and performed by independent organizations. Few public activities that can be grouped together as a recognizable policy are as diffuse and ill-defined as nutrition. Nutritional status is affected by so many different government policies and programs, in fact, that the coordination function seems to require an almost continuous process of coalition-building.

The ultimate risk to nutrition objectives in the absence of sustaining political demand from the people is entropy: "do-good" programs run down. The political effort to escape narrow professionalism leads to the reorganization of the nutrition program away from conventional ministries, and the creation of independent agencies, inter-ministerial committees, and national councils with self-renewing leadership. But if these special organizations lack both a bureaucratic infrastructure and sustained political clout, there is little to sustain their prospects for survival beyond the initial enthusiasm of the originators.

It is apparent that malnutrition cannot be eliminated merely by following the Nkrumah injunction ("seek ye first the political kingdom"). The problem is so complex biomedically, requiring both that it be diagnosed and that a technology be created to deal with it, that professional leader-

ship is a necessary component. But without the political kingdom, the techno-bureaucratic empires quickly fade away.

II TARGET GROUPS AND GROUP RESPONSES

There have been four approaches used by governments in identifying the special nutrition needs of different elements in the population, and a fifth approach is beginning to emerge. The first and oldest approach, characteristically taken by the health sector, typically identified the targets as "patients." The second uses the social security system to reach groups that can be readily covered by legislative classification. Both of these approaches try to extend their reach ever deeper into the society until constrained by budgetary and bureaucratic limitations. The third approach, which concentrates on increasing the total production of food, can reduce the incidence of malnutrition as a national problem but encounters difficulty in reaching groups that do not have ready access to the market. A fourth approach takes the homemaker as target, using a communications technique called "nutrition education" to encourage the public to make better use of available food supplies; it can be attached to any of the other programs. The emergent approach makes use of all of these sectoral insights, starting with a nutritional status diagnosis and moving to local community management to identify and assist the neediest groups.

When nutrition programs originate from medical concerns, individual services are rendered to "patients" in the greatest need, who gain access to medical attention either by drawing on their own financial resources or through reliance on a publicly supported medical system. Since a fully developed medical system is found only in wealthy and industrialized nations possessing a broad educational base, few countries in the Third World have been able to use this system to reach extensive target groups which are principal victims of malnutrition. The medical system has been effectively used, however, in dealing broadside with the victims of nutrition-related diseases such as goiter and beri-beri, which can be corrected by narrowly aimed interventions in the food supply system.

Social security coverage, on the other hand, starts with a small and easily identified economic base, usually associated with occupation or location rather than nutritional need. Because social security laws usually result from political action, the system tends to expand in direct proportion to the increasing political salience of groups not covered in the original legislation. The social security laws of Chile, for example, provide an illustration of this gradually expanding base. The 1924 social security legislation provided for milk for every child under two with a working mother; in 1937 the "mother-child law" extended benefits to wives of workers and their children under the age of 2 years, covering about 5 percent of Chilean children in this age group, a proportion which doubled

by 1948. In 1952, the new National Health Service reached families outside the social security system and also enlarged the coverage of participating families to reach children aged from 2-6.⁹

Like the social security system, international food aid programs also tend to extend their coverage gradually so long as the external source of supplies holds out. Thus, for example, the food aid supplied to Colombia in the 1960s was at first limited to groups receiving supplementary feeding under domestic legislation, but these targets were enlarged with the coming of integrated programs of applied nutrition, and food supplements became available to all mothers of children under 7. In 1974 food aid was reaching 38 percent of the total number of pre-school children in the country. As the program expanded to serve children enrolled in official primary schools, eventually about 37 percent of all primary school attenders as well were receiving food supplied from the United States and other external donors.¹⁰

A third approach, which concentrates on the production of food and on improving farm technologies, tends to leave consumer groups to the vagaries of the market. The case of Nigeria is an example of this approach.¹¹ It increased production, but not consumption, among the poor. Even in Colombia, where a change in the priorities of agricultural development began to favor small farmers in 1974, the success of the program depended upon improving the income levels of rural peasants and farm workers rather than on raising the nutritional status of other groups. The current "Operation Feed Yourself" in Ghana, too, aims at better food production and if it is successful it hopes to improve the nutritional status of rural small farmers and landless workers.¹² The target is identified by the technology, however, rather than the reverse.

Extension of access to the basic food production system may affect designated target groups, though not always with the results intended. The use of subsidies and price supports, for example may make nourishing food available to populations whose consumption might otherwise be limited. Reduced food prices may benefit urban consumers (perhaps at the expense of rural producers), though the middle and well-to-do classes may derive the

9. Hakim and Solimano, *op cit.*

10. Lopez, *op cit.*

11. Ade Omololu. Paper presented at the Bellagio Conference on "Nutrition and Government Policy," September 19-24, 1975, Bellagio, Italy.

12. F. T. Sai. "Nutrition in Ghana -- A Case Study." Paper presented at the Bellagio Conference on "Nutrition and Government Policy," September 19-24, 1975, Bellagio, Italy.

lion's share of the benefits. Indeed, in some cases the poor may even be excluded from them: a reduction in coconut oil price in the Philippines had little to offer the poor, who consumed relatively small quantities at any price. On the other hand, in Pakistan the reverse effect obtained when the ration shop subsidies of a certain variety of wheat-flour made available a nourishing but "low-status" food that appealed only to the poor. The consequences for that target group were dramatic: an increase of nutrition input averaging 10-15 percent per household, amounting to an income transfer to the poor of 10 percent. The amount of the subsidy -- about one-third the open market price -- was appealing to the poor to the extent that they were in the cash economy at all, but not sufficient to induce wealthier classes to adopt a food that was unfamiliar and therefore undesirable. This case actually converted a "target" group (chosen, perhaps serendipitously, as the prime beneficiaries of a program) into "clients" (whose demand for the services was so great that the government continued the program in undiminished amounts out of public resources even after international, concessional aid was withdrawn).

None of these three approaches is calculated to reach malnourished groups directly unless they have access to conventional public services, or unless they can be incorporated by incremental expansion of existing programs. Perhaps this limitation occurs because of the fact that conventional organizations and activities are already reaching their natural target; in any case, the expansion of these systems to reach groups who have hitherto been neglected is a politically hazardous task simply because of the greater marginal costs of providing additional units of service. As funds for such expansion become scarce, the efforts to benefit the hard-to-reach malnourished groups tend to become the first victims of economy measures. Thus, in 1968, Chile had to give lower priority in the pre-school feeding program to children between the ages of 2-6 because of the difficulty of using the existing system to reach them, and because of foreign exchange shortages.

As a result of the increasing awareness of short-comings of conventional programs, new efforts at nutrition education, usually associated with extension programs in agriculture, began to experiment with ways of improving the use of existing food supplies. One of the most extensive efforts in this direction is currently under way in Indonesia, where earlier emphasis on nutrition research has gradually been supplemented with more direct linkages between nutrition sciences and public information programs.¹³ Nutrition education programs are hard to execute and evaluate, however. They are easily discredited by anecdotes and bad examples, and they are not necessarily appealing in competition with

13. Indonesia is also an unusual case in the sense that nutrition education was a high priority even during the colonial period under the professionally-oriented Institute of Nutrition. Soekirman, *Priorities*, p. 7.

traditional but less nourishing food practices. Nor can nutrition educational campaigns compete effectively with well-financed advertising programs of the commercial food processing industry. Moreover, the ordinary limitations that attend all extension programs apply in doubled force to nutrition education: the incentives to change customary eating practices are obscure; groups that suffer the most from malnutrition are also the hardest to reach through public programs of education; reinforcements are hard to provide against prevailing custom or extensive advertising of "junk" foods. The "decay effect" of nutrition information is also notorious. Nutrition education, like agricultural extension, is a program to be undertaken only in combination with improved opportunities, a general recognition of the rewards for changed behavior, and a continuous program of mass communication.

In Thailand, day care centers were started with the immediate purpose of benefiting a "target" group of malnourished pre-school children in Chiang-Mai province. This program was undertaken only after experiments with such alternatives as rehabilitation centers for sick children and milk stations for supplemental feedings at specified hours, neither of which had the same educational benefits as the day care centers because they did not require much local initiative and organization but created instead a sense of dependency. Moreover, the extent of mobilization of village resources in labor, materials, and volunteer services demonstrated to political leaders that large-scale programs aimed at the lowest levels of the population were both feasible and desirable. This program provided nutrition education to children, parents, and politicians -- a combination of clients that was considered strong enough to overcome the "decay effect" among political leaders.

The approaches that are attracting the most attention from nutrition specialists and national planners at present are those that use national nutrition surveys as a prelude to local interventions on behalf of groups whose privation is found to be greatest. Nationwide diagnoses of medical conditions provide fairly reliable data regarding the incidence of first, second, and third degree malnutrition -- the latter being serious enough to require hospitalization. This kind of information permits nutrition planners to identify a dangerous public health and social problem that is rarely recognized by political leaders. It is now known that national malnutrition is chronic and serious even in countries that are regarded as "success stories" when measured by national economic growth. In most countries in Asia, Africa, and Latin America, well over half of all pre-school children are suffering from malnutrition in some form, and it is not unusual to find that 5 percent of them are in advanced (third-degree) stages.¹⁴

14. In extreme situations such as Haiti and Bangladesh, reports have been received of 15-20 percent of the population suffering from third-degree malnutrition.

Such diagnoses do not necessarily lead to action programs directed at the most serious cases of malnutrition. The surveys that were conducted in Chile in 1952 supported the creation of the National Health Service, but its preventive programs were intended to reach "all people" and therefore missed many of the neediest, and its curative programs were confined to families enrolled in the social security system. Partly as a result of international concerns with malnutrition, practically all countries now have statistics identifying its prevalence, but few have devised programs to reach the most serious cases. The diagnostic approach to protein-calorie malnutrition is a much more difficult basis for intervention than corresponding programs for goiter or beri-beri; yet even the simpler programs are hard to organize and then tend in the end to lapse into inaction once the most visible cases have disappeared. (Colombia's 1947 law, providing for iodized salt, was not implemented until 1963. Indonesia's policy of selling iodized salt in goitrous areas began in 1927 but when the salt monopoly ended in 1957, private producers abandoned the practice and goiter was again a problem by the 1970s.¹⁵) National ministries often reject an assignment of responsibility for the serious cases, preferring to choose more promising situations in which a successful outcome is reasonably likely. The National Planning Agency in Indonesia, in selecting the most critical areas for priority action, was careful to emphasize the emergency nature of the problem and to exempt the responsible agencies from having to meet normal criteria of project success in those cases.

The most effective use of the nutrition survey device has been in close association with programs that required community participation. Panama, for example, carried out surveys of pre-school children when they were identified as the most vulnerable groups in the society, and shortly began to use local initiative from public school teachers and municipal officials, working to reach a well-defined group of school children, following clear-cut programs including school lunches, and becoming virtually nationwide by 1952. Within a decade, with this kind of enlarging community involvement, responsive services were provided by Ministries of Agriculture, Education, and Health. "Equal health for everyone" was the goal, but its implementation aimed at special targets of their concern. The program left it to local officials to study mortality rates and to correct deficiencies by such actions as improving the supply of potable water (waterborne diseases can reduce the capacity of sick children to absorb nourishment, and thus cause malnutrition even where adequate food supplies exist). Other public health measures at the local level have continued to reinforce this program. The Philippines started a year ago with "Operation Timbang," whose most interesting feature involved public weighing of pre-school children to determine where cases of second or third degree malnutrition exist. Reports of the incidence of such cases were used by the Nutrition

15. Soekirman, *Priorities*, pp. 74, 78.

Center of the Philippines to schedule programs of assistance to village leaders, ranging from providing seeds to use in village common gardens, to assistance in the creation of village-level handicraft industries for the processing of local food packages (Nutri-paks) to be distributed directly to mothers of pre-school children suffering from serious malnutrition.

The study of target group identification procedures in different countries reinforces the findings of the actor-and-sequence analysis described in the previous section: that political mobilization is associated with a deeper penetration of nutrition programs into the society. It also permits policy analysts to observe the range of different responsive behavior required by different nutrition programs. In food production programs, farmers' participation is the essential ingredient but even when the effort succeeds, it does not in itself provide the basis for improved public nutrition. Food production programs in Nigeria, for example, have benefited from analyses of farm incentives derived from simulation procedures using economic models of the agricultural sector. The conclusions of the study led to the provision of credit support and price incentives to encourage the modernization of farming practices, but the results in food consumption have not yet entered into the calculus of program effectiveness. Countries following the food production approach have rarely been equally sensitive to factors influencing consumption behavior. There is an inherent inconsistency between agricultural price support policies and the welfare of most low-income consumers. A possible exception occurs when food production programs are mounted to appeal to small farmers to increase their own cultivation of nourishing foods for home consumption. The nutrition education approach, too, assumes knowledge of responsive behavior required by the intended client groups, but it does not associate knowledge with practice in the program evaluation because "education" is usually not part of the same program. The information materials and communications methods used in these programs often ignore the needs perceived by the most disadvantaged groups in society, in favor of those more easily reached by media and market techniques. Social security approaches, which tend to treat malnutrition as a relief problem, also call for monitoring behavior at the family level; but the process of implementation means imposing restraints on the beneficiaries to ensure that the social security supplements are used for nutritional purposes, and ignores affirmative incentives. Merging coercive means with life-improvement objectives turns nutrition programs into a schizophrenic style of operations. The first and oldest approach, reliance on medical services, calls on the fundamental desire for good health but is available only to the sick and has little direct capacity to influence the behavior of those who are unaware of the need of medical services or who lack access to them.

Thus the responsive behavior criterion, associated with the identification of suitable target or client groups for nutrition programs, offers policy makers a distinct basis for making comparisons among available policy interventions. Where the problem is diagnosed as one limited to

small groups, finely tuned programs with clearly defined response requirements are feasible. Where the problem is massive, and the behavioral response requirements varied, it becomes necessary to mobilize a wide range of service facilities in the government and to generate new technologies and supportive institutions close to the family kitchen and the local market.

III SYSTEMS AND DECISIONS

Some analysts regard all forms of human behavior as a species of decision making. Decision analysis can focus on the content of any choices, whether made consciously or by default, by comparing them with actual or possible alternatives. In many cases, of course, no such decisions are actually made: governments rarely consider all possible alternatives, especially those that would represent a significant departure from conventional ways of doing things. But the analysis of operating systems as if they had been rationally chosen provides a third perspective on nutrition programs, added to the historical sequence of events and patterns and to the client dimensions of policy interventions.

Since decisions are rarely taken in isolation from immediate political and social events, and since they are both too numerous and varied to be analyzed in exhaustive detail, it is more efficient in considering alternatives in nutrition programs to take up only categories of decisions, and to focus on those that constitute the main dimensions of policy. These categories can be grouped into three major dimensions of decision: first, choices among the technologies to be used in improving the national nutrition status; second, decisions about the organizations and agencies that are to convey the improved food or practices; and third, alternative approaches to providing incentives in order to encourage affirmative responses to the program. These three "orders" or classes of decisions are often made independently in spite of their obvious interconnection, but it is the interaction among them that constitutes the major elements and dynamics of a national nutrition system.¹⁶

Most nutrition programs are dominated by decisions of the second-order, that is, by administrative and organizational considerations. Political leaders observing any important problem requiring government intervention tend to approach it by attempting to assign to some administrative group the responsibilities for dealing with it (usually, the group that first brought the problem to their attention is rewarded with action

16. I have developed this argument more fully in *Technology and Civic Life: Making and Implementing Development Decisions* (Cambridge, Mass: MIT Press, 1974).

responsibility for it). Sometimes political leaders are satisfied with passing a law and leaving it as a static monument to their concern (the law requiring iodization of salt in Latin America -- a technological choice with no second-order dimensions -- has remained unenforced in nearly all countries; many food enrichment programs in Asia and Latin America exist only on the statute books). When these leaders decide that further action is necessary, law is transformed into administration. As the preceding analysis of sequences and clients has shown, these organizational decisions often dictate both the nature of the program and the clientele to be served by it. Technical and incentive decisions of the first-and-third orders tend, therefore, to flow from second-order decisions since they are made by the organizations responsible for the program. Interruptions in this flow of decision-making occur only where political leaders find it necessary to restructure administrative functions and responsibilities because the program has begun to falter or to lag behind their perceptions of national needs.

It is important, therefore, to note that second-order decisions are not seeds planted just once and left to grow; these decisions are reaffirmed or altered with each new budget passed or leader installed, or whenever functions or personnel are added or taken away, or new structures of cooperation are installed to enlarge the scope of a program. Second-order decisions in Chile that were reasonable when they were made had to change in 1968 when economic difficulties resulted in retrenchment following a turnover in leadership in the national health service. They had to change in the Philippines when rice millers continued to ignore laws that were supposed to improve their food processing technologies and again when the narrow research orientation of the Institute of Nutrition survived two reorganizations. Second-order decisions can force changes in program activities also when governments are expected to develop new approaches by the international agencies whose assistance they seek. (A proposed program in Zambia had to wait for three years of second-order decision making, from 1962 to 1965, before the desired assistance was delivered.) International assistance sometimes causes difficulties in achieving rational organization design at the national level when a collection of different agencies, such as UNICEF, FAO, and WHO, are all working on nutrition in the same country, as they have been in the Philippines since 1964. When the international participation is confined to a single agency, on the other hand, the result is usually a comfortable reaffirmation of the professional focus of the particular national ministry or agency which it regards as its counterpart: WHO protects the integrity of health ministries, just as FAO does that of ministries of agriculture. International assistance from specialized agencies does not facilitate integrated approaches to nutrition.

First-order decisions are the technological choices of programmed interventions, usually made in accordance with technical and professional standards. Once made, they are difficult to change; professional momentum favors the acceptance of international standards regardless of their

appropriateness. Moreover, resources assigned to a chosen technology often include heavy capital investments that cannot be adapted to another technology. Food enrichment or crop improvement technologies sometimes involve substantial investments in research, field trials, and equipment. Once under way, these activities require a protective administrative apparatus whose career commitment is to the technologies themselves. A decision in Chile requiring vitamin D enrichment of wheat flour pleased politicians in the pre-election year of 1952, and served professional preferences of the health ministry; neither group was immediately disturbed by the fact that the millers were less enthusiastic, but it was a decision made in isolation from the organizational context of implementation. In the end it was ignored by all; it was allowed to wither away quietly. New decisions in the technology of transportation, food storage, packaging, and processing are often made in such a way as to patch up an existing system, without affecting other elements in it. In the Philippines, for example, it was possible to reduce the price of coconut oil 28 percent merely by inducing manufacturers to use cheaper packaging. Research and development can also be used to develop new food products when the public's taste preferences reject nutritious foods, thus improving health standards with minimum interference with existing practices.

Third-order decisions, the incentive structures used to encourage public response, are the most neglected elements of the system, and are thus the most likely to present policy makers with opportunities for improving the performance of the system. The clearest incentives to adopt new foods and food practices are those associated with the universal desire for good health. But these incentives alone are insufficient to sustain actions that people object to for other reasons (as, for example, the persistence of cigarette smoking demonstrates). Attempts to gain support by appeals to health values alone are much less successful than the intrinsic importance of human desires for well-being and survival would suggest.

Providing appropriate incentives to people who have been so neglected by society that they have been unable to feed themselves or their families adequately is no easy task. It means supplementing the economic market and the public service mechanisms that serve the rest of the population. And it requires greater knowledge about their values and more flexible mechanisms for serving them than are ordinarily available to program planners. The Ministry of Health in Thailand has dealt with this problem since the early 1960s by recruiting "communicators" from pilot villages in the north, where the problems are most severe. The present target is to recruit 200,000 of these "communicators" by 1980. Their function is to serve as both informants and disseminators to their own circle of acquaintances. A village of 100 households would normally have 10 to 20 such communicators, selected by a modified sociometric procedure that identifies the persons (usually middle-aged housewives, as it turns out) who are most frequently visited or consulted by other members of the community. Experiments have demonstrated that these individuals are better able to ascertain the needs of the under-privileged population than are village officials, or religious

leaders, and are also more readily accepted by them as sources of information and assistance.

Merging the health goals of individuals with community values provides another incentive basis for adopting good nutrition practices. Political appeals can mobilize individuals to act on behalf of others more readily than of themselves, as the use of "mother-craft teams" in the Philippines demonstrated in the famous 1967 campaign to identify and treat malnourished children, and as community leaders have repeatedly found in their efforts to develop collective action for the provision of food resources and the improvement of the status of child nutrition. The day care centers in Thailand not only provided children with supplementary food, but also improved the fare supplied by the participating household to their own children, perhaps because of the social pressures conveyed by the fact that the noon meal was eaten in public. Incentives differ, of course, according to the target group a program seeks to reach. Pre-school children can be reached through organizations and institutions that serve pregnant women and lactating mothers, but malnourished males and retired workers require different approaches. When the target group is identified regionally, the kinds of programs that are required usually involve many organizational dimensions to improve the supply and quality of food as well as the habits of the local population. When the problem is recognized as one of national proportions like the protein-calorie deficiency that has been identified recently in Jamaica, the policy decisions require special attention to the wide range of incentives that are needed to change popular behavior massively. But if the food problem is to be resolved at the farm level, economic policies relating to the price structure for imported farm supplies such as seed and fertilizers may be sufficient, and subsidization may be the only action required, just as price supports may be needed to sustain increased productivity in the absence of a strong market demand for foods that are needed to reach the poorest elements of the society.

The decision order approach has the advantage of calling attention to neglected elements in the system of food and nutrition and to relationships that are not immediately obvious when alternative modes for solving different types of problems are ignored. But its most important potential lies in the analysis of the relationships among these three categories of decision. The decisions themselves call for different forms of expertise, and the result is that they are often made in isolation, or in ignorance of their significance for the other subsystems involved. Thus an organizational decision is often made by political and administrative leaders without considering its impact on technological choices (ministries of health prefer technologies embodying medical centers; agricultural ministries concentrate on food production technologies; ministries of social welfare or community development use organizational technologies to produce food) or the alternatives that are foregone as a result. Similarly, if the leading decision is technological, the specialists who made it tend to overlook the roles that can be played by various organizations in maximizing its effectiveness: assignment of technical jurisdiction to a single agency

usually means that other organizations, and the clients themselves, are left out of the implementation phases of the program. And third-order decisions, the choices that in the end determine whether or not the nutrition program reaches the malnourished, are neglected altogether if they are not made a conscious part of the planning process. Politicians understand how to influence public choice in one-shot, short-term decisions; and economic planners can devise price and profit incentives affecting market-oriented behavior; but influencing household-level decisions on a continuous basis requires approaches that are only recently recognized as part of the policymaker's responsibility in such fields as nutrition and family planning. For programs involving such massive and sustained social commitment, third-order decisions often assume first-order priority.

Any of these three decision orders can dominate nutrition programs. The Philippines' plan to introduce special packets for feeding pre-school children (Nutri-paks) depends upon the technology of producing powdered food containing all of the essential ingredients in a form that can be conveniently prepared, mixed, and served as individual meals. These packets can be manufactured in large factories capable of serving a national market, which would then rely upon a commercial network of advertising and merchandizing facilities for distribution, and individual purchasers would be induced to buy the foods as a convenience. An alternative technology, which is also feasible, would rely on village-level handicraft industries, organized perhaps on a cooperative basis to serve its members, who would become consumers not only because of its price and convenience but also because of social pressures and information derived from a membership-wide educational campaign. A third alternative is to teach individual households to prepare their own food in the form of Nutri-pak parcels, using the sun to dry the food and plastic bags to store it. The incentive and logistical dimensions of these three technologies are strikingly dissimilar; and it is all but certain that some combination of all three will have to be tried before the authorities can be sure which has the greatest capacity to reach severely malnourished children. Analyzing the possibilities of the Nutri-pak program, like those in almost any form of nutrition intervention, requires careful consideration of all three decision orders.

Introduction of second- and third-order considerations has begun to affect first-order decisions in many kinds of nutrition programs. The discovery that mung-beans can be texturized to serve as a nutritious meat supplement in Thailand did not lead to a decision to establish a new food industry, as had been expected: consideration of employment generation and a desire to reach low-income consumers led to a concentration on production in dispersed plants locally managed (decentralized approaches are becoming increasingly common in nutrition programs because of second- and third-order advantages). And in Indonesia, a World Bank-supported proposal to support a large-scale food extrusion project was side-tracked when its second- and third-order consequences were recognized.

CONCLUSION

There is now an extensive literature on nutrition problems that provides a technological infrastructure for devising policies. There are important gaps in biomedical knowledge of malnutrition: even the incidence and etiology of malnutrition still hold some mysteries; but the methods used by biomedical scientists for resolving them are well understood, and resources are now flowing copiously to such purposes. On the other hand, descriptions of nutrition policies as such, and analysis of their implications for future action, are still rare, sketchy, and for the most part anecdotal. We know more about the problem than we did five years ago, but we are little better off today than we were then in understanding the solutions that have been tried.

The three paradigms described in the previous sections have to be considered as little more than skeletons of history, drawn piece by piece from dispersed country experiences; they are reconstructions that a policy archaeologist might make based on his excavations for scarce and scattered data regarding events not long forgotten. By considering the sequences and actors approach (Section II), he could discover which processes have been most likely to produce government policies that are strong enough to survive the ensuing opposition, fatigue, and neglect (the Three Horsemen of the policy maker's Apocalypse). By examining the target groups of nutrition programs and their subsequent response to them (Section III), he can measure the relationships between intensity and extensivity in program design and compare the value of different efforts that have been used to reach the elements of the population subject to nutritional deficits. He can also diagnose program failures that are caused by public apathy or mass rejection of the opportunity for improved nutrition, and he can often prescribe program improvements that will elicit more favorable responses. Finally, by analyzing decisions and alternatives in program technology, organization, and incentive structure (Section IV), he can identify omissions and false linkages among the elements necessary to a dynamic system of nutrition. Such an inventory of decisions made or assumed, together with the alternatives that were considered or ignored, constitute the most important single resource available for policy evaluation.

The examples given in these pages have been resurrected from the scanty body of case studies available. Even if they were complete and comprehensive, however, they would still not serve fully the needs of program managers concerned with meeting their own immediate policy objectives. For these purposes, policy analysts need current data of the type which can be generated only by the program itself. Such needs go beyond conventional progress reports that are usually available as part of a good management information system, but which tend to focus on meeting schedules, delivering inputs, or other standard indicators of achievement. In only very rare circumstances do such reports describe the social impact of the program, or the responses on the part of its intended beneficiaries.

The analysis of policy data goes beyond auditing, planning, or evaluation functions. A *decision analysis unit* in the government agency can make use of information gathered by auditors, but its function is not to detect and restrain wrong-doing. It would derive much of its capacity to predict program consequences from the work of a planning office, but it would not be concerned with indicative projections except as a resource for its own studies of the social processes. And unlike evaluation units, its functions would not be confined to the post-mortem appraisals of project impact. Its major source of information would be comparisons between short-range predictions made at each stage of the policy process, and the outcomes that actually occurred. Using policy as data requires, the capacity to learn from overfulfilled, underfulfilled, misdirected predictions.

Few such decision analysis units are in existence today, though prototypes can be found in population policy offices, economic planning units, and rural development agencies in Malaysia, Thailand, Peru, and Taiwan. Their activities are not well-known even in their own countries, since their primary duties are to serve management, not the public. Their outputs deal with linkages between policies and the public, and they include some rather esoteric studies of the assumptions or rationales of existing policies. Thus predictions take the forms of hypotheses that can be tested against future events. Their findings can thus provide a basis for correcting or revising assumptions accepted by policy makers, and indeed for altering any or all of the three orders of decisions if the program encounters unexpected client response or consumer behavior. They can also serve to alert program managers to deficiencies in their own planning or gaps in their administrative and institutional performance.

What a decision analysis unit would do in examining a given set of program interventions may differ in many respects from the approaches suggested here. But it will resemble them in one fundamental respect: both portray a search for the most meaningful ways of interpreting and learning from experience.